

# *How to install Sewer Laterals... Fast!*

**Open cut... to trenchless methods, saves time and money.**

During 2012 Action Plumbing and Drainage Ltd (APD) were awarded Hutt City Council's Westminster Street sewer renewal in Wainuiomata.

The project consisted of installing approximately 800m of DN225/150 SN16 sewer main with additional sewer laterals to each of the surrounding properties. The DN225 sewer main was installed using traditional open cut methods, they began installing the sewer laterals after the main was completed using open cut methods as well. Production was very slow, some days only two sewer laterals would be completed. With many laterals to be renewed APD explored using faster methods, David Murtagh, Director of APD called Iplex Pipelines to ask "How to increase productivity?". Iplex had introduced David to Static Pipe Bursting a year before, they provided case studies and technical support to prove that 6-8 sewer laterals could be renewed every day using a technique called "Cartridge Style-Static Pipe Bursting". This method is completed by installing short lengths of Restrain™ PVC-U gravity sewer pipe incorporating a threaded pipe socket, spigot and a rubber ring joint. Restrain™ was developed for installation using trenchless technology methods including Guided Auger Boring, Micro Tunneling, Horizontal Directional Drilling, Slip Lining and Hydraulic, Static Pipe Bursting.

This "Cartridge Style" method has been proven successful during installations in Auckland, Bay of Plenty, New Plymouth, Hastings, Whakatane, Masterton, Wanganui, Oamaru and Invercargill. Recently contractors in Christchurch City had began installing Restrain™ where, more than 2000 kilometers of sewer laterals were destroyed during the Christchurch earthquakes, APD contacted contractors to confirm that 6-8 laterals installed per day was possible.

They then engaged Iplex Pipelines and AB Equipment to complete a trial installation at the Westminster Street project. A trial date was set, Iplex and AB's arrived on site at 9:50am with the Restrain™ pipe and bursting equipment in hand. APD had already excavated the exit pit and a 1.2m x 1.2m entry pit at the trial property boundary. Chris Smith of AB Equipment set up the Hammer Head PB30 hydraulic portable burster using an excavator as the hydraulic power source. By 10:00am the burster was in place and the first lead pipe of Restrain™ was connected to the pull head. By this time Iplex had trained APD's installers and pull back began immediately installing pipe cartridge style, one pipe after another, in the entry pit.



*The open trench alignment is marked in orange, sewer laterals are in yellow.*



*The Hammer Head PB30 Portable Static Pipe Burster being used within the excavated open trench alignment.*



APD were amazed how simple and fast this method was, by 10:22am, just 22 minutes after beginning, the first sewer lateral had been installed. Ben Jones commented; "Bugger! How easy was that! ...I wish we had got onto this technology earlier. We could have installed each sewer lateral within the trench while the open cut main was being constructed". APD immediately ordered more Restrain™ pipe and purchased the burster on the spot, they continued to install the remaining laterals using this technique.

David commented: "I was anti towards pipe bursting first up, but time restraints pushed me to review faster methods. I am pleased I chose to use this technique as it delivered a nice tidy solution using a very small low impact, footprint. It's a brilliant method, by switching to this technique mid stream it saved us time and money".

The pipe entry pits were small in comparison to the open cut excavations, most lateral connections were made within the entry pit excavated between the footpath and each properties front fence. In some cases this space was less than 1m therefore installers were able to tunnel beneath fences and other abandoned services then install pipe in extremely tight spaces. All connections to the main and existing house sewer lateral were made using common rubber ring jointed PVC fittings. By using this technique it not only allowed the contractor to increase his installation rate but it had other benefits to, these include: Westminster St remained open while the Restrain™ pipe was being pulled into position, less truck movements due to less excavation and overall lower installed cost.



*Restrain™ pipe ready for "cartridge style" installation.*



*Receiving pit. PB 30 bursting rig (in the pit) hydraulic powered by the excavator.*



*Restrain™ being installed within small entry pit in a narrow grass berm. Note: tunnelled beneath existing front fence immediately above.*



*Entry pit layout, close to fencing and vegetation behind. No space for long pipe lengths.*



*Restrain™ connection to using traditional rubber ring joint PVC fittings.*

**Iplex Pipelines NZ Ltd retain the intellectual property rights for Restrain™ pipe; New Zealand Patent No. 561752.**

**Contractor**

Action Plumbing and Drainage Ltd

**Asset Owner**

Hutt City Council

**Designer**

Cardno TCB

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