



Report

FPP Corridor Cost Analysis Response to Submissions April 2015

Prepared for Commerce Commission (Client)

By Beca Ltd (Beca)

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1 Introduction

Submissions in response to the Commerce Commission's Draft Pricing Review Determination for Chorus' UBA and UCLL service were received from various interested parties on 20 February 2015.

Beca had previously provided advice to the Commerce Commission ("the Commission") in the form of our report on FPP Corridor Cost Analysis of Trenching and Ducting Rates in New Zealand dated 25 November 2014 together with our workbook entitled Corridor Cost Analysis of Trenching and Ducting Rates in New Zealand ("the November Report").

The purpose of this report is to review and analyse submissions relating to the advice previously provided by Beca, address the concerns raised by submitters and provide further commentary where necessary or make recommendations for any changes or additional work.

From the submissions by or on behalf of Chorus we note that there is a general dissatisfaction with much of the Commission's Draft Pricing Review. This report does not attempt to address all of those concerns, but rather only those elements that directly apply to Beca's previous advice outlined in the November Report. Criticism from the Chorus submitters is focused mainly on trenching rates in urban areas. We will therefore direct the majority of our response to these items.

It should also be noted that in order to remain within our field of expertise we will not be responding to submissions from investment or fund managers such as IML and Alan Gray.

2 Submissions

2.1 In General

In total 26 submissions were received by the Commission on or before 20 February 2015 and posted on their public website. Of that number we have identified nine that specifically comment on the November Report as uploaded to the Commerce Commission website on 2 December 2014¹. These nine fell into two categories; submitters who believe the Beca rates should be of a higher value and submitters who think they are too high already and should be reduced. The nine relevant submissions are listed below:

Submit that Rates are too Low

1. Chorus-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015
2. Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015
3. Analysys-Mason-submission-on-behalf-of-Chorus-for-UBA-and-UCLL-services-draft-determinations-20-February-2015
4. CEG-submission-on-behalf-of-Chorus-on-Price-Trends-for-UBA-and-UCLL-services-draft-determinations-20-February-2015
5. L1-Capital-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015

¹ Beca-FPP-Corridor-Cost-Analysis-Full-Report-Nov-2014 *together with* BECA-Corridor-Cost-Analysis-for-Trenching-Rates-public-version-Dec-2014

Submit that Rates are too High

6. Spark-NZ-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015
7. Vodafone-NZ-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015
8. Network-Strategies-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015
9. WIK-Consult-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015

To some extent with stakeholders on both sides of the argument stating in their submissions that the Beca rates are either too high or too low, it does give us some confidence that the national average rates supplied by us do provide the Commission with a good basis for their deliberations.

2.2 Overview of the Main Issues

Summarising very briefly, those submitting on behalf of Chorus felt that cost items such as trenching, traffic management, consenting and productivity, specifically in urban areas, were underestimated. Those taking an opposing view focused on perceived pricing discounts due to operating efficiencies and the purchasing power applicable to large contracts.

Reference was made to advice received from confidential CNZRI suppliers and also to confidential trenching cost data held by Chorus in various ESA's. As actual company names and rates have been withheld we are unable to respond specifically.

Another submitter's comments also stood out to us. The economic advisory firm CEG² stated that Beca had not *"taken into account all available information"*, and that *"Beca have not consistently used the most suitable source information"*. CEG's statements are obviously general in nature, but the first one is obviously correct – we did not contact every drilling or trenching contractor in New Zealand, nor did we research and record the rates from every drilling and trenching tender. We are also unsure what is meant by the term "available". If CEG mean publically available then these rates would be retail in nature and therefore of no use whatsoever. Contractors tend not to publish their commercially sensitive tender pricing. Regarding their second statement, we dispute the assertion that we have been inconsistent. Gathering a range of information from various locations, both current and historical, provides well rounded data as well as insight into market trends. Beca is unaware of any sources of information that are more suitable. CEG did not make any suggestions.

Vodafone make the statement that *"The Commission (or Beca) should have compelled information on trenching contracts from trenching customers – the utilities"*³. In order for Beca to comply with the Commissions requirement to remain independent and impartial we could not request this information from any utility company likely to be affected by the UBA and UCLL determinations.

In their conclusion, Network Strategies recommend that the Commission.. *"reviews the impact on cost estimates of very old historical data which is unlikely to reflect forward-looking data. In*

² CEG-submission-on-behalf-of-Chorus-on-Price-Trends-for-UBA-and-UCLL-services-draft-determinations-20-February-2015; summary points 4 & 5

³ Vodafone-NZ-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015 page 46, 12.1(a)

particular for open trenching, directional drilling and thrust boring Beca relies on data drawn from only four tenderers in the Wellington region..”⁴ This statement has been taken out of context and is misleading. In the November Report under Data Sources (page 11) we explain that the four tenders made up only part of the overall data resource. These were primarily used for comparison purposes only. There were three other sources of data used including Beca’s own database, Contractors and Suppliers. The workbook⁵ outlines our own rate build-ups (based on current market rates) and notes 16 separate sources of indicative contractor pricing. Specialist pricing input on open trenching rates was also requested and received from a senior Beca estimator in our Auckland branch.

2.3 Statement of Position

As professional cost consultants we assert that the November Report on national average rates is based on sound investigation and historical data, reflects the current market and makes adequate allowances for the complexities of the work proposed. We will back up this statement in the following sections by responding to specific issues raised by submitters and by expanding on our previous report.

3 Soil Types

There appears to be little or no argument from either side that the Bell Ducat model is the appropriate system of soil classification for rural areas. In fact Network Strategies state that they *..”entirely agree with Beca’s assessment, and we are aware of no other relevant superior classification”⁶.*

The decision to apply a single additional soil category to the urban areas was made pragmatically due to the constraints placed on us by the Commission. It would have taken considerable time and human resource to extend the Bell Ducat study to cover the more urban areas. However we also agree with Network Strategies when they say that Beca has *..”adopted a pragmatic assumption ... that has been applied [and] increases the margin error for the analysis”⁷.* However for reasons discussed below and in sections 4.2.1, 4.2.3 and 4.2.4 of this report we are comfortable with our methodology.

The underlying geology or soil makeup of urban or built up areas is sometimes very complex and typically there could be a variety of trenching methods used within any specific urban street or berm. But we believe that the vast majority of soil types encountered within most urban areas in New Zealand will not present any problems to a skilled trenching contractor.

It is possible that adopting a cost model of “cheapest method” for inner city trenching may possibly result in an under-estimation of total cost, although that is only speculative on our part and cannot

⁴ Network-Strategies-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 41

⁵ BECA-Corridor-Cost-Analysis-for-Trenching-Rates-public-version-Dec-2014

⁶ Network-Strategies-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015, page 37, 4.1

⁷ Network-Strategies-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015, page 38

be determined without more detailed information. This depth of research was not within the scope of our engagement.

Even though the Beca rate tables reflect the various trenching technologies that could be utilised in each soil type, it should be noted that the model produced by Tera Consultants ("TERA") was developed completely independently. Beca did not provide any advice to them on which specific trenching technology might be the most cost effective method in any given area or situation.

4 Rates for Installed Ducting

4.1 In General

The range of indicative pricing received from contractors around the country in September 2014 confirms our view that there is no "one correct price" applicable to any given New Zealand town or city. Beca was commissioned to provide an average⁸ national rate per metre for multiple ducts and situations, which had to fit within the parameters set by TERA.

It should be noted that to calculate a national average rate which takes into account every possible scenario in every location with all options for different risk factors would likely result in a rate that was exceptionally high and would not take into account a competitive market or efficiencies of scale. Our challenge was to form a balance and pragmatic view of the overall New Zealand situation.

4.2 Work in the Ground

The rates provided in our November Report⁹ are all inclusive and allow for the following costs per metre of ductwork:

- Consenting
- Site establishment
- Machine hire &/or operation
- Excess soil disposal
- Material supply
- Labour
- Productivity/down-time
- Traffic management
- Contractors overheads & profit

Where allowances in the November Report appear as a single figure (i.e. not split into separate components), they are deemed to include for all necessary labour, plant, material and overhead costs. This is normal practice for contractor's estimators and civil estimating in general. The reason for this is that contractors often present their rates in schedule format establishing or "fixing" these rates within their contract agreement for use in any future contract variations. Aurecon's suggestion

⁸ Average in this context is defined as the sum of all local rates obtained divided by the number of contractors surveyed, then adjusted by our experienced quantity surveyors to allow for obvious omissions

⁹ BECA-Corridor-Cost-Analysis-for-Trenching-Rates-public-version-Dec-2014

that .."Onsite and offsite overheads are often in addition to any unit rates supplied by contractors"¹⁰ do not apply in this instance.

With all "in the ground" work we have made certain assumptions regarding material selection. An example of this is noted in the November Report under Ducting¹¹. We have allowed for PE pipe for thrusting and horizontal directional drilling (HDD), with uPVC SN16 allowed for open trenches. As uPVC is significantly more expensive per metre we think that savings could be made if PE pipe is deemed to be suitable in open trenches in specific locations, however we could not assume this to be the case in every trench so the rates need to reflect a typical scenario.

When viewed from the perspective of a national roll-out, we believe that the average national rates outlined in the November Report will cover the overall cost of all trenching and ducting for the stated number of ducts installed throughout New Zealand. The following sub headings address specific concerns raised in the submissions.

4.2.1 Trenching & Ducting

There does not appear to be any criticism of our ducting rates from any of the submitters. In terms of work "in the ground" the major disagreement is in relation to the trenching costs.

In their submission, L1 Capital states that the Auckland and Wellington urban areas "*represent 60% of the total UFB deployment area*"¹². Taking this at face value we assume they are referring to lineal metres of fibre. The real issue to be addressed is what percentage of trenching work occurs within the urban areas.

In terms of the total quantity (kilometres) of trenching work to be undertaken, the TERA modelling data that we have received indicates that there is around 46,000 kilometres (km) for the whole of New Zealand. From this data we have also calculated that the model requires approximately 848 km of trenching within the Wellington urban area and 5,787 km within the Auckland urban area. Taken together the percentage of trenching required for these two focus areas is closer to 15% of the total nationwide. L1 Capitals figure of 60% therefore has no relevance to the quantum or cost of trenching.

If the urban areas of Tauranga, Hamilton, Christchurch and Dunedin are added to the 15% above (for Auckland and Wellington) the total increases to around 25% of trenches excavated in the "urban" soil category.

Looking at this objectively, even if it could be proved that the Beca rates were say 20% too low for trenching in urban areas, they only make up between 10% and 25% of the total rate for installed ducting. When we consider that the calculations above show that only a quarter of all trenching is in urban areas, then the theoretical margin for error for installed ducting is less than +/- 4%.

¹⁰ Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 3

¹¹ Beca-FPP-Corridor-Cost-Analysis-Full-Report-Nov-2014, Page 7

¹² L1-Capital-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015, Page 8

The WIK Consult submission suggests that Beca has not considered “*modern, state of the art micro-trenching deployment methods*”¹³ as used in Europe. This is correct - we have only used rates for machinery and technologies commonly available in New Zealand, and with a proven track record for durability.

On their website¹⁴ Network Strategies note that micro-trenching does have significant limitations and cannot be used in situations where the pavement surface is less than 100mm thick or where there is risk of surface compaction by heavy traffic. The fibre cabling must also be removed and reinstated whenever the road needs resurfacing. And due to its relatively shallow location (often only 100mm below the surface) the fibre network would be susceptible to damage by general contractors cutting into the road. All of these potential issues rule it out as a serious option for use in the nation-wide rollout.

4.2.2 Numbers of Ducts

We note the comments by Aurecon regarding our focus on duct numbers¹⁵.

Rate build-ups for multiple ducts was a direct response to the TERA model requirements. We were initially directed by them to provide rates for up to 48 ducts of a certain size in one trench. During our initial discovery period leading up the November Report we found that there was no evidence of 48 ducts ever occurring in New Zealand and subsequently made the decision to reduce the maximum by ¼ - down to 36. Even this number is only likely to be encountered close to a city exchange.

In any case, we understand that the resulting model produced by TERA has only used a maximum of eight (8) ducts per trench so all rates provided by us for more than eight ducts are effectively redundant and have no bearing on the Commissions determination.

4.2.3 Rock in Urban Areas

The Commission directed Beca to use Landcare Research New Zealand Ltd, Land Resource Information System (LRIS) GIS portal as the source data for the terrain categories (<https://lris.scinfo.org.nz>). Below is a section from our Rock and Soil Classification report:¹⁶

The NZLRI datasets used do not include the lithologies underlying urban areas. The Geological and Nuclear Sciences (GNS) map series at 1:250,000 (digitised) and 1:50,000 (non-digitised) map series do indicate lithologies underlying urban areas as do older non-digitised published geological maps. However, these maps often do not include shallow or patchy surficial soil layers or weathered rock layers that are considered of greater importance to this study.

¹³ WIK-Consult-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015

¹⁴ <http://www.strategies.nzl.com/wpapers/2008019.htm>

¹⁵ Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 2

¹⁶ Beca-FPP-Corridor-Cost-Analysis-Full-Report-Nov-2014 Appendix 1, Rock and Soil Classification Method Page 3

It should be noted that the identification of shallow basalt or any other non-rippable rock deposits within an urban area was not included in the Beca geological team working brief.

We agree with Aurecon's concern¹⁷ that within the central Auckland urban area there is likely to be basalt rock at various levels beneath the upper soil layers. However while Beca have not analysed the TERA modelling results in any detail we do believe traditional trenching methods will still be effective over large areas of Auckland city.

It may be established as a result of the draft determination review process that a more detailed analysis of the Auckland urban area soil types may be necessary. We emphasise that this was not within the scope of our original engagement.

4.2.4 Productivity

Aurecon suggested that Beca has not made any allowance for loss of productivity in our calculations and noted that for various reasons they would expect to see a potential loss of time of up to 4 hours (8%) per week¹⁸. We assume this is based on their own observations in the field and we agree with them, but in our experience this would only be a significant issue within the urban environment. We would expect to see very little reduction in productivity in the rural areas and uncongested corridors, which conservatively make up over 70% of the total trenching throughout New Zealand.

The rates we received from contractors for HDD drilling in urban areas are "cover all" rates. The companies deal with services congestion and traffic management issues on a daily basis and have specifically noted an extra value of \$15 per m in their pricing to allow for this.

Within our rate for 100mm open trenching the duct "sell" rate was calculated at \$35/m. We have made an additional \$7/m (20%) allowance for down time resulting in an overall rate build-up of \$42/m. It should be noted that the \$7/m allowance here doubles for 2 ducts, triples for 3 ducts etc. which we believe would adequately cover any productivity issues.

4.2.5 Tree Roots

There was some discussion by Aurecon¹⁹ and Analysys Mason²⁰ about the requirements for arborists to prune tree branches and roots. Due to the nature of open trenching the operation rarely suffers significant delays due to roots. Thrusting and HDD however would be the two trenching technologies affected by this issue.

In our opinion these underground trenching technologies will primarily be used within the urban environment due to cost. Repeating our comment above under Productivity, the "cover all" rates

¹⁷ Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 1

¹⁸ Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015, Page 2

¹⁹ Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015, Page 3

²⁰ Analysys-Mason-submission-on-behalf-of-Chorus-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 32

received from experienced HDD contractors will have made specific allowances for dealing with tree roots.

In addition to the contractors allowance, our rates for drilling include for entry and exit pits, the size and location of which could be altered to deal with significant underground congestion such as large or matted tree roots.

In summary, we believe the allowances made for congestion and pits within the November Report rates will be adequate for dealing with tree roots.

4.2.6 Reinstatement

We agree with Aurecon that reinstatement requirements will vary from one local authority to another. Our methodology was to simply reinstate the actual area affected by the excavation. We did not feel there was any other pragmatic way to calculate an average national rate, considering the very small percentage of trenches that may have to be “over reinstated”.

Two of the photographs included within the Chorus submission²¹ do indicate that contractors will encounter some very sophisticated pavement finishes, which will cost significantly more per metre to reinstate. Our experience is that these higher cost treatments will be limited in number and occur only in short lengths, effectively being exceptions to the rule. It is therefore reasonable to expect that this cost will be offset by kilometres of simple grass or asphalt reinstatement. We therefore believe that our allowance of \$40 per metre of trench is adequate for the national average.

4.3 Design and Consenting

The November Report outlines the basis of estimate which includes an assumption that the work would be fully designed and competitively tendered, and goes on to specifically note assumptions regarding sizable work packages, using local contractors, varying soil types and limited procurement options. This was important as we needed to set some rules and standards for procurement to provide a stable platform for estimating.

After discussing Beca’s methodology for establishing statutory planning and consenting costs, the Aurecon submission states ..*“These figures appear unreasonably low”*.²²

We offer the following calculation as an example of what we believe is an appropriate allowance for typical trench design and consenting. The data from the TERA model indicates the central Auckland area comprising of the AK, MAB and RUE exchanges would require approximately 505km of trenching. Assuming this is close to being correct then the allowance in any of our trenching rates would adequately cover all statutory planning and consenting costs for those three areas.

4.4 Traffic Management

The Aurecon report²³ contains a full section on this issue and makes the argument that Horowhenua and Kapiti figures for traffic management will misrepresent the complexity of traffic

²¹ Chorus-submission-on-draft-determinations-for-UBA-and-UCLL-services-20-February-2015 oages 117 and 118

²² Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 3

management in New Zealand cities. However it is interesting to note that the WIK submission²⁴ and Aurecon submission appear to be in direct opposition to each other when it comes to Traffic Management costs.

Our allowance is calculated on an actual roadside directional drilling contract which would be typical of anything experienced in average density suburban New Zealand. The logic behind this decision was that according to our calculations less than 5% of trenching is to be undertaken within the central business districts of our ten largest cities whereas approximately 30% is in suburban or built-up areas. The remainder of the trenching work will be completed alongside what could be considered either small town or rural roads.

The figure included for traffic management within our HDD rates is \$5.26 per metre of trench. Daily drilling distances will vary significantly, but assuming an average of 150m per day this equates to a total allowance of \$790 for traffic management. Considering our discussion above regarding percentages of trenching within CPD's and suburbs, we believe this is adequate for a national average rate.

4.5 Discounting

In our Pricing Assumptions²⁵ we noted comments from one experienced contractor that with efficiencies of scale and the large packages of work on offer Chorus could expect to receive pricing discounts of up to 20% from their drilling and thrusting contractors. This has been focused on by Network Strategies and WIK Consult on behalf of Spark and Vodafone.

Network Strategies state categorically that *..Beca should have taken the 20% discount into account in its pricing assumptions on the basis that an efficient operator would be able to obtain this discount*".²⁶ Likewise WIK comment on page 105 of their submission and suggest that discounting would *..generate another potential for reduced costs*".²⁷

Our reason for not applying the discount across the board (to all rates) is that the 20% is anecdotal and was only the opinion of one contractor. There is no guarantee that discounted bids will be received from or negotiated with small to mid-size specialist HDD or civil contracting companies, or with businesses operating in semi-rural or outlying areas.

We agree that very large contracts tendered by well-resourced companies would likely be subject to greater competitive pressure resulting in lower rates. However there is some uncertainty regarding how the works will be procured nationally. In the November Report Beca has assumed that a good proportion of the work will be completed using mid-size contractors.

²³ Aurecon-submission-on-behalf-of-Chorus-on-Beca-report-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 3

²⁴ WIK-Consult-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 86, 5.5.2

²⁵ Beca-FPP-Corridor-Cost-Analysis-Full-Report-Nov-2014 page 9

²⁶ Network-Strategies-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 39

²⁷ WIK-Consult-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 105, 5.8.6

There is one final comment we wish to make under discounting. There is a general argument throughout the Chorus submissions that our rates are too low. As discussed in the sections above we obviously do not subscribe to this point of view. Any attempt to apply discounting for large, separable portions of work would meet with even greater resistance from Chorus.

Lowering the published rates any further would be untenable, as would artificially inflating them. Beca therefore stands by the rates we have provided to the Commission believing they are both robust and defensible.

5 Price Trends

There is some speculation around which New Zealand inflation index to use, particularly with regard to construction and related activities such as civil works. The Consumer Price Index (CPI) which measures the rise or fall in consumer goods is mostly irrelevant for capital expenditure projects. Where there exists a clear indication of movement for a specific industry group then it would be foolish to ignore this and opt for a more generalist approach. Hence the reasons for basing our forecast on the Capital Goods Price Index (CGPI).

WIK Consult have questioned the method by which we have arrived at a recommended forecast escalation rate of 3.0%.²⁸ We feel the wording in the November Report was fairly clear so there should be no doubt as to how the figure was arrived at. Since our November Report was released the Department of Statistics has published another quarterly update which supports our findings. The total CGPI increased from 2.2% for the year ending Sep-14, to 2.8% for the year ending Dec-14²⁹. There is a clear upward trend in price escalation for capital expenditure nationwide. Of particular interest is the steady reduction and reversal of the downward trend in plant, machinery and equipment, which has posted an overall 0.6% increase in the 12 months leading up to Dec-14, with 0.3% specific to construction related machinery.

In general there is repeated commentary by construction focused analysts in New Zealand that construction costs are set to continue to rise over the next 12 to 24 months. An article in The Press newspaper of 18 March 2015³⁰ Rider Levett Bucknall's latest report is quoted as forecasting annual increases of 3.0% in Wellington and 6.0% in Christchurch, with the Auckland market likely to experience between 4.7% and 5.6%. Although these figures are not linked specifically to activity in the infrastructure sector, it is worth noting the economic climate in which the UBA and UCLL services rollout will occur.

²⁸ WIK-Consult-submission-on-behalf-of-Spark-NZ-and-Vodafone-NZ-for-UBA-and-UCLL-services-draft-determinations-20-February-2015 page 29, 2.6

²⁹

http://www.stats.govt.nz/browse_for_stats/economic_indicators/prices_indexes/CapitalGoodsPriceIndex_HOT_PDec14qtr.aspx

³⁰ <http://www.stuff.co.nz/the-press/business/the-rebuild/67429541/Building-costs-expected-to-climb-further>

6 Post Processing

With reference to our earlier comments under Soil Types, we note the comments by Analysys Mason on page 32 of their submission³¹ *“no account is made of different reasons to use different trenching methods other than unit cost”*. While noting that several trenching options were provided to TERA, Beca suggests that the Commission does consider this issue in their responses.

On page 34 of the same submission, Analysys Mason states that they believe there is *“bias introduced in the post-processing of the average trenching costs”* and goes on to note two specific areas where they believe this to have occurred. How the rates provided by Beca have been used by TERA or by the Commission in their draft pricing review determinations has not been considered as part of this response. We would be happy to provide more detailed advice on this if required.

7 Summary

In summary, we believe that the use of the FPP Corridor Analysis of Trenching and Ducting Rates in New Zealand report, dated 25 November 2014, together with the Corridor Cost Analysis of Trenching and Ducting Rates in New Zealand workbook will provide an accurate basis for estimating the total cost of this work within New Zealand. Regional variances are to be expected and there is no doubt that trenching work in some locations around New Zealand will present challenges relating to productivity and profitability. However with careful management of their regional subcontracts Chorus should be able to offset these shortfalls with long runs of relatively easy and uneventful trenching activity, particularly in rural and low density suburban areas.

³¹ Analysys-Mason-submission-on-behalf-of-Chorus-for-UBA-and-UCLL-services-draft-determinations-20-February-2015