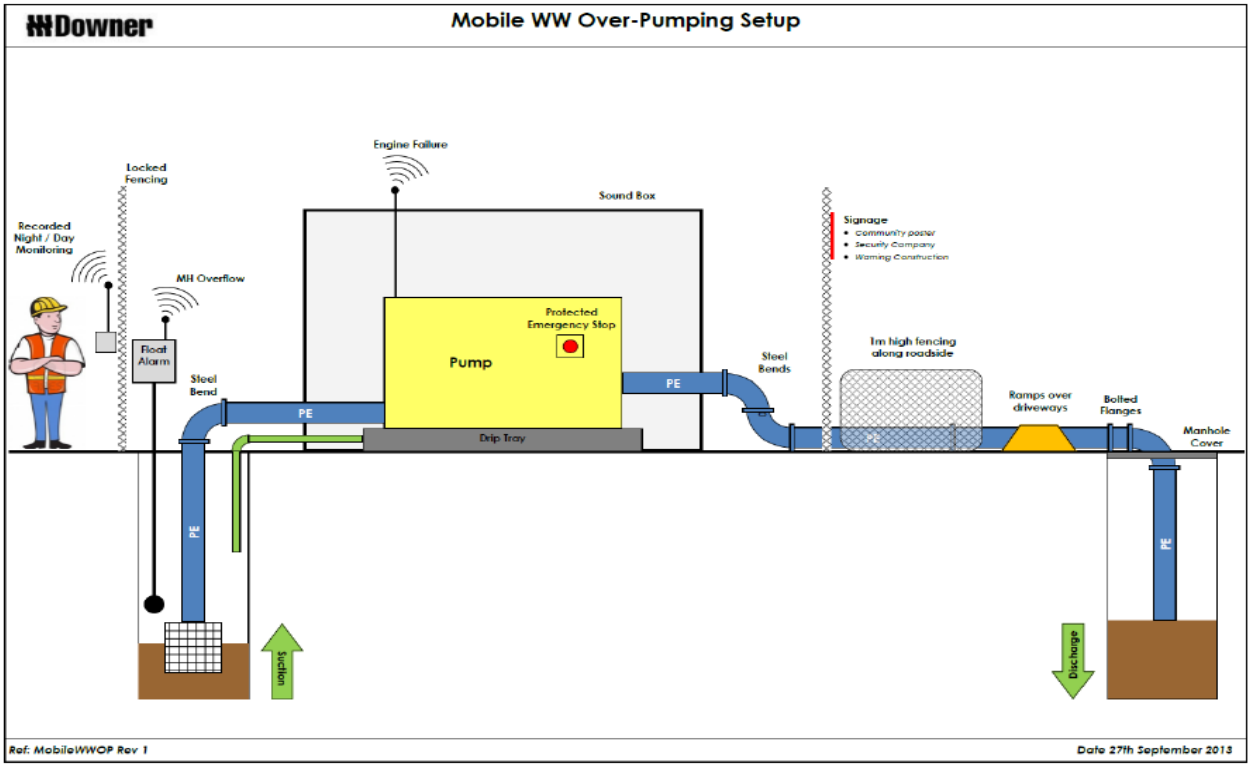
BEST PRACTICE GUIDE:

WASTE WATER OVERPUMPING



KEY MESSAGES:

- **Environment Canterbury requires the use of the 'Best Practicable Option' to minimise or prevent harm to the environment. This Guide should be considered the Best Practicable Option for Wastewater Overpumping.**
- **Plan your job to avoid WWOP = ELIMINATE**
- **Design and construct Wastewater Overpumping to avoid failure from wear and tear, traffic and vandalism = ISOLATE**
- **Monitor all wastewater overpumping setups = MINIMISE**
- **Know what to do in case of an overflow = RESPONSE**

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Revision	Author	Date
Issue	David Maucor	29/05/2013
Review	Jennifer Millar	08/07/2014

1 Context

During the earthquake repair work, on the wastewater network in Christchurch, a large amount of temporary, overland wastewater overpumping has had to be carried out. Some of this overpumping was necessary in the emergency phase following the earthquakes in 2010 and 2011, due to the badly damaged wastewater infrastructure. Overpumping set-ups were rolled out quickly, with little planning or risk assessment. This resulted in several large wastewater overflows to streets and rivers. As the rebuild has progressed, so has wastewater overpumping.

The Natural Resources Regional Plan refers to the 'Best Practicable Option' meaning 'your best course of action'. This means we must use the best method available for preventing or minimising harm to the environment. In the case of Wastewater Overpumping, this Best Practice Guide sets the standard or the 'Best Practicable Option'.

It is now expected that the standards set in this Best Practice Guide are used by all contractors undertaking Wastewater Overpumping.

2 Impacts of a Wastewater Overflow (WWOF)

The biggest risk from Wastewater Overpumping is an uncontrolled wastewater discharge to land or to stormwater resulting in a discharge to a watercourse. This can have negative effects on our workers, local residents, water users and the environment.

2.1 Health Impact

- Construction workers can be exposed unnecessarily if wastewater overflows into the working trench or contaminates plant and material.
- Members of the public can be exposed unnecessarily if wastewater overflows onto the ground, street or stormwater system.
- Recreational users of the watercourse or estuary e.g. kayaks, surfers or fishermen, can be exposed unnecessarily to wastewater.
- Businesses relying on the watercourse for work e.g. Antigua Boatsheds and Punting on the Avon, can have their businesses put at risk by wastewater overflows.

Picture 1: Wastewater ponded on street following an overflow.

Picture 2: Wastewater sludge on a street following an overflow.

2.2 Environmental Impact

Wastewater overflowing into a street can enter the storm water system and contaminate waterways. Raw sewage in waterways will:

- increase microbiological activity and deplete oxygen availability for the eco-system
- send contaminants (sediments, chemicals, detergents, etc) into the river.

Picture 3: Wastewater discharging to river through an overflow structure.

Picture 4: Polluted Water sign following an Overflow to river.

2.3 Legislation and Risk for Business

Dry weather wastewater overflows to a watercourse are illegal under the Resource Management Act 1991 and are therefore liable for enforcement action and prosecution.

The Proposed Land and Water Regional Plan Policy 4.9(a) and (e) requires that there are no direct discharges to surface water bodies of untreated sewage or wastewater.

In addition, the Environment Canterbury, Natural Environment Recovery Programme for Greater Christchurch 2013 states Project 8 as Act on Opportunities to Reduce Sewage Overflows and their Effects.

There is currently a lot of political pressure to avoid wastewater overflows which is reflected in the documents listed above.

Potential business consequences of a wastewater overflow can be:

- Prosecution by Environment Canterbury (Canterbury Regional Council)
- Damage to image and reputation
- Delay in works
- Cost for clean-up and remediation.

Demonstration that this Best Practice Guide has been followed as the 'Best Practicable Option' will act as a defence in the case of a wastewater overflow.

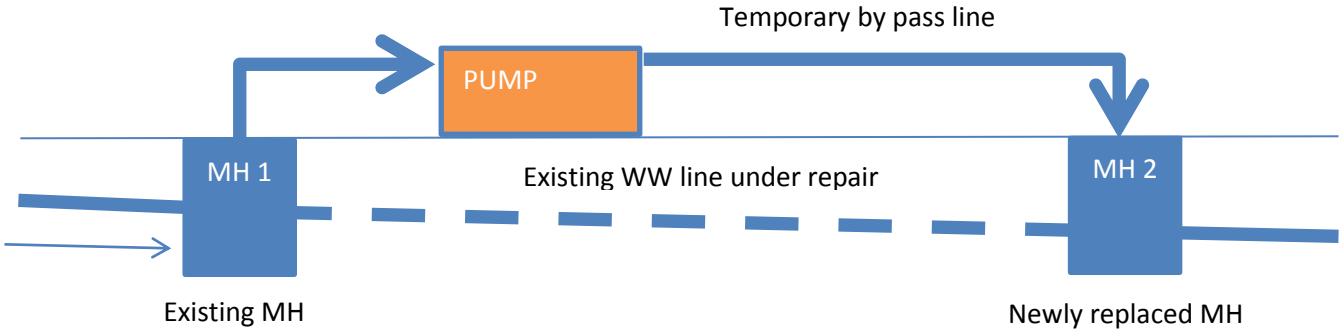
Note: Certain controlled wastewater overflows may be authorised by Resource Consent CRC121092. However, this requires to be planned for and approval sought prior to overflow occurring. (Appendix A)

3 Wastewater Overpumping (WWOP) Scenarios

3.1 Working between two manholes (Mobile Wastewater Overpumping)

Mobile wastewater overpumping is used to maintain wastewater flows whilst working on a live wastewater line. This is typically done during works to replace damaged pipes between two man holes.
Mobile wastewater overpumping setups will move regularly as work progresses. Depending on the catchment and flows these systems may pump wastewater from a few hours a day to 24 hours a day.

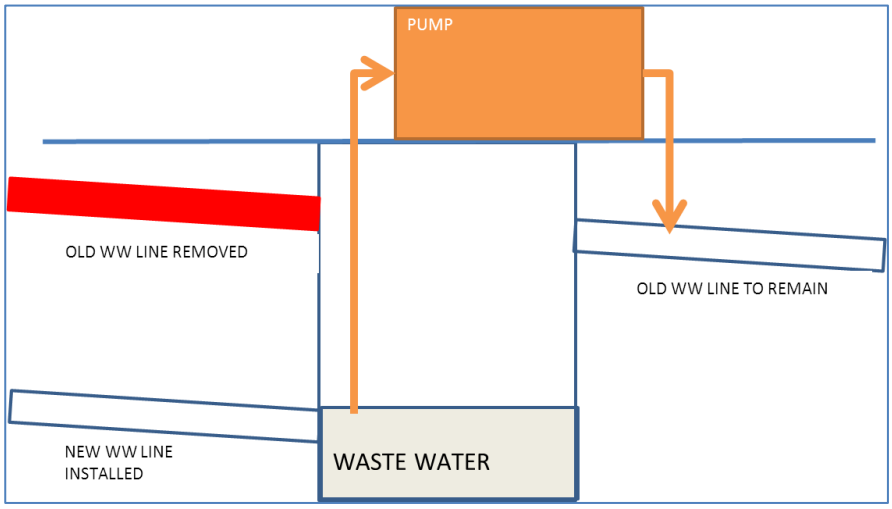
A typical setup is as follows:



3.2 Temporarily lifting wastewater at a low point (Static Wastewater Overpumping)

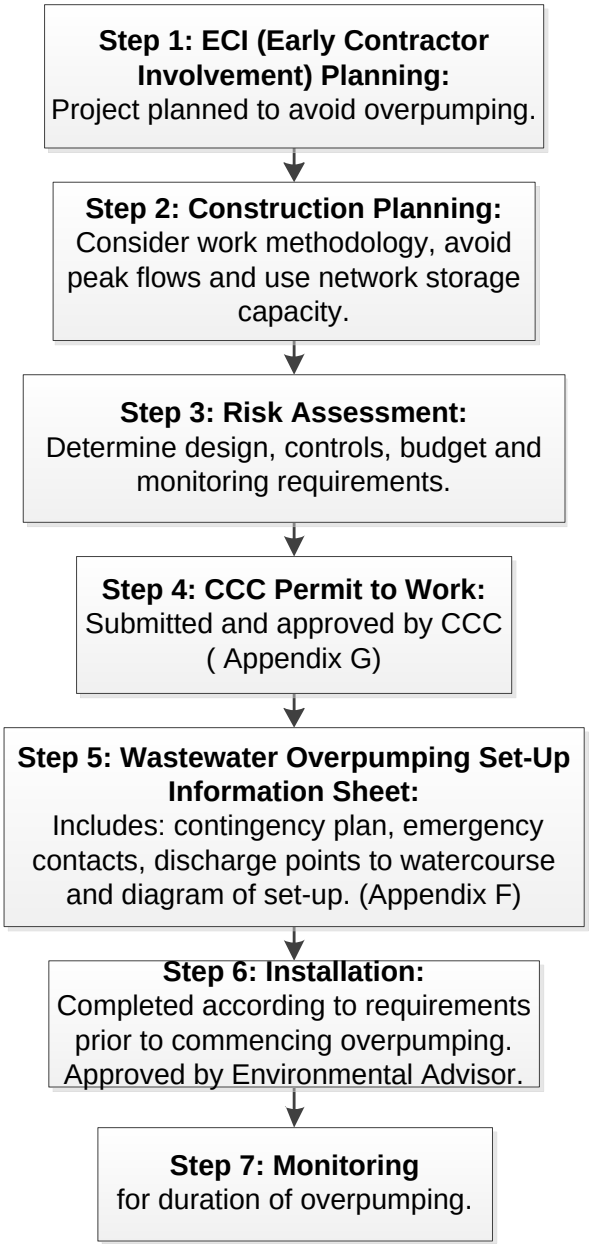
Static wastewater overpumping is used when wastewater requires to be temporarily lifted from a low point on the catchment to a higher point. Typically this will be setup when awaiting the construction of a lift station or a pump station.
Static wastewater overpumping sites are often present for long periods of time (>3 months) and are usually required to run 24 hours a day.

A typical setup is as follows:



4 Project Planning and Wastewater Overpumping

The following general steps are to be taken when project planning and wastewater overpumping:



The following chapters provide further details on each of these steps.

5 Step 1: ECI (Early Contractor Involvement) Planning

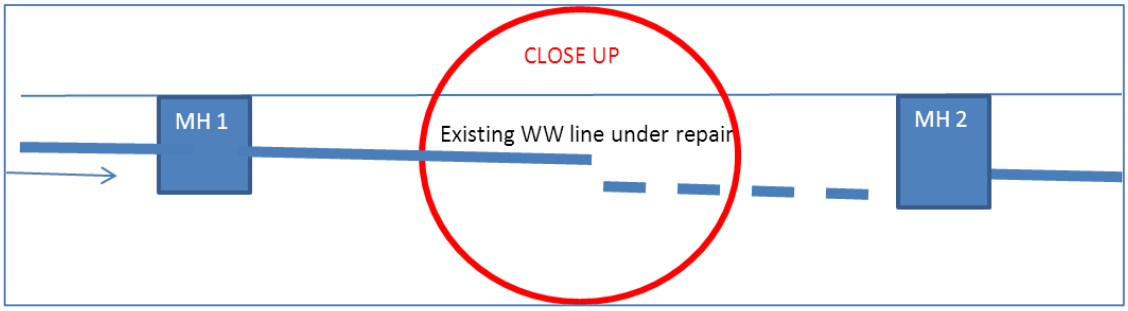
Planning and phasing of works can sometimes avoid having to implement wastewater overpumping. The following are some examples where wastewater overpumping can be avoided:

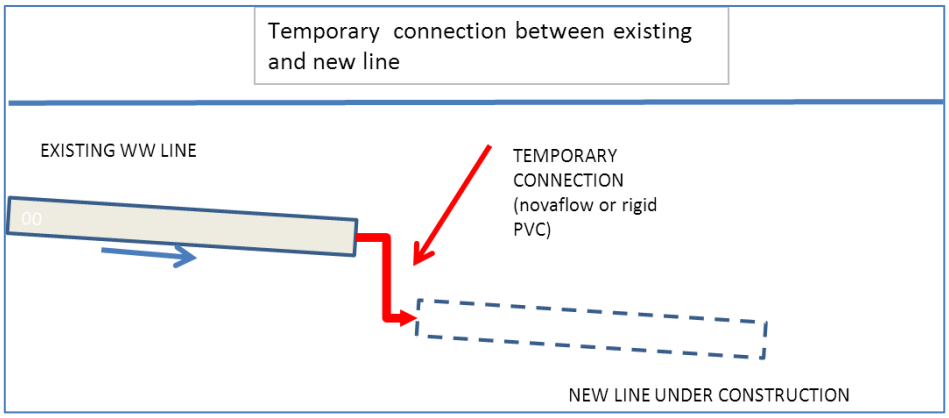
What	How	Advantage
Pump Stations and Lift Stations are built and operational in advance to the wastewater reticulation.	• Involvement in ECI (Early Contractor Involvement) to release Pump Station/ Lift Station design prior to reticulation design. • Phasing/planning of works.	**ELIMINATE.** Avoids static wastewater overpumping whilst the pump station or lift station is awaiting construction and/or commissioning.
Pressure Main is built in advance of the gravity network.	• ECI (Early Contractor Involvement) to release Pressure Main design before reticulation. • Commencing Pressure Main construction before the rest of the catchment.	**ELIMINATE.** Allows wastewater to be sent out of the catchment as work progresses and avoids static wastewater overpumping between two gravity lines.
Works are planned so wastewater always follows its existing flow direction.	• Works planning. • Works involving changing gradient of wastewater reticulation are left to the end.	**ISOLATE.** Facilitates temporary connections and may avoid static over pumping.
Using temporary manholes to reduce distance of wastewater overpumping.	• New manhole is installed with approval from designer.	**MINIMISE.** Reduces length of pipe necessary for wastewater overpumping and subsequent cost and exposure to damage.
Divert wastewater flows to another catchment.	• Block the line you will be working on at a manhole, allowing flows to circulate to another catchment.	**ELIMINATE / MINIMISE.** Avoids static and mobile wastewater overpumping.

6 Step 2: Construction Planning:

6.1 Example 1: New wastewater line is lower than the existing wastewater line

Option: Bung the line during the day and restore flow between manholes at night with a temporary connection. **(ELIMINATE)**





How:

- Use an inflatable bung to avoid entering manhole;
- Requires monitoring of flows / build up during the day;
- Requires temporary connection setup at the end of every day, using nova flow or rigid PVC connection;
- Requires notification to CCC (Permit to work).

Advantages:

- Avoids 24/7 mobile wastewater overpumping.

Disadvantages:

- Not practical if lines are greater 225 mm diameter, or high flows.

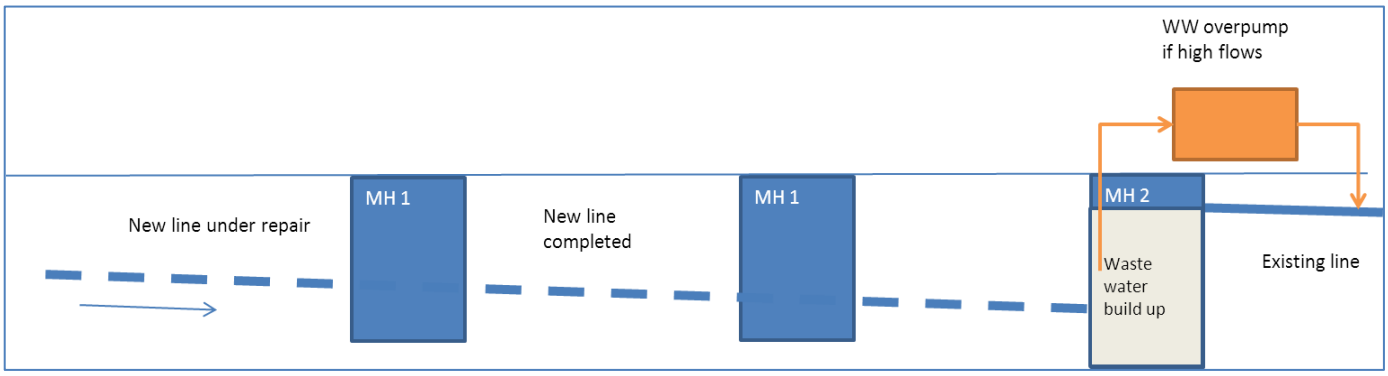
6.2 Example 2: New line is lower than the existing and either the upstream line is completed OR is well away from the low point in the main.

Options: Suitable option will be dependent on flows and catchment characteristics.

1. Wastewater overflows into the existing main by gravity **(ELIMINATE)**

2. Wastewater overpumping may not be required at night **(MINIMISE)**

3. Wastewater overpumping is required 24/7



How:

- Option 1: Assessment of flows, network capacity and levels of the new and existing lines to ensure wastewater will flow by gravity into the existing line and not surcharge elsewhere in the catchment or through an overflow to stormwater.
- Option 2: Low flows in catchment which can be stored in network overnight and pumped during the day only. Assessment of flows, network capacity and overflow structures to stormwater to be conducted to ensure wastewater will not surcharge elsewhere in the catchment.
- Option 3: Due to high flows 24/7 overpumping is required.

Advantage:

- By making assessments and investigations into the catchment, 24/7 mobile wastewater overpumping can be eliminated or minimised.

Disadvantage:

- Risk of solid build up in line;
- Risk of sewage seeping through broken wastewater pipes.
- Risk of wastewater backing up property laterals.
- Option 1: May require a pump on site to deal with high flows during wet weather.
- Option 1 & 2: Will be dependent on the risk of wastewater surcharging through a low point or overflow structure in the catchment.

Warning: Rain events and peak flows in morning and evening need to be accounted for.

6.3 Example 3: New wastewater line is above the existing line.

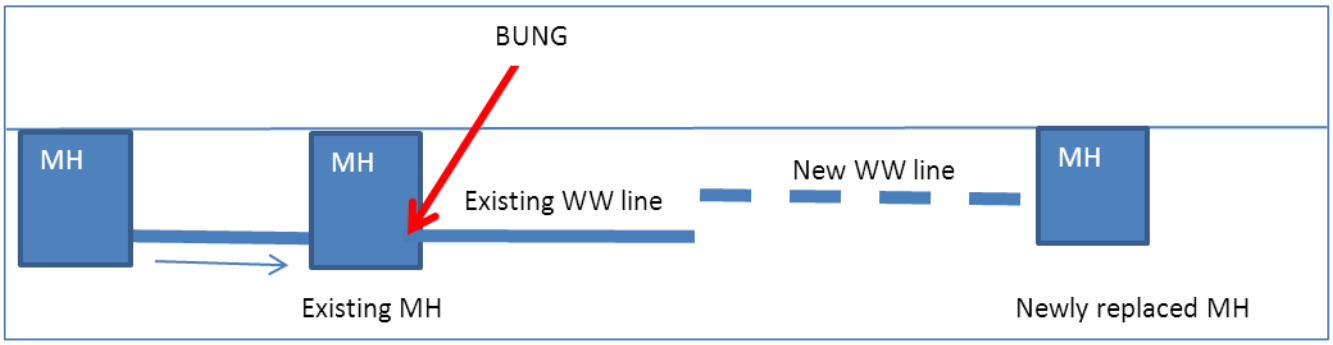
Options: 1. Wastewater collects in upstream existing manhole and overflows into alternate line.

(ELIMINATE)

2. Wastewater collects in upstream existing manhole and is cleared by sucker truck

(ELIMINATE)

3. Wastewater overpumping is required 24/7



How:

- Option 1: If flows are low bung can be placed in existing manhole and allow wastewater to back up into catchment and overflow into alternate line. Assessment of flows, network capacity and levels of existing lines to ensure wastewater will not surcharge elsewhere in the catchment or through an overflow to stormwater.
- Option 2: If flows are low bung can be placed in existing manhole and allow wastewater to back up into catchment and can be cleaned out when required with a sucker truck. Assessment of flows, network capacity and levels of existing lines to ensure wastewater will not surcharge elsewhere in the catchment or through an overflow to stormwater.
- Option 3: If flows are high and no alternate line to discharge into, mobile overpumping may be required.

Advantage:

- Options 1 & 2 will eliminate 24/7 mobile wastewater overpumping.

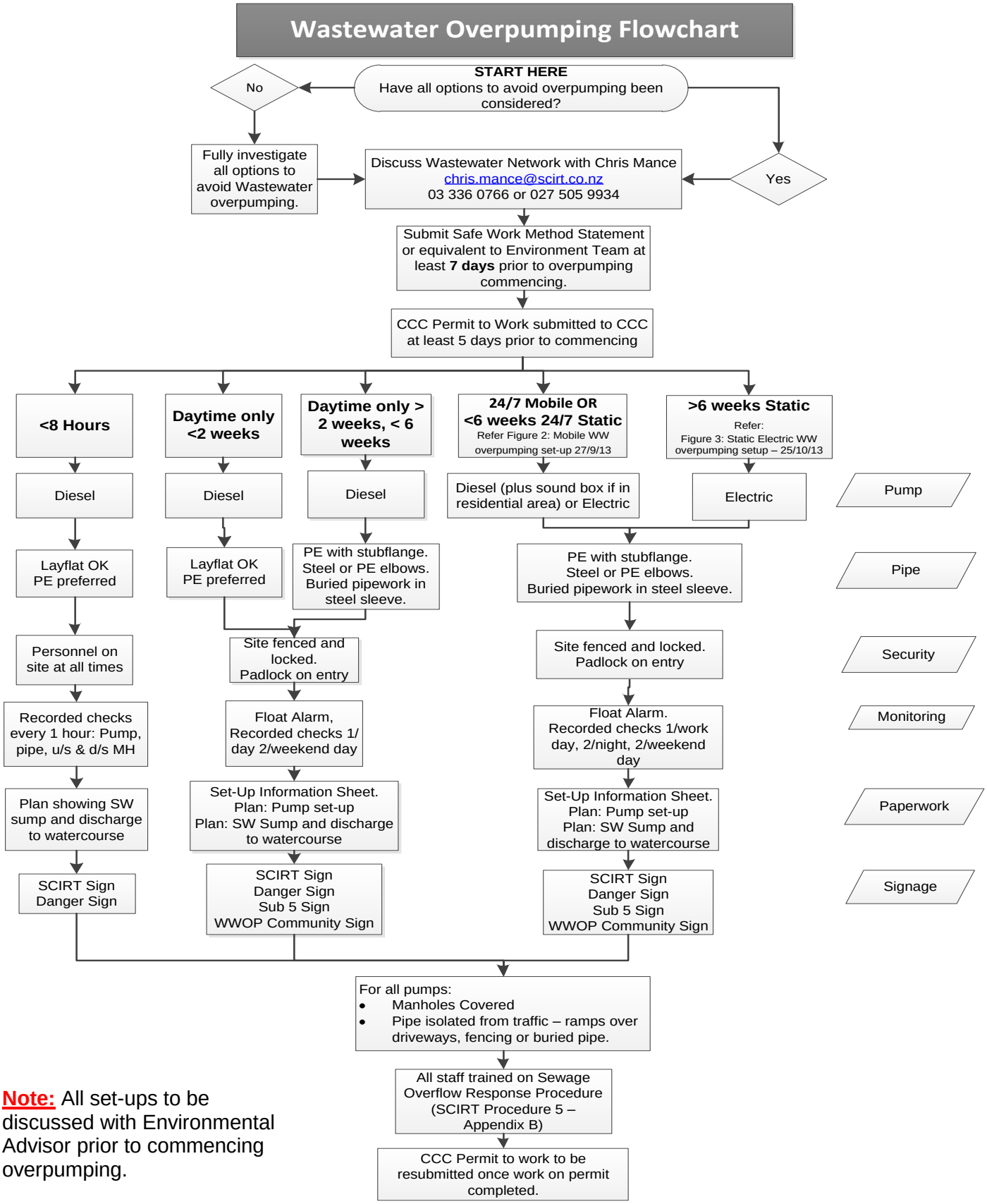
Disadvantage:

- Risk of solid build up in line;
- Risk of sewage seeping through broken wastewater pipes;
- Risk of wastewater backing up property laterals.

Warning: Rain events and peak flows in morning and evening need to be accounted for.

7 Step 3: Risk Assessment:

Figure 1



Note: All set-ups to be discussed with Environmental Advisor prior to commencing overpumping.

7.1 Controls Required for < 8 Hours Wastewater Overpumping

Scenario: One-off short term overpumping set-up e.g. for completion of 1 day pipelining operations.

Requirements: To be set up in accordance with Figure 1 and Table 1 below.

Table 1

Item	Requirements	Reference
Pump	Diesel	Figure 4
Pipe	PE preferred	Figure 12
	OR Layflat Pipe	Figure 8, 9 & 10
	Pipe Protected from traffic	Figure 11
Security	Personnel on site at all times	
Monitoring	Checks every hour during overpumping	Appendix E
Paperwork	Plans showing discharge to stormwater and river.	Figure 24
Signage	SCIRT Sign	Figure 26
	Danger No Entry Sign	Figure 27
Additional	Set-up within site	
	Manholes covered	Figure 35, 36 & 37
	Ramps if required	Figure 39

7.2 Controls Required for Daytime Only <2 weeks Wastewater Overpumping

Scenario: Overpumping only required during the day for less than 2 weeks due to low flows.

Requirements: To be set up in accordance with Figure 1 and Table 2 below.

Table 2

Item	Requirements	Reference
Pump	Diesel	Figure 4
Pipe	PE preferred	Figure 12
	OR Layflat Pipe	
Security	Site fenced and panels locked together.	Figure 16 & 17
	Padlock on entry.	
Monitoring	Float Alarm (Suction manhole)	Figure 20 & 21
	Recorded checks: 1/work day	Appendix E
	2/weekend day – Security Guard	Figure 18 & 19 Appendix E
Paperwork	Set-Up Information Sheet	Appendix F
	Plans showing discharge to stormwater and river.	Figure 24
Signage	SCIRT Sign	Figure 26
	Danger No Entry Sign	Figure 27
	Security Guard Sign	Figure 28
	Wastewater Overpumping Sign	Figure 29
Additional	Set-up within site if possible.	
	Manholes covered	Figure 35, 36 & 37
	Ramps if required	Figure 39

7.3 Controls Required for >2 weeks, <6 weeks Daytime Only Wastewater Overpumping

Scenario: Overpumping only required during the day less than 2 weeks but greater than 6 weeks due to low flows.

Requirements: To be set up in accordance with Figure 1 and Table 3 below.

Table 3

Item	Requirements	Reference
Pump	Diesel	Figure 4
Pipe	PE Pipe	Figure 12
Security	Site fenced and panels locked together.	Figure 16 & 17
	Padlock on entry	
Monitoring	Float Alarm (Suction manhole)	Figure 20 & 21
	Recorded checks: 1/work day	Appendix E
	2/weekend day – Security Guard	Figure 18 & 19 Appendix E
Paperwork	Set-Up Information Sheet	Appendix F
	Plans showing discharge to stormwater and river.	Figure 24
Signage	SCIRT Sign	Figure 26
	Danger No Entry Sign	Figure 27
	Security Guard Sign	Figure 28
	Wastewater Overpumping Sign	Figure 29
Additional	Set-up within site if possible.	
	Manholes covered	Figure 35, 36 & 37
	Ramps if required	Figure 39

7.4 Controls Required for 24/7 Mobile OR < 6 Weeks 24/7 Static Wastewater Overpumping

Scenario: 24/7 Mobile overpump required when working along a street with high flows.

24/7 Static overpump required for less than 6 weeks to complete lift station or pump station commissioning.

Requirements: To be set up in accordance with Figure 1, 2, 3 and Table 4.

Table 4

Item	Requirements	Reference
Pump	Diesel	Figure 4
	OR Electric	Figure 5, 6 & 7
Pipe	PE Pipe	Figure 12
Security	Site fenced and panels locked together.	Figure 16 & 17
	Padlock on entry.	
Monitoring	Float Alarm (Suction manhole)	Figure 20 & 21
	Flow Switch (discharge pipe)	Figure 22 & 23
	Recorded checks: 1/work day	Appendix E
	2/night, 2/weekend day – Security Guard	Figure 18 & 19 Appendix E
Paperwork	Set-Up Information Sheet	Appendix F
	Plan showing pump set-up and discharge to stormwater and watercourse.	Figure 24 & 25
Signage	SCIRT Sign	Figure 26
	Danger Sign	Figure 27
	Security Guard Sign	Figure 28
	Wastewater Overpumping Sign	Figure 29
Additional	Set-up within site if possible.	
	Sound Box (if in residential area)	Figure 32
	Manholes covered	Figure 35, 36 & 37
	Ramps if required	Figure 39

7.5 Controls Required for > 6 Weeks Static Wastewater Overpumping

Scenario: Static Overpumping required for >6 weeks during construction or commissioning of pump station or lift station.

Requirements: To be set up in accordance with Figure 1, Figure 3 and Table 5.

Table 5

Item	Requirements	Reference
Pump	Electric	Figure 5, 6 & 7
Pipe	PE Pipe	Figure 12
Security	Site fenced and panels locked together.	Figure 16 & 17
	Padlock on entry.	
Monitoring	Float Alarm (Suction manhole)	Figure 20 & 21
	Flow Switch (discharge pipe)	Figure 22 & 23
	Recorded checks: 1/work day	Appendix E
	2/night, 2/weekend day – Security Guard	Figure 18 & 19
Paperwork	Set-Up Information Sheet	Appendix F
	Plan showing pump set-up and discharge to stormwater and watercourse.	Figure 24 & 25
Signage	SCIRT Sign	Figure 26
	Danger Sign	Figure 27
	Security Guard Sign	Figure 28
	Wastewater Overpumping Sign	Figure 29
Additional	Set-up within site if possible.	
	Manholes covered	Figure 35, 36 & 37
	Site Lighting	Figure 38
	Ramps if required	Figure 39

7.6 Control Details

Figure 2:

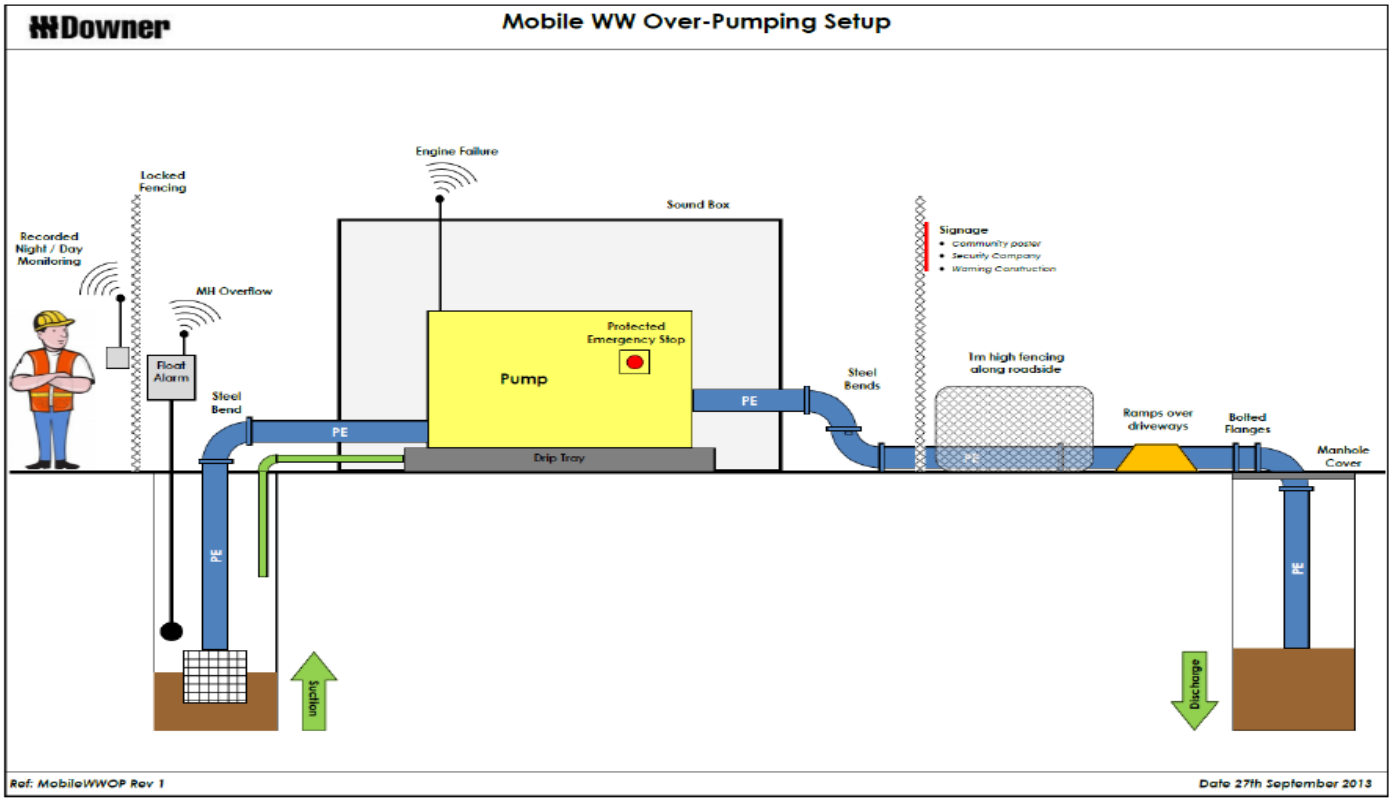
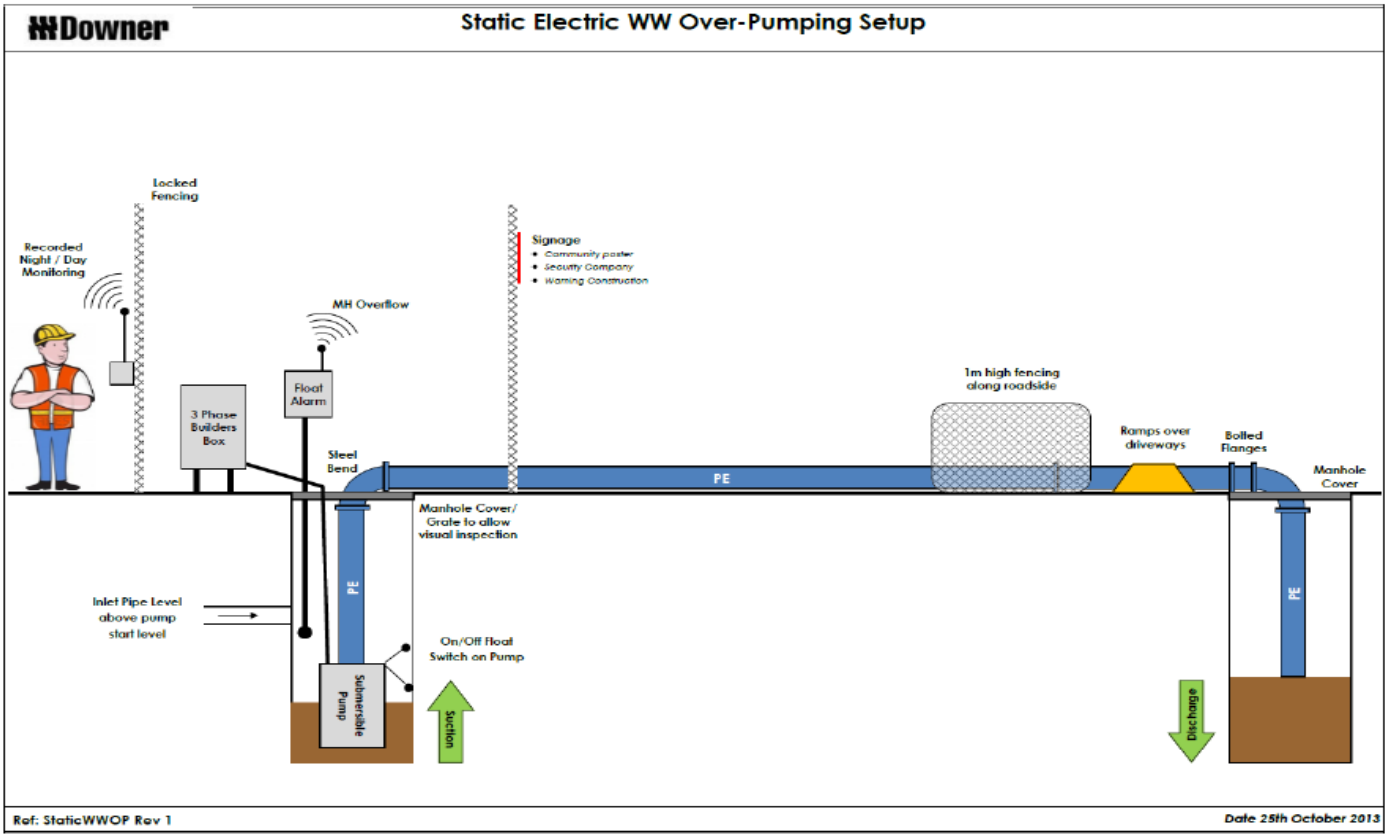


Figure 3:



7.6.1 Pumps

Figure 4: Diesel Pumps

Figure 5: Electric Pump

Figure 6: Electric Pump Builders Box

Figure 7: Electric Pump: Two Level Flow Switch

7.6.2 Pipework

Figure 8: Layflat Pipe: Couplings secured

Figure 9: Layflat Pipe: Kinks can obstruct flow

Figure 10: Layflat Pipe: Strainer for suction hose

Figure 11: Traffic protection for pipes

Figure 12: PE Pipe

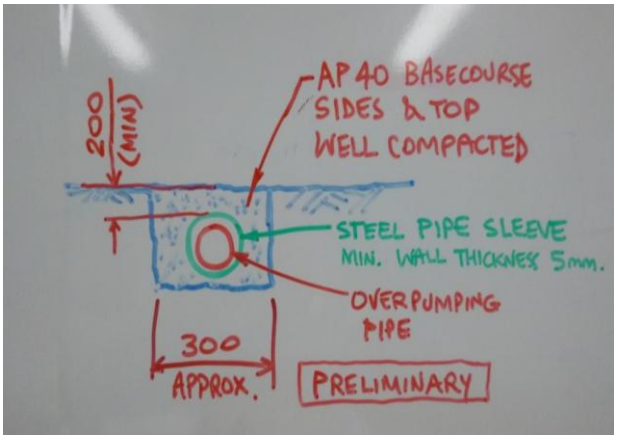


Figure 13: Pipe buried to be trafficable

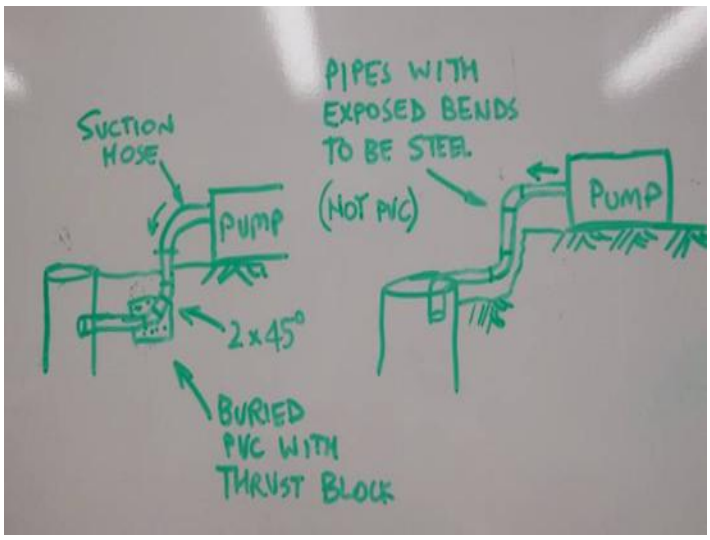


Figure 14: Discharge pipe setup (steel; PVC.)

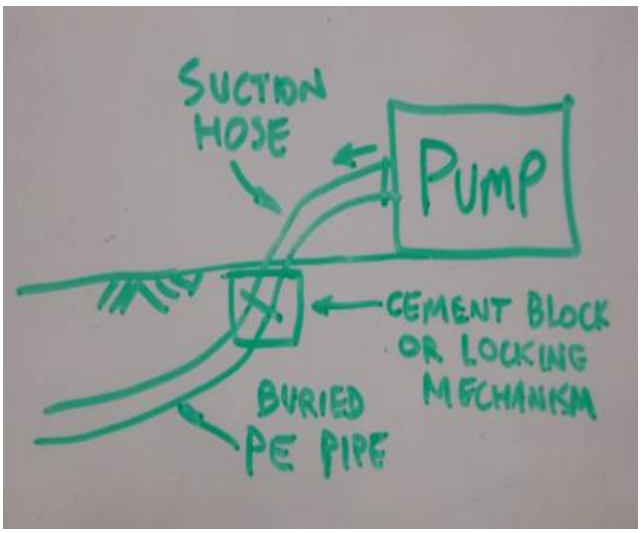


Figure 15: Discharge pipe setup (PE)

7.6.3 Site Security

Figure 16: Locked site fencing around pump

Figure 17: Wire ties to secure fence panels

7.6.4 Monitoring

Figure 18: Data logging stick

Figure 19: Proving checks are done using data logging system

Figure 20: Float Alarm in Suction Manhole

Figure 21: Solar Panel for Float Alarm

Figure 22: Flow Switch on Discharge Pipe

Figure 23: Flow Switch Unit for Discharge Pipe

7.6.5 Paperwork

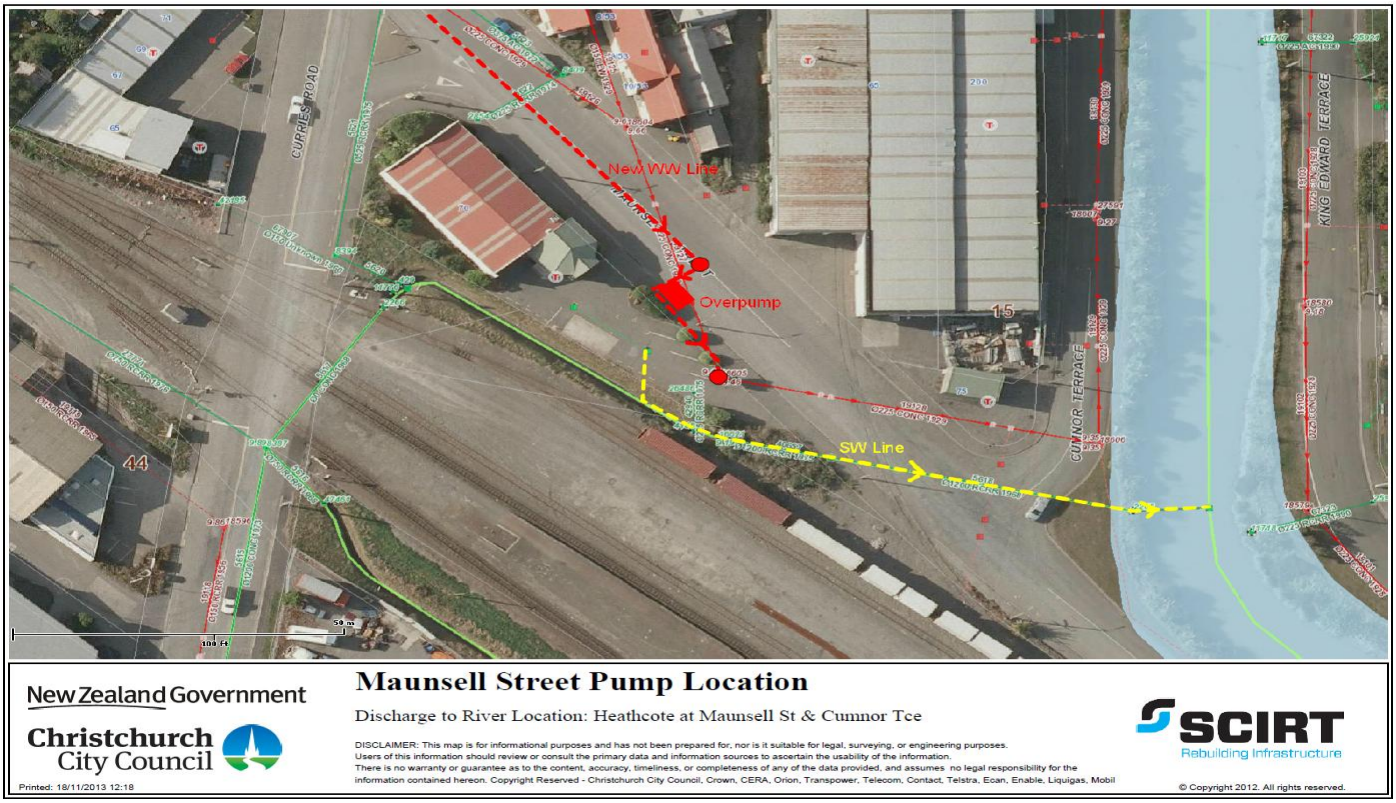


Figure 24: Plan showing potential entry into SW and RIver

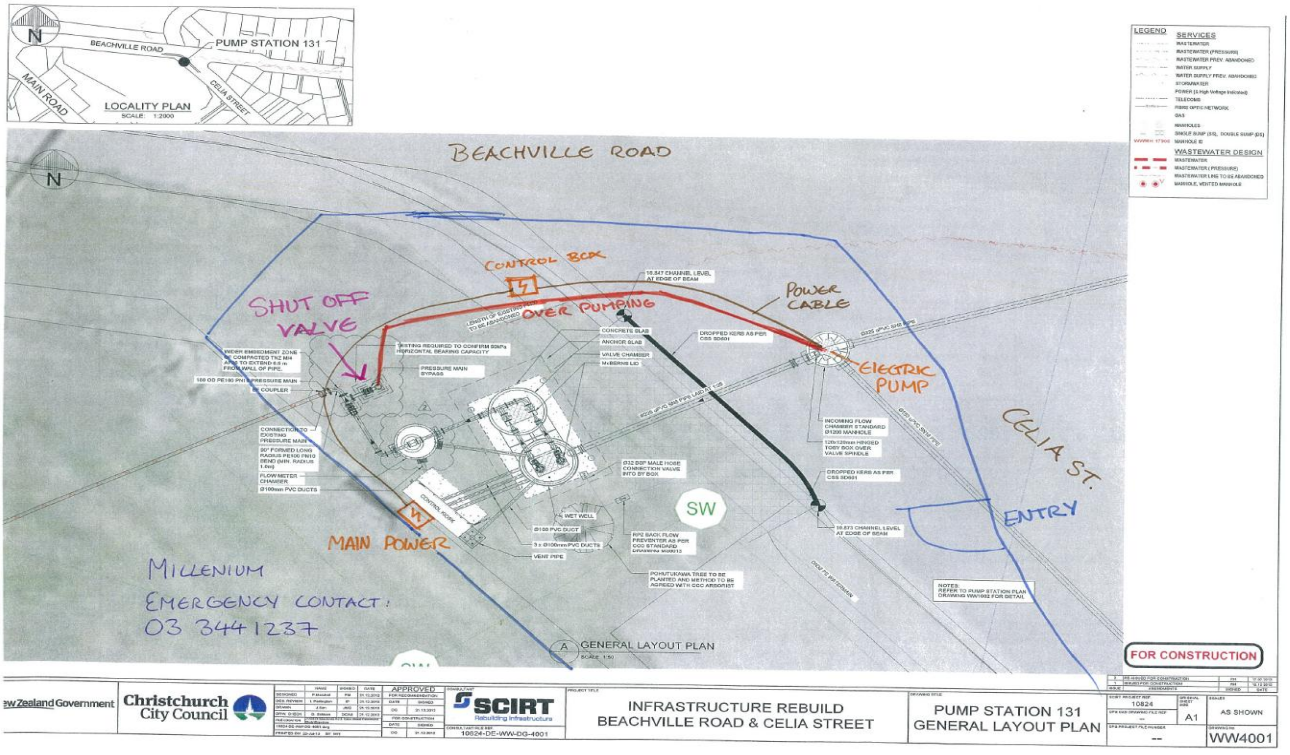


Figure 25: Plan showing pump set-up

7.6.6 Signage

Figure 26: SCIRT Sign

Figure 27: Danger Keep Out Signs

Figure 28: Security Guard Sign

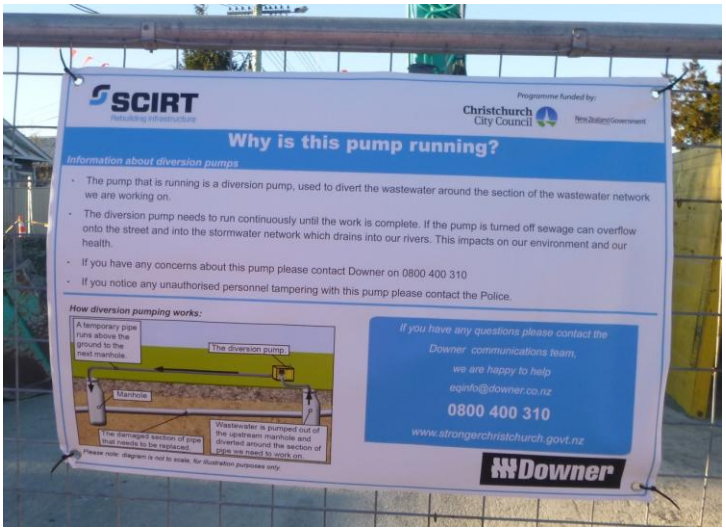


Figure 29: Wastewater Overpumping Sign

Figure 30: Additional (If vandalism a concern): CCTV Warning

7.6.7 Additional Requirements

Figure 31: Spill Mitigation: X TEX Fabric under pump

Figure 32: Noise Mitigation: Sound box

Figure 33: Noise Mitigation: Foam Mat and Plywood (to stop compression of foam)

Figure 34: Emergency STOP button with Perspex

Figure 35: Manhole lid with PVC inlet

Figure 36: Manhole cover: Steel

Figure 37: Manhole Grille

Figure 38: Site Lighting

Figure 39: Pipe Protection: Ramps in front driveways

7.7 Electric v Diesel Pumps for Static Overpumping

Electric pumps have proven safer and more cost-effective for static overpumping operations than using diesel pumps. This regularly occurs when constructing pump stations or lift stations.

An electric connection is required for electric pumps. This is an initial high cost but a power connection is required for the pump station or lift station so would always be a cost against the project. There is a 6 week lead in time to organise the power connection so forward planning is required.

Benefits for the use of Electric pumps:

- Cheaper to hire
- No refuelling cost
- No noise issues for local residents
- More reliable – less plant failures with electric pumps.
- Pump placed in manhole so out of sight – less risk of vandalism

Requirements for an electric pump:

Macerator	To handle rags and solids in the line
Pump capacity	Ensure it is sized to deal with flow rates in catchment
Power Supply	Builders box required to allow power connection from junction box to pump. Available from Orion or Millennium Electrical.
3-Phase powered pump	Recommended as allows motor a high starting torque and higher efficiency
Manual Stop/Start	On control board
Fuse/Circuit Breaker	Trip value must not exceed 250% of the pumps full load current.
Float Switch	Float Switch starts pump: Once pump is submerged. Float Switch stops pump: Approximately 100 – 150mm above discharge connection. Allow max 15 starts per hour. Fix floats to pipe/timber staff that reaches to manhole lid so adjustments can be made without entering confined space.

8 Step 4: CCC Permit to Work

Prior to any work occurring on the Christchurch City Council Wastewater Network a Permit to Work requires to be completed, submitted and approved (Appendix G). Part 3 of the permit requires to be resubmitted to notify of 1) Commencement of shutdown, 2) Completion of Shutdown and 3) Reinstatement of Facilities.

Please ensure these permits are filed on site for reference.

9 Step 5: Wastewater Overpumping Set-Up Information Sheet

Prior to commencing Wastewater overpumping, a set-up information sheet is required to be completed (Appendix F). This sheet holds key information in the event of an emergency such as contact details, contingency plan, plans showing pump set-up and location of stormwater sumps and outfalls to watercourses.

A copy of this information sheet must be kept on site and with the Environmental Advisor.

10 Step 6: Installation

It is critical to ensure that the wastewater overpumping set-up is completed in accordance with the Best Practice requirements. The installation should be inspected and signed off prior to commencing overpumping. Responsibility for this check should sit with someone in your company, normally the Site Supervisor or Environmental Advisor.

11 Step 7: Monitoring

11.1 Preventive Maintenance

Preventive maintenance prevents failures of the setup from general wear and tear.

Table 5:

What	Responsibility	Frequency
Check constant pressure and RPM of the pump	Site Supervisor / Crew	Once per Day
Refuel	Pump Supplier	Once every 1-3 days
Cleaning Strainer on suction pipe	Site Supervisor / Crew	Once per Week and After a rain event
Removal of solids in suction manhole	Site Supervisor / Crew	Flow and catchment specific (e.g.: low flows = 1/ month and high flows = 1/ week)
Diesel Pump Servicing	Pump Supplier	Once per 10 Days

11.2 Regular Monitoring

The following monitoring is required on overpumping set-ups:

Table 6:

	Hourly recorded Checks	Daily 15-15 Inspection Sheet (Appendix E)	2 x Checks Overnight (Security Guard)	2 x Checks Weekend Days (Security Guard)
<8 Hours	Yes			
Daytime Only	Yes	Yes		
24/7 Mobile or <6 Weeks 24/7 Static		Yes	Yes	Yes
>6 Weeks 24/7 Static		Yes	Yes	Yes

11.3 Out of Hours Checks

11.3.1 Security Guards

Overnight and weekend checks should be arranged with a Security Guard Company. The contractor will be required to undertake the following prior to Security Guard starting on site:

- Contractor Induction;
- SCIRT Induction plus drug test;
- Site specific induction for every Security Guard patrolling on every overpumping set-up;
- On call phone number for the Security Guard to call if there is an issue on site.

Security Guards are able to undertake the following:

- Check pump is running
- Check levels in suction manhole
- Check pipework for any leaks
- Check site for signs of vandalism.

If an issue is found with any of the above, then Security Guards are not trained to carry out any repairs. They require an out-of-hours contact with the contractor to be able to attend site if required.

11.3.2 On Call Rota

An on-call system is required to compliment having out-of-hours checks by Security Guards. This can be one member of staff e.g. one supervisor covering all sites or a member of staff per site. They need to be available to respond to calls, attend site if required and be trained in pump operations so they can undertake repairs.

They may be notified of an issue on site by:

- Security Guard
- Overflow Alarm – Monitoring Company
- Flow Switch Alarm – Monitoring Company

Having an on-call member of staff has prevented several overflow events as they are able to promptly respond to a problem on site prior to it becoming an incident.

11.3.3 Remote Monitoring

Remote monitoring systems have also proved very effective in preventing wastewater overflows. Two types of remote monitoring have been trialled and used during the SCIRT Project:

11.3.3.1 High Level Overflow Alarm – (Suction Manhole)

High level overflow alarms are used in the suction manhole. A float alarm can be set at the required level for that pump set-up. If wastewater in the manhole reaches the float level it will trigger the alarm. All alarms are connected to a monitoring company, who send out message alerts and phonecalls if the alarm is triggered. In addition they will send notification if signals are not received from the alarm due to power failure.

Overflow alarms require to be powered and this can be done using one of the following:

- Battery
- Connection to diesel pump
- Solar Panel

- Electric connection

High level alarms are able to quickly detect pump failures. The alarm level should be set to allow time for a staff member to attend site and make the repairs prior to an overflow occurring.

High level alarms have proved highly effective in early detection of pump failures and have prevented several overflows.

Refer Figures 20 & 21

11.3.3.2 Flow Switch – (Discharge Pipe)

One final point in the system to monitor is between the pump and the discharge manhole. If there is a pipe failure between the pump and discharge manhole, the pump may still be operational and the float alarm in the suction manhole may not detect an increase in level, but wastewater could be discharging onto the street through a broken pipe.
A flow switch has been developed as a way to monitor that there is flow in the discharge pipe. This should be placed as close to the discharge manhole as possible. If the pump is placed on a float switch e.g. like most electric pumps, the flow switch can be set to detect if there has been no flow after a set period of time. E.g. If the float switch means the pump normally pumps once every 5 minutes, the flow switch can be set to signal if there has been no flow after 10 minutes.

Signals from the flow switch are sent to the same monitoring company that monitors the high level overflow alarm.

Refer figures 22 and 23.

12 Overflow Response and Reporting Requirements

12.1 Wastewater Overflow Emergency Response

Appendix B – Wastewater Overflow Response Flowchart

Appendix C – SCIRT Wastewater Overflow Response Procedure

In the event of a Wastewater Overflow, prompt action can limit the extent of the impact. Below are general guidelines of the steps to be taken on site:

1. Identify cause of over flow;
2. Stop source (often = stop the pump);
3. Contain wastewater and protect stormwater sumps;
4. Divert pedestrians / public;
5. Notify CCC Control Room (03 941 5727) and ECAN Hotline (0800 76 55 88) if >50L discharged to stormwater;
6. Clean site promptly using a sucker truck and disinfectant.

Picture 5. Wastewater overflow onto street due to pump station failure.

12.2 Wastewater Overflow Reporting Requirements

All SCIRT contractors are required to report wastewater overflows >50L that enter waterways to Christchurch City Council and Environment Canterbury.

The Wastewater Overflow Response Flowchart in **Appendix B** lists the reporting requirements, timeframes and responsibilities.

In the event of an overflow, it is very important to accurately record times discharges commenced and ceased and times notifications were made to Christchurch City Council and Environment Canterbury.

Once the initial response has been dealt with, the overflow ceased and cleaned up, a full investigation (such as an **ICAM: Incident Cause Analysis Method**) should be undertaken by the relevant contractor.

Sewage Overflow Report – (Appendix I)

A draft **Sewage Overflow Report** is required to be submitted to the Christchurch City Council Resource Consent Compliance Coordinator within **72 hours of the incident**. Within **10 working days** the final report should be submitted to CCC.

CCC is then required to submit this to Environment Canterbury who will make the final decision in regards to enforcement action.

It is key to demonstrate in this report that Wastewater Overpumping was undertaken in accordance with the Best Practice Guide and that the Wastewater Overflow Response Flowchart was followed.

13 Appendix:

Appendix A: CRC121092 - Global Wastewater discharge to river due to planned works

Appendix B: Wastewater Overflow Response Flowchart

Appendix C: SCIRT Wastewater Overflow Procedure

Appendix D: Significant Hazard Control Plan – Wastewater Overpumping

Appendix E: Daily Wastewater Overpumping Inspection Sheet

Appendix F: Wastewater Overpumping Set-Up Information Sheet

Appendix G: CCC Permit to Work Form

Appendix H: Useful and Emergency Contacts

Appendix I: Sewage Overflow Response Report

Appendix A: CRC121092 - Global Wastewater discharge to river due to planned works

RESOURCE CONSENT CRC121092

Pursuant to Section 104 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO:	Christchurch City Council, Civic Office
A DISCHARGE PERMIT:	To discharge contaminants to water.
DATE DECISION:	9 March 2012
EXPIRY DATE:	9 March 2022
LOCATION:	Various locations, AVONSIDE, DALLINGTON & BURWOOD

SUBJECT TO THE FOLLOWING CONDITIONS:

1) The contaminants discharged shall be only:
   a) Untreated wastewater from the Christchurch City Council wastewater network; and
   b) Stormwater and groundwater entering the wastewater network as a result of inflow and infiltration.

2) Wastewater shall only be discharged:
   a) Where it is necessary in order to facilitate repairs to the Christchurch City Council wastewater network; and
   b) Where the damage to the network (which is being repaired), has occurred as a result of the Canterbury Earthquake (on 4 September 2011) and its subsequent aftershocks.

3) Wastewater shall only be discharged into the main stem of the Avon River / Otakaro and Heathcote River / Opawaho, and the Avon Heathcote Estuary / Ihutai as shown on Plan CRC121092, which forms part of this consent.

PROCEDURES

4) The consent holder shall:
   (a) use all reasonable endeavours to:
      i. avoid the discharge of wastewater to surface water;
      ii. minimise the volume of wastewater discharged;

   (b) only discharge wastewater to surface water if alternative wastewater management options (including those described below), are impractical:
      i. Storage of wastewater within the network
      ii. Tankering wastewater to an operational part of the wastewater system
      iii. Bypass pumping around the repair site.

   (c) Prepare a "Works Programme" that sets out the expected location, date, and time of any works and associated potential discharges for the subsequent three month period.

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(d) Provide a copy of the "Works Programme" to the parties listed below, within one week of the completion of the "Works Programme":
   i. The Canterbury Regional Council (Attn: RMA and Compliance)
   ii. Mahaanui Kurataiao Limited
   iii. The office of Te Ngai Tuahuriri Runanga and Te Hapu o Ngati Wheke (Rapaki) Runanga
   iv. The Canterbury Medical Officer of Health

(e) Notify the parties specified in condition 4(d) of any anticipated discharge at least five days prior to the discharge occurring, and of any other discharge within 12 hours of the discharge occurring. The notification shall include but not be limited to:
   i. The time, date, location, and duration of any discharge event; and
   ii. The alternative wastewater management options which have been considered, and the reasons why they are considered impractical.

(f) Maintain a publicly accessible table (and associated map) on the Christchurch City Council's website (www.ccc.govt.nz) which summarises the location, date and time of all discharge events which have occurred over the previous twelve months. The table shall be updated with this information at least 48 hours prior to any anticipated discharge event; and within 48 hours of the receipt of the information relating to any unanticipated discharge event. Monitoring data shall also be included in the table.

5) There shall be no discharge if the receiving waters within 100 metres (in a downstream direction) of the discharge point are overtopping the banks of the waterway.

RESPONSE PLAN

6) Prior to any anticipated discharge, the consent holder shall erect public health warning signs at the following locations:
   a) As close as practicable to the point of discharge;
   b) At a maximum of 200 metre intervals on both banks of the river, or on the bank of the estuary, for a distance of at least 600 metres downstream of the discharge point;
   c) Any waterway access points, located within 600m downstream of the discharge point.

7) All signs shall remain in place for at least 48 hours following a discharge, and shall include, but not be limited to, the following information:
   a) Notification of the discharge of human effluent;
   b) A warning to avoid contact with surface water;
   c) Notification that the collection of shellfish, mahinga kai, fish, and any other food source is unsafe;
   d) The reasons for the discharge;
   e) Contact details of the consent holder.

MONITORING

8) At each discharge site the consent holder shall monitor and record the following:
   a) The volume of wastewater discharged;

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b) The date and time the discharge commenced;
c) The date and time the discharge ceased;
d) The location (as recorded via GPS) of the discharge.

9) At each discharge site, and on each occasion that a discharge occurs, the consent holder shall collect samples of surface water as described below:
   a) Upstream samples shall be collected within 100 metres upstream of the discharge point;
   b) Downstream samples shall be collected within 200 metres downstream of the discharge point, and where possible, as close as practicable to the discharge point.
   c) Where possible downstream samples shall be collected during the discharge event, and not more than ten hours after commencement of the discharge.

10) Where access to any of the sampling points specified in condition (9) is restricted, or is impractical, the consent holder shall:
   a) Record the reasons why the surface water sample could not be collected at the specified sampling points, and
   b) Collect a sample of surface water as close as practicable to the specified sampling areas.

11) All samples collected shall be analysed to determine the concentration of *Escherichia coli* per 100 millilitre sample. The sampling regime described in condition (9) shall be carried out at least once every 24 hours until such time as the results of two samples collected on consecutive days show the concentration of *Escherichia coli* in the downstream samples is less than two times the concentration of the upstream sample.

12) All samples collected under this consent shall be taken by a suitably qualified and experienced person, and shall be analysed using methods approved by the American Public Health Association or the American Society for the Testing of Materials by a laboratory that is accredited for that method of analysis by International Accreditation New Zealand (IANZ) or by an organisation with a mutual agreement with IANZ.

13) Where the combined volume of discharges into the Avon River/Otakaro exceeds 10,000 cubic metres per 24 hour period; or, where the combined volume of discharges to the Heathcote River/Opawaho exceeds 5,000 cubic metres per 24 hour period, the consent holder shall install devices to continuously monitor the concentration of dissolved oxygen in the surface waterbody at the locations specified in condition (9). Dissolved oxygen monitoring shall be carried out as follows:
   a) Monitoring in the Avon River / Otakaro may cease 24 hours after the combined volume of all discharges into the Avon River / Otakaro has reduced to less than 10,000 cubic metres within a 24 hour period.
   b) Monitoring in the Heathcote River / Opawaho may cease 24 hours after the combined volume of all discharges Heathcote River / Opawaho has reduced to less than 5,000 cubic metres within a 24 hour period.

14) If the data collected in accordance with condition (13) shows greater than a 20% difference in the concentration of dissolved oxygen in the upstream sample when compared against concentration in the downstream sample, then the consent holder shall carry out additional mitigation to increase the concentration of dissolved oxygen in downstream surface water. These measures may include, but

not be limited to, the installation of devices for additional aeration, within 100 metres downstream of the discharge point.

15) Measures taken to increase the concentration of dissolved oxygen in surface water downstream of the discharge point, may cease::

a) When the concentration of dissolved oxygen within 200 metres downstream of the discharge point is at least 80 percent of the upstream concentration; or

b) 48 hours after cessation of the discharge.

REPORTING

16) Within 48 hours of the receipt of the information outlined in condition (8), the consent holder shall undertake all reasonable endeavours to notify the parties specified in condition (4)(d) of each discharge event by telephone or email. This notification shall include but not be limited to the alternative wastewater options which have been considered, and the reasons why they are considered impractical or insufficient to prevent discharge. If alternative notification arrangements are agreed to, such arrangements shall be reported to the Canterbury Regional Council.

17) Following commencement of this consent, the consent holder shall by 31 August of each year the consent is exercised, prepare and provide a report to the parties specified in condition (4)(d). The report shall include, but not be limited to:

a) A full record of the volume, date, time and location of all discharge events for the previous year ending 30 June;

b) Records of the alternative wastewater management options considered in relation to each discharge event, and the reasons why they were considered impractical;

c) A record of the water quality sampling data collected in accordance with conditions (11) and (13);

d) A summary of all repair works and associated discharges carried out in relation to this consent for the period ending 30 June of each year.

18) If the combined number of discharges to the Avon River / Otakaro and Heathcote River / Opawaho exceeds ten discharges over the duration of this consent, the consent holder shall:

(a) Commission the preparation of a cultural impact assessment within three months of the exceedance. The assessment shall be prepared by a person(s) recommended by Te Runanga O Ngai Tahu and either Te Ngai Tuahuriri Runanga, or Te Hapu O Ngati Wheke (Rapaki) Runanga, and shall include but not be limited to a summary of the following information:

(i) A desktop review of the discharge records prepared in accordance with condition (8);
(ii) Reports prepared in accordance with condition (17);
(iii) Monitoring data and results collected in accordance with conditions (9), (11), and (13) and measures undertaken in accordance with condition (14) and (15);
(iv) Christchurch City Council procedures which have been carried out in relation to discharge events;
(v) Data collected in accordance with Christchurch City Council's monthly water quality monitoring programme;
(vi) Comments from Christchurch City Council's surface water ecologist regarding any effects on water quality and ecosystems as a result of the discharges;
(vii) An evaluation of the effects of the discharges on mahinga kai, wahi tapu, wahi taonga and tangata Whenua;

(viii) Recommendations to avoid, remedy or mitigate any adverse effects on cultural health values from future discharges. These recommendations may include timing the discharges to avoid the spawning season in spawning reaches of the rivers; temporal separation of discharges to avoid, remedy, or mitigate cumulative effects; maximising the distance between discharges and culturally sensitive sites and/or mahinga kai sites where practicable.

(b) Provide a copy of the cultural impact assessment prepared in accordance with condition 18(a) to Te Runanga o Ngai Tahu, Mahaanui Kurataiao Limited (MKT), and the office of all affected Runanga within one month of the receipt of the report.

(c) Determine any recommendations to be implemented for future discharges, following discussion with Te Runanga O Ngai Tahu and Mahaanui Kurataiao Limited (MKT).

(d) Implement any agreed measures for future discharges as appropriate.

19) The Canterbury Regional Council may, once per year, on any of the last five working days of June or November, serve notice of its intention to review the conditions of this consent for the purposes of:

a) Dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with; or

b) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

c) Requiring the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by the consent.

20) The lapsing date for the purposes of section 125 shall be 10 years from date of issue of this consent.

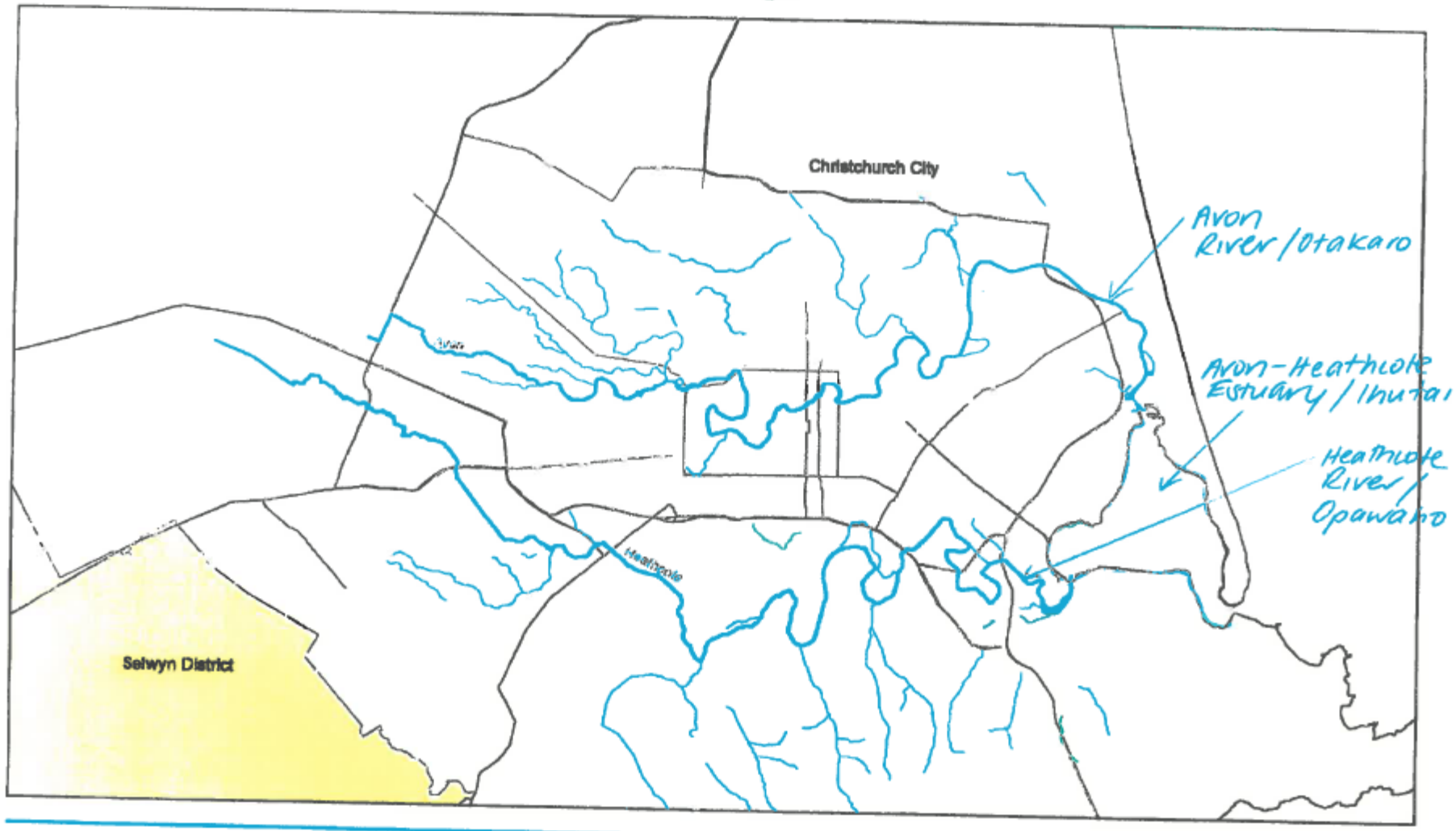
ADVICE NOTE

The conditions of CRC121310 (discharge of dewatering water) require each head contractor to prepare and submit an Environmental Management Plan (EMP) to Environment Canterbury within three months of the exercise of that consent. The consent holder advises that copies of the EMP will be made available to Mahaanui Kurataiao Limited.

Issued at Christchurch on 9 March 2012

Canterbury Regional Council

PLAN CRC121092



Paper Size A4

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Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: NZGD 2000
Grid: NZGD 2000 New Zealand Transverse Mercator

N

LEGEND

- Major Rivers
- Tributaries
- State Highways
- Major Arterials

GHD

CLIENTS | PEOPLE | PERFORMANCE

CHRISTCHURCH

Christchurch City Council
CCEQ - Global discharge consent repair overflows

Job Number 51-30583
Revision A
Date 29 Nov 2011

Main Christchurch Waterways

Figure 1

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Data source: CCC: Major Rivers, Major Arterials. (2011). LINZ: NZ coastline, tributary centrelines and main river/lake centres (downloaded from www.koordinates.com Oct 2011. Crown Copyright reserved). ESRI: Territorial Authority boundaries (2011). Created by: rmadsen

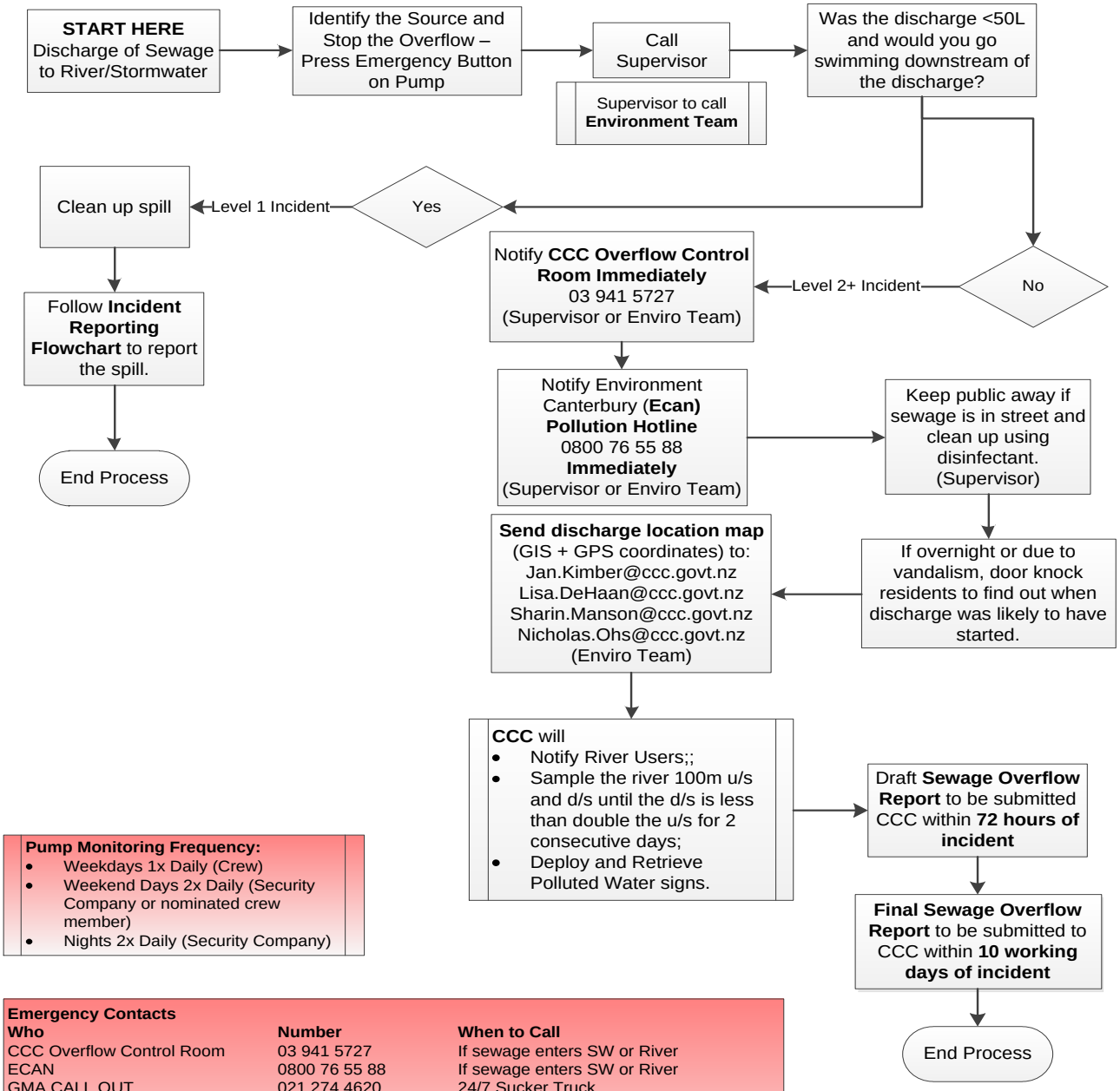
GHD House, 226 Antigua Street, Christchurch 8011, PO Box 19488, Christchurch 8141 New Zealand T 64 3 378 0900 F 64 3 377 8575 E chcmail@ghd.co.nz W www.ghd.com

SCIRT
Rebuilding Infrastructure

Appendix B: Wastewater Overflow Response Flowchart

Downer

Wastewater Overflow Response Plan



Pump Monitoring Frequency:

- Weekdays 1x Daily (Crew)
- Weekend Days 2x Daily (Security Company or nominated crew member)
- Nights 2x Daily (Security Company)

Emergency Contacts

Who	Number	When to Call
CCC Overflow Control Room	03 941 5727	If sewage enters SW or River
ECAN	0800 76 55 88	If sewage enters SW or River
GMA CALL OUT (Ebbe Humrich)	021 274 4620	24/7 Sucker Truck
GMA Manager (Michael Lee Grand)	021 224 6211	If above not reachable
DOWNER Maintenance	0800 922 473	
ITS CALL OUT	0800 723 348	Emergency Traffic Management
CITY CARE ON CALL	027 247 9145	
CITY CARE HOTLINE	03 337 6150	Emergency City Care

Issue Date: July 2013
Issued by: EQ Environment Team

Page 1 of 1

DOWNER SCIRT Procedure 5

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Wastewater overflows to rivers, tributaries or the stormwater network.

The purpose of this table is to outline the different possibilities of where a consent can be used, and where an activity cannot be consented. An authority (ECan) cannot grant a resource consent for 'unplanned activities' under the RMA.

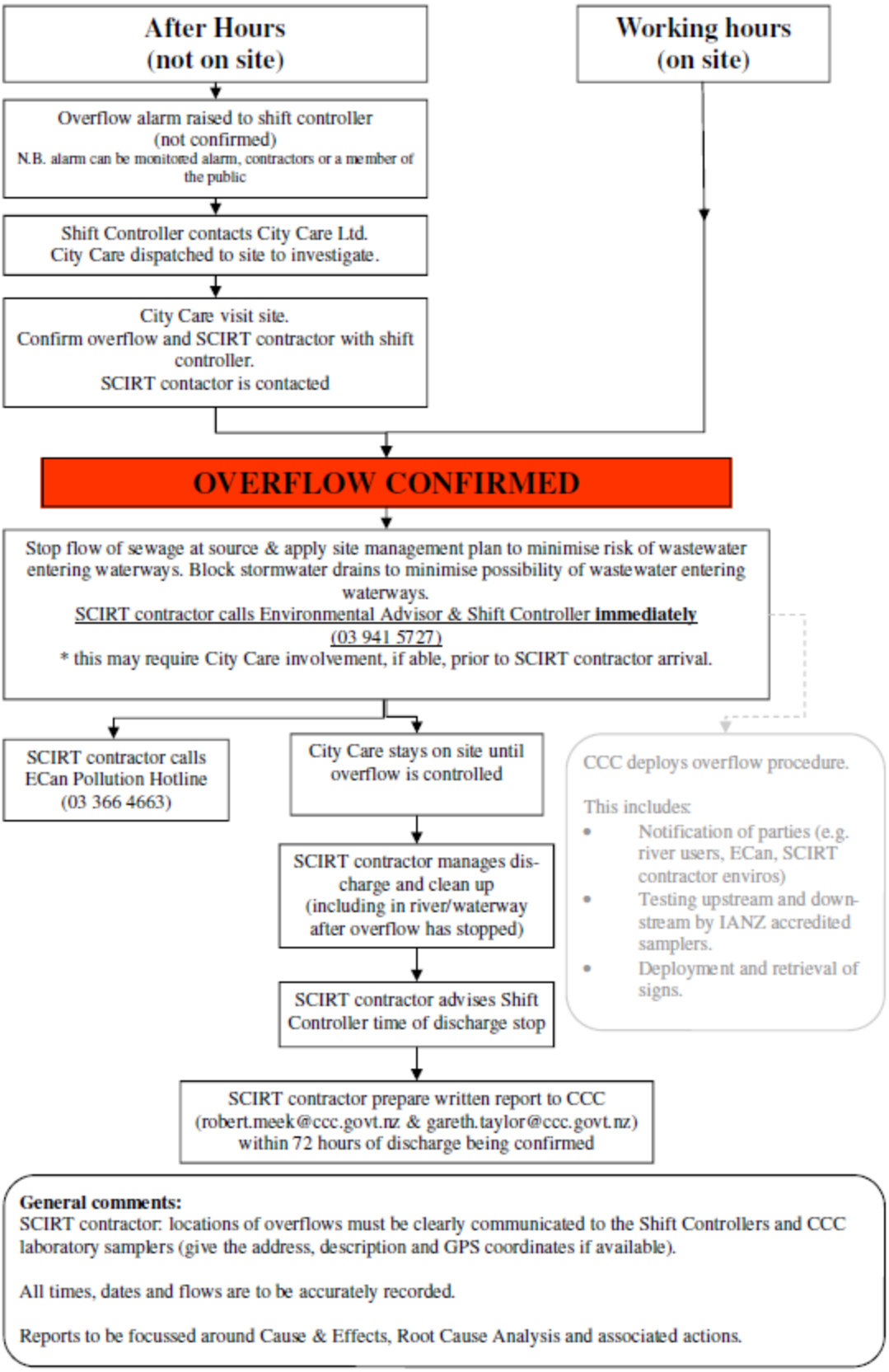
Legal & Consented	***Possible scenario***	***Process***	**Illegal & Unconsented**	***Possible scenario***	***Process***
Wet weather overflows (22 sites) (CRC092692)	*Christchurch receives significant rainfall event, high level of I&I resulting in an inundation of network. Sensors at any one of 22 overflow sites are activated, and CCC process is in action. This includes signage etc.*	*CCC initiate manage sewer overflow – response plan process*	All other Wet Weather	*Christchurch receives rainfall, and bypass pump cannot cope with additional influx of wastewater. There is a discharge to the stormwater network or to a river. Delivery team could be liable for prosecution by ECan.*[1]	*Follow sewer overflow response procedure*
Planned SCIRT discharges (CRC121092)	*In order to connect a new sewer line, there is a requirement to temporarily discharge sewage into a river. This is the only option left after exploring other bypass options, storage in network etc. Any planned discharge is to be authorised by Duncan Gibb and Mark Christison.*	*All avenues have been explored and no other option exists. See memo attached to consent CRC121092 for detail.*	Dry weather faults / breakdowns	*A delivery team has a bypass pump set up to transfer wastewater to the next manhole. The sensor fails, and there is a build-up and consequently a discharge to the stormwater network.*	*Follow sewer overflow response procedure*
			Unplanned	*A delivery team has malicious vandalism on one of their bypass pipes which results in an unauthorised discharge of raw wastewater to a stormwater network or river.*	*Follow sewer overflow response procedure*

It is critical to ensure that design of sewer bypass is considered from the earliest stage to minimise the possibility of any illegal and unconsented discharge to occur, as this will limit the opportunity for prosecution by ECan.

Communication and action (or lack thereof!) will be a determining factor in whether or not ECan will choose to prosecute.

[1] It is important that DT's and designers work together to ensure that the proposed bypass systems installed have considered wet weather overflows as a risk. This should be adequately countered.

Accidental Wastewater Overflow Response Procedure for SCIRT related works



Appendix D: Significant Hazard Control Plan: Wastewater Overpumping

Hazard: Wastewater discharge to the environment from overpumping activity.

	ELIMINATE	ISOLATE	MINIMISE
General controls	• Avoid WWOP through planning, design, • Avoid WWOP with construction work methodologies (temporary connections, etc)	• Keep WWOP setup within locked fence area • WW over flow contingency plan aims at directing discharge to trench where possible • Check storage capacity of upstream WW network at peak hours • Check upstream for overflow structures	• Door knock residents • Follow good practice design for setting up WWOP • Identify discharge SW points to waterways • Automatic alarm system on high risk sites • Monitoring day, night, weekends (to be recorded) • Overflow response plan • Training staff to proper setup and emergency response
Wear and tear	• Preventive maintenance plan includes: quick check every refuel operation (2 days) + full maintenance check (10 days) • Reduce couplings and fittings by using PE pipe		• Daily monitoring includes checking for air leaks, kinks, leaks, condition of pipes, damage.. • PE pipe used for long duration WWOP
Pump/ pipes blocked	• Check WW main is not obstructed downstream (CCTV, jetting) • Preventive maintenance: sucker truck MH's and flush lines 1 -2/ month depending on flows	• Fencing around sites prevents objects falling in MH • Lids prevents foreign objects entering MH's	• Sewage specific strainers (not dewatering strainers)
Risk of vandalism	• No pumps running unsupervised ; • Electric pump placed in MH	• Site fenced off and locked + wire ties; • Security signs up on fence	• Emergency buttons protected with perspex • Couplings secured with cable ties • Security patrol weekends and nights; • Movement detector lighting;
Damage from traffic	• All pipes within locked fenced area; • Pipes buried under road surface are trafficable (metal sleeve) • Electric pump placed in MH	• Pipes placed on berm; • Pipes physically protected in kerbs (fence, PVC sleeve..) • Physical protection across driveways (ramps)	

H&S public and staff	• Stop work immediately within vicinity • Divert pedestrians from area	• PPE (gloves) long sleeves, etc	• Clean area and disinfect • Door knock closest neighbours
Adverse weather increasing flows	• Pump capacity takes account catchment size and highest flows • Monitor weather alerts • Temporary connections		• Extra monitoring • Emergency pump available

Hazard: Noise levels affecting neighbours

	ELIMINATE	**ISOLATE**	**MINIMISE**
Noise Impact to Residents	• Electric submersible pump • Turn off pumps at night • Evacuate neighbours		• Sound box • Noise pad

Hazard: Oil or fuel spill from diesel pumps discharging to environment.

	ELIMINATE	**ISOLATE**	**MINIMISE**
Discharge of hazardous substance to environment	• Preventive maintenance: quick check every refuel operation (2 days) + full maintenance check (10 days)	• Containment placed around pump (eg: plant nappy, X tex cloth..)	• Spill kit on site • Training refuelling contractor

Appendix E: Daily Wastewater Overpumping Inspection Sheet

"15 – 15" SITE WW Over-Pumping CHECK – SCIRT PROJECT

SCIRT PROJECT: PUMP LOCATION:

CHECK BY: DATE: TIME:

	Environmental Check	Y/N/ N-A	If "No": Immediate action taken
1	Is there a Warning Sign On Fence?		
2	Is there a Sub5 Sign on Fence?		
3	Is there a Scirt Sign & Over pumping Poster Sign on fence?		
4	Are all the Fence Panels cable tied or wire tied together?		
5	Is the Entrance Padlocked?		
6	Pipework/ Hoses inside fences where possible?		
7	When Lay flat/ Pipework cross over driveways are Hose ramps in place to allow vehicles access?		
8	Are Hose couplings cable tied?		
9	Is pump running?		
10	Is there flow?(Listen for discharge into manhole)		
11	Are the Suction & Discharge Man Holes Covered? The Date Suction M/H was visually checked (Occurring Weekly if located in live lane)?		
12	Is the Emergency Stop Button Connected and Protected?		
13	No Oil or Diesel leaking from Pump?		
14	Is noise from Pump Acceptable?		
15	Any Change to set up?		If **Yes** Notify Environment Team

How long did this check take you? (note: should be no more than 15 minutes): _____

Provide copy to Site Engineer and Environmental Advisor on completion

Appendix F: Wastewater Overpumping Set-Up Information Sheet

GENERAL

Overpumping setup location	*Street Address*
SCIRT Project #	*10101*
Overpumping Manager	*Name, phone*
CCC Permit to Work	*Permit no. and approval date*
SWMS Reviewed and Accepted by Environment Team?	*SWMS Title, date of approval*

OVERPUMPING DESCRIPTION (attach plan)

Justification for over pumping	*What work needs to be carried out before pump can be removed?*
Date Installed	*Date*
Expected end date of Overpumping	*Date*
Mobile pump or static pump	*If mobile description of what area it will cover eg. Road and direction of movement*
Suction location	*Description of location plus provide plan*
Discharge Location	*Description of location plus provide plan*
Pipework	*Type of pipe, approx. length, overland or buried, driveway ramps, couplings secured, buried as per WWOP BPG*

PUMP MAINTENACE

Pump Supplier	*Stella/Pump Hire/Sykes etc*
Pump model /size	*6" pump*
Maximum pump flow rate	*Volume e.g. 6" pump has max capacity of 76l/s*
Average pump flow rate	*Estimated l/s*
Who refuels the pump? (daily)	*Contractor name, phone*
Who conducts pump maintenance? (every 10 days)	*Contractor name, phone*
Who conducts pipe maintenance? (every 10 days)	*Contractor name, phone*

BY PASS SETUP MONITORING

Who monitors the pump during the day?	*Person name, phone*
Who monitors the pump over weekends?	*Person name, phone*

Who is called if emergency work is needed on the setup week days?	*Person name, phone*
Who is called if emergency work is needed on the setup after hours?	Supervisor On-Call phone 027 838 6331

SITE SPECIFIC EMERGENCY PLAN

1. PUMP FAILURE (attach plan)

Storage capacity in the WW system	*Hours*
Potential discharge points	*Manholes/overflow structures*
Potential discharge points to SW	*Description of location plus provide plan*
Potential discharge points to River	*Description of location plus provide plan*

2. PIPEWORK FAILURE (attach plan)

Location of discharge to SW	*Description of location plus provide plan*
Location of discharge to River	*Description of location plus provide plan*
In emergency can the pump be turned off? (>3hours storage)	*Yes/No If Yes how long can it be safety turned off for?*

3. CONTINGENCY PLAN

e.g If pump fails actions required:

1.

2

If pipework fails actions required:

1.

2. ***Attach additional sheet if needed – detail site specific risks eg. Overflow, TM required***

PLANS REQUIRED

1) Pump Set-Up: Suction manhole, discharge manhole, bypass pipe
2) Location overflow would enter SW in event of incident
3) Location overflow would reach waterway in event of incident

REVIEW REQUIREMENTS

- Information to be reviewed monthly by Pump Manager
- Any changes to the information above must be updated **IMMEDIATELY**

Date completed:	*01/02/13*	By:	*Pump manager*
Date of next Review (1 month):	01/03/13	By:	*Pump manager*
Environment Team (approval of plans)	*Print & sign name*	Date:	*01/02/13*
Supervisor: (approval of set-up))	*Print & sign name*	Date:	*01/02/13*
Project Manager (proposal approved)	*Print & sign name*	Date:	*01/02/13*

Appendix G: CCC Permit to Work Form

Christchurch City Council	**PERMIT TO WORK** **Water & Wastewater Reticulation** **Water & Wastewater Pump Stations, Reservoirs and Plants**

Part 1 – to be completed by the contractor

Head Contractor: Subcontractor:
Name of CCC Authorised Water Supply Installer / Drainlayer who supervises the work at all times: Mobile: Email:

Worksite / Location

The work is required to facilitate:

☐	Council maintenance work / contract	☐	SCIRT contract
☐	Subdivision / development	☐	Private work

Description of work (attach a plan for the proposed network modifications for each worksite)

Reference No (CCC contract #, SCIRT project #, RMA #):

Which parts of the CCC network will be affected by the abovementioned work:

☐	Water supply reticulation	☐	Wastewater reticulation
☐	Water supply pump station	☐	Wastewater pump station
☐	Water supply treatment plant	☐	Wastewater treatment plant
☐	Water supply reservoir	☐	Wastewater overflow / odour control site
☐	Other (give details):		

The following sites / pipelines will be shut down / bunged / over-pumped for the work

Timing

Work Start Date / Time:	Work Finish Date / Time:			
Flow diversion will be left in place during wet weather periods:	☐	Yes	☐	No
Flow diversion will be left in place outside of work hours:	☐	Yes	☐	No

Christchurch City Council – City Water & Waste Unit – 53 Hereford Street – PO Box 73014 – Christchurch
drainlayers@ccc.govt.nz (reticulation permits) – karn.snyder-bishop@ccc.govt.nz (pump station / reservoir / TP permits)
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Steps taken to eliminate, control or contain hazards in the following safety areas

☐	Worker:
☐	Plant:
☐	Public:
☐	Environment:

How will the shut down / bung / over pumping etc. be facilitated: ☐ Remote electronic shut down ☐ Isolation and Lockout
Does the shutdown require treatment plant notification: ☐ Yes ☐ No

Declaration

I confirm that: • that all the details set out in and/or attached to this application are complete and accurate in all respects. • I understand the precautions to be taken under this permit.	
Name (please print):	
Signature:	Date:

Part 2 – to be completed by CCC

Permit Number:

Special conditions for the contractor:

Does the contractor need to follow any special instructions : ☐ No ☐ Yes ➔ detail below:

Network Operations Manager:	Signature:	Date:
Network Operations Engineer:	Signature:	Date:
Reticulation Maintenance Team Leader:	Signature:	Date:

Network Operations Manager or Engineer to sign pump station / reservoir / TP permits.
Reticulation Maintenance Team Leader to sign reticulation permits.

Permit Validity Period

Start:	Date:	Time:
End:	Date:	Time

SCIRT
Rebuilding Infrastructure

Part 3 – to be completed by the contractor during the works

Commencement of Shutdown

I confirm that the shutdown / bung / over pumping has been commenced in accordance with this permit. Services have been suspended and the facilities are ready for work.

Site Supervisor	Signature:	Date:

Completion of Shutdown

I confirm that the shutdown / bung / over pumping has been completed in accordance with this permit. Services have been restored and the facilities are ready for service.

Site Supervisor	Signature:	Date:

Reinstatement of Facilities

I confirm that all equipment has been returned to service, safety signs have been removed and the users informed that normal operations may resume in this area.

Site Supervisor	Signature:	Date:

Appendix H: Useful and Emergency Contacts

Useful Contacts		
Who	**Number**	**When to Call**
Anita Collie (SCIRT Environmental Advisor)	03 3360 614	Questions regarding SCIRT procedures
Rob Meek (CCC Team leader Water reticulation)	03 941 8327	CCC Procedures for WW overflow management. Major OF only
Bill Ewing (CCC Senior supervisor – WW reticulation)	027 505 9947	On site CCC response for WW overflows. For identified existing blockages on WW system.
Jennifer McGirr (CCC Resource Consent Compliance Coordinator)	03 941 8615	Overflow reporting
Nicholas Ohs (CCC Lab)	nicholas.ohs@ccc.govt.nz	For sampling results
Emergency Contacts		
Who	**Number**	**When to Call**
CCC Control Room	03 941 5727	If sewage enters SW or River
Environment Canterbury – Pollution Hotline	0800 76 55 88	If sewage enters SW or River
GMA Call Out (Ebbe Humrich)	021 274 4620	24/7 Sucker Truck
GMA Manager (Michael Lee Grand)	021 224 6211	If above not reachable
Downer Maintenance On Call	0800 922 473	
ITS On Call	0800 723 348	Emergency Traffic Management
City Care On Call	027 247 9145	
City Care Hotline	03 337 6150	Emergency City Care

Appendix I: Sewage Overflow Response Report

Overflow response report

Location			**Affected water body**	
Overflow type	**Wet weather**		**Start date**	
	Dry weather			

1. Summary

Context

Consequences

Cause

Actions:

2. Details

Required for comment	***Comment***
Location	
Start date & time*	
Duration*	
Time signs went out	
Time signs were brought in	
Party and time 1st notified	
Party and time of final notification	
Is there any direct contact between sewage and food sources used by humans? (Need to be aware of cattle grazing contaminated pastures, also	

less obvious sources of food such as puha or watercress).	
Is there direct contact between sewage and drinking water supply sources?	
Is there contact between sewage and surface or ground water systems?	
Is there contact between the discharge and human recreational activities? Consider both land and water uses e.g. football field, swimming lagoon.	
What is the volume of waste discharged (has the discharge ceased or is it continuing)?*	
What is the degree of dilution or mixing in receiving waters?*	
Describe the weather at the time of discharge?	
Describe the proximity of people to the discharge (odour or other nuisance may result).	
Is there any substantial change to the existing situation as a result of the discharge?	

**Please note: These figures are from raw data. A quarterly report from the software provider will provide processed data and figures will then be confirmed to ECAN.*

Include:

Eg. Plans, photos, sample reports, monitoring reports, evidence of best practice, evidence of following reporting requirements