New Zealand Certificate in Infrastructure Works (?????) (Level 4) with strands in Drinking-Water, Wastewater and Stormwater, and Trenchless Technologies

Background information

This consultation is part of a larger review of all NZA and NZC qualifications to Level 4 in the Civil suite. This information is provided to help stakeholders understand the thinking behind changes made.

The current qualifications this sector at Level 4 are:

- New Zealand Certificate in Pipe Installations (Level 4) with strands in Trenched, and Trenchless (105-120 credits)
- New Zealand Certificate in Utilities Maintenance (Level 4) with strands in Water, and Wastewater and Stormwater (95 credits)
- New Zealand Certificate in Civil Infrastructure Trades (Pipe Installations) (Level 4) with strands in Trenched and Trenchless (205 credits)
- New Zealand Certificate in Civil Infrastructure Trades (Utilities Maintenance) (Level 4) with strands in Water, and Stormwater and Wastewater (200 credits)

A single Working Group has been gathered to review these qualifications in the context of the current Civil suite as a whole, current career pathways, and industry requirements. Other reviews and draft qualifications can also be viewed on the Connexis website.

The Working Group consists of the following representatives:

Jeff Sharp (Underground Brown)  Hugh Blake-Manson (CityCare)
Jenny Grainger (Independent)  Carmel O’Neill-Gregory (Independent)
Michael Horgan (JFC Ltd)  Craig Hiddleston (Higgins)
Alan Stevens (CCNZ)  Andries Erasmus (Veolia)
Nick Hewer-Hewitt (Wellington Water)  Peter Stockman (Pipeline & Civil)
Nicholas Gulley (March Cato)  Gary Hunter (Watercare)
Ross Twyman (City Contractors)  Charles de Vilder (Pipeworks)
Evan Jenkins (SouthRoads)  Dan Burt (Waimakariri DC)
Guillaume de Rouvroy (Downer)  Danny Lilo (Downer)
Peter Vaughn (Civil Construction)  Candice Prebble (Connexis Product Champion)
Wendy Allison (Connexis Development)  Annie Yeates (Connexis Water Manager)
Chris Malpas (Connexis Product Champion)  Ashley Chisholm (Connexis QA)
Nigel Hesford (Connexis Assessor)

The Working Group is tasked with discussing and deciding on:

- The career pathway and what qualifications will be appropriate for the industry
- The graduate profiles for each qualification
- The unit standards and content of unit standards to include in programmes towards the qualifications

The Working Group met in June and again in August 2017 to discuss the future of the Pipe Installation and Utilities Maintenance qualifications at Level 4, and the draft graduate profile is the result of those discussions. Once feedback has been gathered, the Working Group will consider it and include any
required changes into the final qualifications. The topic lists will be used to develop programmes to meet the needs of the updated qualifications.

**Meeting 1 – June 2017**

**Should we keep or phase out the NZC ‘standalone’ qualifications?**

This question arose from a suggestion that the industry does not need two qualifications (Recognition of Current Competence - NZC - and New Zealand Apprenticeship – NZA (Civil Infrastructure Trades)) with different outcomes and different credits to describe one competent graduate, and that a single qualification that can be assessed as an apprenticeship or by RCC may be more appropriate.

**GENERAL COMMENTS**

Many civil contracts now require staff to be qualified, and there was general agreement that a single qualification that works over a range of contract requirements would be useful. It was agreed that having a single qualification to describe a competent graduate would make the qualification landscape less confusing for local authorities.

There is benefit to phasing out the current NZC qualifications as long as there is a clear and achievable RCC process in place for the new qualifications. Programmes will need to be considered carefully to ensure that the content is appropriate for all trainees in this sector, as the NZA programmes currently seem focused more towards a broader Infrastructure career pathway.

The groups felt that the career pathway should be Infrastructure Works L2 → Infrastructure Works L3 → Pipe/Utilities L4, (with Site Supervision L4 available if necessary as a beginning to the Management career pathway) so that people have a grounding in fundamental skills before entering a trade qualification if needed.

Because the government considers trade level to be Level 4, ensuring the qualifications align with this expectation will help improve professionalism within the industry and recognition of the sector as a trade, and make it more attractive to new entrants. The qualification should remain part of the trade certificate pathway.

It was noted that many people in the industry have qualified at Level 3 and there will be a significant expense to upskill these people to Level 4, especially if it becomes a requirement in contracts. However, many people with the Level 3 qualification are operating at Level 4 anyway and could achieve the qualification through a structured RCC process developed from a gap analysis between the old Level 3 qualification and the new Level 4 one. There would need to be a limited upskill period (say 5 years), with upskilling within that time being mandatory.

Local authorities and asset owners would need to be educated on the new system so that:

- they recognise people studying towards the qualification as well as those who hold it
- they understand the government drive for general upskilling and the associated costs
- they understand the specifications and parameters of the qualifications so they know what to ask for when specifying contracts. This should be consistent nationally, and is especially relevant between pipe installation and drainlaying, as there has been some misunderstanding in this area.

**RECOMMENDATIONS:**

Expire the standalone NZC qualifications and create a single qualification at Level 4 with at least 120 credits (1200 hours) that can be assessed as an apprenticeship or by RCC. This qualification should
cover both new works and maintenance, and needs to also address the needs of people doing telco/ducting work.

Develop a roadshow including Connexis industry managers and selected industry representatives to educate authorities on the qualifications and associated competencies so their contractual specifications are appropriate to the work and can be met by people in the field. This needs to specifically address the difference between drainlaying and pipe installation.

Perform a gap analysis to create a bridging programme for people currently qualified at Level 3 to bring them up to Level 4 standard for the new qualification. There needs to clearly defined cost structure with supporting justification. Costs for training, validation and assessment should be included. It has also been noted that people could upskill in a similar way by signing into the L4 qualification but achieving it by using a standard RCC process, which may be more cost effective.

**QUALIFICATION CONTENT**

The groups discussed what content a single qualification should include, and the following issues arose:

- knowledge and understanding of trenching should be compulsory
- dealing with other services should be compulsory, and could be addressed in a new unit standard
- working with ‘live’ water needs to be included, as does understanding of pathogens and public health
- some organisations only have 1-2 people who can do disinfection – can we recognise this in the qualifications and training? Others felt that the knowledge at least should be compulsory
- making connections to ‘live networks’ is something people need to know how to do, but some people don’t actually do it. Some representatives don’t see this as a specialised skill, and there should definitely be an allowance for it in the qualification.
- there are some specialisations and these should be recognised in strands. Transfer between strands should be possible
- any stranding needs to address trenchless skills as an individual skill set, and should include drills, tunnelling, rehabilitation, cured in place pipe. All people should have knowledge of trenchless technologies, but only some need to be able to do it. Connexis should consult with specialists in each technique to find out what people need to know
- the inclusion of supervisory (team leader) skills within the L4 trade qualifications as an elective?

The groups came up with three options for how the qualifications might be structured:

- New Zealand Certificate in Infrastructure Works (Pipeline Construction and Maintenance) (Level 4) with strands in Trenched Installation, Trenchless Installation, Drinking-Water, and Stormwater and Wastewater
- New Zealand Certificate in Infrastructure Works (Pipeline Construction and Maintenance) (Level 4) with strands in Gravity Systems, Pressure Systems, Non-Water Services, and Trenchless Technologies
- New Zealand Certificate in Infrastructure Works (3 Waters Reticulation) (Level 4) with strands in Construction, and Maintenance

**RECOMMENDATIONS:**

Develop a single qualification that has a core set of skills common to everyone in this industry, with strands to address the specialisations, to include the points discussed above.
Do we need a separate Level 3 qualification in horizontal directional drilling (HDD)?

HDD people are not as involved in the connection of pipes and thus don’t always want to complete the full Pipe Installation qualification, and those who did the previous Level 3 qualification don’t receive significant recognition for their qualification in the new Level 4 programmes. There is a requirement for an authorised installer to be on site, but it’s a considerable amount of work over and above their HDD skillset for these people to get that authorisation.

Only a small number of people who do HDD (other than pipe installers) operate at L3 – telco for example - but it is a very large industry. More people do pipe bursting than HDD, and councils are only just starting to accept HDD as a method.

There are more types of specialised trenchless technology emerging, the group felt that perhaps those should be considered as well. Additionally, people should have an understanding of these emerging methods but don’t necessarily need to be able to do them all.

RECOMMENDATION

Do not develop a new qualification in HDD but do make a trenchless strand within the L4 qualification capable of including more options to specialise.

Meeting 2 – August 2017

The purpose of this meeting was to decide which of the three potential qualification structures is most appropriate for the industry, and to discuss and decide on lists of topics to cover, which will eventually become the basis of programmes towards the qualification. The group also discussed how to address skills at Level 3.

QUALIFICATION STRUCTURE

While the most favoured option in feedback was Option 2 (with a split between gravity systems and pressure systems), the small amount of feedback meant this was not a representative view. Upon discussion it emerged that there are three distinctions in this industry:

1. Construction and Maintenance
2. Gravity systems and Pressure systems
3. Potable water and Non-potable water

While construction and maintenance are different skill sets, both are increasingly being required within organisations, and there is also significant overlap – the required earthworks and related knowledge and skills, understanding of pipes, making connections, etc. While there is some extreme specialisation going on (for example one organisation has 2/3 of their people full time installing water meters), this is not considered the norm and the general view is that to be considered a tradesperson, both construction and maintenance skills should be required.

Additionally, Gravity systems are no longer synonymous with wastewater, and likewise Pressure systems are not just for potable water – both types of system are used for both types of water, which means the knowledge and skills associated with these would have to be either split arbitrarily or
covered twice if these were developed as strands. This problem led to the understanding that the most important difference within today’s water reticulation systems is between drinking-water and wastewater/stormwater.

It was decided that the structure of the qualification should support this distinction, and thus the strands should be Drinking-Water, Wastewater and Stormwater, and Trenchless Technologies. The compulsory section should cover skills common to all three, with only specialist skills addressed in the strands.

There was some discussion on how the qualification would address the needs of industries that install non-water services. It was considered that while there is some overlap in fundamental skills, the majority of the qualification is aimed at tradespeople working in water services and covering the necessary skill set for this work would create significant barriers to completion for any non-water candidates even if a distinct strand were developed. Therefore the group chose to make this a water-specific qualification.

**RECOMMENDATION**

New Zealand Certificate in Infrastructure Works (****) with strands in Drinking-Water, Wastewater and Stormwater, and Trenchless Technologies

For the qualifier (***) there are three options – Pipeline Construction and Maintenance, Water Reticulation, or 3Waters Reticulation. The group chose to submit these options to wider industry to decide which is most appropriate.

**RECOGNISING LEVEL 3 SKILLS**

It had been identified that there are skills in this industry that sit at Level 3, but that the Infrastructure Works Level 3 (IW3) qualification doesn’t address these and therefore is not relevant to the Water Reticulation sector in its current form. Analysis of job descriptions in the industry revealed some skills at L3 that would be in this category, and comparison with the IW3 draft showed that there is currently no GPO that recognises the job-specific operational skills of a particular role.

Since IW3 is intended to be the foundational qualification recommended to anyone intending to advance to more technical specialities at Level 4, it is important that it meets the needs of the industries it is intended to serve. The Water Reticulation sector is only one of a number of sectors with this issue, and therefore it was proposed that a GPO be added to the IW3 qualification “Carry out work operations on an infrastructure works site” which could then be assessed in the context of the candidate’s own work using unit standards specific to their role grouped in contextualised elective sets in the programme.

The Working Group considers this to be an appropriate way of addressing Level 3 skills for the industry, and provided a list of potential topics to be covered in the Water-specific assessment.

**RECOMMENDATION**

Include a GPO in the Infrastructure Works Level 3 qualification that addresses the operational skills of ‘doing the job’, and include elective sets of unit standards specific to a particular sector in the programme to allow for contextualisation to the candidate’s role. A notional 30 credits to be allowed for this. Please refer to the documentation for “NZ Certificate in Infrastructure Works (Level 3) with optional strand in Large Plant” for further detail.