RUAKAKA SOUTH SEWERAGE SCHEME: GOVERNANCE AND COMMUNITY ENGAGEMENT KEY TO PROJECT CHALLENGES AND SUCCESS

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ABSTRACT

In May 2013 Whangarei District Council completed a $9.5M pressure sewer system project to replace septic tanks on approximately 470 properties and a 2,000 person campground in Ruakaka South. The project was the culmination of many years of work by the community and Council, to firstly get the project initiated and then make it as affordable as possible by making use of the Ministry of Health Sanitary Sewer Subsidy and using innovative technology and contractual models.

The project initially faced challenges brought about by a compressed timeframe, due to delays in the provision of the Ministry of Health subsidy after the Christchurch earthquakes, getting community buy in, with a high price tag, working in an area of high historical significance, and managing the many interfaces the community had with the District Council and Contractor through various project roles.

This paper discusses the challenges the project team faced in implementing the project and identifies how these were met. This includes the setting up a joint community communication and engagement plan, a project governance group and consideration of contractual models at the onset of the project. The project was a great success as it was completed on time and in budget, and achieved a 99 percent property connection rate.

KEYWORDS

Ruakaka South, community engagement, public health and environment, Pressure Sewer System, communication

1 INTRODUCTION

Ruakaka South is a riverside and coastal community located to the South of Whangarei and Marsden Point between State Highway 1 and the Ruakaka River. The Ruakaka South community has grown slowly over time from predominantly being a coastal holiday area, to more recently including a large number of permanent population. The area is also forecast to grow significantly in the future.

Consistent with the age of most dwellings the wastewater was disposed by onsite septic tanks and soakage fields. While this may have been satisfactory in a remote area the increasing population densities, number of dwellings, age of the wastewater systems, and proximity to the Ruakaka estuary meant that the continued use of septic tanks posed a health risk to residents. Whangarei District Council (WDC) determined that a sewerage system was needed to take the waste to the nearby Ruakaka wastewater treatment plant.

Investigations into providing community sewerage to Ruakaka South began in earnest in 2007. Over the years, WDC worked with the community, to firstly get the project initiated and then make it as affordable as possible by making use of the Ministry of Health Sanitary Sewer Subsidy and using innovative technology and contractual models

Figure 1: Location of Ruakaka South Sewerage Scheme

In early 2011 a design and build contract was awarded for the construction of a pressure sewer system. The project included 26km of pressure sewer mains and installation of WDC owned private grinder pump stations on 470 properties. The pumping units were WDC supplied items under a separate contract between WDC and the pump manufacturer. The scheme, which also connected a 2,000 person campground, was completed in May 2013.

Implementation of the scheme initially faced a number of key challenges, which included the following:

- A compressed timeframe to complete construction of the project due to delays in the provision of the Ministry of Health subsidy after the Christchurch earthquakes;
- Getting community buy in, given there was a $10,200 cost per property;
- Demonstrating the viability of the technology;
- Working in an area of high historical significance.

There was also the challenge of managing the many interfaces the community had with the WDC and Contractor through roles that included builder, project manager, building compliance, and facilitating homeowner affordability issues.

Great communication was identified as critical in meeting these challenges. A strategy was developed around maintaining a consistent message to stakeholders, dealing with issues quickly so they didn't escalate, and having a single voice so the message was the same whether the customer was talking to the councillors, WDC staff, Head contractor or sub-contractors.

Critical to delivery of the communication strategy was then set-up of a governance group and having a structured partnership between WDC and the head contractor. This was aided by regular community information through local media, minimising interfaces where possible by using WDC staff as project managers and having key staff available on site.

Management of historically significant issues was aided by early engagement of local hapu, Patuharakeke within the project delivery team.

Costs were reduced through use of innovative technology and contract models and project delivery was aided by the procurement of high quality equipment, as faults were minimized which assisted community acceptance.

Going from difficult public meetings at the start of the project to a 99% connection rate by the project end was testament to successfully delivering excellent community engagement.

2 PROJECT DEVELOPMENT

2.1 PROJECT FUNDING

Discussion to provide a community sewerage system to the Ruakaka South started in the 1980's. Following a request by the Ruakaka Ratepayers Association, WDC worked with the community to develop a scheme for the Ruakaka South community. The initial scheme proposal in 2007 garnered substantial support through a community poll. WDC subsequently developed a proposal such that it could be used as part of the application to the Ministry of Health (MoH) for Sanitary Works Subsidy Scheme (SWSS) subsidy.

The initial proposal to the MoH was for a traditional gravity sewer with an estimated cost of over $13.7M, which was included in the 2009 – 2019 Long Term Plan. Following feedback from its advisors WDC investigated a pressure sewer system to help reduce costs. The final subsidy application in 2009, based on this innovative technological, reduced the project cost by $4.2M to $9.5M.

It was initially expected that the MoH's decision would be made soon but following the occurrence of Christchurch September 2010 and February 2011 earthquakes, the government delayed provision of the subsidy until June 2011. The approved subsidy was at a rate of 71.7% of the project capital cost up to a maximum of $6.79million, but had a condition that the funding be drawn down by 30th of June 2013. This required WDC to plan delivery of the project, consult the community and implement the scheme within a compressed timeframe of less than two years.

Subsequent to the MoH subsidy approval, the first part of the project was to develop a project funding plan, to determine the cost per ratepayer. The funding Plan was included in Council LTP consultation process.

The total cost to connect to the scheme before applying subsides was estimated to be $28,200 per residential connection (GST incl). This cost included approximately $10,000 allowance for treatment and disposal facilities. After applying $13,000 for MoH subsidy and a further $5,000 subsidy per residential connection from WDC, the cost was significantly reduced to $10,200 (GST incl). To further reduce the hardship, WDC offered the homeowners an option to pay the scheme as installments over a five year period. The cost of borrowing was also met by the homeowner.

Following approval of the funding plan by Council in October 2011, WDC staff started to discuss details of the scheme with the community. This included development of information brochures, web site information, mail outs, site visits and public meetings.

2.2 SELECTION OF THE SCHEME

The initial proposal for the scheme was a traditional gravity sewer, with an estimated cost of $13.7M. Due to the spread out nature of the area, flat terrain and high water table, construction of such a scheme was expensive, as this would entail deep trenches with difficult support and extensive dewatering. Following a suggestion by the MoH, WDC engaged consultants to investigate a pressure sewer system.

Further investigations into this technology offered several benefits to both community and environment:

- Pressure sewer system offered costs saving over gravity system with a probable cost of $9.5M;
- It offered less disruption and faster installation in a community that is already densely built;

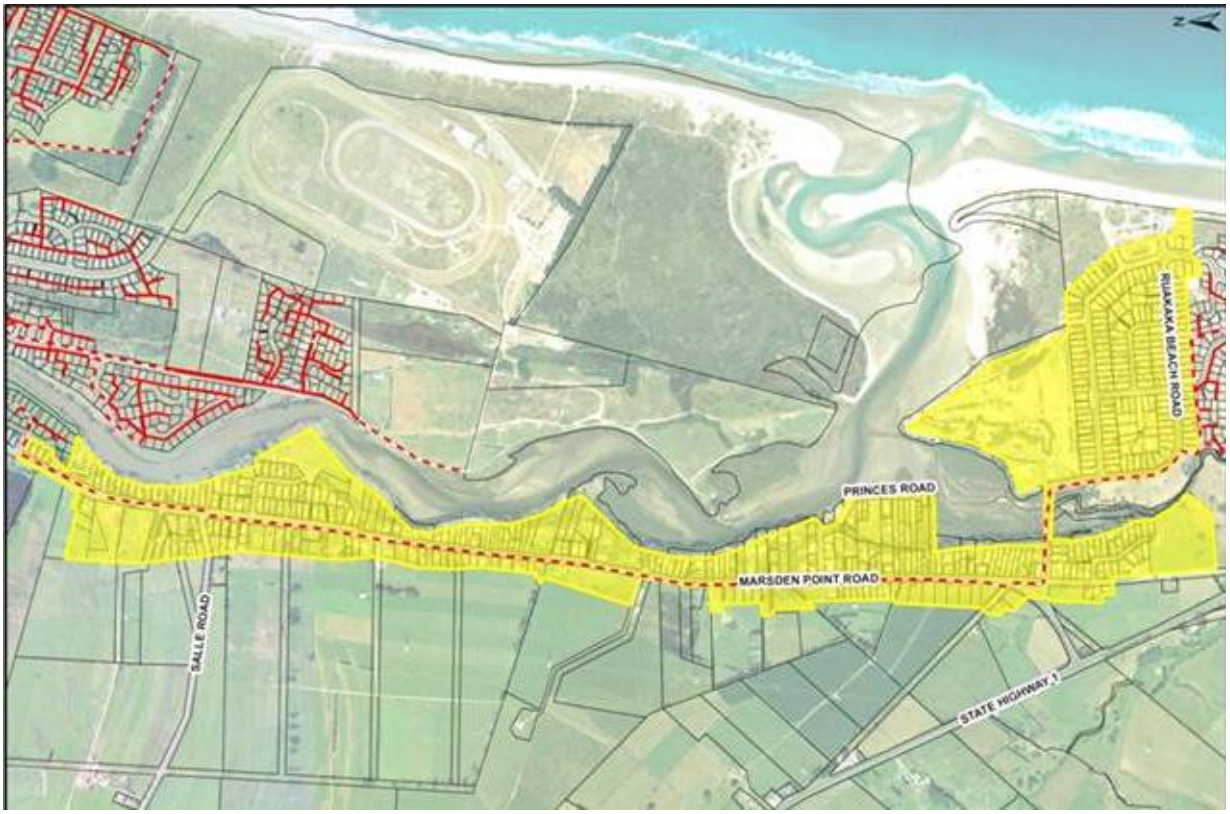
- Trenchless methods were predominantly used to install pipes, which minimised community disruption and impacts to the scenic and environmentally sensitive area;

- Pressure sewer system has been in existence for decades, and already been used in many areas in New Zealand, so WDC staff had good background knowledge of the system.

Due to the time constraints the opportunity for the community to have input on the selection of the technology was limited. However, the project team was able, by way of demonstrating cost savings and successful operation elsewhere, to convince the community that the pressure sewer system could operate satisfactorily in Ruakaka South.

The information and merits of the pressure sewer system was conveyed to the community in a simple manner, with technical language they could understand. This included Fulton Hogan building a working unit to service their construction site for people to observe, and having the equipment supplier, Ecoflow, available at public meetings with a cut model of the system. This would give the community an opportunity to familiarize with the technology and raise any concern or query.

Figure 2: Ruakaka South Sewer Extension area of benefit identified at the application of MoH subsidy



3 COMMUNITY OPPORTUNITY TO BUY IN

Following completion and Council's approval of the scheme funding plan, WDC engaged the community further to ensure that the community that has to partially fund the scheme has the opportunity to buy into the project. A letter and project information booklet was sent to the community, followed by a community information meeting carried out between December 2011 and January 2012. The community was asked to indicate their support for the scheme and provide any comment regarding the scheme.

The information included:

- Project background and area of benefit;

- Why the scheme is needed i.e. health and environmental concerns caused by septic tanks;

- Funding of the scheme including their share of the cost;
- Description of the scheme technology and why it was a preferred option;
- Ownership of the grinder pumps;
- Project timelines and general process.

The poll retained 77% support for the scheme. Those who did not support the scheme indicated financial affordability as the primary reason rather than the rationale of the project or technology. The summary of results is shown in Table 1 below.

Table 1: Summary of community poll results

	Do you support an extension of the sewer reticulation scheme to include Ruakaka South?	Do you support your property being connected to the Ruakaka South sewer extension?	I would prefer the lump sum option?	I would prefer the 5 year payback option added to my rates?
Total Received	218	218	218	218
Yes	167	162	94	82
No	48	49	57	45
% Yes	77%	74%	43%	38%
% No	22%	22%	26%	21%
% Neither Y or N	1%	4%	31%	41%

The poll feedback indicated that:

- Despite the pressure sewer technology being new to Whangarei, only a few homeowners were concerned about the reliability of the technology. However, this did not cause major issue as the merits of the scheme were clearly communicated to the community including examples of the schemes which were already operating in New Zealand;
- The community already understood that the scheme was necessary for the wellbeing of their public health and the environment. No questions were asked about the rationale of having the sewerage scheme;
- Many of those who did not support the scheme identified financial affordability as their reason for opposition. At the first public information session WDC staff were repeatedly asked *"What if I cannot afford the cost of connecting to sewerage?" and "My existing onsite system is new and working well, why should I join the scheme?"*

WDC determined that the poll result was a good indication for the community support and made a decision to proceed with the scheme, and recognized that there was strong need to work through the affordability issues, in order to get all the properties connected to the scheme. Connection of only those that have indicated approval was likely to only address 77% of the health problem generated by the onsite systems.

To work through hardship issues WDC provided dedicated staff from its Finance Department to engage individual meetings with concerned homeowners to discuss payment options on a case by case basis, and had them based in the community for set times.

4 PRE-CONSTRUCTION AND CONTRACTUAL MODELS

Prior to developing tender documents WDC staff reviewed the best contractual models to deliver the project. Given the tight timeframes it was considered that the best head contract would include both design and build aspects, and include responsibility for homeowner engagement. While WDC was looking for value for money it also needed to be confident that the successful contractor had sufficient experience and ability to deliver the project in the tight time frame. As such tenders were sought on a price quality basis.

To reduce tender costs the contracts were let via a non-price attributes short listing process, with the three highest scoring tenderers invited to submit full tenders. The tender was awarded to Fulton Hogan.

The pump supply aspect was excluded from the main contract as WDC considered it important, for the benefit of the community, to establish a long term relationship with the supplier, given WDC would own and operate the pump units. Again a price quality process was used to select the supplier, which was ultimately awarded to Ecoflow (supplier of Eone pumps).

Ecoflow were engaged early and responded to technical questions from the community. This greatly assisted improving the confidence of the community for the technology.

Once the tender was awarded the WDC and Fulton Hogan worked closely to develop a strategy to best engage the community and deliver the project.

Fulton Hogan and WDC staff set up a partnership model that included having WDC staff permanently working with the contractor, which saw a joint community consultation team established at the early stages of the project. All project correspondence was handled through this team. The merit of streamlining the communication was to maintain a one face approach with a central communication point for residents as far as possible yet allow the contractor to focus on meeting tight time frames.

The most critical part of this approach was interfacing between WDC, the community and the contractor. There were queries from residents that specifically required a WDC staff, and some questions which would be best answered by the Contractor. To manage this, WDC provided a full time Customer Liaison Officer at the project site office in Ruakaka. This role was to liaise between the WDC, Fulton Hogan and the community. Fulton Hogan also provided a full time Stakeholder Manager to manage the on-property construction work programme with the residents.

The project was run by WDC staff with very little consultant involvement. Along with drafting the specifications, the Engineer to the Contract, Project Manager and ground staff were all WDC employees.

This model allowed for excellent integration between the many departments of WDC involved in the project including the building consent office. The efficiencies and ability to deal with problems immediately meant the community could be well supported and scheme costs could be controlled.

A site office was established in the heart of the Ruakaka community that housed WDC and Fulton Hogan staff. This means the project staff was able to immerse in the Community, talk to the residents and make them part of the process. Maintaining local presence was also important as someone was always locally available to address homeowners' concerns quickly.

5 PROJECT CONSTRUCTION STAGE

5.1 COMMUNITY COMMUNICATION AND INVOLVEMENT DURING CONSTRUCTION

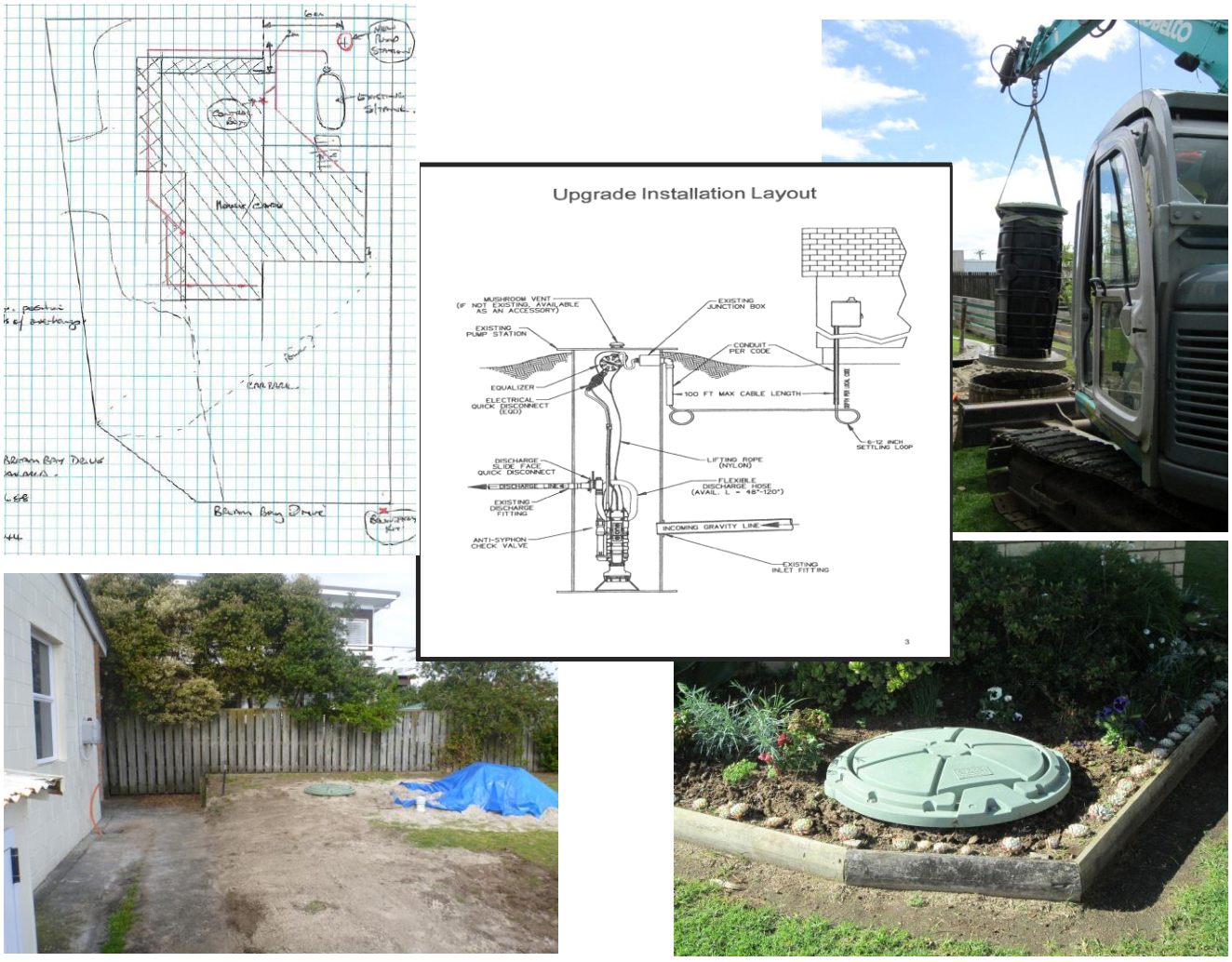
Many of the houses in Ruakaka South are old and had separate grey water systems. Also, many of the houses did not meet current electrical or plumbing codes.

The contract required auditing of plumbing and electricity supply on all properties and carry out required upgrades to ensure they meet the electrical standards before connecting the pumping units, as part of the scheme cost.

While the WDC Pressure Sewer Policy requires property owners to carry out their own upgrades at their cost, WDC envisaged that this approach would have caused unduly risk to the project programme and likely to cause further financial hardship to the homeowners. Although this approach is generally conceived to create equity issues, – e.g. some properties had recently completed an upgrade to their switchboard (at their cost), and council is now undertaking similar works on other properties, WDC had to ensure that only electrical upgrades required for connection of the pumping units were carried out, of which majority were minor such as fitting earth stakes or adding neutral bars.

These conditions required individualized analysis and design of the grinder pump system and upgrades of the house plumbing and electrical connections. The project team engaged with each homeowner on site to have their input on the design of the on-property works including agreeing on the location of the pumping units. Communicating with the homeowners was essential in producing a design that would stimulate their participation in the project and ensure its success.

Figure 3: On-property design layout and access that required site discussion with home owner



Coordination of the on-property work was a challenge as this required each home owner to be contacted to arrange site meetings, getting them to sign legal right of entry and gaining access to the house to carry out electrical upgrades.

To make the process manageable, the area of benefit was divided into six zones; these zones were contacted separately to avoid long waiting period between the time of first contact and the time of work on the property. The rate at which the signed access consent forms were returned was closely monitored against the rate of domestic installations, and the programme was reviewed on weekly basis and any slippage was address immediately.

Keeping the residents apprised about the project programme was paramount to running this process smoothly. Public outreach activities during this phase included:

- Direct mail outs to residents prior to and during construction;
- Public meetings;
- Advance written notice of major construction activities;
- Project status reports via fortnightly local newspaper (Bream Bay News);
- Prompt response to all community inquiries;
- 24/7 project hotline;
- Comprehensive project website;
- Council News releases;
- Project weekly updates sent to the local councillors and WDC customer services.

Figure 4 Installing street mains and property discharge line by trenchless technology

5.2 MANAGING ARCHAEOLOGICAL RISK

Given the sensitive nature of the environment and rich pre-European history in Ruakaka, the contractor lead the initiative to engage Putuharakeke te Iwi Trust Board who hold mana whenua in the area as a partner in the tender submission stage of the project.

This early engagement enabled local iwi to guide the project on cultural matters regarding the design process, consent application and construction of the scheme, as well as assisting in identifying areas of historical significance. Representatives from Putuharakeke formed integral part of the project team and were involved throughout the project, in design, resource consent applications and construction.

It was recommended that a project of this nature would require an application to the Historic Places Trust (HPT) to obtain an archaeological authority to 'damage, modify or destroy archaeological sites' within the project area of benefit. The aim of the legislation is to access and record information which builds on the region and nations history through developing a body of knowledge which informs us of the historical data of the area.

It was initially identified that 50-60% of the project had some form of medium-high archaeological sensitivity that required managing as part of the HPT Authority that had the potential to be investigated. The remaining 40% had low archaeological sensitivity and may still have required investigation. Through engagement with the

Putuharakeke and the archaeologist, a process was developed that dramatically reduced the amount to 2-3% requiring intensive investigation. The process included recommendation by Putuharakeke to engage an archaeologist acceptable to Putuharakeke, HPT and WDC, and to manage this process including pre-inspection of the sites. It was also considered that a Kaitiaki monitor should be available to monitor all ground disturbing activity in the area, particularly those areas of high archaeological sensitivity as identified by the archaeologist.

Putuharakeke te Iwi Trust Board acknowledged that this early consultation and relationship building with tangata whenua has been an example of recognized best practice in resource management and an efficient way of progressing the work programme smoothly.

Figure 5 Typical archaeological site-Shells exposed while drilling a hole for pumping unit the tank

6 PROJECT OUTCOMES

Although the cost was a challenge the community was able to recognize the need for the scheme, and the provision of the sewer system that addressed significant public health risk from failing septic tanks.

In the end only one property owner refused to engage with the project team. Four properties resolved to have connections at their boundary only. The remaining 470 properties agreed to have full connections, a 99% connection rate. Obtaining a 99% sign on to the scheme, up from the 77% project support at the beginning of the project, is considered an excellent outcome as even with much greater subsidies other similar schemes in the country generally get less than 90% of the properties connected.

The project has also demonstrated that low pressure sewer systems provide a cost-effective solution for servicing difficult developments with large scale spread out nature, flat terrain, sand soil and high ground water table, as is the case with Ruakaka South area.

The provision of a wastewater service to the campground provides this important low cost camping facility a secure future with regards to its waste management.

Other achievements that are worthwhile to note:

- Approval of the Ministry of Health subsidy;
- Approval by WDC to provide further subsidy on treatment and disposal costs;
- The project was completed on time under tight time frames to meet the subsidy expiry date
- The project came within budget;
- Using predominantly trenchless technology for reticulation mains and on-property works minimised disruptions to property access;

- The scheme provided upgrades to private electrical systems so that they met electrical standards, making properties safer.

Even though pressure sewer systems are not all created equal, the experiences in constructing the Ruakaka South Sewerage scheme can be shared with other councils constructing pressure sewer systems. The key to a successful project was implementing a comprehensive but simple community engagement and communication plan at the early stages of the project. The pump supplier also needs to be identified in the early stages of the project to get them involved early in the community consultation process.

7 CONCLUSION

This project has demonstrated that project success is not only measured by technical outcome, or completing in budget and in time. There is more to this, in this particular project community engagement and satisfaction was the key to success.

Council, the Contractors and the majority of the Ruakaka South community are satisfied with the project delivery and outcomes. The cooperation across all parties (Council, Contractors, the MoH, local iwi and ratepayers) combined with the availability of public funding were instrumental in the success of this much needed project.

REFERENCES

Opus International Consultants (August 2008) Ruakaka South Wastewater Reticulation – Design Report (conventional gravity reticulation system)

Opus International Consultants (January 2010).Ruakaka South Wastewater Reticulation Extension- Preliminary Investigations into Capacity of Existing Rising Main and Use of a Pressure Sewer System

Harrison and Grierson (February 2010).Ruakaka South Wastewater Scheme – Pressure Sewer Feasibility Assessment

Pattle Delamore and Partners (April 2010) Ruakaka South Wastewater Scheme – Conceptual Design for the Ruakaka Camp Ground Pressure Sewer Network

Pattle Delamore and Partners (May 2010) Ruakaka South Wastewater Scheme – Innovation and Optimisation of the proposed Pressure Sewer System

Pattle Delamore and Partners (September 2010) Ruakaka South Wastewater Scheme – Pressure Sewer Preliminary Design Report

Whangarei District Council Sanitary Works Subsidy Scheme (September 2009) - Provisional Application for Ruakaka South