



**FRIENDS of Banks Peninsula Inc.**

Akaroa's Community Environment Society since 1990

**Wastewater  
progress report to  
Robinsons Bay Ratepayers  
and community discussion**

**22 October 2017**

**Friends of Banks Peninsula Inc.**

Wastewater Subcommittee

# Background

- October 2016
  - Council identifies Robinsons Bay, Takamatua and Pompeys Pillar as potential for land disposal
  - Council appears to favour Robinsons Bay
- January 15 Protect Robinsons Bay meeting
  - adopts Community Strategy
  - appoints Friends of Banks Peninsula to take case forward
- January 30 FOPB present Community Strategy to Community Board
- Community Board votes to form Working Party



# Working Party set up

- Council announces Wastewater Working Party
- Draft Terms of Reference emailed out – Feb 2, 2017
  - Includes information that Thackers are willing sellers
- Representatives invited from:
  - Robinsons Bay, Takamatua, Akaroa
  - Ngai Tahu parties
  - Community Board
  - Cr. Turner
  - Council staff
  - Other technical staff as necessary including ours
- Neighbours to Thacker land meet at Pavitt cottage Feb 6
  - Appoint Brent Martin and Suky Thompson as Robinsons Bay representatives

# Working Party meetings

- First meeting – Feb 8
  - Each community permitted an alternate
  - Kath Reid is present and is deemed Robinsons Bay alternate
- Working Party meets 7 times
  - Robinsons Bay is clearly favoured as solution by Council staff and consultants – proximity and Thacker land
  - Purple Pipe reuse introduced at last meeting as potential solution
- Working Party issues Joint Statement – 8 April
  - Includes Upper Robinsons Bay agreed as an acceptable solution on these conditions
    - Main storage pond is Old Coach Road
    - Conservative irrigation rate
    - Tangible benefits to Robinsons Bay community – ie protection of significant historic features

# Consultation

- Consultation document released April 1
- Includes 5 options
  1. Robinsons Bay
  2. Pompeys Pillar
  3. Takamatua (would need to be in combination with another area)
  4. Non-potable reuse in Akaroa
  5. Harbour outfall
- Submissions due May 1

# FOBP consults community

- March 12 - Protect Robinsons Bay (Duvauchelle Hall) had rejected disposal in Robinsons Bay
- FOBP continues to explore idea of Upper Robinsons Bay with community compensation
  - Council seems determined to push it on Thacker land and a compensation package may be better than nothing
  - Legal advise is to drop idea from submission
  - If Council applies for a resource consent on Thacker land, this would be the time to push for compensation
- Protect Robinsons Bay meeting April 9 (Duvauchelle Hall) affirms this decision

# FOBP Submission

- Supported
  - Treatment to Salad Crop standard
  - Purple Pipe network for Akaroa
  - Residual flows to either Harbour Outfall or Pompeys Pillar
  - Pond site at top of Old Coach Road
- Did not support
  - Wastewater in Robinsons Bay or Takamatua
- Released for comment on FOBP website 13 April
- Presented to public at Gaiety Easter Monday 17 April
- Endorsed by 300 people

# Flow meter error

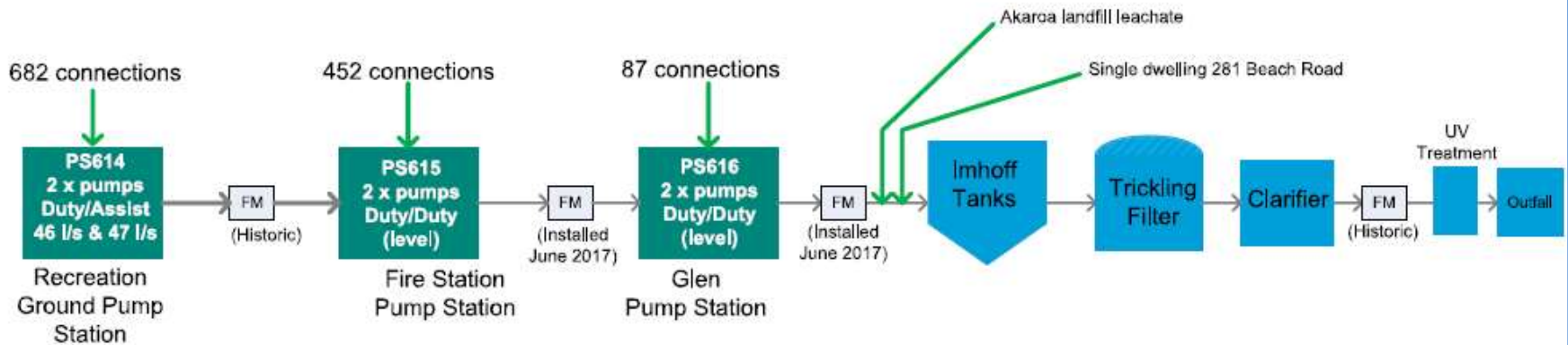
- Initial submission analysis indicates Purple Pipe is most favoured option
- During analysis of Purple Pipe feasibility Council discovers flow meter error – lets public know in June
- Meter not checked since 2009
- Basis of all calculations for size of new Treatment Plant at Old Coach Road and disposal
- New meter installed and current consultation process abandoned
  - Initial estimate is that the flows are 2 – 2.5 times the previously measured flows
  - Infiltration much higher than previously thought – up to 170m<sup>3</sup> per day (around 1/3 the total dry weather flow)



# OIA requests

- Finding out more about flow meter
- Requested submissions and Council analysis
- Finding out more about the modelling used to size the project
- Finding out if Council attended Palmerston North Wastewater conference

# Akaroa Wastewater network

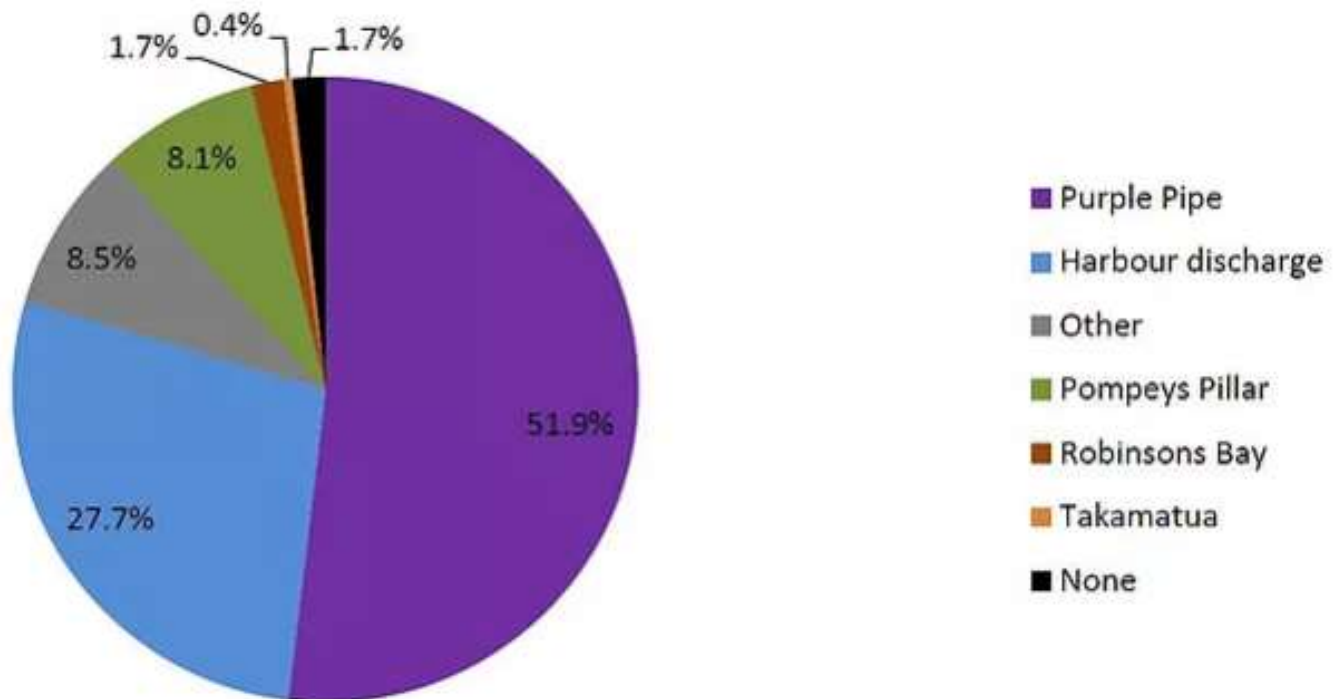


Drawing Originator:  CH2M HILL	Project: Akaroa Wastewater Upgrade	Client:  CHRISTCHURCH CITY COUNCIL - YOUR PART - YOUR CITY	Use: Akaroa Wastewater Network Schematic	SKETCH	
				6517986	Rev. A

- 1222 connections
  - Cost of \$25k per connection under current proposal
- Leachate
- Previously no cross-check on meters

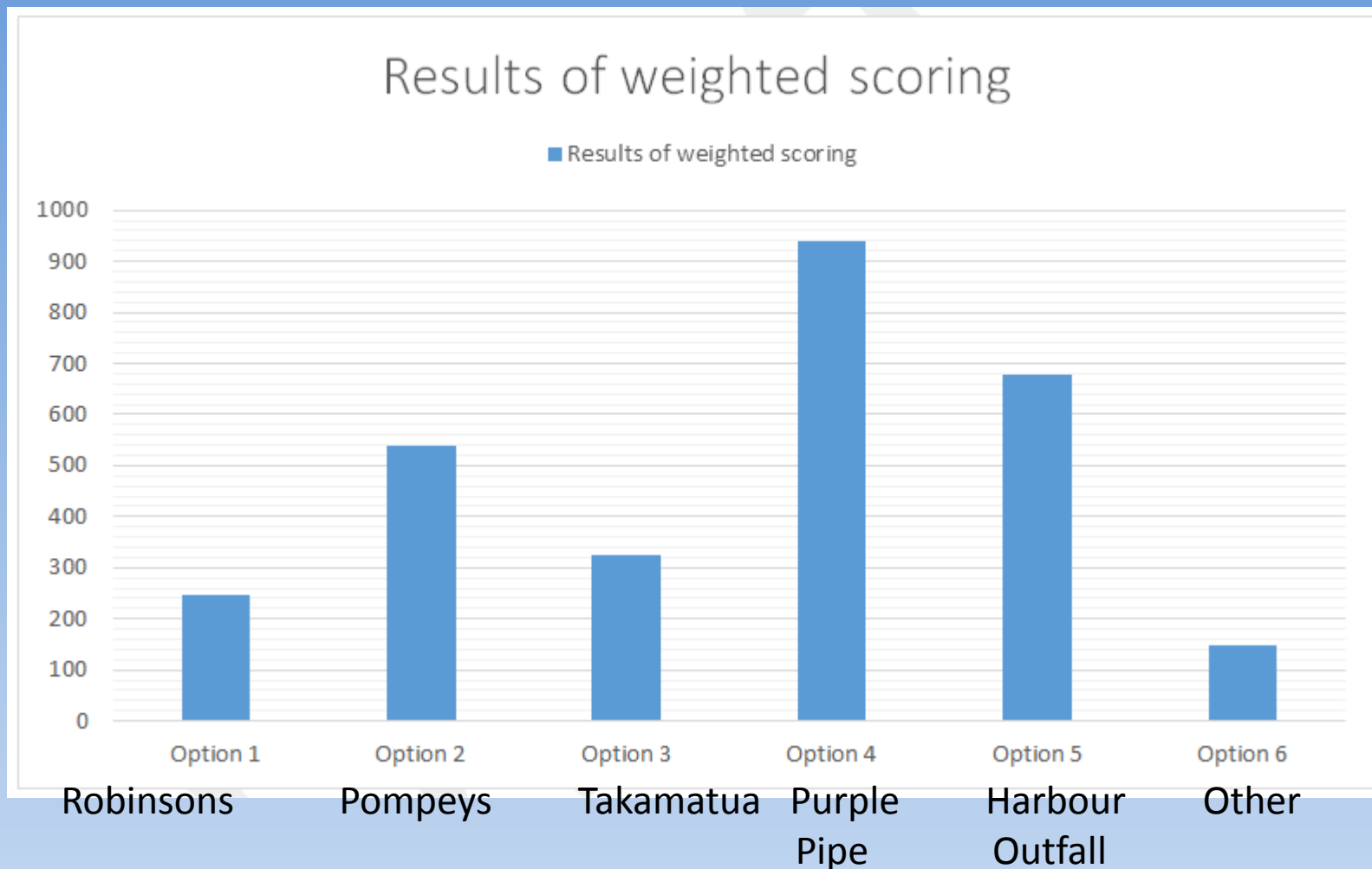
# FOBP Summary of Submissions

2017 Consultation top preferred option



- 235 received, 1 withheld
- Our analysis of submitters preferred option, 234 submissions

# Council Summary of Submissions

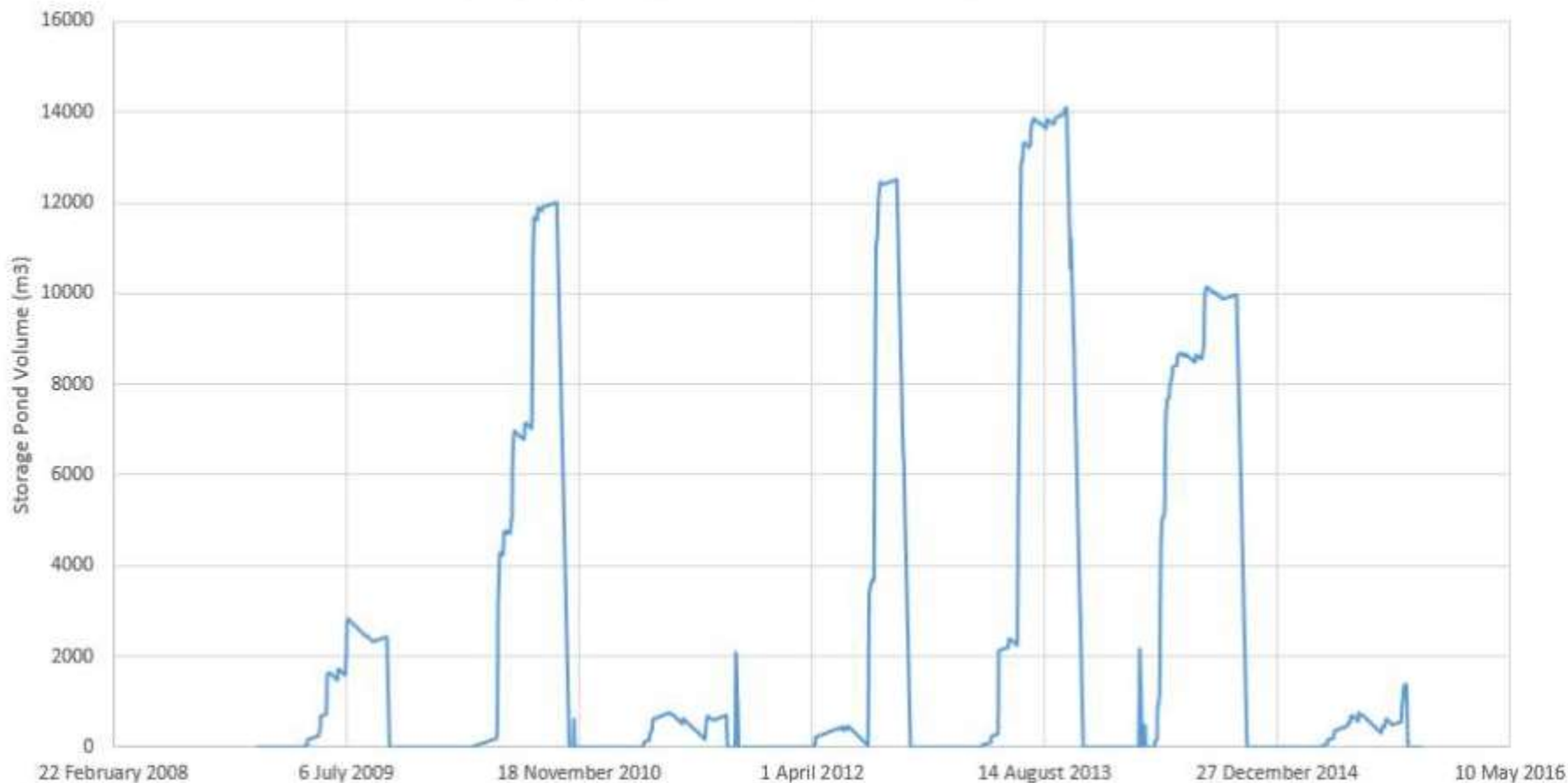


# Modelling importance

- Council identified that pond sizing is critical to success
- Depends on accuracy of modelling:
  - Projected flows in 2040 (“design flows”)
  - Pasture/tree uptake of the water
- Pond sizes presented are “indicative only” – BECA
  - Models are approximations
  - Some parameters are estimated and have uncertainty (e.g. evapo-transpiration rate, water absorbed by forest canopy)
  - Some parameters have not been specified, e.g. target soil moisture
  - Some inputs are inherently unknown, e.g. the weather
- BECA/Council are using the largest pond volume from a very short modelling period (2008-2015)

# Pond volume modelling

Modelled Storage Pond Volume Based on 2008-2015 Flow Data



# Quantifying uncertainty

- Level of uncertainty is not publically available
  - Possible that some options could be ruled in/out depending on the potential
- OIA request – told we would have to pay for it
  - Suggests Council doesn't have it
- We are performing our own modelling
  - OIA request for the parameters: some progress
  - Need to fine-tune our own model and check with Andrew Dakers
- Preliminary results show the models are very sensitive to some parameters:
  - Minimum moisture deficit: maintaining 5mm of (extra) deficit doubles the storage requirements
  - Evapo-transpiration rate is critical

# Council Breaching Consents

- Quantity:
  - Daily flow has exceeded the maximum allowed on 11 days in July/August
- Quality:
  - Total suspended solids exceeding the allowed limit for the 6 months since January 2017, and for at least 4 months in 2016
  - Faecal coliforms breached the allowed limits over January 2016 and January 2017



# Legal advice

- Treatment plant consents are potentially invalid
  - Plant too small to handle the volume
  - Limit on amount of wastewater that can be stored at the treatment plant is too low
- Odour appeal for proposed plant is still outstanding
- Consents can't be modified, so new consents may be required (re-litigate the entire project)
- Current consent is also being regularly breached, so a time extension would likely require a whole new consent application

# Matters to consider

## Disposal

- Goal is to get rid of water
- Application rate determined by amount of water to be disposed of
- Water applied to maximum saturation level
- Application determined by Council

## Beneficial Use

- Water is a resource
- Application rate determined by needs of receiving environment
- Water applied at optimum level and time
- Voluntary use determined by private landowner

# Matters to consider

## Quality

- Higher treatment level creates more options for beneficial use
- Critical for reuse acceptance
- FOBP asked for salad standard and demo garden
- Environmental protection in the case of disposal

## Quantity

- Quantity matters regardless of quality for land disposal
- Risk of landslip
- Risk of flooding
- Plant disease

# Matters to consider

## **Closed system**

- System designed to cope with a maximum quantity
- Overflow to waterways if exceeded

## **Open system**

- Disposal to a large water body such as ocean is not inherently limited

# Matters to consider

## Compliance

- Consents impose limits on system design
- Consider risks when system meets consent conditions
  - Downstream, downwind
- Poor mechanism to control long term effects
  - Build up of nutrients or pollutants
  - Long term saturation

## Non-compliance

- Consent conditions do not prevent non-compliance
- Non-compliance with sewage treatment consent conditions frequently occurs
  - Can continue for many years
- Consequences of non-compliance appear minimal
- Anticipate non-compliance when considering risks

# What's happening elsewhere

- Palmerston North wastewater forum April 21
- Rotorua
  - Earliest land based disposal
  - Land can no longer sustain forest
    - New plantings failing to thrive or dying
    - Ground is too wet for machinery
  - Treat to highest quality
  - Dispose to lake through “earth contact bed”
- MWH survey

## Rotorua earth contact bed



# MWH case study

- Case study of seven recent examples (Bradley 2014) found:
  - All considered full land disposal and found it to be unsustainable over the long term
  - Several projects incorporated land contact:
    - Wetlands
    - Rock (Papatuanuku) passage
    - Riparian strips
    - Overland flow
    - Gravel beds
    - Rapid infiltration beds
  - Some Councils have adopted a “best for river” approach instead – highest treatment quality versus land contact
  - In all cases Council working with iwi was seen as critical for acceptance



# Christchurch - Midges hit the news

- Bromley residents have severe problems with midges
- Worse since water better quality
- Council unable to solve problem

## Residents angry after Christchurch City Council staff reject \$225m midge solution

JAMIE SMALL

Last updated 18:41, September 5 2017



# Next steps

- Council informed Court it will have a solution by December 2018
- Interim report May 2018
- Working Party asked to reconvene
- Latest news suggests other options being discussed with Ngai Tahu
- How to proceed?

# Discussion

- Community views on wastewater disposal or use in Robinsons Bay
- Community views on other options
- Guidance to Working Party Representatives on broad principles