

Bridging Liquid Waste Strategy 2023-26 Scrutiny Review

Environment, Housing and Infrastructure
Scrutiny Panel

15 January 2024

S.R.1/2024



States of Jersey
States Assembly



États de Jersey
Assemblée des États

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Chair's Foreword



Mains services, be that water, electricity or main drains, are something that we all very much take for granted. Whether it is water coming out of taps, lights coming on at the flick of a switch, or toilets that flush...we just expect all these services to work without a second thought. Drains, particularly, are something we think little about, and it is very rare indeed that they stop operating.

Our mains drains network here in Jersey has remained basically unchanged since it was first installed in the middle of the last century. However, it is now having to service a population almost twice the size of that which it was designed to cope with. To be clear, officers and staff have done an admirable job of keeping everything running for decades, but the system has been increasingly put under

strain year on year. In many areas of the Island we now have “pinch points” where the drainage network can no longer accommodate any additional pressure, and places where full capacity has been reached. In order for our drainage network to continue to operate as it should we need to increase this capacity and do it quickly. To complicate matters further, the current network has to be maintained at the same time as “new” works are commissioned. This adds further challenges, not only for the department, but for the public.

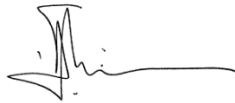
There are many reasons why increasing the capacity of the drains network hasn't been done, with two issues in particular standing out. First, any serious updating of main drains is a huge disruption to road users. Foul sewers and main drains are by their nature very large pipes. They generally run down the middle of main roads. The physical size of these pipes means that their replacement is a slow and time-consuming process. Main roads are closed for months to upgrade sewer systems. Second, the cost of these updates is considerable and well outside the usual annual budget of the Infrastructure & Environment Department. Notwithstanding those two reasons, it is no longer possible to just ignore the capacity problems we have here in the Island. The Minister, indeed the Government, need to face up to the challenge and identify the funding required to solve these problems.

In the last Island Plan debate - eighteen months ago now - the States Assembly agreed a number of new sites around the Island for affordable housing. Many of these new sites will require additional capacity in the main drains network before they can be built out. St Peter's Village and St. Martin's Village are two such sites. Unless these drainage capacity issues can be solved, there will be no new houses in these areas. It is interesting that recent supplementary planning guidance indicates that attenuation infrastructure at Maufant will be required before any St Martin development can begin, but that even the identification of a suitable site for this infrastructure is yet to start.

It is clear to the Panel that there is much to do. While the Infrastructure and Environment Department have a plan for the coming years it seems to be little more than a schedule for the replacement of assets. There is little in the way of policy and strategy for the decades to come. It

is clear that, while the replacement of assets is essential, the huge amount of new infrastructure that is required also has to be prioritised. Notwithstanding the very long timescales for these new drains, there is also the question of funding that needs to be resolved. Both these issues must, and the Panel stress must, be a top priority for the Minister to address in the immediate future. This issue cannot be left for the next Government to solve, as has been done in the past.

The Panel have a list of findings and recommendations in this review, and it is hoped that the urgency of this identified work will be understood by Government and that action will be taken immediately to address our concerns. The Environment, Housing and Infrastructure Scrutiny Panel will look forward to a response from the Minister and will continue to monitor the situation throughout 2024 and beyond.



Deputy Steve Luce
Chair
Environment, Housing and Infrastructure Scrutiny Panel

Executive Summary

The Bridging Liquid Waste Strategy Update 2023-26 (BLWS) was published on 2nd May 2023 and is intended to update the Waste Water Strategy previously [published](#) in March 2014. The 2014 strategy defined the requirements for a new Sewage Treatment Works (STW) at Bellozanne, as well as 'Business As Usual' Projects, including renewal of liquid waste assets (STW & pumping stations) and foul and surface water network improvements. The BLWS aims to plan for the further demands of the 21st century including population growth; climate change; and increasing demands on the ageing sewerage and drainage network.

Whilst the new Sewage Treatment Works at Bellozanne is now complete as of December 2023, and has the capacity to deal with increased connected population, the sewerage and drainage network requires significant investment to be able to serve the Island's needs. Currently, it poses "serious risk" of:

- Sewage overflows/back flows into property
- Increased risk of pollution incidents
- Almost certain risk of flooding
- Restricted location/volumes of housing developments
- Network failure

An estimated **£52.4m** will be required to fund various projects from 2023 – 2027 to upgrade the sewerage and drainage networks before the proposed Bridging Island Plan housing developments, as well as any future developments, can be connected to the network. This funding is in addition to an estimated **£49.7m** required for 'Business as Usual' projects which are required to 'catch up' on the underinvestment in the network over the last few years.

In addition to the pressing need to invest significantly in increasing capacity within the sewerage and drainage network, several key issues emerged which prompted the Panel to launch its review, namely:

- the sewerage network is ageing and already at its limit, particularly in diurnal peaks and during storms resulting in insufficient infrastructure capacity to accommodate new developments and to meet affordable housing targets set out in the Bridging Island Plan.
- Recent flooding events have further flagged the necessity to improve and maintain the drainage network and to prevent sewerage overflows from occurring.
- The investment required for upgrading the sewerage and drainage network is significant and will need to be agreed by the States' Assembly.
- A long-term strategic approach by Government to delivery of the capital programme is needed.

The Panel has considered evidence from written submissions received from targeted key stakeholders, as well as public hearings held with Ministers. The Panel was also provided with the Infrastructure and Environment Department's Asset Management Plans and Strategic Outline Business Case for the funding proposals included in the Government Plan 2024-2027.

The review has been further informed by expert advisers, Indepen UK, an advisory and policy consultancy who have a strong presence in water supporting the sector through policy, regulatory and delivery strategies to meet future challenges. Indepen's role involved reviewing the Bridging Liquid Waste Strategy 2023-2026, analysing the evidence presented and providing their assessment and recommendations for improvement.

In consideration of all the evidence gathered, including the adviser's observations and recommendations, the Panel has made a total of 27 key findings and 23 recommendations to Ministers. An overview of the main themes relating to these findings and recommendations is summarised below.

Infrastructure capacity for new and existing homes

The Panel found that despite a number of sites being approved for re-zoning for affordable housing in the Bridging Island Plan 2022-2025, sewerage and drainage network capacity issues have resulted in delays to delivering the affordable housing delivery targets. Additionally, the exact location and timing of new housing development is uncertain with the Government of Jersey's preferred strategy to complete capacity works within the next 5 years. However, there is a risk that the additional capacity could be under-utilised or not utilised at all if new development does not proceed and which the Panel's expert adviser deems could result in a "*suboptimal investment plan*".

In terms of existing homes, it is asserted that 1 in 4 existing homes in Trinity are not connected to the mains sewerage network and there is a perception that there is a focus on accommodating and prioritising sewerage and drainage capacity for new development but not for existing homes. Trinity is not identified as a 'pinch point' in the Bridging Liquid Waste Strategy 2023-2026, however, it is acknowledged by the Infrastructure and Environment Department that Trinity is at capacity and will need another strategic storage unit in the West Hill area to accommodate the additional flow.

The Panel has recommended that the programme of liquid waste works identified in the short-term should be considered 'low or no regret' to address urgent need and that certain aspects of the strategy where there are currently gaps in the evidence should be deferred until the longer-term Liquid Waste Strategy 2025-2035. Furthermore, whilst design works and identifying land for new infrastructure assets should be progressed, investment should be deferred until housing phasing is known. The aim being to avoid unnecessary tie up of capital that might be better deployed elsewhere.

Improving surface water management

One of the less well addressed aims of the Bridging Liquid Waste Strategy 2023-2026 is surface water management and identifying areas where works are required to reduce flooding risks. The Panel has recommended that this should be addressed fully in the longer-term Liquid Waste Strategy 2025-2035. Additionally, the Panel stresses that there is a very clear need for approaches to water supply and liquid waste management to be integrated and to move away from the current siloed approach of tackling each separately. Best practice and successful outcomes can be learned from looking at other jurisdictions and their approaches to surface water management and wastewater strategy development in general. As has been evidenced in this report, stakeholder and community engagement is key to this process. The Panel has recommended that a partnered approach is taken between Government and Jersey Water to implementing an Integrated Water Management Plan by the end of 2025.

Our review has found that emerging approaches to drainage and wastewater management across the UK go beyond asset management and both water and wastewater plans are

integrated to identify efficient solutions that address both services such as Sustainable Drainage Systems (SuDS), rainwater harvesting and reduced consumption. Our review has found that different types of attenuation or separation approaches to SuDS could be utilised. For example, water harvesting on new development for uses such as flushing toilets, or external use such as watering plants.

The Panel has made several further recommendations to Government around managing and improving the approach to surface water management, including:

- identifying areas where works are required to reduce flooding risks, making allowance for climate change in the absence of a complete climate change assessment, and factoring in these considerations to the future Liquid Waste Strategy 2025-2035 and Integrated Water Management Plan;
- reviewing storm frequency information and levels of protection in line with the UK where standards of resilience are being extended for storm return periods due to increasing frequency of significant storms;
- considering the merits of implementing a trial scheme offering free 'leaky' water butts to residents in flood catchments areas to slow down flow rates in periods of heavy rainfall; and
- establishing a data sharing agreement between the Government of Jersey and Jersey Water to share information relating to Jersey Water's testing and consumption data before the end of 2024.

The importance of stakeholder and community engagement

The development of the Bridging Liquid Waste Strategy 2023-2026 has not been informed by stakeholder engagement or consultation. Having considered the expert adviser's findings, failure to engage communities is likely to reduce the chance to gain support for more innovative approaches to addressing future wastewater challenges, as well as the expectations of value to be created through these investments. It is advocated that there needs to be improved consultation and engagement with users over priorities, as well as engagement with communities on solutions.

Furthermore, early engagement with Jersey's construction industry on long-term capital works planning will be essential for the smooth delivery of large-scale Government of Jersey capital projects. The Panel has recommended that Government facilitates early engagement with the construction industry on a programme of planned infrastructure capital works, so that industry are able to forecast and resource themselves with more certainty and so they are able to deliver what is needed from them.

In addition, there should be improved consultation on the aims of a Liquid Waste Strategy through development of a strategic direction ahead of the Liquid Waste Strategy 2025-2035. The purpose being to ensure that a 'robust social contract' is formed to create shared responsibility and common purpose through co-creation of the strategy by engaging communities in the development of an Island Integrated Water Management Plan and other associated strategies such as the Liquid Waste Strategy 2025-2035.

The need for a more strategic approach and a sustainable long-term financing plan

Whilst it has been found that the Bridging Liquid Waste Strategy 2023-2026 represents a coherent plan to address issues through specific asset-based network interventions, it represents more of an asset management plan, as opposed to a full strategy. Exact needs are not established due to considerable uncertainty of where or when the growth is likely to occur

and the absence of information on service failures. Additionally, the lack of potential alternative approaches makes it difficult to assess whether the plan represents the best approach versus potential alternatives.

The total amount of funding required for key liquid waste projects between 2023-2026 is anticipated to be in the region of £39m with a further £13m required in 2027. Although funding has been agreed in the Government Plan 2024-2027 for the years 2024 and 2025, the agreed funding amounts will not cover some of these projects through to completion and therefore this money will need to be ring-fenced and additional funding secured in 2026 for completion of these projects. Other projects will not be able to commence until longer-term certainty of funding approval can be provided from 2026 onwards.

It is acknowledged that there is a need for better longer-term planning and funding of capital projects across Government and a sustainable funding mechanism is being explored which will include developing 'user pays' charges in relation to all aspects of waste charges, including commercial and domestic liquid and solid waste, with a view to this being agreed in the next Proposed Government Plan 2025-2028.

The Panel found that the Bridging Liquid Waste Strategy 2023-2026 will increase charges significantly per household (£659) and beyond those of comparable island states. The business case presented prefers a potentially suboptimal case by prioritising early investment to manage risk over options to phase investment based on impending need. This results in a higher cost and an opportunity cost that the money is not available for other uses.

A comparative analysis of waste strategy business models in other island jurisdictions shows that all comparators have some element of user charging and can access long-term debt to spread the repayment of capital finance over many years. Likewise, all comparators have the additional responsibility for integrating the management of drinking water supply alongside their wastewater and surface water flood risk responsibilities.

The Panel observed that implementation within the Infrastructure and Environment Department is siloed with separate funding and with few incentives for management of the whole system. The approach is considered suboptimal in terms of both investment and performance and is potentially less resilient. Furthermore, the strategy is based on cost and risk approach with limited options presented and risks not quantified. This means it does not optimise investment and phasing.

The Panel has recommended that Ministers work collaboratively to deliver a Strategic Direction within the timescale of the current Bridging Liquid Waste Strategy 2023-2026 describing, subject to consultation, how new approaches might take shape in the Island Plan, an Integrated Water Management Plan and other strategies such as the Liquid Waste Strategy 2025-35. Government should review and consult on a wider range of water management options to give an adaptive long term resilience plan. The Strategic Direction should be consulted on during 2024 and published on the Government of Jersey website by the end of Q3 2024.

In terms of long-term financing, the Panel has recommended that there should be a longer-term approach to the planning and funding of key infrastructure capital projects and that Ministers need to deliver a solution prior to the next Government Plan 2025-2028. Furthermore, that an approach to phasing some sewerage and drainage network upgrades over a longer period should be considered. Options, such as (but not limited to) the replacement of Bonne Nuit Sewage Treatment Works with a pumping station, should be reviewed in the longer-term Liquid Waste Strategy 2025-2035 to determine whether there is an alternative solution offering better value for money through an Integrated Water

Management Plan, including rainwater retention approaches such as Sustainable Drainage Systems.

Ministers should ensure that stakeholder engagement, both at a domestic and commercial level, be facilitated from the outset of scoping any future funding proposals on 'user-pays' charges in relation to waste charges. Stakeholder consultation should be undertaken in early 2024 to ensure that proposals can be brought forward in time for the next Government Plan 2025-2028.

The Panel has further recommended that the Infrastructure and Environment Department reviews its risk tools and metrics to enable finer tuning of its investment priorities. Furthermore, future strategic outline business cases should adopt approaches recommended by the HM Treasury Green Book which sets out an approach to investment to meet societal, economy and environment outcomes to create greater value. A wider set of options should also be considered in the business case – specifically, deferring investment to match development, carrying out design work in advance and identifying land for infrastructure assets in the next Island Plan.

Overall, the Panel has found that although the Bridging Liquid Waste Strategy 2023-2026 represents a coherent plan, it is more of an asset management plan, as opposed to a strategy. A strategy would consider alternative options and approaches and the lack of this analysis in the Bridging Liquid Waste Strategy 2023-2026 makes it difficult to assess whether the plan represents the best value approach versus potential alternative solutions. There are, however, several 'low or no regret' options presented which should be progressed to deliver timely and essential upgrades to the network.

Key Findings

KEY FINDING 1: The sewerage network (made up of 109 sewage pumping stations and rising mains) is at “*a critical point*” and a number of critical assets are now over 60 years old. It is acknowledged that pumping stations were designed when the Island’s population was a fraction of the current figure, and the network has reached the point where there is no spare capacity in the system.

KEY FINDING 2: To address challenges in the short-term, a number of solutions or ‘emerging projects’ have been identified in the Bridging Liquid Waste Strategy 2023-2026 which consist of network upgrades; rising mains replacements; surface water separation and increasing storage capacity.

KEY FINDING 3: Prioritisation of liquid waste emerging projects is based on a number of factors which are often interrelated. Key factors affecting prioritisation are age and condition of an existing asset; recurring failures or lack of performance; risk to public; provision for climate change; provision for growth; and other strategic drivers such as the Island Plan and Government Plan.

KEY FINDING 4: The Bridging Liquid Waste Strategy 2023-2026 represents a “*coherent plan to address the issues through specific asset-based network interventions.*” However, it represents more of an asset management plan, as opposed to a full strategy. Exact needs are not established due to considerable uncertainty of where or when the growth is likely to occur and the absence of information on service failures. Additionally, the lack of potential alternative approaches makes it difficult to assess whether the plan represents the best approach versus alternatives.

KEY FINDING 5: Despite a number of sites being approved for re-zoning for affordable housing in the Bridging Island Plan 2022-2025 States’ debate in 2022, sewerage and drainage network capacity issues have resulted in delays to delivering the affordable housing delivery targets specified in the Bridging Island Plan 2022-2025.

KEY FINDING 6: It is asserted that 1 in 4 existing homes in Trinity are not connected to the mains sewerage network and there is perception that there is a focus on accommodating and prioritising sewerage and drainage capacity for new development but not for existing homes. Trinity is not identified as a ‘pinch point’ in the Bridging Liquid Waste Strategy 2023-2026, however, it is acknowledged by the Infrastructure and Environment Department that Trinity is at capacity and will need another strategic storage unit in the West Hill area to accommodate the additional flow.

KEY FINDING 7: Data on the number of applications to connect onto the main foul sewerage network is deemed “*possibly insufficient*”.

KEY FINDING 8: The exact location and timing of new housing development is uncertain, and the Government of Jersey’s preferred strategy is to complete capacity works within the next 5 years. The Panel’s expert adviser deems that if upsizing is undertaken well in advance of development, there is a risk that the additional capacity is under-utilised or not utilised at all if new development does not proceed. This will result in a “*suboptimal investment plan*”.

KEY FINDING 9: One of the less well addressed aims of the Bridging Liquid Waste Strategy 2023-2026 is surface water management and identifying areas where works are required to reduce flooding risks.

KEY FINDING 10: Emerging approaches to drainage and wastewater management across the UK go beyond asset management and both water and wastewater plans are integrated to identify efficient solutions that address both services such as Sustainable Drainage Systems, rainwater harvesting and reduced consumption.

KEY FINDING 11: The Isle of Wight successfully trialled the provision of 250 free “leaky” water butts in the village of Havenstreet in summer 2022. The butts store 200 litres of rainwater each of which then slowly releases into the drainage network rather than arriving as a peak flow which would trigger overflows. Nearly 72 per cent of households are using them on one road and the nearby storm overflow, which previously activated 27 times a year when it rained more than 5mm, caused only one spill during a six-month trial. The trial has been extended to a further 1000 homes in a different part of the island.

KEY FINDING 12: Sustainable drainage systems (SuDS) are considered, by the Government of Jersey, as a top priority to get rid of the surface water for new developments, however, the Infrastructure and Environment Department consider that SuDS will not work in all areas, for example, clay soil areas of the Island. The Panel’s expert adviser deems that there are, however, different types of attenuation or separation approaches to SuDS which could be utilised. For example, water harvesting on new development for uses such as flushing toilets, or external use such as watering plants.

KEY FINDING 13: The Infrastructure and Environment Department does not have direct access to Jersey Water’s testing data and therefore makes the assumption that if streams discharging into St Aubin’s Bay contain nutrients then it is likely that Jersey’s water sources do.

KEY FINDING 14: A stakeholder engagement or consultation process did not feed into the preparation of the Bridging Liquid Waste Strategy 2023-2026.

KEY FINDING 15: Early engagement with the construction industry on long-term capital works planning is essential for the smooth delivery of large-scale Government of Jersey capital projects.

KEY FINDING 16: Failure to engage communities is considered by the Panel’s expert adviser to reduce the chance to gain support for more innovative approaches to addressing future wastewater challenges, as well as the expectations of value to be created through these investments. It is advocated that there needs to be improved consultation and engagement with users over priorities, as well as engagement with communities on solutions.

KEY FINDING 17: A comparative analysis from other island jurisdictions shows that features of good practice wastewater strategy development are clarity of a strategic direction; engagement with users over priorities; clear options analysis; clarity on the overall size of the challenge; development of long-term objectives and adaptive approaches; and engagement with communities on solutions.

KEY FINDING 18: The nine key characteristics of a Water Strategy are considered by Arup and Indepen UK to be: systems mindset; resilient & adaptive approach; distributed mix of solutions; total value perspective; progressive partnerships; place & community outlook; collaborative citizen & customer base; and a robust social contract.

KEY FINDING 19: The total amount of funding required for key liquid waste projects between 2023-2026 is anticipated to be in the region of £39m with a further £13m required in 2027. Although funding has been agreed in the Government Plan 2024-2027 for the years 2024 and 2025, the agreed funding amounts will not cover some of these projects through to completion

and therefore this money will need to be ring-fenced and additional funding secured in 2026 for completion of these projects. Other projects will not be able to commence until longer-term certainty of funding approval can be provided from 2026 onwards.

KEY FINDING 20: There is a need for better longer-term planning and funding of capital projects across Government.

KEY FINDING 21: The Government of Jersey is exploring a sustainable funding mechanism which will include developing 'user pays' charges in relation to all aspects of waste charges, including commercial and domestic liquid and solid waste with a view to this being agreed in the next Proposed Government Plan 2025-2028.

KEY FINDING 22: Although the impacts of climate change are already being observed and requiring consideration of investment for adaptation, funding for surface water drainage would not currently sit within the terms of reference for expenditure under the Climate Emergency Fund. If funding was to be drawn from the fund for this purpose it would require a change in the Fund's terms of reference.

KEY FINDING 23: An amalgamation of Jersey Water is under consideration as a strategic option to addressing the current siloed and inefficient approach of water supply being delivered by an arm's length organisation and drains maintenance and management being delivered internally by the Government of Jersey.

KEY FINDING 24: There is perceived to be general agreement within the Government of Jersey that development contributions to drainage should be proportionate to the scale of development and that whilst developers should contribute for connection costs onto the mains network, they should not be expected to fund the historic underinvestment in the Island's sewers and drainage.

KEY FINDING 25: A comparative analysis of waste strategy business models in other island jurisdictions shows that all comparators have some element of user charging and can access long-term debt to spread the repayment of capital finance over many years. Likewise, all comparators have the additional responsibility for integrating the management of drinking water supply alongside their wastewater and surface water flood risk responsibilities.

KEY FINDING 26: The Bridging Liquid Waste Strategy 2023-2026 will increase charges significantly per household (£659) and beyond those of comparable island states. The business case presented prefers a potentially suboptimal case by prioritising early investment to manage risk over options to phase investment based on impending need. This results in a higher cost and opportunity cost that the money is not available for other uses.

KEY FINDING 27: Implementation within the Infrastructure and Environment Department is siloed with separate funding and with few incentives for management of the whole system. The approach is considered suboptimal in terms of both investment and performance and is potentially less resilient. Furthermore, the strategy is based on a cost and risk approach with limited options presented and risks not quantified. This means it does not optimise investment and phasing.

Recommendations

RECOMMENDATION 1: The Minister for Infrastructure should ensure that service metrics are implemented and used to engage with and inform customers of sewer and drainage utilisation issues in 2024 and beyond. Customers should also be engaged in demand management and action to reduce sewer misuse.

RECOMMENDATION 2: The Minister for Infrastructure should review the pass forward strategy from the Island's network to preserve capacity at Bellozanne Sewage Treatment Works (STW) and capacity in the network in urban areas. The attenuation and pass-forward solution for Bonne Nuit STW should be reviewed in light of this. The aim of this would be to avoid the potential for a significant opportunity cost of these approaches.

RECOMMENDATION 3: The Minister for Infrastructure should ensure, ahead of the continued roll out of works, that the programme of liquid waste works identified in the short-term is considered to be 'low or no regret' to address urgent need and that certain aspects of the strategy, where there are currently gaps in the evidence, should be deferred until the longer-term Liquid Waste Strategy 2025-2035.

RECOMMENDATION 4: The Minister for Infrastructure and Minister for the Environment should work together to ensure that the Infrastructure and Environment Department keeps an accurate log of all applications (and refusals) to connect to the network from both existing and new development which would impact on the capacity of the network. This should include applications for planning for redevelopment or extension of impermeable area. This log should be maintained from 2024 so that the demand for new connections is reflected in the longer-term Liquid Waste Strategy 2025-2035.

RECOMMENDATION 5: The Minister for Infrastructure should consider, before the end of Q2 2024, a new option of progressing design works and identifying land for new infrastructure assets, but deferring investment until housing phasing is known. The aim being to avoid unnecessary tie up of capital that might be better deployed elsewhere.

RECOMMENDATION 6: The Minister for Infrastructure should work collaboratively with the Minister for the Environment to review surface water management and identify areas where works are required to reduce flooding risks, making allowance for climate change in the absence of a complete climate change assessment. These considerations should be factored into a future Liquid Waste Strategy 2025-2035 and other associated strategies such as an Integrated Water Management Plan.

RECOMMENDATION 7: The Minister for the Environment should ensure that consideration is given by the Infrastructure and Environment Department before the end of Q3 2024 to reviewing its storm frequency information and levels of protection in line with the UK where standards of resilience are being extended for storm return periods due to increasing frequency of significant storms.

RECOMMENDATION 8: The Minister for the Environment should work collaboratively with the Minister for Infrastructure and key stakeholders to consider further options and bring forward proposals before the end of 2024 to incentivise developers to maximise water efficiency and rainwater harvesting with the aim of minimising impact on downstream sewers.

RECOMMENDATION 9: The Minister for the Environment and Minister for Infrastructure should, before the end of Q3 2024, jointly consider the merits of implementing a trial scheme offering free 'leaky' water butts to residents in flood catchments areas with a view to funding being proposed for inclusion in the next Government Plan 2025-2028. The aim of the scheme being to slow down the flow of rainwater into the drainage network during periods of heavy rainfall.

RECOMMENDATION 10: The Minister for the Environment should seek to establish a data sharing agreement between the Government of Jersey and Jersey Water to share information relating to Jersey Water's testing and consumption data before the end of 2024. This should specifically include water quality and water abstraction data to enable greater understanding of the water quality in the environment; and household water consumption data that will provide return to sewer data on predicted load.

RECOMMENDATION 11: The Minister for the Environment should ensure that a partnered approach is taken with the Minister for Infrastructure and Jersey Water to implementing an Integrated Water Management Plan by the end of 2025.

RECOMMENDATION 12: The Minister for the Environment, in conjunction with the Minister for Sustainable Economic Development should consider, before the end of 2024, environmental land management payments to landowners for ecosystem services – particularly for water storage and retention or ground water management, as well as nutrient balancing.

RECOMMENDATION 13: The Minister for Infrastructure should ensure that the Infrastructure and Environment Department facilitates early engagement with the construction industry on a programme of planned infrastructure capital works, so that industry are able to forecast and resource themselves with more certainty and so they are able to deliver what is needed from them.

RECOMMENDATION 14: The Minister for Infrastructure should ensure that there is improved consultation on the aims of a Liquid Waste Strategy through development of a strategic direction ahead of the Liquid Waste Strategy 2025-2035. The purpose being to ensure that a 'robust social contract' is formed to create shared responsibility and common purpose through co-creation of the strategy by engaging communities in the development of an Island Integrated Water Management Plan and other associated strategies such as the 2025-2035 Liquid Waste Strategy.

RECOMMENDATION 15: The Minister for Infrastructure should ensure that the next longer-term Liquid Waste Strategy 2025-2035 encompasses the following best practice features: clarity of a strategic direction; engagement with users over priorities; clear options analysis; clarity on the overall size of the challenge; development of long-term objectives and adaptive approaches; and engagement with communities on solutions.

RECOMMENDATION 16: The Minister for Infrastructure and Minister for the Environment should work collaboratively to ensure that a future Water Strategy is delivered before the end of 2025 and should encompass the key characteristics as outlined further in Arup and Indepen's model of '[A new future for water](#)'.

RECOMMENDATION 17: The Minister for the Environment and the Minister for Infrastructure should, within the timescale of the current Bridging Liquid Waste Strategy 2023-2026, work collaboratively to deliver a Strategic Direction describing, subject to consultation, how new approaches might take shape in the Island Plan, an Integrated Water Management Plan and other strategies such as the Liquid Waste Strategy 2025-35. Government should review and consult on a wider range of water management options to give an adaptive long-term resilience plan. The

Strategic Direction should be consulted on during 2024 and published on the Government of Jersey website by the end of Q3 2024.

RECOMMENDATION 18: The Minister for Treasury and Resources should work with the Minister for Infrastructure to facilitate a longer-term approach to the planning and funding of key infrastructure capital projects and to deliver a solution prior to next Government Plan 2025-2028.

RECOMMENDATION 19: The Minister for Treasury and Resources and the Minister for Infrastructure should work collaboratively to ensure that stakeholder engagement, both at a domestic and commercial level, be facilitated from the outset of scoping any future funding proposals on ‘user-pays’ charges in relation to waste charges. Stakeholder consultation should be undertaken in early 2024 to ensure that proposals can be brought forward in time for the next Government Plan 2025-2028.

RECOMMENDATION 20: The Council of Ministers should discount bringing forward any potential proposals to varying the terms of the Climate Emergency Fund at this time. Alternative options and solutions should instead be explored for funding surface water drainage projects to enable adaptation to climate change scenarios such as more frequent extremes of weather until such time as a long-term funding solution has been identified to increase revenue into the Climate Emergency Fund. At this point, the terms of the Fund should then be revisited.

RECOMMENDATION 21: In consideration of a long-term funding solution, the Minister for Treasury and Resources and the wider Council of Ministers, should ensure that developers’ contributions for new development are considered in the mix of solutions for funding network reinforcement comparative to the additional load the new development will generate into the sewerage and drainage system and to ensure that customers (i.e. taxpayers) are not left subsidising developers.

RECOMMENDATION 22: The Minister for Infrastructure should consider an approach to phasing some sewerage and drainage network upgrades over a longer period. Options, such as (but not limited to) the replacement of Bonne Nuit Sewage Treatment Works with a pumping station, should be reviewed in the longer-term Liquid Waste Strategy 2025-2035 to determine whether there is an alternative solution offering better value for money through an Integrated Water Management Plan, including rainwater retention approaches such as Sustainable Drainage Systems.

RECOMMENDATION 23: The Minister for Infrastructure should ensure that the Infrastructure and Environment Department reviews its risk tools and metrics to enable finer tuning of its investment priorities. Furthermore, future strategic outline business cases should adopt approaches recommended by the HM Treasury Green Book which sets out an approach to investment to meet societal, economy and environment outcomes to create greater value. In addition, a wider set of options should be considered in the business case – specifically, deferring investment to match development, carrying out design work in advance and identifying land for infrastructure assets in the next Island Plan.

1 Introduction

Background and context

On 2nd May 2023, the Minister for Infrastructure published the Bridging Liquid Waste Strategy Update 2023-26 (BLWS). The BLWS is intended to update the previous strategy [published](#) in March 2014, known as the Waste Water Strategy. The 2014 strategy defined the requirements for a new Sewage Treatment Works (STW) at Bellozanne, as well as 'Business As Usual' Projects, including renewal of liquid waste assets (STW & pumping stations) and foul and surface water network improvements.

The key drivers behind the replacement of Bellozanne STW in the 2014 strategy were that the plant was failing due to the age of the main treatment facilities, climate change, treatment standards and population growth of over 70% since it was first built in the 1950s. The original design capacity was for a population of 57,000 compared with the 2011 Census result of 97,857. The subsequent population projections developed by Statistics Jersey were used to design the new STW for a population equivalent of 118,000 in 2035. This included allowances for population growth; seasonal workers and visiting friends and relatives; new connections of existing properties; as well as new developments.

In view of the uncertainty of the future growth and limited land availability for the expansion of the STW in the future, it was agreed that a replacement STW would also take into account a further 20% population equivalent to 141,600. Initially, it was intended that this additional capacity would either only be built when needed or would be built as part of the ongoing project, but not fully commissioned. However, it is understood that the efficiencies in constructing and commissioning identical assets at the same time were substantial and so these works have been incorporated in the constructed scope.

Work began on the new STW in early 2019, and in recent years various sections have come online in a phased approach as they've been completed. The STW replacement project was completed on 18th December 2023 as planned and has been delivered within the allocated budget. The new STW has the capacity to deal with a connected population equivalent of 141,600 people, subject to increase in the wider sewerage network capacity to transfer the flows to the STW and attenuation of flows during high flows.

The new BLWS aims to plan for the further demands of the 21st century including: population growth, climate change and increasing demands on the ageing sewerage and drainage network. This is particularly relevant considering a significant part of the funding from the Infrastructure Rolling Vote was diverted away from various network projects to supplement the funding for the new STW, leading to an underinvestment in the network over the last few years. Although the new Bellozanne STW is being built with provisions for additional capacity, the total flow it can accommodate will be limited by the network's capacity to deliver the flows to the STW and the future requirements for any enhanced effluent quality.

The BLWS was synchronised with the Bridging Island Plan 2022-25 with the intention of informing the proposed Government Plan 2023-26 funding approval process. Both the BLWS and the Bridging Island Plan were formulated during a period of significant uncertainty due to the impact of the Coronavirus pandemic and Brexit. To reflect this uncertainty, the Bridging Island Plan has been developed to cover the shorter than normal period from 2022-25. The BLWS has followed the same approach and hence this update is known as the Bridging Liquid Waste Strategy 2023-26.

Utilising the 2021 Census results, a 'full' update of the BLWS based on an updated population projection model is expected to be issued for 2025-35 in sync with the next longer-term Island Plan.

An estimated **£52.4m** will be required to fund various projects from 2023 – 2027 to upgrade the sewerage and drainage networks before the proposed Bridging Island Plan housing developments, as well as any future developments, can be connected to the network. This funding is in addition to an estimated **£49.7m** required for 'Business as Usual' projects which are required to 'catch up' on the underinvestment in the network over the last few years.

Certainty of long-term funding is required to provide confidence at the start of each project that funding will be available to reach completion; allow the overall programme to flex as priorities and needs are confirmed; and allow the Capital Delivery Plan to meet the policy commitments of the Bridging Island Plan up to 2030.

The BLWS proposes that long-term frameworks are set up with a mix of UK and Jersey based consulting and contracting entities who can design and build these key assets whilst employing and training local labour to improve the skill set over the period of the programme. The following long-term frameworks are part of the Projects Delivery Plan:

1. Professional Services Framework commenced in January 2023
2. Drainage Inspections & Relining Framework commenced in August 2023
3. Site Investigations and Survey Contractors Framework commenced in September 2023
4. Main Contractors Framework commencing in April 2024

It is asserted by Government that these frameworks provide the best value and avoid the challenges associated with relying solely on large contracting companies from the UK or Europe.

The following key issues emerged which prompted the Panel to undertake this review of the BLWS:

- Whilst the new Sewage Treatment Works at Bellozanne is complete and has the capacity to deal with increased connected population, the sewerage and drainage network requires significant investment to be able to serve the Island's needs. Currently, it poses "serious risk" of:
 - Sewage overflows/back flows into property
 - Increased risk of pollution incidents
 - Almost certain risk of flooding
 - Restricted location/volumes of housing developments
 - Network failure
- It has been identified that the sewerage network is ageing and already at its limit, particularly in diurnal peaks and during storms. This is resulting in insufficient infrastructure capacity to accommodate new developments and to meet housing targets set out in the Bridging Island Plan, including those sites re-zoned for affordable housing. Planned developments cannot be occupied until the network is increased or improved and can accommodate the additional flows.

- Recent flooding events have further flagged the necessity to improve and maintain the drainage network and to prevent sewerage overflows from occurring.
- The investment required for upgrading the sewerage and drainage network is significant and will need to be agreed by the States' Assembly. The new Sewage Treatment Works was partially funded from the Infrastructure Rolling Vote and funding was reallocated from the maintenance / replacement of existing sewage infrastructure.
- It has become evident that a long-term strategic approach by Government to delivery of the capital programme is needed. The Emerging Projects are required not only to meet the housing demand up to 2025 but also to allow for long term development needs such as: the Town and St. Helier / West of Island Planning Framework; as well as the Five Oaks Masterplan.

The Panel's full Terms of Reference for the review can be found in Appendix 1 of this report.

Review methodology

In March 2023, the Panel visited the new Sewage Treatment Works at Bellozanne which helped inform the scoping of its review.

The Panel received six written submissions from targeted stakeholders and members of the public which can be viewed online [here](#).

Public review hearings were held with the Minister for Infrastructure and Minister for Treasury and Resources in June 2023. The transcripts for these hearings can be viewed [here](#).

Owing to the technical nature of the BLWS, the Panel's review has also been informed by expert advisers – Indepen UK – an advisory and policy consultancy who advise policy makers, regulators and senior executives on issues and opportunities pertaining to regulated infrastructure. They have a strong presence in water supporting the sector through policy, regulatory and delivery strategies to meet future challenges. Indepen carried out an in-depth examination of the BLWS, in line with the Panel's Review Terms of Reference, over the course of a two-month period, culminating in a final report of their findings and recommendations which can be found in Appendix 3 of this report and which has informed this report and recommendations.

Report structure

Chapter 2 of this report will explore how the BLWS plans to address known issues with ageing infrastructure and capacity of the Island's current sewerage and drainage network and will draw on the adviser's findings having considered the suitability and sustainability of proposed solutions which have been identified.

It will also assess the impact of current sewerage and drainage network capacity issues on meeting the housing development delivery targets set out in the Bridging Island Plan 2022-25.

It will further explore how the strategy will ensure environmental priorities, including water quality are met, and will explore to what extent climate change has been factored into future delivery of the strategy. Specifically, how the long-term programme of works to the drainage network is being approached to ensure greater resilience to challenges posed by climate change, such as flooding events.

Finally, this chapter will explore specific case studies of how other island jurisdictions have approached solutions to the challenges of surface water management.

Chapter 3 of this report will explore the comments made in written submissions received from various stakeholders in relation to the BLWS and to what extent Government has consulted stakeholders in the strategy's development.

It will further consider what components of a future Liquid Waste Strategy 2025-2035 should look like, including stakeholder and community engagement on priorities and solutions. It will consider what approaches have been taken to strategy development in other island jurisdictions.

Chapter 4 of this report will consider the historic underfunding of essential infrastructure-related services and projects and what measures should be put in place to ensure Government takes a more longer-term strategic approach to the funding of these essential works within the capital programme.

It will consider the evidence from the two public hearings held with the Minister for Treasury and Resources and Minister for Infrastructure in relation to how the strategy will be financed, acknowledging that the financing strategy is still under development and that an initial Strategic Outline Business Case funding bid has been made in the Government Plan 2024-2028.

In addition, it will provide a comparative analysis of funding models in other island jurisdictions.

2 Liquid waste challenges and proposed solutions

The BLWS sets out the current challenges such as: plant and system age; population growth and new developments; and climate change and environmental standards.

Solutions to known network issues have been termed 'emerging projects' in the BLWS and have considered the following:

- **Network storage** – additional network storage and localised upgrades attenuates the flow through the system, spreading peaks and stopping flash flooding. It optimises the network by using periods of low network flow to empty the storage tank which fills during peak flows. This means that Bellozanne STW receives a more consistent flow which results in better, more efficient treatment.
- **Network upsizing** – will be part of the solution locally, but the Infrastructure and Environment (I&E) Department has stressed it cannot be the only solution. Carrying the flow away from homes faster gets it to Bellozanne STW faster, but it is acknowledged that there is limited capacity for peak flows and storage. In addition, downstream pipes from new developments will need to be much bigger if designed for combined upstream peaks rather than an average flow.
- **Network limitations** – there are limitations at First Tower Pumping Station, as it cannot be expanded or replaced in its current location. The network as a whole is at its limit, particularly during diurnal peaks and storm events. Widespread pipelaying would be slow and disruptive even if Bellozanne STW could accept the increased flow.

- **Network problems** – the network is ageing. Transporting flow across the network in larger pipes results in 1) use of the Cavern with increased frequency of combined sewer overflows to St. Aubin’s Bay; 2) increased flooding instances.

Sewerage/drainage capacity and ageing infrastructure

The BLWS details that Jersey’s sewers have increasingly suffered with ground water ingress resulting from the combined pressure of both the age of the foul sewer network and climate change. Furthermore, that this has led to significant problems within the pumping stations causing operational issues, particularly in periods of wet weather.

The BLWS refers to the sewerage network (made up of 109 sewage pumping stations and rising mains) as being at “*a critical point*” and that a number of critical assets are now over 60 years old. The mechanical and electrical items have been replaced several times, however, the majority of the structures, wet wells and pressure pipes are the original ones. It is acknowledged that these pumping stations were designed when the Island’s population was a fraction of the current figure, and the network has reached the point where there is no spare capacity in the system. It is therefore considered imperative to review and plan the replacement or upgrading of these assets to protect the Island for the next 60 years.¹

KEY FINDING 1: The sewerage network (made up of 109 sewage pumping stations and rising mains) is at “*a critical point*” and a number of critical assets are now over 60 years old. It is acknowledged that pumping stations were designed when the Island’s population was a fraction of the current figure, and the network has reached the point where there is no spare capacity in the system.

To start addressing challenges in the short-term, the BLWS strategy considers proposed solutions or ‘emerging projects’ which aim to deliver network upgrades; replacement rising mains; surface water separation and increasing storage capacity. Specific projects identified in the strategy are noted as:

- First Tower rising main replacement
- Replacement of Bonne Nuit STW with a pumping station
- West Park SW outfall
- North and West Network Upgrades
- Other emerging projects (South and East)
- Le Dicq rising mains
- Future Sewage Treatment capacity

KEY FINDING 2: To address challenges in the short-term, a number of solutions or ‘emerging projects’ have been identified in the Bridging Liquid Waste Strategy 2023-2026 which consist of network upgrades; rising mains replacements; surface water separation and increasing storage capacity.

In a public hearing with the Minister for the Infrastructure the Panel asked how the prioritisation process for these projects was decided:

Deputy S.G. Luce:

¹ [Bridging Liquid Waste Strategy 2023-2026, p. 3](#)

How do you come to the priority list of where you are going to go? We have been speaking in the last couple of minutes about short term, medium term and long term.

The Minister for Infrastructure:

I am happy to answer that in principle, then I will hand over for the more specialist background details. There are 2 elements. There are elements in the infrastructure that have to be addressed at various points because they have deteriorated to the point where they need work. The other side of the priority list is fulfilling housing needs on a prioritised basis. So those are the 2 elements and I will hand over again to Ellen, who can give you a little bit more chapter and verse on where those pinch points are.

...

Head of Liquid Waste:

...Effectively, we are looking at our asset condition as part of the strategy and on the other side we are looking at where the population is growing and where we need to expand the network for population. For things like asset integrity, we know that a number of our rising mains need replacing. So that is just the direct rising main which pumps to First Tower, and also our First Tower rising main that pumps up to the sewage treatment works. We are working very closely with our colleagues at SP3 on the future population predictions in the Island and the spatial strategy and where they are going, and they are really leading us on where we put these strategic storage units. So, for instance, at the minute they said their top priority is the Maufant area. It was the north and west of the Island but now they are saying the top priority is the Maufant area to put some strategic storage in to allow that to grow initially.

Deputy S.G. Luce:

That is, I have to say, quite a surprise to me, certainly reading the reports as you have alluded. The indication was that the west of the Island would be the point that was going to be under the most amount of pressure, literally and metaphorically. So to hear that Maufant is an area which is top of the priority list is quite a concern. Minister, something that has been suggested to us is that we may have here in your document more of an asset management plan than an actual strategy. How would you view that statement?

The Minister for Infrastructure:

Under the circumstances they are the best part of one and the same thing, are they not? That is what we have to be doing at this point in time.

Deputy S.G. Luce:

Do you feel there is enough strategic work gone into this document, into the medium and long term of how we might, for example, use sustainable urban drainage to reduce the amount of rainwater that goes into the sewer or some ...

The Minister for Infrastructure:

I know the point you are alluding to, but I think we have to come back to what we said in the beginning. Because everything has been delayed for so long and there is such a compression of essential work, the emphasis here has to be on bringing ourselves back to where we should have been had we been properly invested. So in any situation you

have to work on priorities, do you not, what is short and medium-term priorities? You can be looking to the long term but you have to get back to where you should have been. That is really what this document reflects is bringing us back up to date. Perhaps I am being too defensive but I feel the need to be because ...²

Information provided by the I&E Department to the Panel's advisers, Indepen, describes the Government of Jersey's prioritisation process as follows:

Prioritisation of projects is based on a number of factors which are often interrelated. Setting aside emergency works associated with the unexpected failure of an asset, key factors affecting prioritisation are:

- *age and condition of an existing asset;*
- *recurring failures or lack of performance;*
- *risk to public (e.g., flooding);*
- *provision for climate change;*
- *provision for growth; and,*
- *other strategic drivers (Island Plan, Government Plan etc).*

As noted in the BLWS, the Department have identified and are developing the following Asset Management Plans to inform future programmes of work:

- *Drainage (Network) Asset Management Plan*
- *Pumping Stations Asset Management Plan*
- *Rising Main Criticality Assessment*
- *Telemetry Asset Management Plan³*

KEY FINDING 3: Prioritisation of liquid waste emerging projects is based on a number of factors which are often interrelated. Key factors affecting prioritisation are age and condition of an existing asset; recurring failures or lack of performance; risk to public; provision for climate change; provision for growth; and other strategic drivers such as the Island Plan and Government Plan.

Indepen comment that the BLWS represents a “*coherent plan to address the issues through specific asset-based network interventions.*” However, the exact needs are not established due to considerable uncertainty of where or when the growth is likely to occur and the absence of information on service failures. Additionally, the lack of potential alternative approaches makes it difficult to assess whether the plan represents the best approach versus alternatives.

A summary of Indepen's analysis on the approach and proposed solutions outlined in the BLWS can be found below:

The strategy considers a limited range of options. The approach is asset-centric seeking to prevent service failure, provide additional storage or capacity for growth and, where possible, separate foul from storm water.

Alternatives such as SuDS are mentioned but not presented as viable choices over the life of the strategy.

² Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.5-6

³ Indepen UK report

The preferred option for Bonne Nuit - replacement with a pumping station - is proposed without considering the opportunity cost of doing so, such as the loss of the option of protecting capacity in the network downstream and at Bellozanne STW where there is a lack of space for expansion.

The plan proposes investments to address many of the needs of the network and so the opportunity to consider how an integrated water plan that might affect the liquid waste strategy is foregone.

The criteria against which options were assessed are not made explicit, nor is the range of options considered. This means it is not clear that the best options have been chosen. The lack of options in the plan and of clear project deliverables in terms of risk reductions and service improvements, and of different phasing approaches, mean it is not possible to assess whether the approach will meet the objectives efficiently and effectively. For example, it is not clear how well the approach will address the impacts of climate change or that it represents best value or if it is cost effective compared to alternatives.

Even so, we believe the approach and actions in the BLWS will help address the challenges facing Jersey's liquid waste management system. Investment is targeted to maintain the performance of critical assets in a way that is proportionate to the evidence on the risk of asset failure. There is a commitment to increasing the evidence base on the condition and performance of assets via telemetry and monitoring. Preparation for future work is targeted on the most likely issues but remains flexible enough to respond to changes (e.g. as indicated in Census data) and the eventual locations of housing growth that will be formalised when the Island Plan for 2026 is finalised. The plan identifies urgent needs, some of which will be of low regret and has clear recommendations that those identified as urgent and important to protect public health and the environment are advanced.

KEY FINDING 4: The Bridging Liquid Waste Strategy 2023-2026 represents a “coherent plan to address the issues through specific asset-based network interventions.” However, it represents more of an asset management plan, as opposed to a full strategy. Exact needs are not established due to considerable uncertainty of where or when the growth is likely to occur and the absence of information on service failures. Additionally, the lack of potential alternative approaches makes it difficult to assess whether the plan represents the best approach versus alternatives.

As part of their analysis of the I&E Department's approach to asset management, Indepen found that blockages and rainwater ingress are major service risks. Indepen advocate that improved demand management and reduced sewer misuse may extend capacity of networks and reduce pressure on investment.

RECOMMENDATION 1: The Minister for Infrastructure should ensure that service metrics are implemented and used to engage with and inform customers of sewer and drainage utilisation issues in 2024 and beyond. Customers should also be engaged in demand management and action to reduce sewer misuse.

It was further found that with the proposed approach and predicted demand in growth, Bellozanne STW is likely to have capacity constraints in the near to mid-term and subsequent network and STW upsizing will be disruptive. Indepen further highlight that upstream attenuation tanks for diurnal flows may exacerbate septicity problems in the network and STWs. Indepen emphasise that there is potentially a significant opportunity cost⁴ to this

⁴ Opportunity cost is an economics term that refers to the value of what you have to give up in order to choose something else.

approach and the GoJ should review the pass-forward⁵ strategy to extend the life of the downstream network and Bellozanne STW. In addition, Indepen state that the solution for Bonne Nuit STW should be reviewed as well as the approach to attenuation versus network disaggregation and small STWs to reduce reliance on attenuation.

RECOMMENDATION 2: The Minister for Infrastructure should review the pass forward strategy from the Island’s network to preserve capacity at Bellozanne Sewage Treatment Works (STW) and capacity in the network in urban areas. The attenuation and pass-forward solution for Bonne Nuit STW should be reviewed in light of this. The aim of this would be to avoid the potential for a significant opportunity cost of these approaches.

Indepen advocates an approach of proceeding with ‘no or low regret’⁶ solutions proposed under the BLWS to address urgent need, but deferring certain aspects of the strategy, until the gaps in evidence can be fully considered in the longer-term Liquid Waste Strategy 2025-2035. These gaps being: the need to integrate with other significant water-related infrastructure strategies; as well as the absence of any exploration of innovative and community-led solutions; and the stakeholder engagement that would be needed to conduct this exploration. These will be discussed further in chapter three.

RECOMMENDATION 3: The Minister for Infrastructure should ensure, ahead of the continued roll out of works, that the programme of liquid waste works identified in the short-term is considered to be ‘low or no regret’ to address urgent need and that certain aspects of the strategy, where there are currently gaps in the evidence, should be deferred until the longer-term Liquid Waste Strategy 2025-2035.

Impact on housing delivery

The Bridging Island Plan 2022-25 includes for some 4,000+ homes to be built by 2025 with a total of 7,900 homes required by 2030 across the Island. The I&E Department has assessed the impact of large estates on the existing liquid waste system with its existing limitations as “*potentially catastrophic.*” The ‘pinch points’ identified in the current network have been identified as:

- St. Peter/Airport
- St. Brelade
- Beaumont
- Le Dicq Pumping Station and RM
- Le Hocq Pumping Station
- Grouville Sewer
- Maufant Pumping Station
- East of St. Helier

⁵ Pass Forward Flow is the instantaneous upstream flow that a Combined Sewer Overflow or pumping station can accept.

⁶ ‘Low or no regret’ solutions are solutions which the delivery of poses minimal or no risk to programme outcomes, costs and value for money. These solutions may also still offer flexibility where there is current uncertainty.

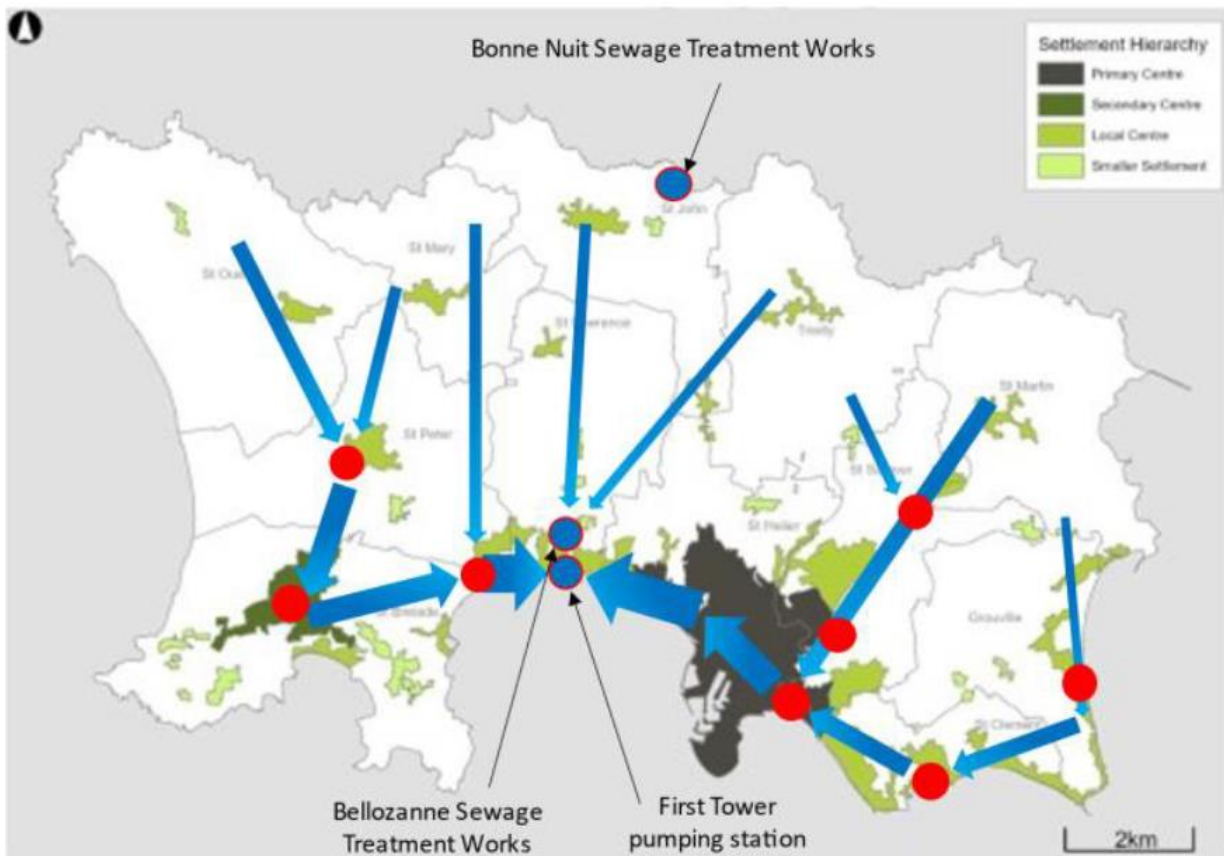


Figure 1 - Existing System 'pinch points'

In the public hearing held on 28th June 2023, the Panel learned that Maufant had since been identified as a further 'pinch point' as further information had come to light regarding the timing of housing developments which had not been available at the time the strategy was developed:

Deputy S.G. Luce:

Can I go back before we finish to Maufant suddenly coming up the list? I am just looking at the existing plan. We had some maps and you identified pinch points and what have you. I appreciate that Maufant was one of those pinch points identified in the south and the east, but it featured very much down the list. Can I just go back and ask again: the reason that Maufant was suddenly jumped up the list is because the policy team have identified ...

...

Lead Engineer:

Yes, since the strategy was produced obviously there has been the affordable housing briefs and guidance which has come out. We have had a lot more information come back in terms of the timing of some of those developments. We had information early on when we were preparing this strategy in terms of ... and that is why they were only identified as north and west and south and east. But now we have more information there we have a bit more visibility and we are trying to adjust the priority of these larger schemes, these key and emerging schemes, in order to accommodate those developments.⁷

⁷ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.36

As the BLWS was intended to link and run parallel to the Bridging Island Plan, the Panel was keen to understand how the BLWS would be affected if the Bridging Island Plan was to be extended to a longer-term 10-year plan:

Deputy S.G. Luce:

...This is a Bridging Liquid Waste Strategy that coincides with the Bridging Island Plan, and yet the Minister for the Environment has made it very clear that he would like to extend his Island Plan out for another 6 years after 2026 to make it a 10-year plan. Where would that leave you in this strategy if the link between the 2 was broken by the Minister for the Environment?

The Minister for Infrastructure:

If that did happen we would possibly have to review where we are, but I do not see that as being an immediate problem. The immediate issue is to get on with this, get it under way, and once it is all 38 running then we have time to stand back and look at where we go forward, if that makes sense. It is a case of prioritisation.⁸

In a public hearing with the Minister for Treasury and Resources, the Panel highlighted that sewerage and drainage capacity issues had not been raised as an issue in the Bridging Island Plan debate which had been debated the previous year and had therefore resulted in a number of sites approved for re-zoning of housing, only to discover a year on that several of these sites did not have sufficient capacity within the sewerage and drainage network to cater for these new developments:

Deputy S.G. Luce:

I just want to take you back to something you said before, Minister. I agree with you that in 2014, I am not sure that we were aware of the challenges that might be coming down with the network itself, but do you think States Members were well-enough informed in last year's Island Plan debate? One of the major reasons we are here today is the challenges of building all these housing projects which we have approved on newly rezoned sites to find now that the network itself might not be capable of supporting those. Do you feel that the States Members may have been let down a bit last year when we debated these housing sites?

The Minister for Treasury and Resources:

I think my recollection is probably the same as yours, Chair. I do not recollect it being raised as a major issue when the Island Plan was being updated. Inevitably I suppose what happens with the overall planning process is that when you are updating an Island Plan the department or Members bring forward proposals for rezoning or redevelopment on various sites. The assumption is made that any ongoing or secondary issues, as it might be to that rezoning process; so schools, traffic, drains are dealt with in the actual planning application process. I think we can look back now with hindsight and say it would have been probably a better approach, and it might be going forward a better approach, for us to think about the Island Plan in the round rather than just as a planning document where subsidiary issues can be dealt with at a later date.⁹

⁸ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.37-38

⁹ Public Review Hearing – Minister for Treasury and Resources – 28 June 2023, p.3-4

The resulting consequence of this is that the development of affordable housing sites has been delayed and the targets for housing delivery identified in the Bridging Island Plan 2022-2025 are unlikely to be met. In a public hearing with the Minister for Treasury and Resources, the Panel heard that the lack of progress in delivering affordable housing posed an economic threat to the Island:

The Minister for Treasury and Resources:

If we consider the cost of housing and the supply of housing to be an economic threat, and I do, then we need to deal with this. Because if this stops us from increasing that supply, it stops us from making progress around housing affordability, then that is an economic threat.¹⁰

KEY FINDING 5: Despite a number of sites being approved for re-zoning for affordable housing in the Bridging Island Plan 2022-2025 States' debate in 2022, sewerage and drainage network capacity issues have resulted in delays to delivering the affordable housing delivery targets specified in the Bridging Island Plan 2022-2025.

A written submission made to the Panel from a property owner in Trinity asserts that: *"1 in 4 houses in Trinity are not connected to the mains public sewer and...there are many families who find themselves in a similar situation... There's no mention of addressing our predicament, only accommodating new development."¹¹*

Considering that Trinity has not been identified as a 'pinch point' in the BLWS, the Panel questioned the fairness of approving connections to large-scale developments and yet individual homeowners in the countryside were being refused permission to connect to the mains sewerage network. The Panel was advised, as follows:

Head of Liquid Waste:

For every application we get we do a drainage impact assessment now for any new housing application or connection and that again looks at the model to see where there is capacity. Unfortunately, Trinity is at capacity and it is not without building another strategic storage unit in the West Hill area that we could start to accept the flows in because it is a bit of a bottleneck up there.¹²

KEY FINDING 6: It is asserted that 1 in 4 existing homes in Trinity are not connected to the mains sewerage network and there is perception that there is a focus on accommodating and prioritising sewerage and drainage capacity for new development but not for existing homes. Trinity is not identified as a 'pinch point' in the Bridging Liquid Waste Strategy 2023-2026, however, it is acknowledged by the Infrastructure and Environment Department that Trinity is at capacity and will need another strategic storage unit in the West Hill area to accommodate the additional flow.

During the public hearing the Panel raised the lack of data on how many applications have been made to connect onto the main sewerage network. The Minister for Infrastructure advised that there was some data, however, that it was *"possibly insufficient"*¹³.

KEY FINDING 7: Data on the number of applications to connect onto the main foul sewerage network is deemed *"possibly insufficient"*.

¹⁰ Public Review Hearing – Minister for Treasury and Resources – 28 June 2023, p.13

¹¹ Written Submission – Paul Aubert

¹² Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.31

¹³ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.33-34

RECOMMENDATION 4: The Minister for Infrastructure and Minister for the Environment should work together to ensure that the Infrastructure and Environment Department keeps an accurate log of all applications (and refusals) to connect to the network from both existing and new development which would impact on the capacity of the network. This should include applications for planning for redevelopment or extension of impermeable area. This log should be maintained from 2024 so that the demand for new connections is reflected in the longer-term Liquid Waste Strategy 2025-2035.

In their report, Indepen observe that the exact location and timing of new housing development is uncertain and that the GoJ's preferred strategy is to complete capacity works within the next 5 years. However, there is the risk that if upsizing is undertaken well in advance of development the additional capacity is under-utilised or not utilised at all if new development does not proceed, resulting in a "*suboptimal investment plan*".

KEY FINDING 8: The exact location and timing of new housing development is uncertain, and the Government of Jersey's preferred strategy is to complete capacity works within the next 5 years. The Panel's expert adviser deems that if upsizing is undertaken well in advance of development, there is a risk that the additional capacity is under-utilised or not utilised at all if new development does not proceed. This will result in a "*suboptimal investment plan*".

Indepen recommend progressing design and identifying land for new assets but deferring investment until housing phasing is known. The aim being to reduce the capital expenditure in the BLWS and to enable funds to be deployed to other areas of greater priority.

RECOMMENDATION 5: The Minister for Infrastructure should consider, before the end of Q2 2024, a new option of progressing design works and identifying land for new infrastructure assets, but deferring investment until housing phasing is known. The aim being to avoid unnecessary tie up of capital that might be better deployed elsewhere.

Environmental priorities, water quality and climate change

The BLWS considers the significant disruption and challenges that have been experienced in Jersey from rainfall and storms due to climate change. This is not unique to the Island with similar issues being experienced across the world and will require Jersey to have a strategy of adaptation to deal with the associated impacts. It is acknowledged that these issues have not been fully addressed within the scope of the BLWS but that the strategy "*is intended to lay the groundwork for a long-term programme of works that will make the Island more resilient to these challenges.*"

Furthermore, due to the age of the foul water sewerage system and climate change, Jersey's sewers have increasingly suffered with ground water ingress leading to significant problems within the pumping stations and causing operational issues, particularly in wet periods. The BLWS aims to reinforce previous work done on surface water separation and to continue to search for points of ground water ingress and sealing of these through a variety of means.

The Panel were keen to understand further how the BLWS intends to set the groundwork for a long-term programme of works that will make the Island more resilient to climate change and posed this question to the Minister for Infrastructure in the public hearing held on 28th June 2023:

Deputy S.G. Luce:

... We were talking about climate change and we were talking about extremes of weather there. What other considerations are you giving to other work to mitigate risks posed by climate change? I am thinking specifically about attenuation of flood water, for example. We have recently seen floods in the Grands Vaux area. How much work are you doing in this plan to scope out the intended groundwork for long-term plans?

The Minister for Infrastructure:

I do not think there is any particular work here that addresses the type of floods that we had at Grands Vaux. That is pretty much a separate exercise because that is the only area where there was serious flooding. That really relates to volumes of water that pretty much ... I do not think there is any amount of drainage you could put in place that would handle that. If you are unable to use a reservoir for flood management, then you are going to be periodically in a situation where you could get further flooding. So I do not think that it is something that can be ... that sort of thing cannot be dealt with through standard drainage works or a drainage plan of any sort.

Deputy S.G. Luce:

You say that but would the floods at Grands Vaux have been alleviated by a bigger drain between that area and the sea?

The Minister for Infrastructure:

I stand to be corrected and I think Ellen might pull me up on this, but I think the drainage that we have if everything is clear can handle ... is it 1.8 metres a second? We can upgrade a 70 or 80- metre run to run it to 2.4 cubic metres a second and I think if I am not wrong we were something like 5.8 to 6 metres a second that were being generated at the height of the flood. So as I say, unless you are going to open it up and put a 4-metre pipe all the way through and hope that the tide is out when it gets ...¹⁴

Noting the likelihood of more extreme weather patterns resulting from climate change, the Panel further questioned what consideration was being given to solutions around poor discharge quality from outflows:

Deputy S.G. Luce:

... We recently had, a couple of weeks ago, an incident in St. Aubin's Bay with discharge not meeting the quality that one might have expected. I found it interesting to see that one of the reasons was the low flow going into Bellozanne because of the dry weather. Is that something we should expect into the future with climate change and more extremes of weather, whether that is hot or dry or wet or cold?

Head of Liquid Waste:

I think it will be, absolutely. As you said, we are going to see some more rainfall events and drier periods, too. We are not sure, we think this drier period maybe is why we are getting some more ammonia into the system because it is spending so long in the system and in these hot conditions, which has affected the treatment works slightly.

Deputy S.G. Luce:

¹⁴ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.24-25

Is it not impossible in the future we might need to store some water at Bellozanne to introduce into the flow to just keep it at a more consistent sort of level?

Head of Liquid Waste:

That is a good point. We have looked in the past at some of the outlying pumping stations, the very small ones at the end of the chain, where the levels are not dropping that much and it is staying stagnant quite a while, going off and potentially adding some surface water into that to keep it fresh. So there is potential in the future we could look at specific sites. I do not think we could necessarily do it at Bellozanne because the flows would be so low, but on our small satellite areas if we do get some septic sewage it is certainly a possibility to keep ...¹⁵

As part of their analysis Indepen found that one of the less well addressed aims of the BLWS is surface water management and that the GoJ should review this and identify areas where works are required to reduce flooding risks, making allowance for climate change in the absence of a complete climate change assessment.

KEY FINDING 9: One of the less well addressed aims of the Bridging Liquid Waste Strategy 2023-2026 is surface water management and identifying areas where works are required to reduce flooding risks.

RECOMMENDATION 6: The Minister for Infrastructure should work collaboratively with the Minister for the Environment to review surface water management and identify areas where works are required to reduce flooding risks, making allowance for climate change in the absence of a complete climate change assessment. These considerations should be factored into a future Liquid Waste Strategy 2025-2035 and other associated strategies such as an Integrated Water Management Plan.

In the UK it is noted that standards of resilience are being extended for storm return periods due to increasing frequency of significant storms and Indepen recommend that the GoJ should review its storm frequency information and levels of protection.

RECOMMENDATION 7: The Minister for the Environment should ensure that consideration is given by the Infrastructure and Environment Department before the end of Q3 2024 to reviewing its storm frequency information and levels of protection in line with the UK where standards of resilience are being extended for storm return periods due to increasing frequency of significant storms.

Indepen further comment that there are many emerging approaches to drainage and wastewater management across the UK, some of which go beyond network asset strategies. These include:

Land management changes to increase rainwater capture, reduce rainwater ingress into foul waste networks, and behaviour or consumption changes to reduce the impact of society's activities on the network's performance and the environment.

These outcomes are reflected in the Water Resource Management plans (WRMPs) and Drainage and Wastewater management plans (DWMPs) that base line current (service) levels of performance against future requirements and identify holistic approaches to meet

¹⁵ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.21-22

them. These plans are at catchment level and consider inter-catchment transactions. The water and wastewater plans are integrated to identify efficient solutions that address both services, such as SuDS, rainwater harvesting, or reduced per capita consumption which reduces flows into the sewer network.

KEY FINDING 10: Emerging approaches to drainage and wastewater management across the UK go beyond asset management and both water and wastewater plans are integrated to identify efficient solutions that address both services such as Sustainable Drainage Systems, rainwater harvesting and reduced consumption.

RECOMMENDATION 8: The Minister for the Environment should work collaboratively with the Minister for Infrastructure and key stakeholders to consider further options and bring forward proposals before the end of 2024 to incentivise developers to maximise water efficiency and rainwater harvesting with the aim of minimising impact on downstream sewers.

In undertaking a comparative analysis of surface water management in other islands, Indepen highlights a case study of the Isle of Wight's trial implementation of free 'leaky' water butts to slow the flow of rainwater into the drainage network¹⁶:

¹⁶ Indepen UK Report

Case study: Isle of Wight

About 40% of the water in Southern Water's Isle of Wight sewers comes from rainwater running off roofs, this causes the sewer to become overwhelmed during heavy rain. They have been trialling a range of solutions with customers to keep rainwater out of the sewers with more cost effective and less disruptive solutions. One trial involved the provision of 250 free "leaky" water butts in the village of Havenstreet in summer 2022. The butts could store 200 litres of rainwater each which then slowly released into the drainage network (see Figure 2) rather than arriving as a peak flow which would trigger overflows. Nearly 72 per cent of households are using them on one road and the nearby storm overflow, which previously activated 27 times a year when it rained more than 5mm, caused only one spill during a six-month trial. The trial has been extended to a further 1000 homes in a different part of the island.

Larger versions of water butts that look like planters have been shown to work well in residential care homes, schools, warehouses and supermarkets on the Isle of Wight. At one big care home on the island, up to five tonnes of water was coming off the 800 sq m roof when it rained and straight into the combined sewer. A recently installed planter water butts now collect and redistribute the excess rainfall.

Figure 2 - How "leaky" rainwater butts work



KEY FINDING 11: The Isle of Wight successfully trialled the provision of 250 free "leaky" water butts in the village of Havenstreet in summer 2022. The butts store 200 litres of rainwater each of which then slowly releases into the drainage network rather than arriving as a peak flow which would trigger overflows. Nearly 72 per cent of households are using them on one road and the nearby storm overflow, which previously activated 27 times a year when it rained more than 5mm,

caused only one spill during a six-month trial. The trial has been extended to a further 1000 homes in a different part of the island.

RECOMMENDATION 9: The Minister for the Environment and Minister for Infrastructure should, before the end of Q3 2024, jointly consider the merits of implementing a trial scheme offering free 'leaky' water butts to residents in flood catchments areas with a view to funding being proposed for inclusion in the next Government Plan 2025-2028. The aim of the scheme being to slow down the flow of rainwater into the drainage network during periods of heavy rainfall.

Indepen comment that the management of the network appears to have resulted in good levels of performance given the scale of the challenges of growth and climate change. However, it is not clear from the BLWS how well the approach will address the impacts of climate change or that it represents best value or is cost effective compared to alternatives.

As part of Indepen's investigations the I&E Department advised that the ongoing Inland Pluvial Climate Change (IPCC) Study is almost complete and will identify how the above and below ground drainage facilities will manage the predicted effects of climate change on rainfall with a view to highlighting current and future areas of concern. The IPCC Study is also intended to incorporate the effects of population increase, particularly as development results in the creation of more hard landscaping. The study is expected to highlight the need for:

- *flow attenuation in storage tanks;*
- *a more effective and extended road drainage system;*
- *a heavier reliance on existing coastal surface water pump stations;*
- *potentially the need for additional coastal surface water pump stations; and,*
- *a requirement for extending surface water separation, especially in the Town area to reduce the risk of coastal pollution during rainfall events.¹⁷*

It is noted by the GoJ that the overall consequence of climate change is a requirement for more investment in surface water infrastructure.

A further case study highlighted by Indepen demonstrates the success with surface water management which Guernsey has seen through the implementation of SuDS across the Island:

¹⁷ Indepen UK Report

Case study: Guernsey

Guernsey has suffered from high-profile surface water flooding in recent years, causing damage to homes and businesses. The topography of the island is such that the low-lying centre and north is particularly at risk. This area is also the most densely populated and includes St Peter Port. Guernsey [Water's Surface Water Management Policy](#) highlights three major drivers that increase the challenges on their drainage system (Flooding and Pollution; Growth and Development Capacity; Energy, Carbon and Cost), and thus they have identified the need to use Sustainable Urban Drainage Systems (SuDS) because of the multiple benefits they provide, as set out in Figure 3. The SuDS approach is being adopted despite high population densities and development pressure. A key approach has been community engagement and use of pilots, including using land on a local school. Flow Monitoring of storm events prior to and after construction of SuDS features showed clear improvements in flood risk. Flows into the system were slowed, giving time for the whole system to adapt and avoid overflow:

1. Pre installation (22nd June 2016): Monitoring showed immediate response to rainfall with high flows discharging quickly into the sewer. Discharge of the rain event and return to base flow took 40 minutes.
2. After construction of first swale (25th September): High peak flows were monitored but were delayed (15minute lag time). Discharge of the rain event and return to base flow was slowed to just over an hour.
3. Completion of Swales and rainfall absorbing planters (16th October): Discharge into the sewer with rainfall rose very gradually. Discharge of the rain event and return to base flow took three hours.

Figure 3 - Guernsey Water Sustainable Drainage Roadmap



In the public hearing with the Minister for Infrastructure, the Panel queried the prioritisation of Sustainable Drainage Systems (SuDS) as part of Jersey's strategy:

Deputy S.G. Luce:

Okay. Obviously, as you say, in town is a bad area for mixing rainwater and sewage because of the historic nature of the sewer. We are aware, as I know you are also, that sustainable urban drainage systems are now quite common in the U.K. It is not something that we see on the Planning Committee very often these days, but there is a huge potential to take rainwater out of the sewer by trapping it in very many small receptacles around houses and flats and what have you, wherever that might be. Is that something that you think we should be elevating up the priority list in order to try to attenuate some of this rainwater before it enters the main?

Head of Liquid Waste:

For any new developments we try not to take surface water into our sewers if we can, even if there is a surface water sewer in the area. So SuDS (sustainable drainage system) has to be our top priority to get rid of the surface water, but unfortunately not all areas SuDS or soaking away will work, when it is clay areas in the Island where it will not soak away. But our top priority, yes, for new developments is SuDS and dealing with surface water on site and not putting it to any surface water sewers.¹⁸

KEY FINDING 12: Sustainable drainage systems (SuDS) are considered, by the Government of Jersey, as a top priority to get rid of the surface water for new developments, however, the Infrastructure and Environment Department consider that SuDS will not work in all areas, for example, clay soil areas of the Island. The Panel's expert adviser deems that there are, however, different types of attenuation or separation approaches to SuDS which could be utilised. For example, water harvesting on new development for uses such as flushing toilets, or external use such as watering plants.

Regarding other environmental considerations, the Panel was keen to ascertain what other work was being progressed to address water quality, in particular, reducing nitrogen run off from agricultural land into streams and reservoirs:

Deputy S.G. Luce:

While we are talking about nitrogen, Minister, I am sure you will be aware - I know you are aware - of the extensive work that has gone on by the agriculture industry to reduce nitrogen specifically for the potato crop. I am sure you would agree with me on congratulating them on the work they have done, but there are still certain areas of the Island where the soil types allow the nitrogen to enter the water, the streams and the reservoirs quite easily. Can the farmers do yet more or do you think we are probably about as far as we can go with reducing nitrogen?

The Minister for Infrastructure:

It is always difficult to say you cannot go anywhere else, but I would say any advantages now would be very incremental. It is sort of the inverse proportion, is it not? The more you have done, the less places there are to go and the more it costs you to achieve those last little bits of efficiency. One thing that has happened is the industry has changed and I think

¹⁸ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.20

the local production is down already by 30 per cent compared to what it was 10 years ago. So there is 30 per cent less crop growing; there is 30 per cent less nitrogen in use anyway. Whether they can then utilise the land base differently to avoid those areas or not I do not know because, as you will know, some of those lighter soils are what gives rise to earlier crop, which is quite fundamental to the profitability of the industry. So, as I say, we are getting into the very, very fine-tuning parts here.

Deputy S.G. Luce:

Certainly, the panel have seen some information in this last week about the levels of nitrogen in streams and in reservoirs and in boreholes, et cetera, and it certainly shows the correlation between the reduction in the amount of potatoes grown and, as you say, the amount of fertiliser used. But the good news, of course, is that we are down below the level of where we would need to be alerted and certainly below the E.U. (European Union) level of 50, which is very good news. Let me just get back to your proposed plan, Minister.¹⁹

Information provided by the I&E Department to Indepen notes that the last study of nutrients in St. Aubin's Bay and its inlets was for the Bellozanne Environmental Impact Assessment (EIA) in 2016 which was based on data collected from 2012 to 2015. At that time, it was classified as 'Good' for chemical status and 'Moderate' for ecological status. However, over the course of three years the bay was found to be occasionally 'hyper-nitrified', notably in winter, but this did not translate to a eutrophic condition or classify the bay as a sensitive water.

In terms of water courses, the 2016 EIA noted that all seven freshwater inlets to the bay (six streams and Bellozanne STW outfall) contained nutrients but these were relatively insignificant compared with nutrient inputs from the wider marine environment outside the bay. Nutrient monitoring has been ongoing by Government since 2019/2020. Upon commissioning of the STW in late 2023, the GoJ intend to expand monitoring of the effluent and the bay to assess the long-term performance of the works and whether there is any detriment to St Aubin's Bay as a whole.

In terms of water sources, Indepen was advised that the I&E Department does not have direct access to Jersey Water's testing data but anticipate that if streams discharging to the bay contain nutrients then it is likely that water sources do too. It was known that Grands Vaux had recent issues with pesticides but these were abstracting again. It is presumed that the source of the pesticides was run off from fields so fertiliser run-off must also be possible.²⁰

KEY FINDING 13: The Infrastructure and Environment Department does not have direct access to Jersey Water's testing data and therefore makes the assumption that if streams discharging into St Aubin's Bay contain nutrients then it is likely that Jersey's water sources do.

RECOMMENDATION 10: The Minister for the Environment should seek to establish a data sharing agreement between the Government of Jersey and Jersey Water to share information relating to Jersey Water's testing and consumption data before the end of 2024. This should specifically include water quality and water abstraction data to enable greater understanding of

¹⁹ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.24

²⁰ Indepen UK Report

the water quality in the environment; and household water consumption data that will provide return to sewer data on predicted load.

RECOMMENDATION 11: The Minister for the Environment should ensure that a partnered approach is taken with the Minister for Infrastructure and Jersey Water to implementing an Integrated Water Management Plan by the end of 2025.

Further information was sought from the I&E Department in relation to whether landowners (including homeowners/farmers/businesses) are incentivised to offer flood water storage and/or nutrient balancing. The I&E Department informed they are not but they are required, when developing sites, to deal with their surface water by Sustainable Drainage Systems (SuDS) wherever possible.

The I&E Department advised that existing impounding areas on the Island are within the GoJ land portfolio and any future land required for impounding areas will be subject to negotiation with the respective landowner.

The Panel further notes that it is the intention to introduce a new Rural Support Scheme (RSS) component in the RSS 2024 to provide reward credits for delivery of best practice on liquid waste management by rural businesses. An example given of where this would be beneficial is with Jersey Dairy's operation of their treatment facilities to remove fats from their waste to protect the sewer network and sewage treatment facilities.²¹

RECOMMENDATION 12: The Minister for the Environment, in conjunction with the Minister for Sustainable Economic Development should consider, before the end of 2024, environmental land management payments to landowners for ecosystem services – particularly for water storage and retention or ground water management, as well as nutrient balancing.

3 Strategy development and stakeholder engagement

Bridging Liquid Waste Strategy 2023-2026: stakeholder engagement

A key theme resulting from the Panel's review was an evident lack of stakeholder engagement in developing the BLWS. Having posed the question directly to Jersey Water regarding the degree of consultation or engagement by Government on the BLWS, Jersey Water responded as follows:

*"Whilst the LWS refers to the aspiration for a combined holistic approach which takes account of the whole water cycle, Jersey Water was not involved in the preparation of the LWS. To the best of my knowledge there has been no specific engagement or consultation with Jersey Water during the preparation of the LWS."*²²

²¹ Indepen UK Report

²² Written Submission – Jersey Water

A submission received from the Comité des Connétables raised concern that the installation of significant drainage infrastructure will also require major road work “*which is likely to include the reconstruction of some roads to accommodate the sewer system. Whilst estimated costs are outlined in the strategy (£41.2m²³ estimated to fund various Liquid Waste Strategy projects from 2022 – 2027 in addition to an estimated £47.5m²⁴ required for ‘Business as Usual’ projects) the cost of such road repairs/reconstruction is not specifically mentioned.*”²⁵

It was further expressed that the Comité is “*concerned at the significant impact this could impose on islanders over an extended period of such work and also about the implications for Parish budgets for by-roads (if funded only by the Parish an increase in the Parish rate will be required).*”²⁶

In the public hearing, the Panel was advised that Government had not yet consulted with the Comité to date. It was, however, confirmed that reinstatement of roads is factored into the costs of the project. It was also stressed that wider public consultation had not been considered at this stage, however, the intention was to carry out a consultation “*where necessary.*”²⁷ The Panel stressed the importance of prior engagement and early consultation as only being a beneficial exercise, a point which the Minister accepted:

Deputy S.G. Luce:

Again, it is time, but I think we always say on Planning Committee that consultation before you do anything like this is never wasted. Having the Comité, the individual Constables and the populations of the certain area on board before you start is absolutely vital in helping you, I am sure, and can only be beneficial when it comes to the timing of projects.

The Minister for Infrastructure:

*That is a fair point.*²⁸

Given the significant impact road repairs would impose on islanders over an extended period, as well as implications for Parish budgets for by-roads (if funded only by the Parish then an increase in the Parish rate will be required) it further highlights the need for earlier engagement with stakeholders when developing such a strategy so that differing priorities can be represented and factored into delivery.

KEY FINDING 14: A stakeholder engagement or consultation process did not feed into the preparation of the Bridging Liquid Waste Strategy 2023-2026.

Another example of where early engagement with key stakeholders during the development of the BLWS would have been beneficial is highlighted in a written submission received from a local civil engineering firm which stressed the need for Government to provide surety to local contractors delivering the programme of required works. The submission highlights that despite assertions made in the BLWS that there is a “*lack of... contractors on the island...*” this is in fact not the case.²⁹ The Panel posed this to the Minister and officers in the public hearing and was advised as follows:

²³ This figure has since been revised to £52.4m since this written submission was made

²⁴ This figure has since been updated to £49.7m since this written submission was made

²⁵ Written Submission – Comité des Connétables

²⁶ Written Submission - Comité des Connétables

²⁷ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.27

²⁸ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.28

²⁹ Written Submission - Geomarine

Deputy S.G. Luce:

I was just going back to the ... are you satisfied that you have enough contractors in the pipeline engaged to deliver this plan on time? I cannot stress that enough, in my personal view, how much large-scale infrastructure work there is to do. The size of these civil projects scattered around the Island, it is going to take quite a workforce and a team of people. Are you happy that we have those people on-Island?

Lead Engineer:

Some of the larger, more complex schemes, so, for example, if it is a large storage tank, you are looking at U.K. specialists for that scale of project. Similar to something like Phillips Street, shaft 3, that was delivered by a U.K. contractor because it is specialist stuff. It is specialist deep piling which again, like ourselves in-house, we only have so much capacity. The local supply chain has only got so much capacity in terms of what they can do in terms of expertise.

Director, Operations and Transport:

The local supply chain also say to me often we need a guarantee of what your long-term work is so we can resource up to it. They cannot just turn on the tap. So I think we have to do better within Government of looking at how we plan long term to be able to support the local industry.³⁰

KEY FINDING 15: Early engagement with the construction industry on long-term capital works planning is essential for the smooth delivery of large-scale Government of Jersey capital projects.

RECOMMENDATION 13: The Minister for Infrastructure should ensure that the Infrastructure and Environment Department facilitates early engagement with the construction industry on a programme of planned infrastructure capital works, so that industry are able to forecast and resource themselves with more certainty and so they are able to deliver what is needed from them.

When questioned on the rationale for not lodging the strategy for a States' debate, the Minister for Infrastructure advised that he was unsure of the benefits of doing so:

Deputy S.G. Luce:

Okay. At the last quarterly hearing, Minister, we asked you about lodging this for debate, this strategy for debate, and you said because it was essential works you did not feel so. Given the scale of the impact of what we have been talking about this morning and the wide range of stakeholders, do you not think that it would be a more acceptable approach to come back to the Assembly and just ... even if it was an in-committee debate where we could just discuss many of these issues?

The Minister for Infrastructure:

They are very detailed issues and I am not quite sure of what we would really be looking to achieve. In this sort of environment, where it is very focused, I can see the point of the

³⁰ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.30

discussions, but widening that to the Assembly in this level of detail I am not sure how advantageous that would be.³¹

Whilst the Panel appreciates that upgrading the sewerage and drainage system are necessary works, it is still considered important to consult with industry and the wider community on the strategy underpinning these essential works. It is unclear whether a public consultation to help inform the development and delivery of the strategy was considered but discounted due to the urgency of addressing some of the key upgrades to the network.

Indepen comment that community concerns are logged but responses appear to suggest engagement in the preparation of the strategy is very limited and consequently customers have little to no say in the charges they pay. Furthermore, complaints from unconnected residents suggest that they have been disappointed to find their concerns don't appear to have been addressed by the strategy.

Indepen state in its report that failure to engage communities reduces the chance to gain support for more innovative approaches to addressing future challenges, as well as the expectations of value to be created through these investments. They advocate that there needs to be improved consultation and engagement with users over priorities, as well as engagement with communities on solutions.

KEY FINDING 16: Failure to engage communities is considered by the Panel's expert adviser to reduce the chance to gain support for more innovative approaches to addressing future wastewater challenges, as well as the expectations of value to be created through these investments. It is advocated that there needs to be improved consultation and engagement with users over priorities, as well as engagement with communities on solutions.

RECOMMENDATION 14: The Minister for Infrastructure should ensure that there is improved consultation on the aims of a Liquid Waste Strategy through development of a strategic direction ahead of the Liquid Waste Strategy 2025-2035. The purpose being to ensure that a 'robust social contract' is formed to create shared responsibility and common purpose through co-creation of the strategy by engaging communities in the development of an Island Integrated Water Management Plan and other associated strategies such as the 2025-2035 Liquid Waste Strategy.

Developing a future Liquid Waste Strategy 2025-35: recommendations and stakeholder engagement

One of Indepen's key findings was that the BLWS is considered more of an asset management plan and whilst extremely thorough and diligently prepared, it does not offer the benefits of a complete strategy for considering options to meet a future characterised by significant uncertainty. Therefore, a future Liquid Waste Strategy 2025-35 should encompass more wider strategic considerations.

A comparative analysis of other island jurisdictions³² approaches to wastewater strategy development was undertaken by Indepen and can be summarised by the following themes which could be applied to the development of Jersey's future liquid waste strategy:

³¹ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.26

³² Isle of Wight, Isle of Man, Guernsey

Clarity of strategic direction

The length (almost 200 pages) of the BLWS illustrates the depth of technical analysis that underpins it. However, this creates a barrier to clearly understanding the drivers and framework used to develop the strategy. The comparison islands all have very clear statements of their strategic direction which give a sense of how to judge their strategic approach.

Engagement with users over priorities

All comparators set up systems for extensive engagement with the users of their systems as part of the strategy development process. This helps them to gather views on relative priority, to explain and explore the trade-offs that have to be faced and to generate ideas for novel solutions/synergies to be incorporated into the overall approach.

Clarity of options analysis

On the Isle of Wight and Isle of Man, there is a very clear exposition of the whole life costs of a range of solutions to tackle a problem. This is supported by a very clear framework for analysis of ability to deliver non-financial objectives against which different options can be compared.

Clarity on the overall size of the challenge

Southern Water's analysis makes it very clear that there is a large cost (£637m) for meeting all objectives for the performance of the Isle of Wight's drainage and wastewater systems in the face of population growth and climate change. This allows a very quick view of how likely it is that their current levels of investments are likely to be sufficient. This context is absent from the BLWS.

Engagement with communities on solutions

The benefit of community engagement is seen in the range of Sustainable Urban Drainage and community-led approaches to surface water storage for flood alleviation in Guernsey and the Isle of Wight. These approaches are potentially more cost-effective and help communicate the difficulty of managing the issue. It is not clear to what extent these solutions have been explored in the BLWS.

The analysis underpinning the 2013 Liquid Waste Strategy suggested several options for additional wastewater treatment capacity, but it is not clear how much further these thoughts have been taken forward. The experience reported in the Isle of Man suggests that gaining agreement to new sites can be a time-consuming process, even with extensive community engagement.³³

KEY FINDING 17: A comparative analysis from other island jurisdictions shows that features of good practice wastewater strategy development are clarity of a strategic direction; engagement with users over priorities; clear options analysis; clarity on the overall size of the challenge; and engagement with communities on solutions.

RECOMMENDATION 15: The Minister for Infrastructure should ensure that the next longer-term Liquid Waste Strategy 2025-2035 encompasses the following best practice features: clarity of a

³³ Indepen UK – Report, Section 5

strategic direction; engagement with users over priorities; clear options analysis; clarity on the overall size of the challenge; development of long-term objectives and adaptive approaches; and engagement with communities on solutions.

The need for integration between water and wastewater plans to identify efficient solutions that address both services has been highlighted in the previous chapter and which the Panel considers essential for delivery of a longer-term liquid waste strategy from 2025 onwards.

A recent report published by Arup and Indepen [‘A new future for water’](#) identifies nine characteristics that should feature in a future water strategy:

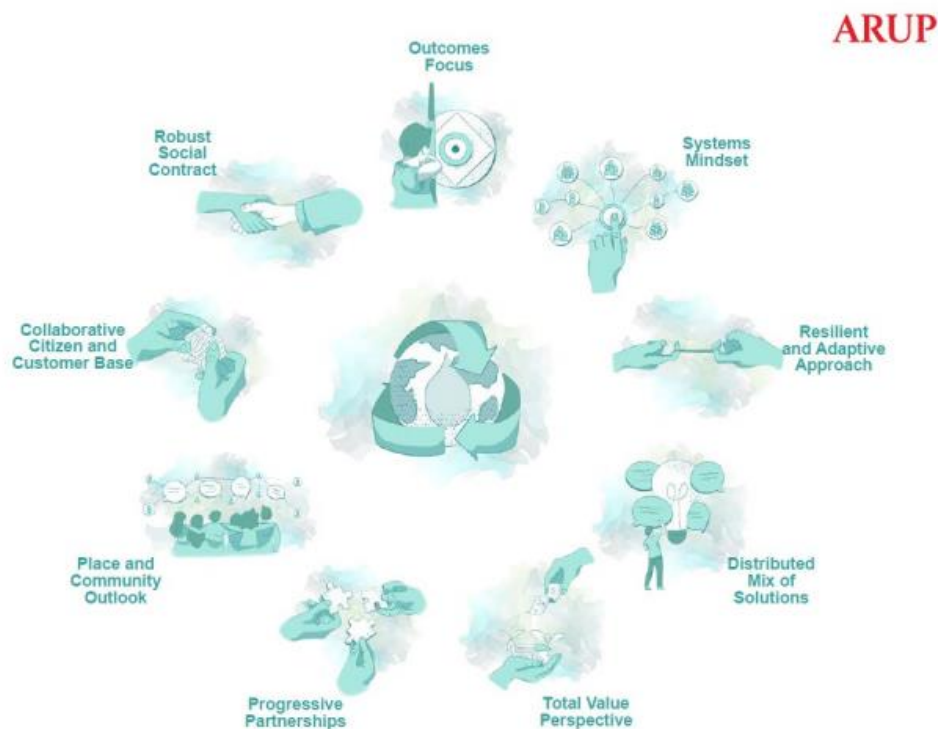


Figure 4 - Nine characteristics of a future water strategy (Source: ARUP and Indepen 2023)

Indepen comment that the importance of each of these individual characteristics will vary between catchments:

Jersey’s water system is in one way simple, in that is relatively compact, but also complex because of the societal pressures on land use. An integrated water management plan should sit at the heart of future strategies and align island policy with the need for a clean and sustainable water environment and associated public health. The policy would set out the context for the interconnected strategies for the services. At the heart of the change required is consideration of how those who own land manage it to ensure that the environment and public health are protected and those who consume the services have regard to the public good. Considering the approaches to enabling this in a water strategy is critical to long-term resilience.³⁴

³⁴ Indepen UK Report

Indepen further recommend the following approach as one that Jersey could take to developing a future water strategy for the Island:

Table 1 - Recommended Approach to developing a Water Strategy for Jersey (Indepen UK)

Characteristic	Description	Recommendation
Outcomes focused	Putting common goals for the environment and society central to what the State is looking to positively impact	Identify relevant targets / actions that are outside of the State's direct sphere of delivery, and therefore putting success partially in the hands of others, such as developers, farmers or water services consumers
Systems Mindset	Approach challenges from a systems perspective, recognising the interdependent components and working with other actors that have a role to play.	Review of all the activities contributing to a resilient water management approach on Jersey and identify opportunities or actions for each of the consumers or beneficiaries – particularly the role of surface water management at a network, community (geographical or functional) or property level
Resilient & Adaptive Approach	Long term planning with adaptive approach to cater for changes in course dependent on economic, environmental, societal or technological developments to deal with unprecedented volatility & uncertainty	Develop long term plans for drainage and wastewater management that consider a range of scenarios on the 4 key externalities and identify progressive approaches to reduce risk of unhelp opportunity costs such changes in growth, or water quality or quantity needs
Distributed mix of solutions	Supplement traditional grey infrastructure solutions with catchment and nature-based solutions, as well as behavioural change-delivered solutions, bringing more stakeholders into play in a more distributed and decentralised system.	Consider resilience benefits of a decentralised approach vs asset enlargement & pass forward approach, including household and community SuDS, and smaller wastewater networks and treatment plants supplementing baseflows in streams & ditches during dry months.
Total Value Perspective	Move from traditional cost/risk benefit assessment of options to a wider set of metrics that include environmental and societal benefits that add local value	Develop wider set of value objects aligned with State's ambitions for the environment (such as carbon neutrality) and society (such as economic, employment or amenity) that can be used to consider the different value approaches as described above offer.
Progressive Partnerships	Development of the partnerships required to implement and transact through a systems based approach	Identify the key relationships required to meet a long term sustainable and resilient water environment on the island and co-create ways of working together such as working with developers on reducing water and wastewater impact of new housing, farmers to create SuDS

		on land adjacent to urban centres, and connected customers to increase water harvesting and reuse.
Place & Community Outlook	Place-based planning is a collaborative and community driven approach that considers the local context and its unique characteristics.	Sub-divide the catchment of Jersey into smaller sub catchments within which to engage the communities served in the needs of local environment and public health (sanitation and flooding).
Collaborative Citizen & customer base	Enabled by local policy and regulation, as well as local incentives to collaborate. The equivalent in solid waste is household recycling of waste	Co-develop solutions to water management to reduce consumption or sewer misuse, and increase water harvesting and support them through creation of policies to enforce them
Robust Social Contract	Create shared responsibility and common purpose with community through co-creation of strategy	Engage communities in the development of the Island integrated Water Management Plan and associated strategies such as the LWS.

KEY FINDING 18: The nine key characteristics of a Water Strategy are considered by Arup and Indepen UK to be: systems mindset; resilient & adaptive approach; distributed mix of solutions; total value perspective; progressive partnerships; place & community outlook; collaborative citizen & customer base; and a robust social contract.

RECOMMENDATION 16: The Minister for Infrastructure and Minister for the Environment should work collaboratively to ensure that a future Water Strategy is delivered before the end of 2025 and should encompass the following key characteristics as outlined further in Arup and Indepen’s model of [‘A new future for water’](#).

Indepen acknowledges that these approaches take time to mature and create confidence in a new set of interventions to deliver the outcomes to meet the adaptation challenge and recommends that a road map for implementing these approaches should be developed within long-term adaptive plans for water resources, drainage and wastewater. Indepen stress that the pace of change means that actions are needed today to develop the necessary tools.

RECOMMENDATION 17: The Minister for the Environment and the Minister for Infrastructure should, within the timescale of the current Bridging Liquid Waste Strategy 2023-2026, work collaboratively to deliver a Strategic Direction describing, subject to consultation, how new approaches might take shape in the Island Plan, an Integrated Water Management Plan and other strategies such as the Liquid Waste Strategy 2025-35. Government should review and consult on a wider range of water management options to give an adaptive long-term resilience plan. The Strategic Direction should be consulted on during 2024 and published on the Government of Jersey website by the end of Q3 2024.

4 Financing the strategy

Proposed funding of liquid waste projects

The below table which can be found on page 121 of the Bridging Liquid Waste Strategy 2023-2026 sets out the proposed funding for liquid waste projects between 2022-2026 totalling £38,654,374.

Project Title	Status	Year 1	Year 2	Year 3	Year 4	Year 5
		2022	2023	2024	2025	2026
		472,417	8,574,593	9,557,364	10,150,000	9,900,000
First Tower Rising Main Replacement	Design			250,000		
	Construction		250,000		4,000,000	4,000,000
Replacement of Bonne Nuit STW with a Pumping Station	Design		20,000	30,000		
	Construction		480,000	570,000		
West Park SW Outfall	Design	169,000				
	Construction	303,417	3,324,593	957,364		
North and West Network Upgrades	Design		200,000			
	Construction		3,800,000	6,000,000	4,000,000	
Other Emerging Projects (South and East)	Design			50,000	200,000	
	Construction				1,100,000	5,700,000
Le Dicq Rising Mains	All Works		500,000	1,700,000	800,000	
Future Sewage Treatment Capacity	Design				50,000	200,000
	Construction					

Table 11.2.3-1: LWS – Infrastructure Projects funding

Table 2 – Infrastructure Projects funding (liquid waste) p.121 of Bridging Liquid Waste Strategy 2023-26

In the public hearing with the Minister for Infrastructure, the Panel pressed the Minister and Government officials on whether these were the final costings and was advised that the above figures were in the process of being amended:

Deputy S.G. Luce:

...When are we likely to see a final, fully costed, detailed programme of works for the duration of this proposed strategy? We do have some numbers in here but are they the final ones?

Director, Operations and Transport:

Those figures have been amended just because we have been changing the programme of what we can bring forward. When we did that, that was looking at 2022, getting funding. We prepared the strategic business case, which has detailed funding requirements for 2023 to 2027 and the schemes that sit below that. We will be happy ... it is in draft format

at the moment, but following the discussions with the Treasury we would be happy to share that with the panel.³⁵

The Strategic Outline Business Case put forward for the Government Plan 2024-2027 was prepared by deferring the 2023 and 2024 programme from the Bridging Liquid Waste Strategy 2023-2026 due to deferred funding and extending the programme to consider additional projects that will fall under this Government Plan.

An updated table was provided to the Panel in December 2023 detailing the reprofiled and updated funding amounts. A high-level total of key liquid waste infrastructure expenditure by year has been provided below and more detailed breakdown by project and year for the updated Delivery Plan can be found in Appendix 2 of this report.

Year	Amount
2023	£1,963,141
2024	£5,171,452
2025	£10,473,000
2026	£21,835,000
2027	£12,995,000
TOTAL	£52,437,593

Table 3 - Total Key Liquid Waste Infrastructure Expenditure 2023-2027

It is noted that the total funding now required between the period 2023-2026 is £39,442,593 with a further £12,995,000 needed in 2027 (in line with the Strategic Outline Business Case put forward for the Government Plan 2024-2027).

Funding for some liquid waste projects will be achieved by the Government Plan 2024-2027 allocated funds totalling £15.6m for 2024 and 2025 and previously allocated [reserve funding](#) of £1.96m which was released by the Minister for Treasury and Resources in July 2023. Longer-term funding will be subject to a financing plan, the details of which are anticipated to be brought forward in the next Government Plan 2025-2028.

It is further noted from information provided by the I&E Department that although funding has been agreed in the Government Plan 2024-2027 for the years 2024 and 2025, the agreed funding amounts will not cover some of these projects through to completion and therefore this money will need to be ring-fenced and additional funding secured in 2026 for completion of these projects. Other projects will not be able to commence until longer-term certainty of funding approval can be provided from 2026 onwards.

KEY FINDING 19: The total amount of funding required for key liquid waste projects between 2023-2026 is anticipated to be in the region of £39m with a further £13m required in 2027. Although funding has been agreed in the Government Plan 2024-2027 for the years 2024 and 2025, the agreed funding amounts will not cover some of these projects through to completion and therefore this money will need to be ring-fenced and additional funding secured in 2026 for completion of these projects. Other projects will not be able to commence until longer-term certainty of funding approval can be provided from 2026 onwards.

The Panel questioned the Minister for Treasury and Resources on what priority was being given to funding liquid waste infrastructure:

Deputy S.G. Luce:

³⁵ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.7-8

Do you think there is a serious level of importance given to that by Ministers? I am just looking at one of the pages in the executive summary but a short sentence here: "In conclusion, they are calling for significant investment over an extended period to avoid catastrophic failures." There are a number of references to catastrophe, to mains reaching critical points and over capacity. Surely, Minister, if you are satisfied that the department are genuine in the amount of monies they are asking for we cannot not fund this, can we?

The Minister for Treasury and Resources:

Every department says that to me, do they not? We cannot not fund what it is that I would like to or what any particular department would like to do. Obviously the vocabulary used there about catastrophic, we have to be careful to be balanced in our approach. The point that Ministers have made to the Minister for Infrastructure is that it needs a proper business plan, which is being worked on and submitted for the year of 2024 and beyond. What I would say is that one of the areas of focus for the incoming Government was housing. If the Government is going to be able to make progress on housing and those affordability issues, then supply has to be increased. It is quite clear from the Infrastructure Department that unless this work starts on updating drains and allowing for extensions to those new zoned areas that we will not be able to deal with that area of focus. It would seem to me that it will be a high priority for Ministers during the Government Plan process for those issues because without it you cannot make progress on housing affordability.³⁶

Funding pressures and the need for long-term capital planning and investment

The BLWS highlights that part of the funding from the Infrastructure Rolling Vote has been diverted away from network projects to supplement the funding for the new Bellozanne Sewage Treatment Works, resulting in underinvestment in the network over the last few years.³⁷ This point was further emphasised in the public hearing with the Minister for Infrastructure acknowledging that *"drains have been underinvested in for quite some time"*.³⁸

In the public hearing with the Minister for Infrastructure the Panel questioned the Minister on the fairness of taxpayers being charged extra fees where some have previously been required to invest in a tight tank:

Deputy S.G. Luce:

Do you think it is right, Minister, that moving forward people are now told that tight tanks are an option you would prefer them to use? Let us use the example of a house that is built alongside a main, the sewage main, and it was built 5 years ago. They connected up and they pay their taxes like everybody else in a house. The same size house is being built now and they are told that they cannot connect to the main because the main is over capacity. They are told that they have to invest in a tight tank. Obviously, instead of just a pipe going into the main, they have now got the cost of the tight tank and the ongoing cost of emptying that tight tank. Is that fair that because the sewer is now at capacity that members of the population should be charged additional fees?

³⁶ Public Review Hearing – Minister for Treasury and Resources – 28 June 2023, p.7-8

³⁷ Bridging Liquid Waste Strategy 2023 -2026, p. 1

³⁸ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.3

The Minister for Infrastructure:

Strictly speaking, no, it cannot be excused as being fair, but we do live in a real world and if people want to do developments before the service is available, I would suggest that that probably is a cost that they have to incur, in the same way as if you are a developer and you are building 10 houses and you want to bring it forward and the network development is not running in parallel with what you are doing, then you have the option of putting a tank in, albeit temporarily, to deal with that situation. So yes, there is a slight injustice there, but that is the real world situation.³⁹

In relation to connections onto the mains sewerage network for existing properties, the Panel was advised that it was not a priority to extend mains sewerage connections into the rural parishes due to the higher unit cost for these connections, however, funding of up to £1m per year was available for some foul sewer extensions:

The Minister for Infrastructure:

Could I just suggest, and it is just my observation, the more disparate the properties are, the more spread out they are, the more difficult it is, the higher the unit cost for any connection. As I say, we come back to the business when you have limited funding you have to put that funding where you get the best impact for your spend. Sadly, when you get out to St. Mary your properties are very well spread out. You have a very low level of population. Connecting each individual house is going to cost 10 times more than it does to connect a house on the outskirts of St. Helier.

The Connétable of St. Mary:

So it is not in your current plans to extend it to the rural areas at the moment? The budget does not allow it?

The Minister for Infrastructure:

I would not say ... is there a plan that goes right to every house? I would not ...

The Connétable of St. Mary:

Well, not every household, improvement generally?

The Minister for Infrastructure:

As I say, the further up the network you get, the more the unit cost per unit is ...

The Connétable of St. Mary:

I appreciate that. So there is almost an embargo on the people that will not make it ...

The Minister for Infrastructure:

No, the priority is making sure that the areas where there are real pinch points do not break down. So it is a little bit fire-fighting.

Director, Operations and Transport:

³⁹ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.16

We do get £1 million a year to do foul sewer extensions, so where the network is able to take that we are looking at doing some extension schemes as well. So there are some and they are in the pipeline as well.⁴⁰

In the public hearing with the Minister for Infrastructure, the Panel heard of the need for longer-term capital planning across Government:

Director, Operations and Transport:

Obviously, our strategy goes longer term. It is just the format of the cases to do with the Government Plan that they ask for the 4-year funding. I know that our Treasury colleagues are looking at doing some more longer-term capital programming, but that is not what they have asked for from us for this year. I think that something that is probably definitely needed is looking at our long-term capital planning across government of what we require over the next 10 to 20 years on that funding scale, but as part of this process we are asked to provide the figures for 2024 to 2027.

Deputy S.G. Luce:

Is there not a danger that we just go from year to year providing short-term plans and we never get around to doing that long-term planning? Maybe that is a question for the Minister. It is quite a political question.

The Minister for Infrastructure:

We have a fair assurance for the 4 years. It is very difficult for us to guarantee anything beyond the political term really, is it not? There is such a backlog that our focus has to be on the short to medium term to play catch-up if you like. There is an acceptance here. We were just chatting outside about how important it is to make sure that it is embedded for the long term to make sure that the whole sequence is completed. But as I say, there is only so much we can do at any given point in time and the only thing that we can guarantee is really what happens within this parliamentary session, if you like, period.⁴¹

KEY FINDING 20: There is a need for better longer-term planning and funding of capital projects across Government.

RECOMMENDATION 18: The Minister for Treasury and Resources should work with the Minister for Infrastructure to facilitate a longer-term approach to the planning and funding of key infrastructure capital projects and to deliver a solution prior to next Government Plan 2025-2028.

Funding options and solutions

User-pays waste charging

The Panel is aware that Government is exploring a sustainable funding mechanism with a view to this being agreed in the next Proposed Government Plan 2025-2028:

The scale of investment needed for this critical work requires a suitable funding mechanism, and in 2024 the Minister for Infrastructure will develop proposals for the use

⁴⁰ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.35-35

⁴¹ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.4

of waste charges to meet these costs, to be debated in a future Government Plan. In line with the proposition 'Medium term financial plan addition for 2017-2019 (as amended)' (P.68/201618), the States are asked to approve the application of resources for work on the development of 'user pays' charges in relation to all aspects of waste charges, including commercial and domestic liquid and solid waste.⁴²

The Panel considers it essential that this work is prioritised in 2024 and that stakeholder engagement, both at a domestic and commercial level, should be facilitated from the outset of scoping any future funding proposals.

The Panel questioned the Minister for Infrastructure on the need for a waste charge and was advised as follows:

Deputy S.G. Luce:

Do you think there are other trade-offs you might have to consider if you cannot find the final funding? I am alluding to ... I may as well be straight with you. Is this something which you ... if you do not get the money from Treasury, do you feel that there is a case to be made for going out to the public and saying: "Right, there will be a charge, a waste charge" or something like that?

The Minister for Infrastructure:

I think the urgency is such that we do not have the time it would require to put that in place to get cracking with this. In fairness, we have been given the assurances that to get this under way there is no problem. The issue of charging is not going to go away and that has to be dealt with, so we need to be looking at that. But from a personal perspective it is my view that the public have paid a certain amount of tax for drains in their ordinary taxation. As I say, perhaps I am speaking out of turn here, but if charges were introduced they should be to reflect the undercharge that has been in place for quite some time and what is needed to deliver what is over and above what they are already paying for, if that makes sense.

KEY FINDING 21: The Government of Jersey is exploring a sustainable funding mechanism which will include developing 'user pays' charges in relation to all aspects of waste charges, including commercial and domestic liquid and solid waste with a view to this being agreed in the next Proposed Government Plan 2025-2028.

RECOMMENDATION 19: The Minister for Treasury and Resources and the Minister for Infrastructure should work collaboratively to ensure that stakeholder engagement, both at a domestic and commercial level, should be facilitated from the outset of scoping any future funding proposals on 'user-pays' charges in relation to waste charges. Stakeholder consultation should be undertaken in early 2024 to ensure that proposals can be brought forward in time for the next Government Plan 2025-2028.

Climate Emergency Fund

Being aware that climate emergency funding in the UK can fund both carbon emissions reduction and adaptation measures and initiatives, the Panel questioned the Minister for

⁴² [Proposed Government Plan 2024-2027, p. 44](#)

Treasury and Resources on the possibility of funding for surface water drainage being drawn from the Climate Emergency Fund:

The Connétable of St. Brelade:

Taking it to climate changes and the unpredictability of that, and our recent experience we have had at Grands Vaux, that the necessity seems to be that we need to enhance our surface water drainage, is there any possibility of the funding for that coming from the Climate Emergency Fund, which is linked?

The Minister for Treasury and Resources:

I know that Ministers have discussed that and I think that that is an argument which could be made and has got some merit to it. I am not sure that all colleagues on the Council of Ministers, particularly from the environmental side of things, think that argument has merit. It is an ongoing conversation.

Chief Officer, Infrastructure, Housing and Environment Department:

It would not sit within the terms of reference currently of the Climate Emergency Fund. That would need a conversation around the terms of reference and what those funds get applied to...

KEY FINDING 22: Although the impacts of climate change are already being observed and requiring consideration of investment for adaptation, funding for surface water drainage would not currently sit within the terms of reference for expenditure under the Climate Emergency Fund. If funding was to be drawn from the fund for this purpose it would require a change in the Fund's terms of reference. The Panel notes that the purpose of the Climate Emergency Fund can only be varied by the States Assembly on a proposition lodged by, or with the consent of, the Minister for Treasury and Resources.⁴³

It is the Panel's view that the Climate Emergency Fund should continue to fund climate change mitigation initiatives based on carbon emissions reduction. Proposals should not be brought forward at this stage to change its terms of reference to incorporate funding for climate-related adaptation measures on the basis that introducing a widened scope would reduce the available funds for carbon reduction initiatives. The Panel considers that other options and solutions for funding surface water drainage should be explored until such time as a long-term funding solution has been identified to increase revenue into the Climate Emergency Fund. Only then should the terms of the Fund be revisited.

RECOMMENDATION 20: The Council of Ministers should discount bringing forward any potential proposals to varying the terms of the Climate Emergency Fund at this time. Alternative options and solutions should instead be explored for funding surface water drainage projects to enable adaptation to climate change scenarios such as more frequent extremes of weather until such time as a long-term funding solution has been identified to increase revenue into the Climate Emergency Fund. At this point, the terms of the Fund should be revisited.

Amalgamation of Jersey Water

When questioned on various options for providing funding towards the necessary upgrades to the sewerage and drainage network, the Minister for Treasury and Resources alluded to the

⁴³ [Terms of Reference](#) – Climate Emergency Fund 'Tackling the Climate Emergency – Initial Report', p. 24

need for Government to reconsider the strategic approach to managing drains internally of Government and Jersey Water as an arm's length organisation managing water supply:

Deputy S.G. Luce:

Can I ask what other options you are considering or you have asked Infrastructure to consider to pay for all this many tens of millions of pounds worth of work?

The Minister for Treasury and Resources:

As I said, and I seem to be saying it a lot, is we have lots of reports and lots of investigations on all sorts of things and we know that lots of work was done on. Whether we have the right structural approach to dealing with drainage matters, bearing in mind we deal with it, is we have an arm's length company or private company where we are the major shareholders dealing with clean water and then we have a continuing Government department dealing with drains. When you simply look at the strategic level that does not seem efficient. So dusting out the work that has been done across the department and seeing whether there is value in driving efficiency there by bringing those together in some form of joint venture we certainly said to the Minister that he has the Council of Ministers' permission to go away and look at those sorts of strategic issues. Coming back to one of your questions earlier: is this just asset management or are we thinking about it strategically? We have given the all clear for the Minister and the department to go away and think about it like that. That may end up with idea for funding as well. We know that previous Ministers have come forward with proposals on funding but equally we are in the situation where those sorts of conversations and decisions take quite a lot of time and yet we have to get this work started. So we cannot avoid some monies needing to go into Government Plans in the short term to get this work started.

Deputy S.G. Luce:

So an amalgamation for Jersey Water, as you have just suggested, has been considered before. That is potentially back on the table. Something else that has been proposed in the past, you and I will both remember it well, Minister, was an idea to maybe have some sort of drainage charge or some charge to the individual with connection to drains or liquid waste. Is that something you have also asked the department to do?

The Minister for Treasury and Resources:

We have said they have to think creatively about how this can be funded because your question started at a point of we just spent, which is the right place to start, £90 million. Now the department is coming back for another £40 million. We have to be aware that out of sight is not out of mind and continual maintenance and updating over the long term is the position we should be getting into and not keep having ... "shock" is not the right word, but not keep having these: "Oh dear, why have we suddenly got this issue to deal with?" I think if we try and think about that strategically and put into the mixing pot that issue that you just mentioned, that is exactly how we do want to be dealing with drains going forward. There are some difficult political decisions to be made in there. The

Connétable of St. Brelade:

How can we ensure that this can happen, given that we have these 4-year election cycles and different personalities come into the mix, and we have a necessity for a 50-year

forward plan? How can we achieve that and keep financing the necessary continuing investment required?

The Minister for Treasury and Resources:

I think by thinking about it strategically, which is we are a major shareholder of Jersey Water, we have our own drains department trying to bring them together to drive efficiency, making sure that Islanders think we get value for money. What we have to be careful of is that we do not ... nobody here is proposing that we fall into the trap that they are in, in the United Kingdom. This should be about leveraging investment into infrastructure and not what we have seen elsewhere.⁴⁴

KEY FINDING 23: An amalgamation of Jersey Water is under consideration as a strategic option to addressing the current siloed and inefficient approach of water supply being delivered by an arm's length organisation and drains maintenance and management being delivered internally by the Government of Jersey.

Funding from developers

The Panel raised the question with the Minister for Housing and Communities regarding whether property developers should be required to provide solutions to increase capacity in the sewerage and drainage network when a new development is built:

The Connétable of St. Brelade:

I suppose I am thinking of the smaller scale St. Peter proposals where you might have some homes that are unable to connect on to the network due to lack of existing capacity. There are planning applications for some properties where you might want to put half a dozen houses on the site of one but they cannot because of the restricted capacity. Do you see these solutions having to be provided by the developer of the sites to provide the number of houses that you need?

The Minister for Housing and Communities:

That you need, yes. That is a really good question. I personally would like to see that as part of the infrastructure deal for the very reasons that my concern is that if we keep burdening developers with more and more cost all we are doing is increasing the cost of housing and the cost of building and the affordability issue is there. I am going to try and be very careful here. That would be my take on it. I am not sure if the Minister for Infrastructure has exactly the same view or opinion on that but, as I say, I think it would make more sense that if we have funding, which has yet to be approved by the States Assembly, for doing this, I think we need to get on ... I think the Infrastructure Department needs to get on and do these things..⁴⁵

The same question was posed to the Minister for Infrastructure in the public review hearing:

The Connétable of St. Brelade:

Do you think it should be part of a development cost? Should an additional charge be part of a development cost?

⁴⁴ Public Review Hearing – Minister for Treasury and Resources – 28 June 2023, p.9

⁴⁵ Public Quarterly Hearing – Minister for Housing and Communities – 12 July, p.16

The Minister for Infrastructure:

What I would really like to do is have charges that reflect the extra money, not the day-to-day money that people are already paying their taxes for but the stuff that they have not paid within their taxes, to bring us up to speed and to keep us where we need to be. Does that make a certain amount of sense?

The Connétable of St. Brelade:

I am just thinking in terms of new development and I am talking about the St. Peter developments particularly. We have a massive development there. Should the developer be trumping up some of the costs involved in ...?

The Minister for Infrastructure:

It is arguable that there should be a contribution but what you cannot have, I do not think, is a situation where new developments are paying for the underinvestment level that affects the whole Island, if that makes sense. So in terms of introducing a waste charge, that should be across the piece to reflect the level of underinvestment there has been and the future amount of money that is going to be needed to keep it up to spec so we never find ourselves in this awkward position again.

The Connétable of St. Brelade:

But if there was, shall we say, a mitigation tank built, whether it is Maufant, St. Peter or wherever, would the developer be expected to pay for that?

The Minister for Infrastructure:

I am not sure that we could do that either because you are upgrading a region that has been underinvested, if that makes sense. What we did have a discussion about before is the possibility if somebody - for example, a private developer - wanted to build 10 houses in a particular area, if the capacity exists to take that overnight, it could be conditional upon them having their own inhouse tank that has sufficient storage to ensure that they could have a timer and that waste could be pumped into the system when it is not under pressure. These are things that we are looking at as ways of overcoming the short-term problems that might exist while we are upgrading.⁴⁶

In the public hearing with the Minister for Treasury and Resources further comment was made regarding the need for development contributions to be proportionate to the scale of development:

Chief Officer, Infrastructure, Housing and Environment Department:

...To pick up the previous point around development contributions. Development contributions have to be proportionate to the scale of development that is being required. There will be a conversation point around whether this is the connection cost of the development into the system, but this is about system capacity. Certainly development and developers will often pay for their connection costs into the system, and that would be expected. Network upgrades though are unlikely to be viable for these housing sites. I

⁴⁶ Public Review Hearing – Minister for Infrastructure – 28 June 2023, p.10-11

think there would need to be a balance, we would need to draw the line between where that proportionately sits under the current planning rules.⁴⁷

KEY FINDING 24: There is perceived to be general agreement within the Government of Jersey that development contributions to drainage should be proportionate to the scale of development and that whilst developers should contribute for connection costs onto the mains network, they should not be expected to fund the historic underinvestment in the Island's sewers and drainage.

Accepting that there should be some degree of balance so that developers are not overburdened with cost, the Panel is of the view that developers should fund the network reinforcement required for the additional load they will generate into the system and to avoid customers having to subsidise developer's profits.

RECOMMENDATION 21: In consideration of a long-term funding solution, the Minister for Treasury and Resources and the wider Council of Ministers, should ensure that developer's contributions for new development are considered in the mix of solutions for funding network reinforcement comparative to the additional load the new development will generate into the sewerage and drainage system and to ensure that customers (i.e. taxpayers) are not left subsidising developer's profits.

Comparative analysis of funding models in other jurisdictions

Indepen undertook a comparative analysis of approaches to wastewater strategy business models in Guernsey, the Isle of Man and the Isle of Wight. The cost of charges per household was compared with associated funding models in other comparable island jurisdictions. It was found that all comparators have some element of user charging and can access long-term debt to spread the repayment of capital finance over many years. Likewise, all comparators have the additional responsibility for integrating the management of drinking water supply alongside their wastewater and surface water flood risk responsibilities.

KEY FINDING 25: A comparative analysis of waste strategy business models in other island jurisdictions shows that all comparators have some element of user charging and can access long-term debt to spread the repayment of capital finance over many years. Likewise, all comparators have the additional responsibility for integrating the management of drinking water supply alongside their wastewater and surface water flood risk responsibilities.

Indepen observed that the BLWS will increase charges significantly and beyond those of comparable island states leading to their recommendation that the GoJ consider an approach to phasing upgrades over a longer period in order to review options in the 2025-2035 strategy which could offer better value for money through an integrated water management plan, including rainwater retention approaches such as SuDS.

The table below has been extracted from their report.⁴⁸

	Jersey	Isle of Man	Guernsey	Isle of Wight
Area (km ²)	120	572	78	381

⁴⁷ Public Review Hearing – Minister for Treasury and Resources – 28 June 2023, p.7-8

⁴⁸ Data sourced from the responsible body or each island's government website publications, accessed during July 2023.

Resident population (at year ending)	102,000 (2021)	84,300 (2021)	67,500 (2021)	140,400 (2021)
Population density (residents / km²)	854	147	865	372
Responsible body for wastewater asset management	Infrastructure & Environment Ministry, States of Jersey	Manx Utilities, Statutory Board of the Isle of Man Government	Guernsey Water, independent trading entity of States of Guernsey	Southern Water, privatised water and sewerage utility company
Funding model	Central government funding via taxation	User charges (c £14m in 21-22) and government grant for flood work	User charges (£9.3m revenue in 2020, excluding cesspit services)	User charges (c£15.6 m)
Capital finance	Central government	Long-term bonds and loans backed by and repayable to government	Government grants repaid via revenues	Equity and private bond issue
Estimated wastewater "charge" per household	£659 (c44,500 households) £250 KI&E £180 BAU £229 Opex	£392 (c37,500 households)	£372 (c 25,000 households)	£232 (c67,500 households)
Drinking water, wastewater, surface water flooding integrated?	Surface water flooding and wastewater	Yes	Yes	Yes
Sewage works with secondary treatment	2	18	0	20
Length of sewer network (km foul & surface water)	570	600	200	1,455
Pumping stations	116	76	66	168

Table 4 Comparison of island wastewater business models⁴⁹

Indepen suggest that the business case presented for the BLWS “prefers a potentially sub-optimal case in that it prioritises risk and early investment over options to phase investment based on impending need. This results in a higher cost and an opportunity cost that the money is not available for other uses.” Bonne Nuit Sewage Treatment Works is highlighted as a case in point where it is recommended that investment is deferred until completion of an integrated water management plan and a review of pass-forward flow strategy.

KEY FINDING 26: The Bridging Liquid Waste Strategy 2023-2026 will increase charges significantly per household (£659) and beyond those of comparable island states. The business case presented prefers a potentially suboptimal case by prioritising risk and early investment over options to phase investment based on impending need. This results in a higher cost and opportunity cost that the money is not available for other uses.

RECOMMENDATION 22: The Minister for Infrastructure should consider an approach to phasing some sewerage and drainage network upgrades over a longer period. Options, such as (but not limited to) the replacement of Bonne Nuit Sewage Treatment Works with a pumping station,

⁴⁹ Table 5.1 Comparison of island wastewater business models, Indepen UK Report – information accurate as of July 2023

should be reviewed in the longer-term Liquid Waste Strategy 2025-2035 to determine whether there is an alternative solution offering better value for money through an Integrated Water Management Plan, including rainwater retention approaches such as Sustainable Drainage Systems.

Indepen found that implementation within the Department is siloed with separate funding and with few incentives for management of the whole system. The approach is considered to be suboptimal in terms of performance and potentially less resilient. Furthermore, the strategy is based on cost and risk approach with limited options presented and risks not quantified. This means it does not optimise investment and phasing.

Indepen recommend greater focus on a systems-based approach to water management, enabling collaboration between the parties in the system to better utilise the water systems and services. Importantly, a Strategic Direction and Integrated Water Management Plan should consult on approaches to integration. They advocate use of the 'HMT Green Book' which sets out an approach to investment to meet societal, economy and environment outcomes to create greater value. Water companies in England and Wales are encouraged to adopt these approaches and the GoJ may wish to consider a similar toolset for the next Island Plan and associated strategies.

KEY FINDING 27: Implementation within the Infrastructure and Environment Department is siloed with separate funding and with few incentives for management of the whole system. The approach is considered suboptimal in terms of performance and is potentially less resilient. Furthermore, the strategy is based on a cost and risk approach with limited options presented and risks not quantified. This means it does not optimise investment and phasing.

RECOMMENDATION 23: The Minister for Infrastructure should ensure that the Infrastructure and Environment Department reviews its risk tools and metrics to enable finer tuning of its investment priorities. Furthermore, future strategic outline business cases should adopt approaches recommended by the HM Treasury Green Book which sets out an approach to investment to meet societal, economy and environment outcomes to create greater value. In addition, a wider set of options should be considered in the business case – specifically, deferring investment to match development, carrying out design work in advance and identifying land for infrastructure assets in the next Island Plan.

5 Conclusion

There is evidently a pressing need to invest in the Island's liquid waste and drainage infrastructure, to address both ageing network assets but also issues of capacity, particularly where this is holding up much-needed affordable housing developments. However, it is clear there is a need to take a more strategic, long-term approach to planning and funding the infrastructure capital programme moving forward. We are therefore pleased to see that there is an acknowledgement from Government that this needs to be addressed to achieve successful delivery of key infrastructure projects into the future. This is especially important given that whilst funding has been agreed in the Government Plan 2024-2027 for the years 2024 and 2025, the agreed funding amounts will not cover all liquid waste emerging projects through to completion and therefore some projects will not be able to commence until longer-term certainty of funding approval can be provided from 2026 onwards.

Overall, the Bridging Liquid Waste Strategy 2023-2026 has been found by our expert adviser to represent a *“coherent plan to address the issues through specific asset-based network interventions.”* However, it is more of an asset management plan than a strategy. A strategy would consider alternative options and approaches and the lack of this analysis in the Bridging Liquid Waste Strategy 2023-2026 makes it difficult to assess whether the plan represents the best value approach versus potential alternative solutions. There are, however, several 'low or no regret' options presented which should be progressed to deliver essential upgrades to the network. We would urge the Minister for Infrastructure to ensure that where there are currently gaps in the evidence that these options should be deferred until the longer-term Liquid Waste Strategy 2025-2035 to ensure that the best, most cost-effective solutions are delivered.

One of the less well addressed aims of the Bridging Liquid Waste Strategy 2023-2026 is surface water management and identifying areas where works are required to reduce flooding risks. This should be addressed fully in the longer-term Liquid Waste Strategy 2025-2035 and any associated Integrated Water Management Plan. There is a very clear need for approaches to water supply and liquid waste management to be integrated and to move away from the current siloed approach of tackling each separately. Our review has found that emerging approaches to drainage and wastewater management across the UK go beyond asset management and both water and wastewater plans are integrated to identify efficient solutions that address both services such as Sustainable Drainage Systems, rainwater harvesting and reduced consumption. Much can be learned from other jurisdictions in terms of approaches to surface water management and wastewater strategy development in general and as has been evidenced stakeholder and community engagement is key to this process.

Funding the full programme of liquid waste works will be considerable and the Panel looks forward to monitoring the ongoing progress of a long-term financing plan, in particular the exploration of user-pay charges for waste charging. The Panel stresses the importance that stakeholder and community engagement is used to inform these proposals from an early stage.

Our recommendations are intended to enhance the current programme of works and delivery of a long-term financing plan and we hope they provide helpful, constructive feedback to Ministers. It is important that whilst action must be taken now to address the condition of the Island's infrastructure assets, important consideration should also be given to delivering proposed solutions that offer the best value for money for the taxpayer who will ultimately be funding these works.

Appendix 1 – Review information

Panel Membership



Deputy Steve Luce
(Chair)



Constable Mike Jackson
(Vice-Chair)



Constable David Johnson



Deputy Mary Le Hegarat

Terms of Reference

1. To assess how the Bridging Liquid Waste Strategy 2023-26 plans to address known issues with ageing and capacity of the Island's current sewerage and drainage network and to:
 - a. consider the suitability and sustainability of proposed solutions which have been identified.
 - b. explore whether there are suitable alternative solutions / technologies which should be considered.
2. To assess the impact of current sewerage and drainage network capacity issues on meeting the housing development delivery targets set out in the Bridging Island Plan 2022-25.
3. To consider the historic underfunding of essential infrastructure-related services and projects and what measures should be put in place to ensure Government takes a more longer-term strategic approach to the funding of these essential works within the capital programme.

4. To consider how and to what extent the Bridging Liquid Waste Strategy 2023-26 will lay the foundation for a long-term programme of works to the Island's drainage network and to ensure greater resilience to challenges posed by climate change, such as flooding events.
5. To conduct a desktop study exploring liquid waste strategies in other jurisdictions, with particular focus on jurisdictions which face, or have faced, similar issues with sewerage and drainage network capacity impacting on building development delays.

Evidence Considered

Public hearings

The public hearing transcripts can be viewed on the States Assembly website [here](#).

Written submissions

A total of six written submissions were received from stakeholders and can be viewed [here](#).

Other evidence considered

Indepen UK Adviser Report (see appendix two)

Review costs

The costs of this review totaled £24,350 for public hearing transcription costs and adviser fees.

What is Scrutiny?

Scrutiny panels and the Public Accounts Committee (PAC) work on behalf of the States Assembly (Jersey's parliament). Parliamentary Scrutiny examines and investigates the work of the Government, holding ministers to account for their decisions and actions. They do this by reviewing and publishing reports on a number of areas:

- Government policy;
- new laws and changes to existing laws;
- work and expenditure of the Government;
- issues of public importance.

This helps improve Government policies, legislation and public services. If changes are suggested, Scrutiny helps to make sure that the changes are fit for purpose and justified.

The Environment, Housing and Infrastructure Scrutiny Panel, scrutinise Government on matters within these three remits. To learn more about the Panel's work – [CLICK HERE](#).

Appendix 2 – Key Liquid Waste Infrastructure Expenditure by project and year

Type	Project	Required Budget	2023	2024	2025	2026	2027
RM Replacement	Le Dicq RM (twin 1000m)	£3,000,000	£0	£225,000	£15,000	£2,760,000	£0
RM Replacement	Le Dicq RM (through tunnel 340m)	£800,000	£0	£438,835	£361,165	£0	£0
RM Replacement	Maupertuis RM (two x 350m)	£700,000	£0	£378,000	£322,000	£0	£0
RM Replacement	First Tower RM (twin 1200m)	£8,500,000	£0	£127,500	£320,000	£4,649,500	£3,403,000
RM Replacement	St Brelade 1 RM (250m)	£600,000	£0	£0	£457,062	£142,938	£0
RM Replacement	Five Oaks	£400,000	£0	£0	£300,000	£100,000	£0
RM Replacement	Route Orange	£500,000	£0	£0	£300,000	£200,000	£0
RM Replacement	Le Hocq	£1,500,000	£0	£0	£0	£823,732	£676,268
RM Replacement	Pontac	£450,000	£0	£0	£0	£450,000	£0
RM Replacement	Faldouet	£575,000	£0	£0	£0	£315,830	£259,170

RM Replacement	Portelet No 2	£1,200,000	£0	£0	£0	£0	£64,562
RM Replacement	Trinity No 1 and 2	£2,500,000	£0	£0	£0	£0	£0
RM Replacement	Beaumont No 1 and 2	£150,000	£0	£0	£0	£0	£0
RM Replacement	Rue des Pres	£650,000	£0	£0	£0	£0	£0
RM Replacement	Other Rising Main replacements (per year) Beyond 2030 funding	£0	£0	£0	£0	£0	£0
RM Replacement	Projects to be identified/prioritised from LWS.	£0	£0	£0	£0	£0	£0
RM Replacement	St Ouen	£3,800,000	£0	£0	£0	£0	£0
RM Replacement	Bas Du Marais	£1,250,000	£0	£0	£0	£0	£0
RM Replacement	L'Etacq	£1,700,000	£0	£0	£0	£0	£0
RM Replacement	Maufant	£1,900,000	£0	£0	£0	£0	£0
Strategic Storage	St Peter/Airport Strategic Storage	£5,000,000	£50,000	£350,000	£1,775,000	£2,950,000	£0
Strategic Storage	West Hill Strategic Storage	£8,000,000	£80,000	£320,000	£2,040,000	£5,600,000	£0
Strategic Storage	Five Oaks SPS Storage	£3,000,000	£0	£0	£0	£225,000	£1,215,000

Strategic Storage	Les Quennevais/St Brelade Strategic Storage	£4,000,000	£0	£0	£0	£400,000	£1,160,000
Strategic Storage	Maufant Strategic Storage	£5,000,000	£100,000	£643,227	£4,256,773	£0	£0
Strategic Storage	Maupertuis/Le Hocq Strategic Storage	£5,000,000	£0	£0	£0	£1,200,000	£3,800,000
Strategic Storage	Other strategic storage - projects to be identified/prioritised from LWS.	£0	£0	£0	£0	£0	£300,000
Treatment / Pumping	Bonne Nuit STW	£1,100,000	£75,000	£789,000	£236,000	£0	£0
Treatment	Other treatment - Future satellite sites tbc	£0	£0	£0	£0	£0	£0
Strategic SWS	West Park SW Outfall	£4,281,930	£519,339	£1,899,890	£0	£0	£0
Strategic SWS	St Aubin's Road (Phase 1 - Devonshire to Bellozanne Road)	£1,000,000	£0	£0	£50,000	£868,000	£82,000
Strategic SWS	St Aubin's Road (Phase 2 - Sunnyside to Lotus House)	£1,000,000	£0	£0	£0	£530,000	£470,000
Strategic SWS	Beaumont SWS / SW Outfall	£2,000,000	£0	£0	£40,000	£620,000	£1,340,000
Strategic SWS	Other SWS - projects to be identified/prioritised from LWS.	£0	£0	£0	£0	£0	£225,000
LWS General	LWS Capital Delivery Programme development	£0	£1,138,802	£0	£0	£0	£0
			£1,963,141	£5,171,452	£10,473,000	£21,835,000	£12,995,000
			£52,437,593				



| States Assembly

Environment, Housing and Infrastructure Scrutiny Panel

Scrutiny Panel Report on Bridging Liquid Waste Strategy

Government of Jersey

24th July 2023

Indepen is a management consultancy working with clients facing the challenges of regulation, deregulation, competition and restructuring. We help investors, boards and senior managers identify and assess political and regulatory risk and to develop and implement internal and external strategies to manage their exposure.

Our clients are the organisations involved in financing, constructing, managing and regulating built and natural infrastructure – water, energy, transport, land and property. We have constructive relationships with relevant government departments and agencies.

Our team combines experience of public policy, regulation, corporate finance, communication and engagement and organisational development. We complement this with input from our associates – CEOs and chairs of FTSE and privately owned companies, regulators, government ministers and academics.

The Indepen Forum provides the opportunity for investors, government and business leaders to debate, under the Chatham House Rule, issues that if mishandled could undermine well-intentioned policy initiatives.

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Executive Summary

The last update to the Liquid Waste Strategy (LWS) was issued 10 years ago in 2013, which was primarily an update to the 2010 strategy. The objective of the last update was to set out the case for an upgrade to Bellozanne STW which had been treating nearly twice its design capacity.

With the impending completion of the upgrade a new LWS has been drafted to address the growing number of network issues that have been developing over the last decade with funds having been diverted to pay for the STW upgrade.

The LWS is being synchronised with the island plan, the next version of which is due in 2026. As a result the current LWS, known as the Bridging Liquid Waste Strategy (BLWS), is covering a shorter timescale, 2023-26. As we are now 6 months into 2023, it is assumed that the plan will cover just over 3 years of investment.

The BLWS exhibits a good asset management process and an impressive investment in tools to manage asset performance. The management of the network appears to have resulted in good levels of performance given the scale of the challenges of growth and climate change.

The strategy is essentially an asset management plan and as such lacks a wider perspective of the issues and opportunities that a well-developed strategy might entail.

It lacks the detailed evidence that would enable an informed assessment of risks.

As a result, the opportunities to consider different approaches in future are not covered. This means it is difficult to assess whether the direction of travel the BLWS proposes is optimal and whether the pace at which it is proposed to be implemented offers value for money.

The process of scrutiny has led to the review of the strengths, risks and opportunities of the current BLWS with reference to emerging best practice and the particular challenges faced by the Island of Jersey. This report contains advice and support to the authors of the BLWS to ensure the best outcome for the residents of Jersey through the delivery of the BLWS and the development of subsequent strategies.

1 Summary of Bridging Liquid Waste Strategy (BLWS)

The BLWS covers the period 2023 -2026 and sets out a case for investment to meet the objectives in the New Government Plan 2023-26. Due to the time needed for project initiation and delivery it is programmed to be concluded by 2030.

A new Liquid Waste Strategy is due to be published in line with a new Island plan. This will cover the usual 10-year period in this case 2025 – 2035. There will be some overlap in the early part of the 10-year Strategy.

The BLWS identifies numerous improvements that are required. The consideration of the needs of the asset base appears to have been diligently prepared and we have no to believe that the proposed asset-based solutions will fail to meet the majority of aims of the strategy as described in the document.

The approach is not without risk. A more complete strategy would enable a range of alternative options to be considered to achieve the outcome required by

- ⊙ starting from a consideration of the issues and consideration during the review period
- ⊙ proposing a set of guiding principles
- ⊙ reviewing a range of potential responses and identify the opportunities, costs, risks and trade-offs associated with them
- ⊙ specifying coherent actions that align with the diagnosis and the guiding principles.

With this approach in mind, we make the following observations.

- 1 The BLWS establishes the current limits to the Liquid Waste asset system, in terms of the severe stress on hydraulic capacity and the long-term deterioration in the condition of assets that are critical to the performance of the system. The risks associated with the capacity and condition of the network are defined in qualitative terms with limited quantitative evidence on expected service standards and current performance. The potential consequences of failure to liquid waste services are evidenced by the results of asset modelling.

The document is clear that these problems will be exacerbated by planned housing growth and by climate change and that these issues must be considered alongside related policies, including Jersey's commitment to carbon neutrality. Growth and the impacts of climate change are highlighted as sources of uncertainty that are expected to be addressed by the full update of the Island Plan, due in 2026.

- 2 Although the BLWS outlines a series of strategic drivers and some relevant Government of Jersey policy guidelines in Chapter 4, there is no coherent statement of the guiding policy. Aspects that emerge in the Strategy, include
 - the overarching requirement to facilitate new housing
 - the need to focus on protecting assets which are most critical and where evidence of poor condition suggests that failure is likely
 - the need to focus on solutions that would be cost-effective and not cause unacceptable disruption to communities.

- 3 The strategy considers a limited range of options. The approach is asset-centric seeking to prevent service failure, provide additional storage or capacity for growth and, where possible, separate foul from storm water.

Alternatives such as SuDS are mentioned but not presented as viable choices over the life of the strategy.

The preferred option for Bonne Nuit - replacement with a pumping station - is proposed without considering the opportunity cost of doing so, such as the loss of the option of protecting capacity in the network downstream and at Bellozanne STW where there is a lack of space for expansion.

The plan proposes investments to address many of the needs of the network and so the opportunity to consider how an integrated water plan that might affect the liquid waste strategy is foregone.

- 4 The criteria against which options were assessed are not made explicit, nor is the range of options considered. This means it is not clear that the best options have been chosen. The lack of options in the plan and of clear project deliverables in terms of risk reductions and service improvements, and of different phasing approaches, mean it is not possible to assess whether the approach will meet the objectives efficiently and effectively. For example, it is not clear how well the approach will address the impacts of climate change or that it represents best value or if it is cost effective compared to alternatives.
- 5 Even so, we believe the approach and actions in the BLWS will help address the challenges facing Jersey's liquid waste management system. Investment is targeted to maintain the performance of critical assets in a way that is proportionate to the evidence on the risk of asset failure. There is a commitment to increasing the evidence base on the condition and performance of assets via telemetry and monitoring. Preparation for future work is targeted on the most likely issues but remains flexible enough to respond to changes (e.g. as indicated in Census data) and the eventual locations of housing growth that will be formalised when the Island Plan for 2026 is finalised. The plan identifies urgent needs, some of which will be of low regret and has clear recommendations that those identified as urgent and important to protect public health and the environment are advanced.

There are two areas where coherence is lacking. The first is the acknowledged need to integrate with other significant water-related infrastructure strategies, namely the response to the recent Strategic Flood Risk Assessment and the need for development of integrated water management solutions given Jersey Water's strategic water supply challenges. The second area is the absence of any exploration of innovative and community-led solutions and the engagement that would be needed to conduct this exploration.

In summary, there is a coherent plan to address the issues through asset-based network interventions. The precise needs are not established due to considerable uncertainty about where or when the growth is most likely to occur and the absence of information on service failures. The lack of consideration of other approaches means we cannot assess whether the plan represents the best approach.

The aims set out in the published document are a list of recommended asset related actions, effectively an asset management plan rather than a systemic review of the short- and long-term outcomes based on an understanding of the risks and mitigations, trade-offs and choices to meet future service levels.

2 Context of the BLWS

2.1 Aims of the BLWS

The BLWS contains a list of aims. Some of them are directly addressed in the document, others less so. Those clearly addressed are

- ⊙ Review progress against the 2013 Strategy.
- ⊙ Identify improvements needed to collection, treatment and disposal services;
- ⊙ Identify parts of the network that require significant maintenance or repair;
- ⊙ Identify parts of the network that require reinforcement or expansion to improve capacity;
- ⊙ Identify parts of the network, including current foul sewer extension projects, that require reinforcement or expansion to meet the future demands expected from the Island Plan and proposed new developments;
- ⊙ Identify appropriate best practice for operation and asset management;
- ⊙ Identify the parts of the network that offer the greatest benefit from surface water separation;
- ⊙ Review of design and operational philosophies for Pumping Stations and Rising Mains, including management of wide variation in flows; and,
- ⊙ Review resources requirements for the operation and maintenance of the Liquid Waste assets.

Less well addressed are

- ⊙ Review latest international best practice in policy and operational processes; where the policies are confined to asset approaches rather than outcomes and are not considered in the context of an overarching integrated Island Water Strategy
- ⊙ Identify opportunities for early enabling works and land purchase that will facilitate future service security where future potential interventions such as SuDS are not fully considered
- ⊙ Recommend locations for any new assets such as supplementary or satellite sewage treatment works and network storage where the primary objective appears to pass forward flows rather than consider network potential benefits of network disaggregation
- ⊙ Identify the extent of costs and propose implementation timescales in the absence of performance data detailing current and future risks or alternative approaches to phasing the implementation
- ⊙ Review surface water management and identify areas where works are required to reduce flooding risks, making allowance for climate change in the absence of a complete climate change assessment

Establishing the aims and outcomes to be achieved is essential to the strategy when making important trade-offs that need to be considered between the needs of

- ⊙ the community including public health, cost etc.
- ⊙ the environment, including carbon, nature, water quality and water quantity.
- ⊙ future generations
- ⊙ externalities to be considered including financial, technological and political factors.

The I&E Department were asked to list the outcomes they were seeking to achieve and responded with the following:

“Generate sufficient capacity in the network to address existing issues, allow construction of new housing and be ready for population growth up to 2035 and beyond as identified in the Bridging Island Plan (BIP) and Government Plan”

This is a clear statement of the most pressing needs but is not sufficiently specific to set the parameters of the LWS in future.

2.2 Current practice in England and Wales

The English and Welsh Governments set strategic priorities, short and long term, for the water sector against which regulators define targets and then require the water companies to develop quinquennial plans to meet the outcomes and the specific performance levels required. The plans have regard to

- ⊙ the context of the externalities that will affect service levels in the future - climatic, economic, societal and technological – which represent the long-term adaptation challenges

- ⊙ communities' expectations for levels of resilience and service performance and cost, which frame the pace at which the companies plan to progress
- ⊙ levels of current performance which determine the baseline of service and risk
- ⊙ how the company will close the gap by identifying the options available to meet long- and short-term expectations
- ⊙ justification of the plan as the best set of actions to address the risks and trade-offs while being efficient and innovative.

During this process the companies are challenged to meet long term needs by using adaptive approaches to avoid untimely or unnecessary investment and to consider a wider range of solutions.

There are many emerging approaches, some of which go beyond network asset strategies. These include land management changes to increase rainwater capture, reduce rainwater ingress into foul waste networks, and behaviour or consumption changes to reduce the impact of society's activities on the network's performance and the environment. These outcomes are reflected in the Water Resource Management plans (WRMPs) and Drainage and Wastewater management plans (DWMPs) that base line current (service) levels of performance against future requirements and identify holistic approaches to meet them.

These plans are at catchment level and consider inter-catchment transactions. The water and wastewater plans are integrated to identify efficient solutions that address both services, such as SUDs, rainwater harvesting, or reduced per capita consumption which reduces flows into the sewer network.

2.3 Situation in Jersey

The Jersey network is relatively small and we should guard against disproportionate effort on developing evidence and strategy. We note that the scale of investment proposed is similar to that in E&W networks, while the baseline operational performance of the Jersey network is better.

There are competing demands for investment and we believe the Government of Jersey should have a proportionate, well-evidenced and coherent approach to determining its priorities. An integrated water strategy will take time. We recommend that gaps in the current strategy are addressed in the LWS covering 2025-35 and that the programme of works to implement the BLWS should focus on no or low regret options.

3 Review Recommendations

The scrutiny process has exposed the need for additional evidence to improve the understanding of the BLWS' its strengths and potential weaknesses. Detail of the evidence needed is in Appendix 1. This is based on questions posed to the relevant Departments and provides a record of the scrutiny and responses.

The needs are of three kinds.

- ⊙ Potential of a material risks to the current strategy (Red)
- ⊙ Issues and opportunities to be considered for the 2025-35 LWS (Amber)
- ⊙ Matters that have been dealt with.

The first two are summarised in the table below together with the recommendations.

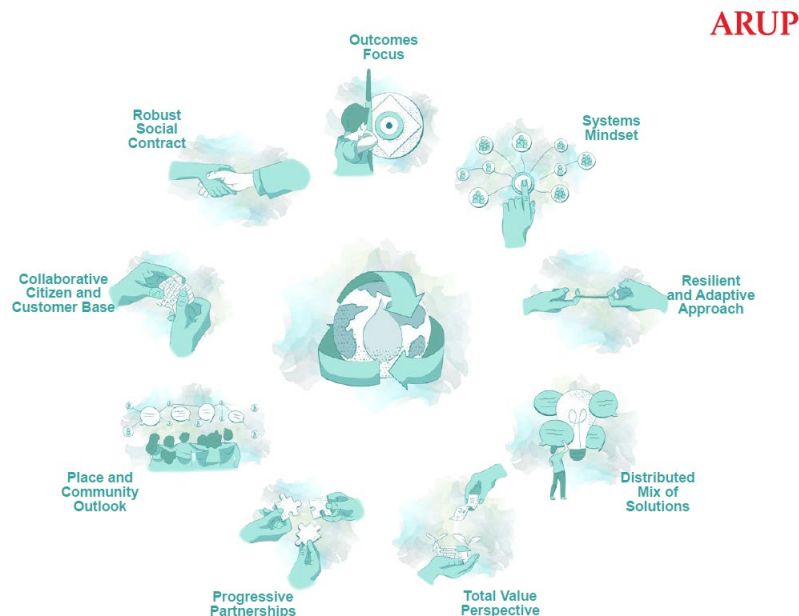
RAG	Area of challenge	Description	Recommendation
BLWS	Customers	Service metrics. Blockages and rainwater ingress are major service risks. Improved demand management and reduced sewer misuse may extend capacity of networks and reduce pressure on investment	Implement service metrics and use to inform customers of utilisation issues. Engage customers in demand management and action to reduce sewer misuse.
BLWS	Design principles and pass-forward approach	With the proposed approach and predicted growth Bellozanne STW is likely to have capacity constraints in the near to mid-term. Subsequent Network and STW upsizing will be disruptive. Upstream attenuation tanks for diurnal flows may exacerbate septicity problems in network and STWs	Potentially significant opportunity cost of this approach. Review pass-forward strategy to extend life of downstream network and Bellozanne STW. Review solution for Bonne Nuit STW. Review approach to attenuation versus network disaggregation and small STWs to reduce reliance on attenuation.
BLWS	Serving new development	Exact location and timing of new development is uncertain. Preferred strategy is to complete capacity works within the next 5 years. Risk that upsizing is not utilised soon, i.e. suboptimal investment plan	New option of progressing design and identifying land for new assets in local plan, but deferring investment until housing phasing is known. Reduces capex in BLWS with reduced cost to customers. Further potential for other approaches in LWS 2025-35

BLWS	Cost/risk approach	The BLWS will increase charges significantly and beyond those of comparable island states. Network performance appears to be in the upper tier, given its age. Focuses on risk of failure and customers not consulted on cost	Consider approach phasing upgrade over longer period. Review options in 2025/35 LWS that may offer better value for money through integrated water management plan including rainwater retention approaches such as SuDS.
LWS 2025-35	Strategy development	The document is an Asset Management plan and does not offer the benefits of a complete strategy for considering options to meet a future characterised by significant uncertainty.	Develop an integrated water management plan (IWMP) and a strategic direction (SD) for consultation before the LWS 2025-23. Review and consult on a wider range of water management options to give an adaptive long term resilience plan
LWS 2025-35	Approach to implementation	Implementation is siloed with separate funding and with few incentives for management of the whole system. The approach is sub optimal in terms of performance and potentially less resilient.	Greater focus on systems-based approach to water management, enabling collaboration between the parties in the system to better utilise the water systems and services. The SD and IWMP should consult on approaches to integration
LWS 2025-35	Public Value	The strategy is based on cost and risk approach with limited options presented and risks not quantified. This makes it does not optimise investment and phasing.	HMT Green book sets out an approach to investment to meet societal, economy and environment outcomes to create greater value. E&W water companies are encouraged to adopt these approaches and the GoJ may wish to consider a similar toolset for the next Island Plan and associated strategies. Review risk tools and metrics to enable finer tuning of investment priorities.

4 Recommendations for the 2025-35 LWS

Water management is coming under increasing scrutiny as the traditional model comes under greater pressure to meet future societal need and respond to significant environmental uncertainty. Water managers are looking for integrated approaches recognising that water systems are complex environmental and societal systems with many competing pressures. The development is in its infancy as water managers adapt to the need to plan and transact in a very different approach utilising skills of which monopoly, state or privatised services have no experience. Collaborative system-based models require involvement of all the parties in the system including citizens, farmers and industry to share resources and risk to the benefit of all.

A recently published report by Arup and Indepen ([A new future for water - Arup](#)) identified nine characteristics that a future facing water strategy should exhibit.



The importance of the individual characteristics will vary between catchments. Jersey’s water system is in one way simple, in that is relatively compact, but also complex because of the societal pressures on land use. An integrated water management plan should sit at the heart of future strategies and align island policy with the need for a clean and sustainable water environment and associated public health. The policy would set out the context for the interconnected strategies for the services. At the heart of the change required is consideration of how those who own land manage it to ensure that the environment and public health are protected and those who consume the services have regard to the public good. Considering the approaches to enabling this in a water strategy is critical to long-term resilience.

The table below offers a perspective on how such an approach might be developed for the Island.

Characteristic	Description	Recommendation
Outcomes focused	Putting common goals for the environment and society central to what the State is looking to positively impact	Identify relevant targets actions that are outside of the State’s direct sphere of delivery, and therefore putting success partially in the hands of others, such as developers farmers or water services consumers
Systems Mindset	Approach challenges from a systems perspective, recognising the interdependent components and working with other actors that have a role to play.	Review of all the activities contributing to a resilient water management approach on Jersey and identify opportunities or actions for each of the consumers or beneficiaries – Particularly the role of surface water management at a network, community (geographical or functional) or property level
Resilient & Adaptive Approach	Long term planning with adaptive approach to cater for changes in course dependent on economic, environmental, societal or technological developments to deal with unprecedented volatility & uncertainty	Develop long term plans for drainage and wastewater management that consider a range of scenarios on the 4 key externalities and identify progressive approaches to reduce risk of unhelp opportunity costs such changes in growth, or water quality or quantity needs
Distributed mix of solutions	Supplement traditional grey infrastructure solutions with catchment and nature-based solutions, as well as behavioural change-delivered solutions, bringing more stakeholders into play in a more distributed and decentralised system.	Consider resilience benefits of a decentralised approach vs asset enlargement & pass forward approach, including household and community SuDS, and smaller wastewater networks and treatment plants supplementing baseflows in streams & ditches during dry months.

<p>Total Value Perspective</p>	<p>Move from traditional cost/risk benefit assessment of options to a wider set of metrics that include environmental and societal benefits that add local value</p>	<p>Develop wider set of value objects aligned with State’s ambitions for the environment (such as carbon neutrality) and society (such as economic, employment or amenity) that can be used to consider the different value approaches as described above offer.</p>
<p>Progressive Partnerships</p>	<p>Development of the partnerships required to implement and transact through a systems based approach</p>	<p>Identify the key relationships required to meet a long term sustainable and resilient water environment on the island and co-create ways of working together such as working with developers on reducing water and wastewater impact of new housing, farmers to create SuDS on land adjacent to urban centres, and connected customers to increase water harvesting and reuse.</p>
<p>Place & Community Outlook</p>	<p>Place-based planning is a collaborative and community driven approach that considers the local context and its unique characteristics.</p>	<p>Sub-divide the catchment of Jersey into smaller sub catchments within which to engage the communities served in the needs of local environment and public health (sanitation and flooding).</p>
<p>Collaborative Citizen & customer base</p>	<p>Enabled by local policy and regulation, as well as local incentives to collaborate. The equivalent in solid waste is household recycling of waste</p>	<p>Co-develop solutions to water management to reduce consumption or sewer misuse, and increase water harvesting and support them through creation of policies to enforce them</p>
<p>Robust Social Contract</p>	<p>Create shared responsibility and common purpose with community through co-creation of strategy</p>	<p>Engage communities in the development of the Island integrated Water Management Plan and associated strategies such as the LWS.</p>

These approaches will take time to mature and to create confidence in a new set of interventions to deliver the outcomes we need to meet the adaptation challenge. A road map for implementing these approaches should be developed within long term adaptive plans for water resources and drainage and wastewater and to meet the objectives of the island’s environment plan. The pace of change means that actions are needed today to develop the necessary tools.

We recommend that the within the timescale of the current BLWS a Strategic Direction should be developed describing, subject to consultation, how new approaches might take shape in the Island plan, the integrated water management plan and other strategies such as the Liquid Waste Strategy 2025-35.

5 Learning from approaches on comparable islands

Comparisons with strategic approaches to wastewater asset strategies and surface water flood management solutions in similar jurisdictions give opportunities to learn. This chapter aims to highlight areas for improving Jersey’s BLWS that are highlighted by these comparisons.

Appendix 2 contains a summary of approaches to the process of wastewater and drainage strategy development, and innovative approaches to tackling surface water flooding, that are used by water authorities in comparable island settings.

5.1 Key facts for comparison islands

Table 5.1 summarises key facts and figures for Jersey and the other islands chosen for comparison. Data were sourced from the responsible body or island government's website publications, accessed during July 2023.

Table 5.1 Comparison of island wastewater business models

	Jersey	Isle of Man	Guernsey	Isle of Wight
Area (km ²)	120	572	78	381
Resident population (at year ending)	102,000 (2021)	84,300 (2021)	67,500 (2021)	140,400 (2021)
Population density (residents / km ²)	854	147	865	372
Responsible body for wastewater asset management	Infrastructure & Environment Ministry, States of Jersey	Manx Utilities, Statutory Board of the Isle of Man Government	Guernsey Water, independent trading entity of States of Guernsey	Southern Water, privatised water and sewerage utility company

Funding model	Central government funding via taxation	User charges (c £14m in 21-22) and government grant for flood work	User charges (£9.3m revenue in 2020, excluding cesspit services)	User charges (c£15.6 m)
Capital finance	Central government	Long-term bonds and loans backed by and repayable to government	Government grants repaid via revenues	Equity and private bond issue
Estimated wastewater “charge” per household	£659 (c44,500 households) £250 KI&E £180 BAU £229 Opex	£392 (c37,500 households)	£372 (c 25,000 households)	£232 (c67,500 households)
Drinking water, wastewater, surface water flooding integrated?	Surface water flooding and wastewater	Yes	Yes	Yes
Sewage works with secondary treatment	2	18	0	20
Length of sewer network (km foul & surface water)	570	600	200	1,455
Pumping stations	116	76	66	168

In general terms, the comparators all share similarities in the scale of key areas of wastewater and drainage asset management. The exceptions arise in finance and integration with water supply. In terms of funding and capital finance, all comparators have some element of user charging and can access long-term debt to spread the repayment of capital finance over many years. Likewise, all comparators have the additional responsibility for integrating the management of drinking water supply alongside their wastewater and surface water flood risk responsibilities. The impact of these differences is not considered in this report.

5.2 Potential areas for improvement

Consideration of the approaches outlined in Appendix 2 suggest several areas of learning that could be applied to the future development of Jersey’s BLWS. Five key areas are drawn out below:

Clarity of strategic direction

The length (almost 200 pages) of the BLWS illustrates the depth of technical analysis that underpins it. However, this creates a barrier to clearly understanding the drivers and framework used to develop the strategy. The comparison islands all have very clear statements of their strategic direction which give a sense of how to judge their strategic approach.

Engagement with users over priorities

All comparators set up systems for extensive engagement with the users of their systems as part of the strategy development process. This helps them to gather views on relative priority, to explain and explore the trade-offs that have to be faced and to generate ideas for novel solutions/synergies to be incorporated into the overall approach.

Clarity of options analysis

On the Isle of Wight and Isle of Man, there is a very clear exposition of the whole life costs of a range of solutions to tackle a problem. This is supported by a very clear framework for analysis of ability to deliver non-financial objectives against which different options can be compared.

Clarity on the overall size of the challenge

Southern Water's analysis makes it very clear that there is a large cost (£637m) for meeting all objectives for the performance of the Isle of Wight's drainage and wastewater systems in the face of population growth and climate change. This allows a very quick view of how likely it is that their current levels of investments are likely to be sufficient. This context is absent from the BLWS.

Engagement with communities on solutions

The benefit of community engagement is seen in the range of Sustainable Urban Drainage and community-led approaches to surface water storage for flood alleviation in Guernsey and the Isle of Wight. These approaches are potentially more cost-effective and help communicate the difficulty of managing the issue. It is not clear to what extent these solutions have been explored in the BLWS.

The analysis underpinning the 2013 Liquid Waste Strategy suggested several options for additional wastewater treatment capacity, but it is not clear how much further these thoughts have been taken forward. The experience reported in the Isle of Man suggests that gaining agreement to new sites can be a time-consuming process, even with extensive community engagement.

Appendix 1 – Challenge Log

The log lists the challenges we made and the potential risks and opportunities associated with the strategy.

The RAG status has been developed following questions raised by the panel and the responses to the scrutiny. A number of challenges have changed from red to amber where recommendations are relevant to the development of the next LWS. Those that remain red are advisory in that they may have a material impact on the efficacy and efficiency of the current strategy and might therefore need consideration in the development of the delivery programme.

RAG Status
Material risk
Advisory
Sufficient

Ref	Questions and challenges	Response	Comment	RAG
1	What are the outcomes/outputs or performance levels your plan seeks to achieve?	Generate sufficient capacity in the network to address existing issues, allow construction of new housing and be ready for population growth up to 2035 and beyond as identified in the Bridging Island Plan (BIP) and Government Plan.	This is sufficient for an asset management plan but not for a strategy.	
2.1	What measures do you have of current levels of performance?	<p>The Department has island wide telemetry which monitors all the GOJ pumping stations, generating data including storage sump water levels, pump run times, power usage, high level alarms, station spill events and rain gauges. The data has three main uses:</p> <ul style="list-style-type: none"> • Providing immediate operational alarms such as pump failures to the maintenance teams. • Allowing detailed analysis of the drainage network performance for the maintenance and future design of the drainage network. • Supplying asset data for use in GoJ business systems. <p>The data inform two of our Departmental KPI's, namely:</p>	<p>KPIs for pumping stations are in the Asset management strategy.</p> <p>No outages due to M&E failure for 3 years suggests maintenance effective at extending asset lives</p> <p>Frequency of blockages signals work needed on community utilisation and network cleansing – not asset replacement.</p>	

Ref	Questions and challenges	Response	Comment	RAG
		<ul style="list-style-type: none"> No spills as a result of a mechanical or electrical failure and minimise the number of sewerage asset pollution incidents (Cat 1-3) to <10. Protect bathing water quality - duration of untreated effluent spills (% of time) 	<p>Spills due to adverse weather not seen as SPS performance matter but as a capacity issue.</p> <p>Network failure evidence not presented.</p>	
2.2	Assets – performance /condition /status	<ul style="list-style-type: none"> The operational alarms, such as station spill events, are recorded with accurate date/time stamps. These enable the department to very clearly determine when a drainage asset has had the design limits exceeded and investigate the cause. At a deeper level, the 28,000 points of data from the drainage network assets that come back into the system enable the drainage team to analyse the performance of the drainage assets as a whole and identify trends. For example, we can compare how long the pumps run in a station before and after a housing development has been built or how a station copes with 10mm/20mm/30mm of rain on multiple occasions to see if efficiency is changing. This data and information go to the modelling team that maintains the island wide hydraulic model to ensure it is kept up to date. The condition of the pumping station assets has been monitored in the past by standalone surveys of all the stations at 5 – 7 year intervals. The most recent took place in 2022. The results are held on spreadsheets and word documents due to the lack of a suitable asset management package within GoJ. JDE does not have the functionality to be able to perform the task. The imminent introduction of the SAP Ariba Asset management package means in the future, the condition of assets will be able to be monitored and recorded as part of the normal maintenance regime. The condition and status of the below ground assets, pipes, access chambers, etc are recorded in the Info Asset software package. 	<p>Asset management plans well informed, with plans to rectify some critical missing data such as risk characterisation .</p> <p>New systems planned to facilitate improved maintenance.</p>	
2.3	Customer service - metrics on LWS such as flooding, loss of service, blockages, etc)	<p>Complaints are monitored on a customer feedback management system.</p> <p>Service metrics such as flooding etc are recorded in our drainage database Info Asset which is used by all major water companies</p>	<p>Would expect to see metrics and targets published – helpful to relationship with customers to improve demand side responses (on sewer misuse and storm water connection)</p>	

Ref	Questions and challenges	Response	Comment	RAG
2.4	Compliance with permits such as storm overflows, STW consents, pass forward flow, pollutions, etc	<p>The telemetry system records pumping station failures and pollution spill events, with this data being used to populate the spreadsheets that are sent to the Regulator to demonstrate compliance with permits.</p> <p>The Department Operations hold two discharge permits (reference DP(B)2000/07/02 and DP(B)2007/04/02 issued under the Water Pollution (Jersey) Law 2000 for all 130 sewerage pumping stations including the Cavern and First Tower. Pumping station issues and spills are reported to the Regulator by Operations and appropriate action is taken. Recent wet winters 2021/22 and flooding events in January 2023 caused multiple spill events at pumping stations, not all of which can be classified as ‘storm/emergency effluent’ as some are due to ground/surface water ingress or infiltration of the network, made worse by prolonged periods of wet weather resulting in saturated ground. A review of the pumping station discharge permit is proposed.</p> <p>Pumping stations appear to have storm tanks to reduce discharges to environment thereby minimizing risk which is better than many comparable networks. The STW is being rebuilt and commissioned in 2022/2023.</p> <p>Compliance at the STW is measured via both Operator and Regulator monitoring of discharges and recording operational parameters. A new discharge permit application was made and a new permit is being drafted.</p> <p>There has been a history of non-compliance with the STW discharges to St Aubin’s Bay, notably for Total Nitrogen and this was one of the key drivers for investing in the new STW.</p>	Would expect to see compliance results from sampling to understand % of samples demonstrating compliance - number of spills per annum against target	
3	Strategy refers to known issues of lack of capacity - how is this measured/assessed?	<p>Existing lack of capacity can be seen ‘in real life’ in parts of the network that suffer from flooding and/or require manual interventions to prevent flooding, particularly during heavy rainfall events. (2.2 refers)</p> <p>The root cause of these issues is confirmed using telemetry data and the existing network model. The Department have an ongoing process to manage and update the island-wide network model and this has been used to identify ongoing and future areas of concern since it was first created in 2013.</p>	Would expect to see further assessments such as CCTV data, incident reports – these may exist but no root cause analysis was presented so it is difficult to assess scale.	

Ref	Questions and challenges	Response	Comment	RAG
		The Island model is also used to quantify the scale of the problem under various scenarios and work through possible solutions before progressing to design. The network model will be used as the basis of all BLWS design development.		
4	How is risk reviewed/assessed/ reported?	<p>All the data described in 2 and 3 above is collected with a view to maintaining a list of our Assets ranked based on condition, performance and age. In combination, these criteria are a measure of risk in the network and set the priorities for the rolling maintenance programme.</p> <p>As noted elsewhere this is held in a number of manually maintained documents and it is hoped that the introduction of SAP will help to centralise and automate the record keeping.</p> <p>The Department are developing a number of Asset Management Plans (similar to those used in the UK) to assist in longer term planning see 5 below.</p>	A purpose-built risk data base and asset plans will improve the assessments and this is planned to take place.	
4.1	are mitigations recorded and actioned?	Typically the highest priority schemes form the programme for the next 12 months and records are then updated to suit.		
5	What is your prioritisation process?	<p>Prioritisation of projects is based on a number of factors which are often interrelated. Setting aside emergency works associated with the unexpected failure of an asset, key factors affecting prioritisation are:</p> <ul style="list-style-type: none"> • age and condition of an existing asset; • recurring failures or lack of performance; • risk to public (e.g., flooding); • provision for climate change; • provision for growth; and, • other strategic drivers (Island Plan, Government Plan etc). <p>As noted in the BLWS, the Department have identified and are developing the following Asset Management Plans to inform future programmes of work:</p> <ul style="list-style-type: none"> • Drainage (Network) Asset Management Plan • Pumping Stations Asset Management Plan • Rising Main Criticality Assessment • Telemetry Asset Management Plan 	<p>Should consider use of Drainage & Waste Water Management Plans which are catchment specific holistic reviews and include opportunity for alternative approaches.</p> <p>Prioritisation by age and condition-based risk but not supported by observed metrics and risks suboptimal investment – i.e. not sweating assets.</p>	

Ref	Questions and challenges	Response	Comment	RAG
6	What processes do you use to assess asset serviceability and performance?	Please refer to 2, 3, 4 and 5 above for existing and proposed processes.		
7	What is your design horizon (time, flow, etc) for new assets/capacity?	<p>The original Bellozanne STW design horizon was for 118,000 PE* (population equivalent) in 2035 with provision for further growth of 20% (max 141,000 PE) to occur after 2035. The 2013 models suggested this would be reached between 2035 and 2065 depending on population trends.</p> <p>For modelling purposes, and until Statistics Jersey release their new population models in 2023, the Department are assuming that all of the BIP's proposed housing (7,900 properties by 2030 = approx 18,000 people**) is population growth. In reality this will be a mixture of growth and redistribution of the existing population in the short term. This is broadly consistent with the STW design model.</p> <p>The distribution of new properties in the model has been agreed with Planning, sequence/priority of construction discussions are ongoing as noted in 10 and 11 below.</p> <p>* Population Equivalent includes connected resident population; tourists; seasonal workers and visiting friends and relatives; new connections to existing properties; and population growth including new development.</p> <p>** 2021 Census average occupancy of 2.27 per dwelling.</p>	<p>Should review storm frequency information and levels of protection. In UK the standards of resilience are being extended for storm return periods due to increasing frequency of significant storms.</p> <p>Review pass forward strategy to extend life of downstream network and Bellozanne STW.</p> <p>Review solution for Bonne Nuit STW</p>	
8	How is climate change affecting your horizons?	<p>The ongoing (almost complete) Inland Pluvial Climate Change (IPCC) Study will identify how the above- and below-ground drainage facilities will manage the predicted effects of climate change on rainfall and thereby highlight current and future areas of concern.</p> <p>The IPCC Study also incorporates the effects of population increase, particularly as development results in the creation of more hard landscaping.</p> <p>It is anticipated that the Study will highlight the need for:</p> <ul style="list-style-type: none"> • flow attenuation in storage tanks; • a more effective and extended road drainage system; • a heavier reliance on existing coastal surface water pump stations; 		

Ref	Questions and challenges	Response	Comment	RAG
		<ul style="list-style-type: none"> potentially the need for additional coastal surface water pump stations; and, a requirement for extending surface water separation, especially in the Town area to reduce the risk of coastal pollution during rainfall events. <p>The overall consequence of climate change is a requirement for more investment in surface water infrastructure.</p> <p>The IPCC uses design horizons at 2040, 2070 and 2120, with associated uplifts for climate change effects on rainfall. 2120 figures are generally used for design of private systems connected to public sewerage infrastructure.</p>		
9	How is demand efficiency affecting your horizons?	<p>We understand that Jersey Water have identified a trend for water demand per head to be reducing although it is not entirely clear if this is partly caused by repairs to leaking pipes.</p> <p>In terms of the flow/volume seen at the Bellozanne STW, a reduction in water use is somewhat offset by population growth. Furthermore, because large parts of the network are combined (i.e. a mix of foul and surface water), climate change and increasing rainfall mean that falling water usage is difficult to identify with any certainty.</p>	A more integrated water management plan is required to consider community needs for water management of all forms in the 2025-35 LWS	
10	Is housing prioritised where capacity exists or is capacity reactive to housing placements?	<p>Housing is currently being prioritised where sites are available, i.e. the rezoned fields in the BIP. Other housing development is driven by developers with each planning application being assessed under a Drainage Impact Assessment (DIA) as and when received.</p> <p>The rezoned fields themselves are also being prioritised by interest from developers. Temporary solutions are being explored where a developer has expressed interest but the network has insufficient capacity. Temporary solutions tend to be inefficient.</p>	Consider an adaptive approach to investing in network capacity through a phased approach rather than the proactive approach being considered. Options could include carrying out design and land options in advance but delaying investment in capacity until the timing of development is clear.	
11	Is there further clarity on housing locations since BLWS written?	<p>The Department's discussions with the Planning Team are ongoing but still fluid as their discussions with third parties develop.</p> <p>The BIP and BLWS expected the early phases of development to be in the north and west of the Island as well as around St Helier. Later development would then follow around Five Oaks and the South and East in general.</p>	Is there a concept of “adequate points of connection” to understand how much of the downstream network requires reinforcement to meet housing needs?	

Ref	Questions and challenges	Response	Comment	RAG
		Currently the interest from developers is focussed on the rezoned fields at St Ouen, St Peter and Maufant. Development around St Helier remains as expected in the BLWS and BIP.		
12	What is the average annual cost for delivering the LWS, broken down by opex and capex?	CAPEX averages: £11.1m/year 2024-2030 for Key Infrastructure and Emerging Projects and £8.0m/year for 'Business as Usual' investment projects (IRV funded) OPEX is £14.45m/year	Historical information on long run investment not presented.	
13	What is the average annual charge per household for delivering the LWS, broken down by opex and capex	There are no charges direct to residents for liquid waste services. However, based on the 2021 Census : 44,583 occupied dwellings (excl communal establishments), the cost per dwelling can be calculated as: CAPEX - £250/dwelling/year for Key Infrastructure and Emerging Projects £180/dwelling/year for 'Business as Usual' investment projects OPEX - £229/dwelling/year	Charges are notably higher than comparable Island networks. There is a risk of not utilising full asset lives and consequent premature investment.	
14	Are infrastructure charges applied for new development?	The Department have an option to charge developers for works required within the network to accommodate their development either in part or full depending on the specific circumstances. The Department can calculate the charge to a developer for connecting surface water to a combined sewer based on the estimated runoff from the site and the cost of processing a cubic metre of liquid waste at Bellozanne STW. Foul connection charges apply to both developers and individual homeowners whether they are connecting a new build or an existing property. This is normally the full cost of any connection work but may be reduced to a fixed fee when it is a first connection to a newly extended sewer and they had previously used a septic tank or similar. The fixed fee will only apply if the connection is made at the time the sewer is installed, connection later will attract the full cost. The Department are reviewing the implications of introducing a more structured 'developer pays' model similar to that used in the UK. Under this	Should consider neutrality options to incentivise developers to maximise water efficiency and rainwater harvesting so as to minimise impact on downstream sewers. Any excess to neutrality would require offsets.	

Ref	Questions and challenges	Response	Comment	RAG
		model, the charges to the developer are calculated using fixed rates and sums whatever the works required to connect the development.		
15	How is the value of different schemes/strategies assessed? Do you consider values other than cost, such as social and environmental?	<p>The priority projects will be subject to a review such as Optioneering and/or a Feasibility Study to identify solutions to take forward. As is standard for the SOC/Business Case process, this will include a 'Do nothing/minimum' option.</p> <p>The very nature of a liquid waste project will mean it has aspects of public health, environmental impact, public disruption and sustainability to be considered as a minimum.</p> <p>Example 1, even a simple replacement of pumps in a pumping station is likely to consider a 'spend to save' option whereby a more expensive item may be more efficient.</p> <p>Example 2, a surface water separation project may reduce spills into St Aubins Bay but cause major disruption in the centre of St Helier</p>	<p>High priority is given to risk of failure and reputational. Is this supported by customers?</p> <p>Lack of alternative options and value framework limits consideration of wider value</p>	
16	Are there surplus nutrient issues on the island?	<p>The last study of nutrients in St Aubin's Bay and its inlets was for the Bellozanne EIA in 2016 which was based on data collected from 2012 to 2015. At that time, it was classified as 'Good' for chemical status and 'Moderate' for ecological status.</p> <p>However, over the course of three years the bay was found to be occasionally 'hyper- nutritified', notably in winter, but this did not translate to a eutrophic condition or classify the bay as a sensitive water.</p>		
16.1	in receiving water courses?	<p>The 2016 EIA noted that all seven freshwater inlets to the bay (six streams and Bellozanne STW outfall) contained nutrients but these were relatively insignificant compared with nutrient inputs from the wider marine environment outside the bay.</p> <p>Nutrient monitoring has been ongoing by the Department and Environment since 2019/2020.</p> <p>Upon commissioning of the STW in late 2023, the Department and Environment will expand monitoring of the effluent and the bay to assess the long-term</p>		

Ref	Questions and challenges	Response	Comment	RAG
		performance of the works and whether there is any detriment to St Aubins Bay as a whole.		
16.2	In water sources?	The Department do not have direct access to Jersey Water's testing data but anticipate that if streams discharging to the bay contain nutrients then it is likely that water sources do. Grands Vaux has had recent issues with pesticides but are now abstracting again. Presumably the source of the pesticides was run off from fields so fertiliser run-off must also be possible.	Consider data sharing and integrated water management plan	
17	Are landowners (including homeowners/farmers/businesses) incentivised to offer flood water storage?	No, but they are required when developing sites to deal with their surface water by Sustainable Drainage Systems (SuDS) wherever possible. Existing impounding areas on the Island are within the GoJ land portfolio. Any future land required for impounding areas will be subject to negotiation with the respective landowner. There are provisions within the Drainage Law for compensation for loss of crop or diminution in the value of land should this be required.	Consider environmental land management payments to landowners for ecosystem services – particularly for water storage and retention or ground water management.	
	Ditto - nutrient balancing?	No	Ditto	
18	What payments are included in the Rural Support Scheme?	Subject to a successful Government Plan 2024-27 bid, it is proposed to introduce a new Rural Support Scheme (RSS) component in the RSS 2024 to provide reward credits for delivery of best practice on liquid waste management by our rural businesses. As an example, this will assist Jersey Dairy in the operation of their treatment facilities to remove fats from their waste to protect the sewer network and sewage treatment facilities.	Ditto	

Ref	Challenge	Evidenced Response	Comment	RAG
19	<p>The absence of strategic outcome-based targets in the BLWS risks narrowing the range of solutions to addressing issues and service failures in the context of the assets and not the system or wider network management. These might lead to sub optimal solutions either over or under compensating for future needs and the potential for delivering less value.</p>	<p>An integrated water management plan (IWMP) is being developed. The Asset management plans provide the strategic direction for individual asset types with a primary focus on consolidation and passing forward flows. The benefits and risks of this approach are not adequately assessed with a notable risk that plans might be sub optimal particularly in relation to</p> <ul style="list-style-type: none"> • management of rain water through SW disposal vs harvesting and SuDS • excess diurnal flows through attenuation rather than local treatment which may increase issues of septicity, cost and increased disruption from downstream network upsizing 	<p>The relevant sector plan should be linked through the IWMP to assess opportunities to deliver strategic aims through a holistic approach with particular attention to management of rainwater in the 2025-35 LWS</p>	
20	<p>It is unclear how communities have been consulted on the strategy and whether it will address their needs. How have the Connetables been involved in the strategy and how are their views and priorities represented?</p>	<p>Community concerns are logged but responses to strategy appear to suggest engagement in the preparation of the strategy is very limited. As a result customers have little to no say in the charges they pay. Complaints from unconnected residents suggest that they have been disappointed to find their concerns don't appear to have been addressed by the strategy</p>	<p>Improve consultation on aims of strategy through development of a strategic direction ahead of the 2025-35 LWS</p>	

Ref	Challenge	Evidenced Response	Comment	RAG
21	<p>Whilst the GoJ policy objectives are set out in the BLWS it is unclear how the BLWS addresses and acts on policies and strategies such as carbon neutrality by seeking alternative approaches.</p> <p>How have GoJ policy objectives and strategic proposals affected the proposed approach identified in the strategy?</p>	<p>Limited assessment of alternative solutions based on meeting all the aims of the government objects with a primary focus on meeting demands for new housing from utilisation of the existing network</p>	<p>Improve link of strategy to government objectives.</p> <p>Assess wider water management opportunities to review strategic approach in LWS 2025-35.</p>	Yellow
23	<p>It is unclear how the strategy is transcribed into a programme of works for the duration of the strategy and when a fully costed plan is produced.</p> <p>Is this done as a separate exercise on approval of the strategy?</p>	<p>A business case is prepared for the investment required to be approved by the Finance department. The case presented for this strategy prefers a potentially sub-optimal case in that it prioritises risk and early investment over options to phase investment based on impending need. This results in a higher cost and an opportunity cost that the money is not available for other uses.</p> <p>Bonne Nuit STW is a case in point where it is recommended that investment is deferred until completion of an integrated water management plan and review of pass forward flow strategy</p>	<p>A wider set of options should be considered in the business case – specifically, deferring investment to match development and perhaps carrying out design work in advance and identifying land for assets in Island plan.</p>	Red

Appendix 2 – Other Islands’ Approach to Wastewater and Drainage Strategies

This appendix summarises approaches to the process of strategy development and surface water flooding followed by water authorities in comparable island settings.

A2.1 Strategy development

Isle of Man

The wastewater treatment and sewerage assets in the Isle of Man are managed by Manx Utilities. Their operations are directed by Masterplans approved by the island’s parliament (Tynwald). The original wastewater Masterplan (IRIS – Integration and Recycling of the Island’s Sewage infrastructure) was produced in 1992 and recommended an integrated 'all-Island' solution to sewage treatment. The main objectives of IRIS were to:

- ⊙ cease the discharge of raw sewage to the marine environment
- ⊙ transfer foul sewage to a centralised sewage treatment plant for treatment
- ⊙ treat foul sewage flows to a standard designated by Tynwald
- ⊙ decommission small sewage treatment works.

A review was carried out in 2006/7 to assess the best way to deal with the sewage produced by the towns and villages not covered up to that point by IRIS. It concluded that given the advances in sewage treatment technology and the increase in energy costs it would be cost effective and sustainable to move to a regional treatment approach. This led to the Regional Sewage Treatment Strategy (RSTS) Phase 1 programme being approved by Tynwald in April 2011. The strategy aimed for the steady progression of design, construction and commissioning of new plant, considering the differing timescales for planning approval, design and construction at each location.

RSTS Phase 1 has now been completed within the budget authorised by Tynwald and has brought up to date modern IRBC (Integrated Rotating Biological Contactor) sewage treatment facilities to 10 sites, including at Ramsey.

Ramsey is the largest IRBC treatment works in the Isle of Man and during its construction was the largest excavation on the Island for over 20 years. As part of that project a new pumping

station and storage tank was constructed at the ¹. Effluent from Ramsey is pumped up to the new works where, when treated, it returns under gravity to the Vollan to be discharged at the original sea outfall².

The final phase of the sewage treatment strategy for the Island (RSTS Phase 2) focused on delivering first time sewage treatment for three further areas: Laxey, Baldrine and Peel. Options were fully assessed for local treatment works' locations as well as 'pump-away' solutions to establish a positive outcome as soon as possible.

Figure A2.1: IRBC covered enclosures



Figure A2.2: Fitting one of eight IRBC rotors at Ramsay's Treatment Works



A rigorous 'coarse screening' process assessed over 40 potential sites. For each of the three areas the coarse screening exercise led to the selection of a small number of options which were looked at in more detail to determine the preferred solution to take forward. A concept design (site layout and pipeline routes) for each option was created and a desktop environmental review completed (including carbon footprint) to allow a 'fine screening' to be undertaken.

² Details and images below from Manx Utilities: <https://www.manxutilities.im/about-us/our-assets/sewage/sewage-treatment-strategy-phase-1/>

Each of the shortlisted sites, and ‘pump-away’ solutions were scored against 8 criteria (including community impacts and consequences of aiming to achieve ‘Excellent’ bathing water quality standards) and costed with ‘whole life costs’ calculations for 25 and 50 years.

The cost and quality scores were combined on a 70:30 quality: cost ratio (with a sensitivity check at 50:50) to identify the best solution, which was not necessarily the cheapest. Discussions with landowners were held to help determine the viability of each option, including creation of ‘Consultative Group’ to improve community liaison.

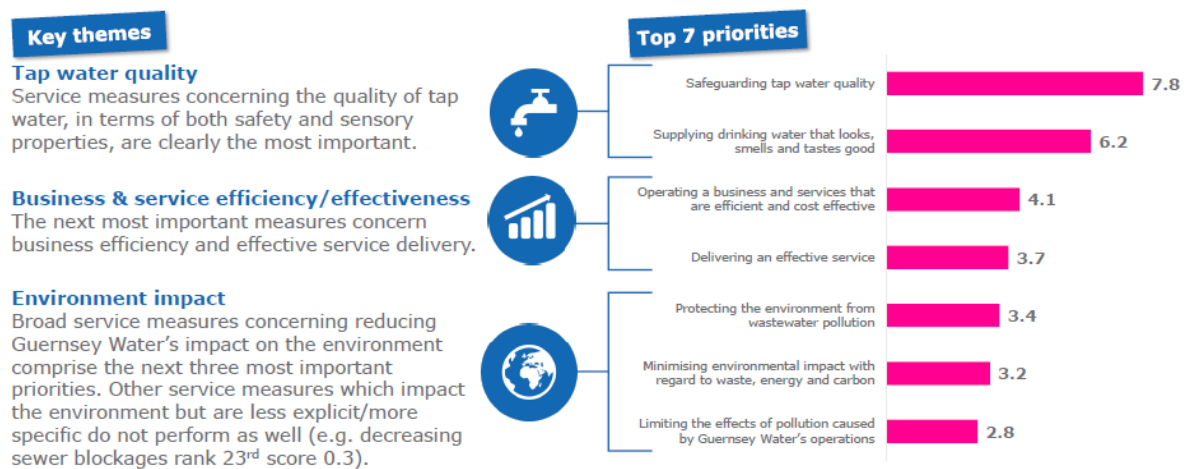
The options which were assessed and shortlisted for the phase 2 strategy were comprehensively summarised and reviewed in February 2018³. The review compared comprehensive data for each option, including whole life-costs and risks and endorsed the approach proposed by Manx Utilities.

Notwithstanding the endorsement of RSTS Phase 2, delivery has been affected by cost increases (a £17m increase bringing total to £40m for both phases, was approved in April 2023) and complex negotiations on the exact locations of new facilities have added delays. As of May 2023, all sites and concept designs had been secured.

Guernsey

Guernsey Water manages drinking water supply, wastewater and surface water drainage services on the Island of Guernsey. They follow an approach to strategy development which is similar to the that of the water and sewerage companies in England & Wales. A key step is the production of a Strategic Direction Statement (SDS) which reflects preferences expressed by customers. In 2021, Guernsey Water undertook a series of focus groups followed by an online customer survey to gauge customer needs and priorities. These are summarised in Figure A2.3.

Figure A2.3: Guernsey Water Strategic Direction Statement 2022-25



³ <https://www.gov.im/media/1370060/independent-review-regional-sewage-treatment-strategy-may-2018.pdf>

The SDS for 2022-2025⁴ is 13 pages long and covers clean water, wastewater and surface water management operations. Customer focus, environmental protection and climate change are reflected in their priorities - see Figure A2.4. There is a strong focus on asset monitoring. This latter point is described in the next section of this appendix, which covers strategic approaches to surface water management.

Figure A2.4: Guernsey Water Priorities form their 2022-25 SDS



Isle of Wight

Southern Water manage water and sewage assets in the South of England, including on the Isle of Wight.

⁴ <https://www.water.gg/CHttpHandler.ashx?id=151086&p=0>

They engage in extensive consultation with customer panels to establish strategic priorities. In 2022, they completed the latest drainage and wastewater management plans (DWMPs) including one for the Isle of Wight.⁵ The objective was first to understand how future changes across the catchment could affect drainage and wastewater management systems and bring about negative impacts on people and the environment. This enables investments to be identified and planned to mitigate these impacts in the short, medium or long term.

The planning process for the DWMPs has five stages, all underpinned by extensive workshops with partner organisations in search of synergies and solutions and formal customer consultation:

- 1 **Risk-based Catchment Screening (RBCS)**⁶ - The RBCS assesses of each sewer catchment against 17 indicators of risk, set out in guidance published by Water UK. Southern Water included an additional metric on customer complaints to flag catchments with ongoing or outstanding concerns. This stage produced 14 planning objectives for the Isle of Wight DWMP.
- 2 **Baseline Risk and Vulnerability Assessment (BRAVA)** - This builds understanding of current and future risks faced by the wastewater system and identifies where investment might be needed to manage and reduce the risks to Band 0 (not significant).
- 3 **Problem characterisation** – This uses the results from the Baseline Risk and Vulnerability Assessment (BRAVA) to explore the causes of risks and identifies the primary drivers.
- 4 **Options development and appraisal** – This commences with solutions at the whole catchment level and then goes into more detail on specific areas. Each option is appraised for feasibility and the reasons for any options rejected are explained. The feasible options are further appraised to assess best value or least cost preferred options, this then gives the investment requirement.
- 5 **Programme Appraisal** – This appraisal brings the investment needs for each wastewater system together into an investment needs programme for the whole Catchment. Southern Water then look across the river basin catchment to review the investments needed, the timing of these needs and how they combine to reduce the risks to customers and the environment.

The programme appraisal for the main wastewater catchment on the Isle of Wight, Sandown, identified options to manage risks that would cost around £288 million by 2050. Extrapolating the investment needs from Sandown across all the systems in the Island would bring the cost to around £637 million for a population of 144,000. This illustrates the scale of investment needed to get to band zero failure risk 2050 for all 14 objectives.

In conducting Programme Appraisal, Southern Water suggest that they follow a general approach to asset management, summarised in a four-page Asset Strategy and Planning Policy⁷ with eight key principles.

⁵ <https://www.southernwater.co.uk/dwmp/isle-of-wight-catchment>

⁶ <https://www.southernwater.co.uk/dwmp/risk-based-catchment-screening>

⁷ <https://www.southernwater.co.uk/media/5769/asset-management-policy-final.pdf>

The fifth principle gives a framework for how they determine the priority of their spending:

“5. Align all asset management interventions to the principles defined in our asset policies and processes, that set out the major requirements and decision-making criteria for the work we do to deliver the required outputs (regulatory, legislative and performance) within the totex [total expenditure i.e. capital and revenue whole life costs] envelope defined by our corporate risk appetite. These policies and processes will be continuously improved to:

- Be based on whole life, whole system costs and evidence based. This will be underpinned by appropriate evidence-based asset information to provide actionable insight.*
- Define and have plans in place to detail and record our approach to asset maintenance, inspection, and renewal, supported by reliability, availability, maintainability and legislative requirements. The approach should embed best practice and be outcomes based (focussed on delivering our asset management policy and long-term asset strategies).*
- A risk-based approach to determining intervention requirements to specified levels of reliability and availability for our assets and systems.*
- Define resilience requirements based on consequences for both our water and wastewater systems. This will consider a range of specified weather conditions (taking account of emerging knowledge of climate change) and a number of future population growth scenarios.”*

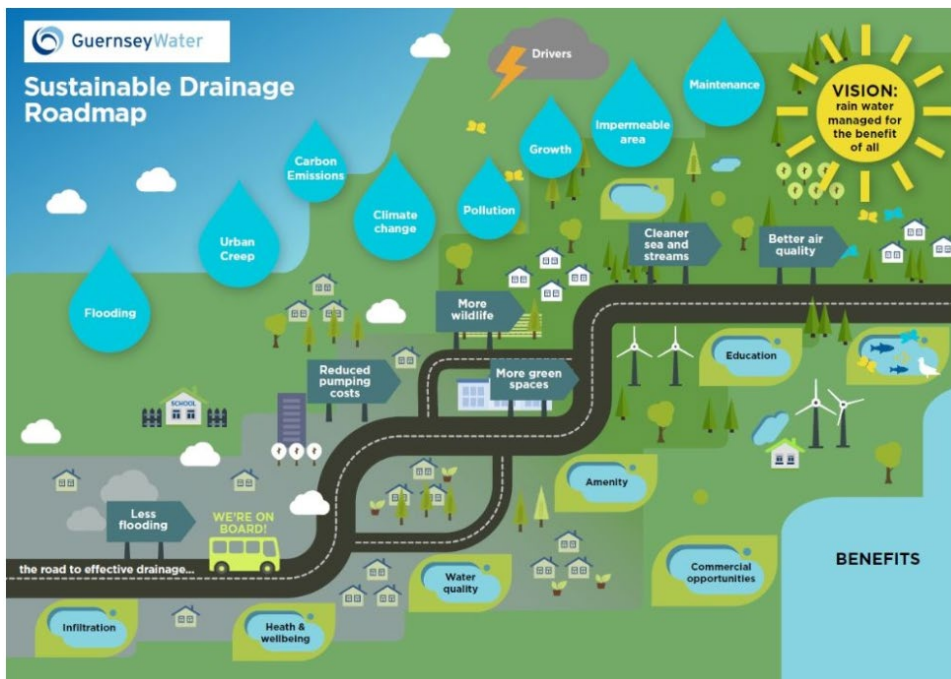
A2.2 Surface water management

Guernsey

Guernsey has suffered from high-profile surface water flooding in recent years, causing damage to homes and businesses. The topography of the island is such that the low-lying centre and north is particularly at risk. This area is also the most densely populated and includes St Peter Port.

Guernsey Water's Surface Water Management Policy⁸ highlights three major drivers that increase the challenges on their drainage system (Flooding and Pollution; Growth and Development Capacity; Energy, Carbon and Cost), and thus they have identified the need to use Sustainable Urban Drainage Systems (SUDS)⁹¹⁰ because of the multiple benefits they provide, as set out in Figure A2.5.

Figure A2.5 Guernsey Water Sustainable Drainage Roadmap



The SuDS approach is being adopted despite high population densities and development pressure. A key approach has been community engagement and use of pilots, including using land on a local school.

⁸ <https://www.water.gg/CHttpHandler.ashx?id=108365&p=0>

¹⁰ <https://www.water.gg/SuDS>

Flow Monitoring of storm events prior to and after construction of SuDS features showed clear improvements in flood risk. Flows into the system were slowed, giving time for the whole system to adapt and avoid overflow:

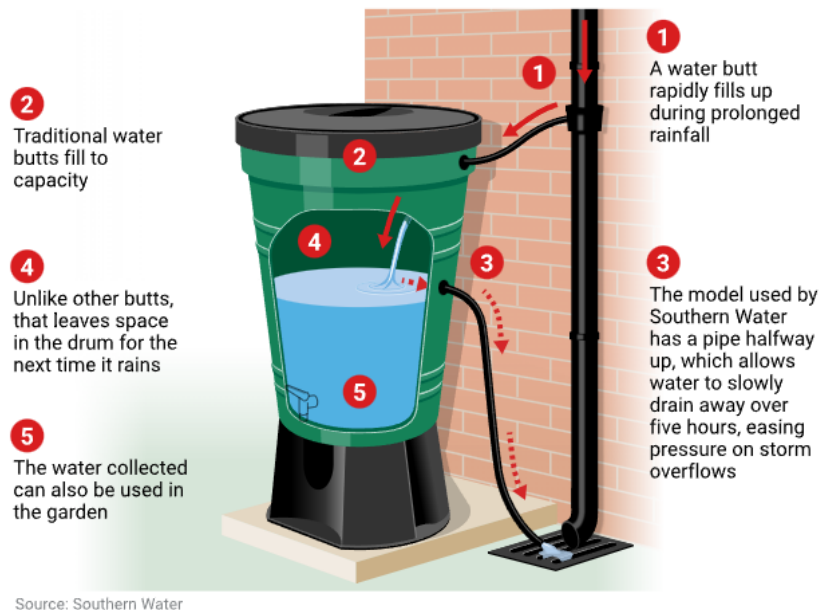
1. Pre installation (22nd June 2016): Monitoring showed immediate response to rainfall with high flows discharging quickly into the sewer. Discharge of the rain event and return to base flow took 40 minutes.
2. After construction of first swale (25th September): High peak flows were monitored but were delayed (15minute lag time). Discharge of the rain event and return to base flow was slowed to just over an hour.
3. Completion of Swales and rainfall absorbing planters (16th October): Discharge into the sewer with rainfall rose very gradually. Discharge of the rain event and return to base flow took three hours.

Isle of Wight

About 40% of the water in Southern Water's Isle of Wight sewers comes from rainwater running off roofs, this causes the sewer to become overwhelmed during heavy rain. They have been trialling a range of solutions with customers to keep rainwater out of the sewers with more cost effective and less disruptive solutions

One trial involved the provision of 250 free "leaky" water butts in the village of Havenstreet in summer 2022. The butts could store 200 litres of rainwater each which then slowly released into the drainage network (see Figure A2.6) rather than arriving as a peak flow which would trigger overflows. Nearly 72 per cent of households are using them on one road and the nearby storm overflow, which previously activated 27 times a year when it rained more than 5mm, caused only one spill during a six-month trial. The trial has been extended to a further 1000 homes in a different part of the island.

Figure A2.6 How "leaky" rainwater butts work



Larger versions of water butts that look like planters have been shown to work well in residential care homes, schools, warehouses and supermarkets on the Isle of Wight. At one big care home on the island, up to five tonnes of water was coming off the 800 sq m roof when it rained and straight into the combined sewer. A recently installed planter water butts now collect and redistribute the excess rainfall.

