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The Big Wastewater Story

WASTEWATER
RESIDUALS
MANAGEMENT
STRATEGY

March 2022

Report R:A.10

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#theBIG-
Waste Water Story



**CENTRAL
HAWKE'S BAY**
DISTRICT COUNCIL

Wastewater Residuals Management Strategy

Central Hawkes Bay District Council

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1. EXECUTIVE SUMMARY

The Big Wastewater Story is Central Hawke's Bay's major infrastructure programme to secure the future of the district's wastewater network. The Big Wastewater Story is supported by a District wide Wastewater Treatment and Discharge Management Strategy. The Wastewater Treatment and Discharge Management Strategy is intended to provide a cohesive and long-term vision for wastewater management across the district's six reticulated communities (Waipawa, Waipukurau, Otāne, Takapau, Pōrangahau and Te Paerahi). A key part of wastewater management is management of solid residuals. A separate overarching project has been established to assist with coordination of residual management across all treatment facilities. This is Project 4 – Residuals Management.

This document outlines a strategy for management of wastewater residuals in the Central Hawke's Bay District. It is intended to communicate a Residuals Strategy to all stakeholders including Council and wider interests. The Residuals Strategy forms part of the communication materials for The Big Wastewater Story.

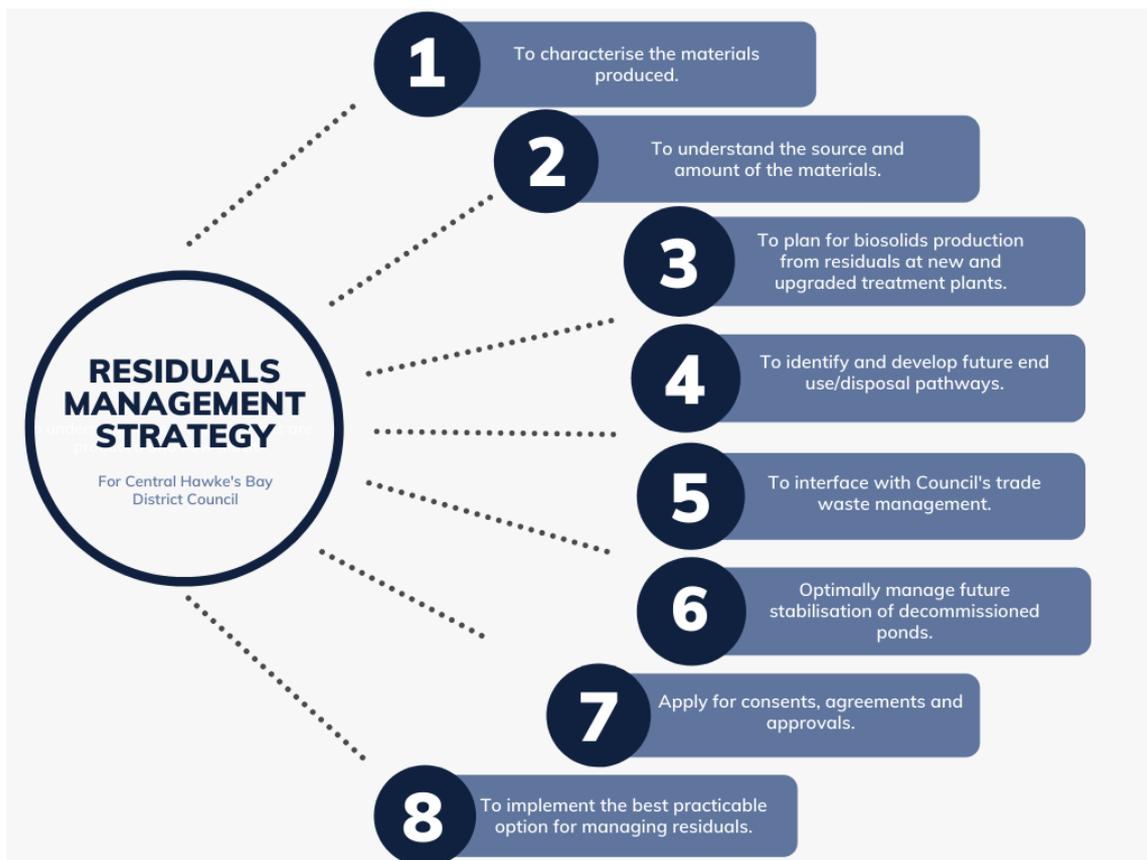
This Residuals Strategy aims to provide clear direction and guidance on how the Project 4 programme of works will progress and ensures every decision made along the project path can be linked to the overarching Wastewater Strategy. Following acceptance of this strategy, the described process will commence to develop a future management option which can then be implemented.

The Residuals Strategy refers to the management of all solids from wastewater management. This includes:

- Screenings (present and future)
- Grit (future)
- Sludge in treatment ponds (predominantly from treatment organisms = bacteria, algae etc)
- Chemical treatment sludge (e.g. alumina sludge)
- DAF sludge (future)
- Waste activated sludge (future)
- Anaerobically digested sludge
- Biosolids, being the material resulting from stabilisation and quality management of the above mentioned solids
- FOG (Fat, Oil and Grease).

The strategy is effectively the process or road map, including steps to be taken, to develop an appropriate management system for current and future wastewater solid residuals.

In summary, the **strategy** for residuals management in the Central Hawke's Bay District is:



A workplan to **action** the strategy is as follows:

- Review, collate and assess gaps in data currently available about CHBDC residuals to inform the subsequent actions.
- Characterise residuals source, composition, volume and rate of generation (incorporating the most up to date population and industry projections).
- Identify options for end use of the residuals.
- Determine suitable processing methods and technology to produce residuals of appropriate quality for end uses from the types of materials generated.
- Engagement with potential end users.
- Evaluate the costs of processing and managing end uses, including the use of storage and stabilisation facilities.
- Undertake consultation and engagement with iwi (continuous).
- Undertake consultation and engagement with the wider community (continuous).
- Options assessment of preferred option(s) for processing and end use and identification of a preferred option.
- Develop a programme of works for the preferred option including consenting.
- Implementation of the residuals management option.
- Develop a plan for the execution and project management of the Residuals Strategy.
- Establish a process for strategy review and incorporation of new options (continuous).

Communicating progress, seeking feedback and consulting on options and their assessment for the Residuals programme is needed for a successful outcome. Council will initiate and facilitate discussions to ensure that stakeholder aspirations are represented in the determination of the BPO. This may be assisted through a range of communication methods.

Phase	Strategy	Action
Characterise	<p>To understand the materials produced for consideration in the residuals programme including their source.</p> <p>To understand where the materials are produced and how much.</p> <p>To plan for biosolids production from residuals at new and upgraded treatment plants.</p>	<p>Gap analysis</p> <p>Characterise residuals source, composition, volume, and rate of generation</p>
BPO development	<p>To identify and develop future end use/disposal pathways and the necessary residual handling technology to suit.</p> <p>To interface with the trade waste review project to manage contaminants that would be detrimental to future reuse options.</p>	<p>Identify options for end use of the residuals</p> <p>Determine suitable processing methods and technology to produce residuals of appropriate quality for end uses from the types of materials generated</p> <p>Evaluate the costs of processing and managing end uses, including the use of storage and stabilisation facilities</p> <p>Options assessment of preferred option(s) for processing and end use</p> <p>Undertake consultation with iwi</p> <p>Undertake consultation with the wider community</p> <p>Develop a programme of works including consenting</p>
Implementation	<p>Apply for consents, agreements, and approvals.</p> <p>To implement the best practicable option for managing residuals.</p>	<p>Approvals and implementation</p>
Review	<p>Strategy is flexible and adaptable to changing technological and regulatory environment</p>	<p>Establish a process for strategy review and incorporation of new option(s)</p>

2. THE BIG WASTEWATER STORY

The Big Wastewater Story is Central Hawke's Bay's major infrastructure programme to secure the future of the district's wastewater network. The programme includes an ongoing conversation with the Central Hawke's Bay community and incorporates all the wastewater treatment networks and facilities in the district.

2.1 District Wastewater Discharge and Management Strategy

In September 2020, around 2 years of community consultation and technical investigations culminated in the delivery of a district wide Wastewater Treatment and Discharge Management Strategy (CHBDC, 2020:A:O.3, #theBIGWasteWaterStory). The overarching goal of the strategy is to:

The Wastewater Strategy developed and set out in this report outlines a process to achieve our vision for resilient and sustainable wastewater management for the next 50 years. The Strategy's aim is to ensure that wastewater systems in the district are developed to be managed efficiently, effectively and sustainably, with one eye on the present and one eye on the future. It will serve as a guide to inform the Council's asset management and planning processes surrounding wastewater.

The Strategy aims to provide a cohesive and long-term vision for wastewater management across the district's six reticulated communities (Waipawa, Waipukurau, Otane, Takapau, Pōrangahau and Te Paerahi).

The Wastewater Strategy included 5 projects which have been expanded to 6 as follows:

- Project 1 – Otane, Waipawa and Waipukurau
- Project 2 – Takapau
- Project 3 – Te Paerahi and Porangahau
- Project 4 – Residuals
- Project 5 – Loadings and Flow Management
- Project 7 – Waste Innovation (subsequent to original Strategy)

The Residuals Management Strategy aims to align the Project 4 programme of works to the overarching Wastewater Strategy.

2.2 How Does the Residuals Strategy Fit in the Big Wastewater Story?

A focus of the discussion to date, and with the wider community, has been with managing the treated water. Running in parallel is a critical, and equally important, discussion about managing residual products that will be generated from the treatment systems. This includes sludge from the bottom of ponds, sludge from new treatment plants, screenings and grit.

More sophisticated treatment systems will produce greater quantities of residuals, and potentially require different ways for it to be managed. As with the treated water, there are opportunities to manage the residual as a resource, which is in contrast with current practices that see it stockpiled with no intended use or landfilled. This strategy aims to identify and implement an option/s that can utilise as much as practical of the residual material as a resource and outlines the process to develop forward options for implementation. It also seeks to identify the most practical options for management of those materials that cannot be beneficially reused.

2.3 Purpose

The purpose of this strategy document is to outline a strategy for management of wastewater residuals in the Central Hawke's Bay District. It is intended to communicate a Residuals Strategy to all stakeholders including Council and wider interests. The Residuals Strategy forms part of the communication materials for The Big Wastewater Story.

3. WHAT DOES THIS STRATEGY COVER?

The Residuals Strategy is intended to inform and direct decision making for wastewater residuals from the district, which can be summarised as follows:

- Residuals generated from wastewater management facilities of the district. Currently these facilities are:
 - Waipawa wastewater treatment plant (WWTP)
 - Otane WWTP
 - Waipukurau WWTP
 - Pōrangahau WWTP
 - Te Paerahi WWTP
 - Takapau WWTP
- Residuals refer to solids from wastewater treatment including:
 - Primary screening waste (material captured by the inlet screen)
 - Primary settlement solids (grit and untreated solids entering the system) where these are separated e.g. with catch-pits
 - Sludge in treatment ponds (from treatment organisms = bacteria, algae etc)
 - Chemical treatment sludge (e.g. alumina sludge)
 - DAF sludge (future)
 - Waste activated sludge (future)
 - Anaerobically digested sludge
 - Biosolids, being the material resulting from stabilisation and quality management of the above mentioned solids
 - FOG (Fat, Oil and Grease).
- While the strategy is focussed on wastewater residuals, it should be easily applied to other residuals such as water treatment residuals or material from stormwater collection devices.
- This strategy is not intended to cover wastewater treatment, trade waste, flow or load management. Each of these has a unique strategy to address issues specific to the material. However, the Residuals Strategy is intended to be complimentary to the management of these streams and to assist with integrated decision making.
- The strategy should consider broader benefits that can be achieved through the development of combined facilities.

The strategy is intended to outline a process to align residuals management with an identified vision and key drivers. Following acceptance of the strategy, the described process will commence to develop a future management option which can then be implemented.

4. DRIVERS FOR A RESIDUALS STRATEGY

There are a number of drivers which influence the need for a Residuals Strategy. Drivers for the strategy a key to establishing overarching values and priorities. Key drivers for the Residuals Strategy are as follows.

4.1 Alignment with 'Thrive' objectives and associated community values

CHBDC undertook a process of council and community consultation to develop "Together We Thrive", which informs the operation and strategic direction of the organisation, and aligns them with the Council's purpose.

The Residuals Strategy should have an aligned focus. In particular, the following is considered:



Residuals increase as the community and business grows
Develop and promote waste minimisation practices

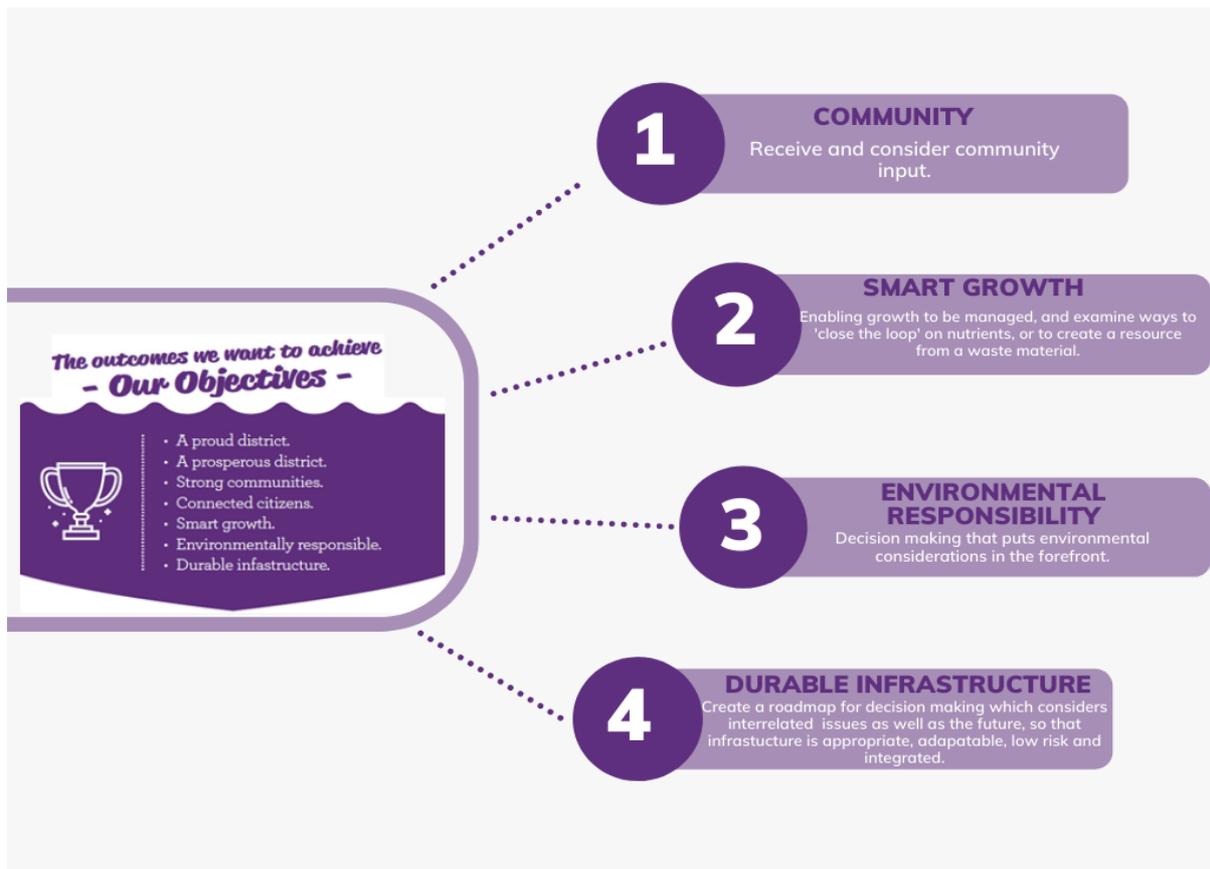


Less landfilling, ability to improve degraded soils, managing nutrients to protect and enhance natural waters including their supporting landscapes



Seeks and promotes smart infrastructure decisions, consideration of greenhouse gas impacts, managing capacity
Informing the design of the new and modified WWTP systems

The Residuals Strategy enables objectives to be met, in particular:



4.2 Alignment with District Wastewater Discharge and Management Strategy

As noted in Section 2.1 above, the Wastewater Strategy is the overarching document to which this Residuals Strategy must align. The strategic direction for wastewater management drives the form and delivery of the Residuals Strategy.

4.3 Cultural Considerations

Management of residuals in a manner that is acceptable to Council's iwi partners is a driver of the strategy. Engagement should be sought with iwi to determine their values that are held regarding residuals use and or disposal. This consultation may traverse issues such as:

- Impact on whenua including:
 - Use of residuals in food production systems
 - Impact on future generations
 - Consideration of heavy metals in residuals
 - Consideration of other substances that enter the WWTPs as a result of compliant Trade Waste Discharges
- Impact on awa and drinking water supplies

Each marae, hapū and iwi may have different perceptions and values to the next, therefore consultation to understand what is important to each is paramount. The frameworks highlighted below may act as a way to guide such articulation, but nonetheless engaging with tangata whenua is critical to undertake co-planning, goal setting and joint actions.

Council will seek to understand consideration of cultural health as directed by iwi. This may incorporate the range of tools and frameworks available which are considered to be appropriate to the topic of residuals management and have adequate and detailed information accessible for review.

The cultural health frameworks are based on atua (Māori beliefs and custom, and values); Tikanga (customary protocols and traditions) or mana whenua perspectives and may include:

1. Using mātauranga Māori to inform freshwater management – Tikanga based;
2. Mauri-Ometer Indigenous Maori Knowledge and Perspectives of Ecosystems – mana whenua and tikanga based;
3. Mauri Compass – mana whenua and tikanga based;
4. Nga Mahi: Kaupapa Māori Outcomes and Indicators Kete – mana whenua and tikanga based;
5. Cultural flows – mana whenua and tikanga based;
6. Treaty-Based Planning Framework - mana whenua and tikanga based;
7. A Cultural Health Index for Streams and Waterways: a tool for nationwide use - mana whenua and tikanga based.

While the assessed frameworks are a way of capturing some of the values, practices and principles important to Māori, they should be used alongside consultation with tangata whenua, iwi and related parties.

4.4 Statutory Drivers

Council is required to comply with statutory provisions for any residuals management activities. These include:

- **Waste Minimisation Act (WMA, 2008)**
The WMA (2008) puts responsibility on the district council to promote waste management and minimisation within CHB in accordance with:
The Act encourages a reduction in the amount of waste we generate and dispose of in New Zealand. The aim is to reduce the environmental harm of waste and provide economic, social and cultural benefits for New Zealand.

This includes through infrastructure development and management, resource efficiency programmes and education. In addition, 44(c) requires Council to “have regard to the Waste Minimisation Strategy, or any government policy on waste management and minimisation that replaces the strategy.” The New Zealand Waste Minimisation Strategy includes an aim to “divert >95% of biosolids in NZ from landfill.”.

- **Resource Management Act (RMA, 1991)**
The RMA (1991) regulates discharges, land use and the provision of infrastructure. Most options for residuals use will intersect with the RMA through the requirement for Resource Consent for activities associated with processing and use of the material generated. The RMA requires consideration of the environmental, social, cultural and economic impact of the activity and long term (intergenerational) impact.

Extensive reform of the RMA is currently underway. The existing legislation is to be repealed and replaced with three Acts (from environment.govt.nz):

- Natural and Built Environments Act (NBA): the main replacement for the RMA, to protect and restore the environment while better enabling development
- Strategic Planning Act (SPA): requires the development of long-term regional spatial strategies to help coordinate and integrate decisions made under relevant legislation; and
- Climate Adaptation Act (CAA): to address complex issues associated with managed retreat.

Residuals management activities will continue to be subject to these provisions.

- **NZ Water sector reform**

The Three Waters Reform currently proposed represents a major restructure of the three waters sector. It will significantly change the way wastewater assets are funded and managed.

- **NZ Emissions Trading Scheme (ETS)**

The ETS aims to result in a reduction in greenhouse gas (GHG) emissions for New Zealand. The ETS may be considered when evaluating option criteria.

- **National Policy Statements (NPS) and National Environmental Standards (NES)**

There are a number of national policy statements and national environmental standards which influence the scope and progression of residuals management options. NPS' that may be considered include:

- NPS on Freshwater Management (2020)
- NPS on Urban development (2020)
- New Zealand Coastal Policy Statement (2010); and potentially
- NPS on Renewable Energy Generation (2011)
- Proposed NPS on Indigenous Biodiversity

NES' that may be considered include:

- NES for Sources of Drinking Water (2007)
- NES for Assessing and Managing Contaminants in Soil to Protect Human Health (2011)
- NES for Freshwater (2020)

- **Regional Policy and Planning**

Hawke's Bay Regional Council (HBRC) is the consenting authority for activities in the Central Hawke's Bay. The Regional Resource Management Plan (RRMP) outlines policies, objectives and methods for managing the regions resources and gives rules for undertaking activities. Other regional plans which may be relevant include the RRMP Plan Change 2: Air Quality, RRMP Plan Change 6: Tukituki River Catchment Regional Coastal Environment Plan (RCEP) and the Regional Land Transport Plan.

HBRC have proposed Kotahi, the Regional Plan which will replace the RRMP and RCEP following consultation.

- **Local Government Act (LGA, 2002)**

The LGA outlines the roles and responsibilities of local authorities, including accountability of decision making.

Sections 77, 78 and 79 outline the need to identify and evaluate options and to ensure the inclusion of affected and interested parties in the evaluation process.

- **District Planning and Bylaws**

The District Plan sets out how Council manages resources in the district. Council has a range of bylaws for three waters. Management of residuals should integrate with Council bylaws.

The strategy aims to be resilient enough to allow for changes in the regulatory environment.

4.5 Cost Considerations and Funding

The implementation of a Residuals Strategy comes with a cost implication which will be different than the current /existing costs of managing sludge. The strategy outcome is expected to include design and infrastructure requiring funding and will likely change operational expenditure. While there is an existing requirement to manage residuals, the implementation of a modern treatment plant or plants will result in an increased tonnage of residuals for management.

As for the Wastewater Strategy, there needs to be an awareness of the differing funding opportunities. These include internal funding from rates (including servicing loan funding), external loans from government agencies and grants, such as the Waste Minimisation Fund from government agencies and other external funding agencies.

Options can be considered which have the potential for cost recovery. There is also potential for third parties to be involved and may include opportunities as to how things are built, operated, and managed. This means that contracts could be let by Council for a third party to provide all or part of a service, from design to operate.

In addition, the water reform process may create further opportunities with coordination and collaboration with other councils and central government agencies.

All of the factors above need to be considered in light of the actual availability of funds and matching of priorities. This may require a preferred residuals management option to be staged over time to meet community expectations and regulatory requirements.

5. RESIDUALS STRATEGY

This strategy should be considered in the context of the District Wastewater Treatment and Discharge Management Strategy (Wastewater Strategy) and as a part of the #BigWastewaterStory programme.

The Strategy sets out a process to deliver the council and community's vision for residuals management. The vision has been adopted from the Wastewater Strategy which was developed through an extensive consultation process and states:

Our effluent is treated in a sustainable way that creates a resource, protects our environment, and continues to do so for generations to come.

The application of this vision to residuals management leads to a focus on:

1. Optimising residuals suitability for reuse.
2. Identifying ways to benefit from residuals reuse.
3. Proposing and implementing solutions which are achievable in the present and are resilient and adaptable for the future.

The strategy for residuals management in the Central Hawke's Bay District is:

- To understand the materials produced for consideration in the residuals programme.
- To understand where and how the materials are produced and how much.
- To plan for biosolids production from residuals at new and upgraded treatment plants and to incorporate appropriate treatment and management facilities.
- To identify and develop future end use pathways and implement the necessary residual handling technology to suit.
- To interface with the trade waste review project to manage contaminants that would be detrimental to future reuse options.
- Apply for consents, agreements and approvals.
- To implement the best practicable option for managing residuals.

6. ACTIONING THE STRATEGY

In order to give effect to the strategy the following workplan is proposed. The workplan provides a diligent process to lead into an implementation phase while ensuring that the plan for the District's residuals management is in line with the strategy described above.

6.1 Characterise Residuals

Residuals characterisation includes:

- Description of the current and future treatment systems in the CHB district and the way that they generate sludge and other solid residuals.
- The rate of sludge generation and handling requirements.
- The quantity of sludge that requires management.
- Typical quality of sludge produced by the treatment plants in the district (current and future).

6.2 Identify End Use Options

Based on the vision and strategy, and on the outcomes from the residuals characterisation, a series of options for end uses can be determined and described for residuals from the CHB communities. It is intended that initially a broad range of options would be covered which might consider:

- Status quo – monofill or landfill;
- Land application to:
 - Land for restoration;
 - Agricultural production land in food chain and non-food chain systems;
 - Horticultural or orchard land;
 - Exotic or indigenous forest or shrubland;
 - Rooding project plantings;
- Use for nursery soil;
- Energy co-generation which may include feedstock for a digester, potentially with other feedstock materials such as FOG, food waste and biomass grown with treated effluent.

As part of the options identification, details of the residuals quality required for each option and drivers for the quality is to be described.

6.3 Processing Methods to Produce a Product Suitable for Reuse

Following on from determination of the potential end use options, an assessment of the ability to produce residuals of suitable quality is needed. This task provides an assessment of technologies and processes to achieve material of suitable quality to enable the end uses identified from the residuals produced at the District's WWTPs including consideration of:

- What methods and technologies are suitable for use with the residuals produced from the treatment facilities;
- What methods and technologies can produce residuals of the required quality for the proposed end use(s).

6.4 Cost and Benefit Evaluation

In order to assess the feasibility of options for end use and their associated processing requirements, an evaluation of costs is needed. It is proposed that a high level (Class 4-5)

costing exercise is undertaken for the end use options identified at 6.2 which also includes the requirements for treatment and processing identified at 6.3. The costing may focus on a limited number of options.

The financial assessment will need to assess both capital and operational costs, the procurement / operational model employed and make allowance for population growth. In this way options can be assessed on a whole of life basis.

6.5 Carbon Assessments

The residuals reuse and or disposal options, if any, should also be assessed for whole of life carbon equivalent GHG emissions. Again, this involves considering both the capital and operational emissions. The assessment is typically undertaken using the same schedules as used in the financial analysis. If the carbon is not monetised, no discount factor is used in the analysis and the analysis is separate. If the Council policy is for carbon to be monetised, the analysis can be combined into the financial NPV modelled as both capital and operational costs.

6.6 Option Assessment and Determination of Preferred Option(s)

Based on the information gathered in the preceding work packages, shortlisted options identified from preceding stages can undergo a detailed evaluation using multi criteria analysis. This process may include input from consultation parties to assist with value setting and ranking options. The evaluation will include consideration of non-cost attributes which reflect social, cultural and environmental impacts. The assessment can include:

- Development of quantitative and qualitative measures for assessing options.
- Establishment of a ranking matrix.
- Reporting of the option assessment.
- Recommendation for preferred option(s)
- Consideration of funding sources / cost recovery models

The option assessment will result in a preferred option which may include a combination of treatment processes and/or end-uses to address the needs of the different locations and residuals production through the district.

6.7 Develop Programme of Works including Consenting

Following on from the determination of preferred option(s), a plan for implementation is needed. The form of the plan can include:

- Identification of development stages;
- Evaluation of costs (in greater detail) and funding availability;
- Provide feedback into the 'Basis of Design' documentation for each treatment plant;
- Propose a programme of works including:
 - Consultation and engagement;
 - Consenting;
 - Design;
 - Implementation.

6.8 Implementation of the Residuals Management Option

Implementation including consenting of the preferred option(s) is expected to be the most significant phase of the programme of actions. The scope and scale of this action is dependent on the preceding development and optioneering. Key to successful implementation will be the support of stakeholders for the preferred option. As noted in Section 7, consultation and engagement is intended throughout the execution of the strategy through a range of mediums. Following on from the determination of a best practicable option approvals, including consents required will be known. The implementation will follow the programme (Section 6.7). The commissioning and operation of the preferred option is intended to represent the strategy fully implemented.

6.9 Residuals Management Strategy Execution Plan and Project Management*

Develop a plan for the execution and project management of the Residuals Strategy.

6.10 Establish Process for Strategy Review and Incorporation of New Options

A strategy is not a static document. Development of a process for reviewing the prevailing values around the strategy is recommended. A process to consider technological developments and identify potential changes to the preferred option and review funding is needed to ensure the strategy provides for adaptive management of residuals.

6.11 Schedule for Actioning Workplan

A programme of works is planned to start in early 2022. Work to develop a preferred pathway for CHBDC residuals (Sections 6.1 to 6.7 above) is planned for completion by early 2024. Implementation of the residuals management option will occur with the development of wastewater treatment systems across the district.

7. COMMUNICATION AND ENGAGEMENT

A detailed description of the engagement programme and specifics of interested parties is given in The Big Wastewater Story programme communications plan. This section gives a broad overview of the approach taken to progress the Residuals Strategy for readers of this document, in particular, interested members of the public.

To date a lot of background work and community engagement has occurred for the wider wastewater programme. Communicating progress, seeking feedback and consulting on options and their assessment for the Residuals programme is needed for a successful outcome. A balance needs to be struck between allowing for sufficient engagement and avoiding consultation fatigue. This can be led by Council and be responsive to stakeholders and can be assisted by employing a range of communication methods. Key considerations are as follows.

7.1 Engaging on Residuals Management

Communication and engagement on the Residuals Strategy will align with the broader Big Wastewater Story. It is important that communications are timely, clear, informative and consistent with other related programmes. There are a number of communication methods which are currently used including:

- Face to face and direct contact e.g. meetings and workshops
- Static community based e.g. information boards
- Take away materials e.g. letterbox drops
- Digital
 - Static – website
 - Basic updated – newsletters
 - Interactive
- Education which combines the methods above

Engagement is intended to be consultative to benefit from the exchange of ideas and communication of aspirations.

Timing of communication and engagement will be aligned with the actions starting with release of this Residuals Strategy.

7.2 Consultation Partners

There are a range of interested or potentially affected parties with a diverse range of views. Key stakeholder groups are as follows. People may belong to more than one group, however each group may have different needs in terms of the method and frequency of communication.

Community

Ongoing engagement is occurring with each community and forms a critical part of the ongoing [#TheBigWastewaterStory](#) strategy. Linked into this is the development of refined options and seeking feedback through a range of means.

Iwi

Council considers iwi to be partners in determining how the districts resources are managed. An approach that provides for iwi engagement in developing wastewater solutions is considered to be critical to development of a suitable system.

In addition, when progressing through a resource consent process, Part 2 of the RMA (Sections 6, 7 and 8) requires consideration, regard and taking into account of the principles of Te Tiriti o Waitangi. Early, meaningful and open engagement is essential to demonstrate the fulfilment the Council's obligation to their treaty partners. An approach that provides for iwi engagement and participation in goal establishment in developing our wastewater solutions is considered to be vital to development of suitable systems for Central Hawkes Bay.

Neighbours

As the options are refined and new sites are determined for residuals management neighbours to sites should be included in specific discussions. Neighbours may have an interest in the aesthetic impact of a residuals management option for instance the visual impact of new industrial infrastructure, or piles of processed or unprocessed residuals; odour effects from the management, storage or use of residuals; risks to water supplies and other human and animal health risks that could occur.

Special Interest Groups

There a number of groups with an advocacy role for specific issues, whether they be public health, environmental, economic. Groups that may have an interest in residuals management are the same as for the wider wastewater programme and include:

- Regional Public Health
- Fish and Game
- Grey Power
- Forest and Bird
- Federated farmers
- Community Landcare and Catchment Groups
- Potential trade partners and end-users which may include landowners, power generators, landfill operators and relevant ministries.