

ROUND TWO: CANTERBURY SHAKES AGAIN

Canterbury crane contractors sprang to the rescue faster than Civil Defence in the latest Canterbury quake. HUGH DE LACY reports from Christchurch.

Not even the full-on 7.1 magnitude dress rehearsal five months earlier appeared to have prepared Canterbury's civil defence establishment for the 6.1 aftershock of February 22, and key contractors were initially left to make emergency rescue decisions in isolation.

Where the first quake caused widespread destruction but cost not a single human life, the second made the Christchurch CBD look like Manchester after the bombings of World War II. A fortnight later bodies were still being pulled from the wreckage and the death toll was nearing 180.

It might have been higher had Canterbury's crane operators not reacted as quickly as they did.

The quake destroyed or severely damaged as many as 10,000 homes and 800 commercial buildings and, depending on whose guess you believe, the total recovery cost from both quakes could be as much as \$30 billion.

And where the first earthquake left Canterbury residents full of fight to get things back to normal, the second, with its

massive loss of life and kicked-when-you're-down timing has left them struggling to come to terms with grim realities that beggar description.

It may indeed signal a massive shot in the arm for region's and the country's civil construction industries, wallowing as there were in the fallout from the 2008 global economic crisis, but the silver-lining sense of buoyancy that pervaded the Canterbury region after the September 4 event has been replaced by a deep-seated glumness, approximating despair.

The damage is on an almost incomprehensible scale, and given a regional population of only about 400,000, everyone has been affected more or less directly by the death and destruction.

As in the first quake, the contracting industry responded rapidly, led in the February event by crane operators.

Because so many buildings, including several high-rises, collapsed with so many people in them, the first and most urgent need was for lifting equipment, and the spontaneity with which crane operators reacted proved the



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direct saviour of literally hundreds of lives.

In the forefront of the rescue bid was Smith Crane and Construction, based at Harewood on the western outskirts of the city.

As soon as the quake hit, principal Tim Smith ordered his 80 staff to fuel up the company's 20 mobile cranes and get them ready for immediate deployment - the shock was so severe he didn't need anyone to tell him that CBD damage would be immense.

In fact it was the Christchurch International Airport Police, alerted by their central command in the city, who rushed to the Smith yard to say cranes were urgently needed in town.

Within an hour of the quake, the Police had escorted a convoy of Smith equipment into town, but the guidance and organisation Tim Smith expected to greet them there simply did not exist.

"No one was organising who did what," Smith says. "One of the boys had a Police scanner and we turned that on and found out where all the tragedies were, and then went round there."

Their first stop was the completely pancaked seven-storey

Canterbury Television (CTV) building in which 94 people lost their lives, by far the worst single casualty site.

"We went up to the top and opened up the lift shaft and a whole lot of black smoke came out," Smith says. Though they later sent another crane back to CTV, and it worked there for the next two weeks, they sensed at the time there was nothing much they could do, so went on to the 18-storey Forsyth Barr building which was still standing but whose stairwells had collapsed virtually from top to bottom.

Using a 220-tonne crane with a man-cage slung from its 72-metre beam, the Smith team was able to bring a total of 180 people to safety, 30 at a time, from nearly all floors, and were pleased to learn later there had been only one fatality there.

"The boys set up next door and the people all stepped over the hand-rail into the man-cage. They were all pretty pleased to see us."

On Smith's initiative, staff and equipment were next sent to the collapsed Pyne Gould Corporation (PGC) building where 15 lives



Aerial photo showing extensive liquefaction

had been lost, and were able to get a dozen survivors out (see accompanying story) during the night.

Smith was critical of the fact that the Fire Service, the other primary response organisation after the Police, were dependent on their own extending ladder gear, and did not have a database of locally available long-reach cranes to call on for high-rise emergencies.

Fire Service ladders were “about 50 metres too short” to have been any use in the Forsyth Barr building, Smith says.

“All the contractors were very frustrated: we were in the forefront of the effort but no one consulted.”

At the Anglican Cathedral on The Square, Smith’s brother Daniel, principal of the Rangiora company Daniel Smith Cranes, was trying to get people out of the collapsed main tower, including a woman pictured perched on one of the higher remaining windows in what became one of the defining images of the tragedy.

Elsewhere the holders of the principal maintenance and recovery contracts for Christchurch City – Fulton Hogan, Downer, City Care, Fletcher Building and McDowell – swung into action as Civil Defence took over the direction of the response from the Police and the Fire Service.

Regional Civil Defence controller Bob Upton of Environment Canterbury defended his organisation’s response, saying that the crane operators’ initiative was “the reaction of about 95% percent of the people who pulled bodies and people out”.

There was an inevitable time lag between the quake and the declaration of a state of emergency “a number of hours later,” and

everybody was shocked by the size and suddenness of the event coming so long after the original September quake.

Upton says Smith’s criticism of the lack of databases on equipment such as cranes had “validity”, but his eight years in his civil defence role had highlighted the question of “who keeps them up to date?”

He was full of praise for the crane operators’ response, and that of all other contractors brought in as the rescue and recovery operation unfolded.

“They responded extremely well. Everybody in Christchurch from the Mayor on down appreciated the way in which the total community, including the contractors, has responded.

“The words I used after the September 4 quake hold good for the latest one: it was a case of ‘ordinary people doing extraordinary things’,” Upton told *Contractor*.

Up close and personal

Police threatened to lock up a crane operator working on the Pyne Gould Corporation (PGC) building because his sister-in-law was one of the 15 fatal casualties of its collapse in the earthquake.

Scott Blackler of Smith Crane and Construction was operating a crane for the British Urban Search and Rescue (USAR) team when his boss, Tim Smith, became aware of Police concern that his judgement might be affected by his having lost a relative in the building.

Smith told *Contractor* he asked the British if they had any concerns about Blackler, and was told he was “good as gold” and “doing a great job,” so Smith left him there working the night shift on the round-the-clock rescue operation.

The following morning Smith got a phone call from an upset Blackler who said the police had told him that if he showed up at the site again they’d slap a trespass order on him and lock him up if he didn’t go away.

“They could have rung me and said ‘We don’t want him there,’ and I’d have sent him to another job quietly,” Smith says, describing the Police handling of the situation as “ignorant”.

Blackler had been part of the Smith team that had helped the British specialists rescue a dozen people from the pancaked building, after earlier being sent to the Forsyth Barr building – where they rescued 180 people trapped by the collapsed stairwell – and to the CTV building where they had found there was nothing they could do.

Up to eight Smith staffers were at the PGC site, and their work included using compressor-driven pavement breakers and diamond drills to cut two metre-square holes in the top concrete layer, allowing rescuers to get in and extract 11 trapped people on the first night.

Smith praised the courage of those who had squeezed into spaces between the floors that were only 200mm to 300mm wide in places, including one of his subcontractors, Tony Te Makahu.

“He basically did all the supervision of the recovery at CTV, and he was also at the PGC building on the first night,” Smith says.

The last survivors were brought out from the various disaster sites within 48 hours of the quake, but the rescue operation continued for a further week.

Smith says his workers were inevitably subjected to some gruesome sights as bodies were recovered.

“They’ve seen some pretty horrible things” at the CTV and PGC sites in particular, after which some staff required counselling.

“Most of the guys were pretty good but the odd one, particularly younger fellows, were affected a bit.”

Contractors rally

The Wellington head office of the Contractors Federation played a key role in matching equipment to the needs of the rescue and recovery operation in the days following the February earthquake in Christchurch.

The office had had the foresight after the September quake to draw up a list of local members and their expertise and resources, sending it out to all South Island local authorities as well as ones in the North that showed interest.

It had also co-operated with the Industry Capability Network organised by New Zealand Trade and Enterprise, which had helped the Earthquake Commission (EQC) locate resources.

Chief executive Jeremy Sole told *Contractor* his office had fielded offers of equipment from Australia, “but I don’t think they’ll be needed”.



IMAGES: MATT TAYLOR AND NZ DEFENCE FORCE



“We’ve found lots of specialist equipment – sucker trucks and blasting stuff and water carts for damping down the roads. Seven or eight of the water crews down there are ones that [NZCF executive officer] Malcolm Abernethy sourced for them,” Sole says.

The office was kept busy with this work for the first two weeks after the February quake, but it has tapered off since. Inquiries had come from the managers of the so-called “pods” of contractors organised after the September quake.

These fell into two categories: the half-dozen hubs organised by Fletcher Construction, which has the contract to manage the residential and household quake recovery process throughout Christchurch City and the Selwyn, Waimakariri and Hurunui Districts; and the groups of contractors organised by the Christchurch City Council to handle the civil construction work.

Sole said he had been a party to conversations with the Council for Infrastructure Development and Business New Zealand which had counselled the National-led coalition Government against taking the knee-jerk response of cancelling or postponing capital works in favour of concentrating solely on Christchurch reconstruction.

“It’s even more important now that things like the \$1.8 billion Waterview project in Auckland go ahead because they’re going to free things up and create GDP and wealth for the country. If they stop projects that are going to do that in order to fix Christchurch, then we lose on both fronts,” Sole says.

“The Roads of National Significance that [Transport Minister Stephen] Joyce talks about are all selected because they will make a positive economic impact once they’re up and running, so you wouldn’t stop doing that.”

Sole’s guess as to the final cost of the Christchurch reconstruction was around the \$20 billion mark, and he did not think that would cause economic deprivation because a large part of the bill will be picked up by private insurers.

“The Government’s liability will probably be about \$5-7 billion. The EQC’s got \$5 billion-ish, though they’re now down to about two or three billion. But this is going to roll over about 10 years, so, in terms of the gap, it’s not huge,” says Sole. “They’ve just got to find some money to top up the EQC again.”

Damage and destruction

The damage to buildings and infrastructure from the February after-shock, compounding that from the original September quake, extends from Christchurch City – especially the eastern suburbs – and over the Port Hills into Lyttelton, where the second shock was centred.

The vital Port of Lyttelton was initially cut off from Christchurch by the upheaval of the Ferrymead Bridge on the estuary foreshore, and by extensive rockfalls on Dyers Pass Road which gives access over the hill. It was three days before access to the port was re-established, and throughout that time the Lyttelton Tunnel was closed to general traffic because of fear of further rockfalls at either end.

The Port of Lyttelton initially closed when two 1400-tonne container cranes were jolted off their tracks as the Port Hills suddenly grew half a metre taller under the enormous forces unleashed below the town. The port company imposed a force majeure constraint on the minimum tonnages in its contract with

Solid Energy for handling coal railed over from the West Coast, but this was able to be lifted after three weeks and the port was expected to be back in full operation again by the middle of this month.

Three weeks after the second quake, estimates of the total number of buildings that will have to be demolished in the wide quake zone still vary widely, with the picture further blurred by the inevitable battle over which of the region’s ravaged but cherished heritage buildings should be restored.

Prime Minister John Key reckoned 10,000 houses would have to be red-stickered for eventual demolition – though that figure has been disputed by local politicians – while the figure of 800 commercial buildings seems to be widely accepted. The biggest single building that will have to be demolished is the 26-storey Grand Chancellor Hotel which teetered alarmingly, preventing rescue and recovery work within a 90 metre radius, until it was temporarily stabilised by engineers a couple of weeks later.

The Earthquake Commission (EQC) had received 180,000 claims for residential damage within three weeks of the February event, on top of the 82,500 they fielded after September. It expects the final total to top 300,000. While September 4 and February 22 were when the greatest damage occurred, in between them there were aftershocks triggering further claims on October 19, November 14, Boxing Day, January 20 and February 4.

The commission has also been swamped with claims from contractors for payment for services rendered in the wake of the second big quake, with some reportedly refusing to do any further work until they get reimbursed. The commission declined to comment on these threats but, according to a staff member who agreed to talk to *Contractor* on

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“...one of the most visible effects of both shocks has been the liquefaction silt that erupted throughout the worst-affected areas.”

condition of anonymity, they're unlikely to have much effect.

The agency simply could not handle the volume of payment demands being made of it, ranging not just from contractors working in the immediate aftermath of the shocks, but from thousands of tradespeople, business owners and householders all desperate for cash to keep their heads above water, the informant said. Businesses may need to make interim arrangements with their banks because the EQC had no chance of meeting the demands being made of it in the short term.

To take the edge off demand for temporary housing, the Government is looking at placing up to 1000 cabins and motorhomes on public reserves which have functioning water and sewage systems.

Apart from the ravaged buildings, one of the most visible effects of both shocks has been the liquefaction silt that erupted throughout the worst-affected areas. An estimated 220,000 tonnes of it is destined for dumping in the landfill at Burwood, a northern suburb, that was the main destination of the city's rubbish until the opening of the multi-authority facility at Waipara.

Armies of student, farmers and other volunteer workers scraped thousands of tonnes of silt from private properties, using shovels and wheelbarrows, and dumped it in the street for later collection and disposal by contractors.

Electric power to most of Christchurch was cut by the quake but within three weeks the lines company Orion had restored it to 99 percent of the city.

The city's sewerage system was so badly damaged that sewage had to be flushed through stormwater pipes directly into the sea, and the parts of Selwyn District's system that fed into the Christchurch one had to be disconnected. Around 30,000 chemical toilets and portaloos have been either supplied to residents or are on order as a stopgap measure until contractors can repair the damage to the main system. This is expected to take months: lines of portaloos along Christchurch suburban streets have been a feature of the landscape since the first quake, and look like remaining so for a long time yet.

Water supplies too were severely affected, and while about 90 percent of the city had been reconnected within three weeks, the supply was having to be chlorinated for the first time, and

people were being advised to also boil it anyway, in a city that prided itself on having one of the purest subterranean supplies in the world.

Roads again suffered massive damage, though all parts of the city and surrounds except the cordoned-off zones in the CBD were accessible within a few days. Typical of the upheaval was Fitzgerald, one of the four avenues that define the CBD. The surface at the Port Hills end is a low-level roller-coaster ride, while one of the carriage-ways at the western end has slumped to become a 100 metre-long driveway straight into the Avon River.

Most schools were closed for at least a fortnight and several will have to be completely rebuilt, possibly at new sites. Others, including elite schools Christ's College and Rangi Ruru Girls', were extensively damaged.

Economy damaged by quake

A "quite severe" impact on the economy, measuring a negative 0.5 to one percent of Gross Domestic Product, is predicted for the first quarter of 2011 by UBS economist Robin Clements of Christchurch.

"What might have been a modest quarter of growth is likely to go backwards, which is going to extend the period of flat growth that we've seen since the middle of last year," Clements told *Contractor*. "The infrastructure issues are going to be quite pervasive in some areas: they've got a considerable amount of power back for most suburbs, but for 40 percent of the CBD they can't reconnect the power because sub-stations are under rubble or because of the danger of fires.

"So power is still an issue, but 80 percent of water is back on line."

Sewerage, roading and pipe damage would involve a long-haul recovery process, but eventually there would be an economic bounce-back which would see GDP grow by four percent in 2012. The immediate impact of the Reserve Bank's cutting interest rates by 50 basis points would be to relieve the debt-servicing burden for floating-rate borrowers in the short term.

Like Contractors' Federation chief executive Jeremy Sole,

Clements stressed the need to generate growth outside Christchurch. The impact of the interest rate cut would be short-lived, providing some support for businesses and householders at a time when they were concentrating on insurance rather than borrowing.

"When the rebuilding work kicks in at the end of the year or the beginning of next year and the economy looks more robust, [the Reserve Bank] will take that support away."

Clements says Treasury and the Reserve Bank's estimate of a \$15 billion cost for both quakes - "rounded to the nearest \$5 billion" - was the best available, though Fletcher Building infrastructure chief executive Mark Binns had put it at \$20 billion, and Canterbury Employers Chamber of Commerce

chief executive Peter Townsend reckoned it would be \$30 billion.

Clements said the real concern would be not so much about the money needed for the recovery work but about the capacity to do it.

"Having the skills, the resources, the machinery - these are important, but there are also issues to do with regulations, land availability and consents.

"Many firms are saying they couldn't just shift their facilities from A to B because they needed a consent to do it. There have to be some practical steps taken to relax these issues, otherwise the capacity is just not going to be there to rebuild Canterbury," he says.

The Government appears to have anticipated such concerns, rushing a raft of resource consent changes through Parliament last month under its earthquake legislation. These included:

- Cutting Resource Management Act (RMA) administrative requirements covering temporary housing and storage facilities;
- Axing the RMA requirement for public notification of land, infrastructure and flood protection remediation work;
- Extending the time limit on responses to Land Information Memorandum information requests, and allowing councils to issue incomplete memoranda;
- Allowing authorised vehicles to carry loads in excess of normal limits without penalty to assist in the clean-up;
- Adjusting the Accident Compensation Act to allow the corporation, rather than employers, to pay the first week's compensation to quake-injured workers, and suspending employees' stand-down period;
- Deferring unemployment benefit reapplication requirements until November 30. ⚠️

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