

**In the Matter of the Chartered
Professional Engineers of New Zealand
Act 2002**

Appeal 0914

AND

**In the matter of an appeal to the
Chartered Professional Engineers
Council pursuant to Section 35**

From

**Mr P
Appellant**

Against a decision of

**IPENZ (as the Registration
Authority under the Chartered
Professional Engineers of New
Zealand Act 2002)
Respondent**

**Decision of the Chartered Professional Engineers Council
Dated 26th February 2015**

The Legislation

1. Mr P appeals against an assessment by the Registration Authority being a decision of a Competence Assessment Board of the Registration Authority refusing his registration as a Chartered Professional Engineer (CPEng).
2. That right of appeal is contained in s35 of the Act and s37 of the Act sets out the scope of this Council's jurisdiction which is to deal with the matter by way of rehearing. For that purpose we have been provided with the complete file of the Registration Authority which has been paginated.

3. Under s8 of the Chartered Professional Engineers Act 2002 (“the Act”) the Registration Authority must register a person if he or she, amongst other matters, satisfies the Registration Authority that he or she meets the minimum standards for registration contained in the Rules.
4. The Rules are the Chartered Professional Engineers of New Zealand Rules (No.2) 2002 (“the Rules”). The Rules were enacted pursuant to s40 of the Act as regulations.
5. Under the Rules minimum standards for registration as a Chartered Professional Engineer are set under Rule 6:

“6 Minimum standard for registration as chartered professional engineer

(1) To meet the minimum standard for registration, a person must demonstrate that he or she is able to practise competently in his or her practice area to the standard of a reasonable professional engineer.

(2) The extent to which the person is able to do each of the following things in his or her practice area must be taken into account in assessing whether or not he or she meets the overall standard in subclause (1):

(a) comprehend, and apply his or her knowledge of, accepted principles underpinning—

(i) widely applied good practice for professional engineering; and

(ii) good practice for professional engineering that is specific to New Zealand; and

(b) define, investigate, and analyse complex engineering problems in accordance with good practice for professional engineering; and

(c) design or develop solutions to complex engineering problems in accordance with good practice for professional engineering; and

(d) exercise sound professional engineering judgement; and

(e) be responsible for making decisions on part or all of 1 or more complex engineering activities; and

(f) manage part or all of 1 or more complex engineering activities in accordance with good engineering management practice; and

(g) identify, assess, and manage engineering risk; and

(h) conduct his or her professional engineering activities to an ethical standard at least equivalent to the code of ethical conduct; and

- (i) *recognise the reasonably foreseeable social, cultural, and environmental effects of professional engineering activities generally; and*
- (j) *communicate clearly to other engineers and others that he or she is likely to deal with in the course of his or her professional engineering activities; and*
- (k) *maintain the currency of his or her professional engineering knowledge and skills.*

6. Relevant to the interpretation of Rule 6 is Rule 7:

For the purposes of rule 6,—

complex engineering activities means engineering activities or projects that have some or all of the following characteristics:

- (a) *involve the use of diverse resources (and, for this purpose, resources includes people, money, equipment, materials, and technologies):*
- (b) *require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering, and other issues:*
- (c) *have significant consequences in a range of contexts:*
- (d) *involve the use of new materials, techniques, or processes or the use of existing materials, techniques, or processes in innovative ways*

complex engineering problems means engineering problems that have some or all of the following characteristics:

- (a) *involve wide-ranging or conflicting technical, engineering, and other issues:*
- (b) *have no obvious solution and require originality in analysis:*
- (c) *involve infrequently encountered issues:*
- (d) *are outside problems encompassed by standards and codes of practice for professional engineering:*
- (e) *involve diverse groups of stakeholders with widely varying needs:*
- (f) *have significant consequences in a range of contexts:*
- (g) *cannot be resolved without in-depth engineering knowledge.*

7. The overriding consideration is that expressed in Rule 6(1) that is that a Chartered Professional Engineer should be able to practise competently in his or her practice area to the standard of a reasonable professional engineer.

8. The matters listed in subsection 2(a) to (k) *must be taken into account* in making an overall assessment required by Rule 6(1). However the Rules do not provide for a mandatory “pass mark” for these matters, and nor could they. Ultimately, taking the matters in (6)(2) into account, an objective decision still needs to be made as to whether an applicant meets the overall standard prescribed in Rule (6)(1).
9. The Registration Authority has recast the Regulations into a summary of 12 Elements. It is helpful to refer to these elements since that is what the Registration Authority refers to in its assessments, though we note that the actual test is the that listed in Rule 6(1).

Background

10. The Appellant applied to the Registration Authority seeking registration as a Chartered Professional Engineer on 1 May 2012.
11. The Appellant provided his practice area as:
 - *Design of erosion/sediment, earthworks and roading design, stormwater, wastewater and water engineering including design of treatment/detention*
 - *Consents - Land Use (local/regional) and engineering applications*
 - *Project management of multidisciplinary project (procurement to completion)*
 - *All aspects of Land Development (residential, commercial and industrial) inclusive of contract documentation (NZS3910) and contract/construction administration.*
12. The application was accompanied by a large number of additional documents:

- (a) A competence assessment self review comprising of some 26 pages (pages 13 to 43). This document in turn refers to a number of work examples;
 - (b) A work history summary (pages 46 to 55)
 - (c) CPD records since 2007 (pages 59 to 74);
 - (d) Detailed work examples with supporting documentation being assessments for:
 - (i) Eden Park Redevelopment (pages 85 to 388);
 - (ii) St Andrew's Village (pages 389 to 613);
 - (iii) Westfield NZ 309 Broadway (pages 615 to 757);
 - (iv) Stadium Road upgrade (pages 759 to 852);
 - (v) Private client commercial development (pages 853 to 861).
13. The Appellant's assessment followed the process set out in the Rules. This included, a knowledge assessment (dated 22 June 2012 page 865 to 871), an interactive assessment (dated 12 July 2013 page 1403 to 1409), the assessment panel making a recommendation for declining CPEng status communicated to the Appellant on 10 October 2013 (page 1298 to 1299), and the Appellant making a natural justice submission in response to this (on 21 January 2014 page 1410 to 1417).
14. The Appellant was ultimately advised by letter of 11 March 2014 that the CAB had declined his application for registration (page 1081 to 1082). The letter specifically states that the Appellant did not meet competence in Elements 1, 3, 4, 5, 6 and 7.
15. On 31 March 2014 the appellant filed a Notice of Appeal seeking that he be granted CPEng status.

16. In determining this appeal the Council can make any decision that the Registration Authority could have made.

Hearing

17. An initial hearing of this matter took place on 5 August 2014. The appellant and the Registration Authority had the opportunity to make written submissions and to speak to those.
18. At this hearing the Council commenced the hearing with the Appellant working through his application material. The Appellant was supported by a colleague, Mr Blyde.
19. It became apparent after a discussion of the Appellant's first work example, Eden Park Project, that the Appellant had not included in his material for assessment, documentation that showed the complex engineering within the design progression of his projects from initial concept through to final design.
20. For example:
 - (a) The Appellant included drawings for Eden Park which he told us he had been responsible for. There was no evidence of the various cut/fill options, compaction rates and other drivers that resulted in the final outcome. The Appellant agreed that there was no documentation showing the engineering decisions. The Appellant indicated he would have referred to the geotechnical engineer for that information.
 - (b) The plans for Eden Park showed finished volumes by way of contour lines. The Appellant explained that a survey was done on the site, working with the architect he looked at the requirements for levels to accommodate the structures to be built. He then came up with a "first cut" design of the entries which had fixed points. He then had cut/fill volumes and based on these and the

levels there would be considerable cost taking into account excavation into rock. He then went back to the architect to see if fixed points could be altered to make the project cheaper.

- (c) The Appellant indicated that he did the various cross sections for the cut/fill volumes and ratios of material required.
 - (d) None of these “iterative stages” were produced by the Appellant, only the final drawings. It was not therefore possible to see the engineering process that actually occurred and to assess the Appellant’s role in it.
 - (e) The Appellant also discussed the stormwater issues that arose at the Eden Park project. The appellant assessed and established flowpaths for the catchments. It was clear on questioning from the Council that not all information associated with the flowpath information was provided with the assessment information provided by the Appellant.
21. This discussion prompted the Chair of the Appeal Panel to summarise what he thought the Registration Authorities position was on the Appellant’s registration thus:

We have a number of design drawings and a number of design outputs some of which have your name on and some which don’t and the issue as I see it for the Registration Authority, is when overall we can talk about individual elements, but when an overall assessment is made, the concern is that there are gaps missing from that information about how the strands and threads are pulled together.... and in particular, given the documentation that we have got it demonstrates your role in that project specifically through the engineering development of that project.

22. The Registration Authority concurred that that was its position.

23. There then followed discussions concerning pavement design on the Eden Park Project and it was clear from that that not all design development was included within the Appellant's material.
24. This prompted a discussion with Mr Blyde, the Appellant's support person and employer representative. Mr Blyde expressed some concern that the assessor who contacted him for a reference had not provided a full opportunity for the Appellant to submit further information.
25. The Appellant said that some information was missing from his application for a number of reasons:
 - (a) A first assessment had recommended Mr P for CPEng. This first assessment was discounted for procedural irregularities, and a second assessor was subsequently appointed (who had no knowledge of the first assessment). Mr P considered that as the first assessor considered his work was sufficient to be recommended for CPEng then there was no reason to augment the material further.
 - (b) Mr P also advised that he read the "natural justice review letter" from the RA as being his opportunity to comment on the assessment, rather than an invitation to submit new information.
 - (c) Lastly Mr B (a referee of Mr P) indicated that he was told that he would receive further details on what information Mr P needed to submit, but this information was not forthcoming. Mr P's appeal certainly makes it clear that he considered that there were procedural issues that he was concerned with.
26. Mr P confirmed that his appeal concerned not only an assessment of the examples that he has provided, but also he considered that there was an issue that he had not been called upon to provide specific information and that he had not had a full opportunity to be heard.

27. At this first hearing the RA made a concession and accepted that if Mr P satisfied competency assessment criteria being elements 3, 4 and 6 then the appeal should be allowed. The RA stated that three detailed examples, if done correctly, should be enough to demonstrate competency. The RA elaborated on the information that it considered it should see to demonstrate competence as being:
- (a) What are the initial assumptions?
 - (b) What are the design criteria?
 - (c) Where are the conflicts that arise?
 - (d) The processes that the CPEng goes through to resolve conflicts?
 - (e) Engineering principles to resolve those conflicts?
 - (f) What was the process that the engineering team go through to resolve the conflicts?
28. Given the way matters unfolded, the Council adjourned the hearing and provided the Appellant with the opportunity to submit further information. Directions were provided in a minute dated 5 August 2014. Critically the Council directed that the Appellant was to:
- (a) *provide further information on 3 project examples already given in his supporting information, addressing how the work satisfies Elements 3, 4 and 6 bearing in mind the criteria in Rule 7; and*
 - (b) *satisfy the Council that the information he relies upon, whether existing or new, is his own work.*
29. Further information and submissions were filed. In fact the Appellant submitted a further 253 pages of evidence.
30. A further hearing was held on 7 November 2014.

31. The elements that the additional information was to focus on were 3, 4 and 6.

Element 3 (Rule 6(2)(b))

- (b) *define, investigate, and analyse complex engineering problems in accordance with good practice for professional engineering.*

Element 4 (Rule 6(2)(c))

- (c) *design or develop solutions to complex engineering problems in accordance with good practice for professional engineering.*

Element 6 (Rule 6(2)(f))

- (f) *manage part or all of 1 or more complex engineering activities in accordance with good engineering management practice.*

32. All of these elements have, at their heart, the issue of “complex engineering” and the extent to which the Appellant was responsible for complex engineering and activities as defined in Rule 7.

33. The Council had expected the further documentation lodged by the Appellant to be considerably more focused than it was. Demonstrating competence by reference to work examples does not necessarily require voluminous records to be produced. It does require information to be produced that allows the assessor to confirm the individual applicant’s involvement, the extent of it, and in what.

34. The Appellant produced a commentary and 11 attachments marked from (a) to (k).

35. The commentary and attachments focused on two main projects that were also included in the Appellant’s original application to the Registration Authority being Eden Park Redevelopment Project and St Andrews Village Residential Development.

36. The Appellant submitted that his involvement in these two projects illustrated the following (in summary):
37. At Eden Park:
- (a) Co-ordinating inputs from multiple people including briefing the geotechnical engineer on the scope of investigations he required for civil design components;
 - (b) instructing the drilling rig contractor on where the contractor required soakage testing and investigations so that he could understand the type and consistency of the soakage cavities/ fissures; coordinating and instructing services location contractors on excavating;
 - (c) piloting and locating the complicated network of existing services for clash detection;
 - (d) overseeing and directing the various design engineers and modellers that were assisting him with the design. The Appellant produced documents at his Attachment A that he said showed examples of the people resource he used/ controlled/ managed.
 - (e) Responsibility for ensuring that money and costs for civil works were controlled;
 - (f) That all civil works were designed to be efficient while fit for purpose and meeting engineering good practice;
 - (g) That he was regularly involved in Value Engineering workshops, which were chaired by him, and attended by the Project Managers, and at which he provided recommendations on design alternatives which may provide cost savings, and

- (h) That he worked with the other consultants (architects/ geotech engineers/ etc) to evaluate the wider implications of these potential cost saving alternatives.
- (i) That he was responsible for reporting to the client through their project managers on monthly civil costings and reporting on cost against budget, revised budgets, and early notification of cost overruns.
- (j) Arranging for on-site soakage testing. Briefing the geotechnical engineer. Meeting and discussing the soakage points and system with architects. Investigating and then instructing on the use of various investigative techniques, equipment and technology including Ground Penetrating Radar (GPR) for both existing services locations as well as for assessment of underground cavities and possible soakage areas which allowed him to consider where to drill and to what depth. Attachment C included the GPR report he commissioned and interpreted, the soakage report and stormwater OLFP (over land flow path) modelling. The Appellant confirmed he did not undertake the modelling but directed a graduate to undertake this under the Appellant's supervision.
- (k) The Appellant provided a detailed commentary on how he considered that he revised the drainage design in light of:
 - (i) the CMP reports from council indicating the possibility of seasonal peak and troughs in groundwater levels during winter, from stormwater to ground soakage from the surrounding Mt Eden catchments.
 - (ii) He therefore included safety factors into his calculation for the soakage variation including providing stormwater pipe storage to buffer the peak flows.

- (iii) Post construction testing showed that the design flows were not achievable for the 10 year flows and thereby not complying with council and resource consent conditions despite achieving good soakage rates during the initial testing.
- (iv) Undertaking further site checks and testing to determine that available soakage rates were greatly reduced through the effects of rising winter groundwater levels and long periods of rain.
- (v) He re-reviewed the soakage strategy, to include soakage disposal to ground in combination with above and below ground detention storage, soakage enhancement (side wall disposal) to utilise the top layer of the rock strata where possible cavities & rock fractures were identified during his evaluation of the geotech logs to cater for the shortfall and comply with the resource and council conditions. Attachment D included detention basin design, calculations and plan along with the information which he reviewed regarding groundwater levels and soakage rates and surrounding hydrology.

38. At St Andrews:

- (a) That he was directly responsible for controlling the civil engineering budget, providing cost drawdown schedules etc. The Appellant produced attachment B being examples of fee summaries, cost to complete estimates etc.
- (b) That he undertook/managed the design of the subdivision civil works including earthworks, sediment and erosion control, stormwater, and sanitary sewer drainage, water supply reticulation, roading, pathways, accessways, overland flowpaths,

and utility services ducting. (The design plans were supplied in the Appellant's information to the Registration Authority);

- (c) That he prepared an engineering assessment for resource consent purposes (attachment E);
 - (d) Liaised with structural and geotechnical engineers to arrange: geotechnical investigation report and design recommendations; design of pond structures; and structural design of retaining walls and boardwalks;
 - (e) That he proposed and designed a stormwater treatment and detention pond (Attachment F);
 - (f) Preparation of contract documents (Attachment G)
 - (g) Contract administrating and construction observation and all that entails (attachment H included various administrative documents). Other administrative tasks, such as applying for a 224(c) certificate.
39. The Appellant's submissions also canvassed why he considered he met the standards required of Elements 3, 4 and 6.
40. At the reconvened hearing the Council found those submissions to be general in nature. In support of his submissions that the standard required of Elements 3 and 4 respectively, the Appellant produced further work examples, being Attachments I and J.
41. Attachment I was further information from the Eden Park Project.
42. Attachment J contained further information from the St Andrews project, and also new information on a project for Westfield, being a redevelopment at 309 Broadway.

43. As regards Element 6 the Appellant pointed out in his submissions that he was responsible for the management of numerous development projects and he identified a number of current projects:

This currently includes: Ardmore Golf Course, Manukau Golf Club - 700 lot subdivision, Westfield St Lukes - \$300M redevelopment, Westfield Westcity, Springpark multi residential/commercial development, Selwyn Village healthcare centre and multi story apartment complex and variety of smaller projects.

I am responsible for managing budgets, programmes and outputs of both myself and 3 other staff within my team as well as calling on other support staff including survey/ planning/ geotech/ structural, sub consultants and other experts from within HGCL or externally.

44. The Appellant produced further examples of management and administration as Attachment K.
45. In response to these submissions the Registration Authority referred to each of the Attachments A to K in turn. They provided detailed submissions on why they considered each of the attachments did not identify:
- (a) How the work met the complexity requirements of Elements 3, 4 or 6; and
 - (b) What the Appellant's personal contribution to the examples given was.
46. In summary, the Registration Authority's view is that the Appellant has provided evidence that he is undertaking "broadly defined" engineering work, which puts him into the category of an engineering technologist. There is no issue that the work he has done has been competent, it is just that in the Registration Authority's view the Appellant has not demonstrated that he has actual involvement in and awareness of complex engineering activities.

Findings

47. Ultimately, the test of competency is an objective one made by the people making the assessment.
48. Having said that, the onus is always on an applicant to prove that he or she meets the appropriate standard for registration as a Chartered Professional Engineer.
49. In this case we conclude that the Appellant has not proven that he has met the requisite standard.
50. In particular, we are not convinced that Elements 3 and 4 have been met. This also leaves us in doubt as to Element 6.
51. At the first hearing of this matter we made it clear to the Appellant that it was not the quantity of material that proved competence, but the quality of it.
52. The purpose of adjourning the hearing and allowing the Appellant to submit further material was to allow him to correct any breach of natural justice (if there were any), and produce to the Council probative evidence of his knowledge of Elements 3, 4 and 6.
53. Unfortunately, the material and submissions provided did not, in the Council's assessment discharge the burden that the Appellant was under to prove competence.
54. Critically we consider that there was a lack of explanation from the Appellant of his personal involvement in complex engineering activities and problems and in particular there was a lack of targeted examples demonstrating the actual evolution of such matters and the Appellants personal role in that.

55. We consider that this lack of critical evidence is made more concerning as the Appellant was specifically directed as to the nature of what was required at the conclusion of the first hearing.
56. We acknowledge that this has been a long process for the Appellant. He did have an original assessment from an assessor that indicated that CPEng should be recommended. A further assessor was appointed. In our hearing we were left with an impression that the Appellant could well be involved with complex engineering problems and activities, it is just that his supporting material was not succinct or targeted enough to demonstrate this. Again, we reiterate the need for applicants to demonstrate competence and not for the RA to go searching for it.
57. We considered whether we should refer this matter back to the RA with directions to provide the Appellant with a further opportunity to address the outstanding elements, but in the end given that the Appellant had the opportunity to address us with reference to further material at the reconvened hearing, and given the age of some of the examples now provided, we consider this would not be appropriate. It would be preferable for the Appellant to submit a fresh application to the RA with up to date information demonstrating competence.
58. We record that at the reconvened hearing on 7 November 2014 we recorded that the hearing was closed and that no further information would be accepted. The Appellant did seek to introduce yet further information by an email of 11 November 2014 to which the RA objected. We declined to consider this information, full opportunity already having been given to the Appellant to present his case and be heard on it.
59. While we have the power to award costs we do not think that it is appropriate in a case such as this.

Dated this 26th day of February 2015

Signed By the Appeals Panel

Andrew Hazelton (Barrister & Solicitor)
Principal



Jon Williams CPEng, FIPENZ



Roly Frost



Sharyn Westlake¹

¹ Ms Westlake ceased to be a member of the Council on 20 December 2014, but the substantive proceedings were taken prior to her ceasing to be a member.