

RESPONSE 2 COMMENTS RECEIVED FROM INDUSTRY REVIEW

Angelia McElroy

File: 0010003 – Definitions
Username: Angelia McElroy
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Date: Wednesday, October 05, 2005
Time: 01:10:00 PM

Comments:

1. It appears the intent of the change will require a Contractor to assign an individual as the Contractor's Engineer of Record and not a firm, is this correct?

Response: The definition of Contractors EOR requires this individual to be an employee of a prequalified firm, not an individual.

2. Is the intent to assign ONE individual as Contractor Engineer of Record or will the specification allow that individual to be changed during the course of the contract?

Response: The Contractors EOR is an individual in a prequalified firm. There is no restriction on how many firms may be used. The firm could change during the course of the project.

3. Is the intent of the change to require ALL shop drawings to be sealed by the Contractor's Engineer of Record? If this is correct, then DOT has in effect added a layer of engineering review to the current specifications which will ADD TIME & MONEY to the contractor's bid, ultimately passing through to the Department.

Response: It is not the intent to require the Contractors EOR to sign and seal all shop drawings since shop drawings are not intended to change the original design plans. Changes to the design would have to be submitted by a Contractors EOR. See revisions to Section 5.

Clay McGonagill

The definition of "Engineer of Record" needs to be revised to be consistent with the new definition of Contractor's Engineer of Record and Specialty Engineer. Clay McGonagill has suggested the following language:

Engineer of Record.

The Professional Engineer or Engineering Firm registered in the State of Florida that develops the criteria and concept for the project, performs the analysis, and is

responsible for the preparation of the Plans and Specifications. The Engineer of Record may be Departmental in-house staff or a consultant retained by the Department.

The Contractor shall not employ the Engineer of Record as the **Contractor's Engineer of Record** or as a Specialty Engineer.

Response: agree

Ghulam Mujtaba:

These comments for the changes that have been made in the definitions of Article 1-3 and they are related to the subject sections:

1- The definition, "Engineer of Record" should be redefined. It should be mentioned that there are two types of "Engineer of Record" one is "Department's Engineer of Record" and the other one is "Contractor's Engineer of Record" and describe their differences in the same definition.

Response: Rather keep the definitions separate and distinct.

2- In the definitions, the term "Consultant" has been deleted. But, in the definition of "Contractor's Engineer of Record", the terminology has been used. Do not delete the term "Consultant". There is a need for having this terminology.

Response: This is a common term used in the industry and does not need defining.

3- The acronym "VECP" has been used in the definition of "Contractor's engineer of Record". This acronym should be defined.

Response: This is a common term used in the industry and does not need defining.

4- The acronym "MSE" has been used in the definition of "Specialty Engineer". This acronym should be defined.

Response: This is a common term used in the industry and does not need defining.

5- In the definition of the "Contractor's Engineer of Record", permanent structures have been mentioned. Also, include "temporary structures".

Response: Disagree, Critical temporary structures are designed by the original designer. Temporary structures such as erection gantrys, falsework etc are the responsibility of the contractor and may be designed by a Specialty Engineer.

Jennifer Taylor

File: 0010003 – Definitions
Username: Jennifer Taylor
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Date: Friday, October 21, 2005
Time: 08:00:02 AM

Comments:

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for special items of the permanent works not fully detailed in the plans and required to be furnished by the Contractor. ~~such as pot bearing designs, non-standard expansion joints, MSE wall designs and other specialty items.~~ Delete the text I struck out - too specific yet not all inclusive and will lead to disputes.

Response: Wording will be expanded but I believe the examples will lead to clear intent and less disputes. See revised wording below.

Specialty Engineer.

A Professional Engineer registered in the State of Florida, other than the Engineer of Record or his subcontracted consultant, who undertakes the design and drawing preparation of components, systems, or installation methods and equipment for specific *temporary* portions of the project work *or for special items of the permanent works not fully detailed in the plans and required to be furnished by the Contractor such as but not limited to: pot bearing designs, non-standard expansion joints, MSE wall designs and other specialty items.* The Specialty Engineer may also provide designs and details for items of the permanent work declared by the State Construction Office to be "minor" or "non-structural". The Specialty Engineer may be an employee or officer of the Contractor or a fabricator, an employee or officer of an entity providing components to a fabricator, or an independent consultant.

Rod Powers:

I know what the wording means, but, when speaking of "the engineer," I think we need to say "the Department's Engineer" because we now have three "engineers referred to in the text (DOT's engineer, the specialty engineer and the contractor's EOR)

We all know that "THE Engineer" is FDOT, however, grammatically speaking such language is completely ambiguous, especially so now with several 'engineers' included in the language.

Response: This comment is beyond the scope of this revision and any changes of this magnitude should be taken up with the "Engineer" if required.

Michael C, Bone

October 26, 2005

RE: Proposed Specifications Change: 0010003 - Definitions

Dear Duane:

I attended the FDOT/FTBA Structures Committee meeting in Tampa last week and participated in a discussion of the referenced change. Having now had the opportunity (thanks to Wilma) to fully digest the proposed revisions, I am sending my thoughts and suggestions on this extremely important matter.

I have been doing specialty engineering on FDOT bridges and walls for over 30 years – 25 years as chief engineer for two contractors and as a consultant to contractors and the Department since 1996. The proposed change greatly affects those of us specialty engineers who contractors turn to for the engineering of minor contractor initiated changes and for the analysis and redesign needed to address construction mistakes.

Construction mistakes often involve work critical to the schedule and the specialty engineer, in-house or outside, provides a prompt response. The cost to the contractor is usually much less than the typical Chapter 14 qualified design firm would charge.

I fully understand the Department's goal that redesigns and repair designs affecting the permanent work be performed by competent engineers operating within their field. While the present Article 1-3 definition of a "Specialty Engineer" has met this goal for 20 years or so with few problems, the wording leads to various interpretations regarding the role of Chapter 14. The response to the draft specification that follows is in two sections – comments on the proposed language and suggested changes to the draft.

Comments on the Proposed Language

- A. In addition to ensuring technical expertise, the qualification requirements set forth in Chapter 14 appear to be geared to ensuring that design firms are of sufficient size to produce project plans on schedule. The number of engineers and technicians most often has no relation to the ability to perform minor contractor initiated changes and the analysis and redesign needed to address construction mistakes. Even the minor bridge category, 4.1, cannot be met by many small specialty engineers who do not have, nor need, two technicians.

Response: The numbers of engineers/technicians is to assure expertise and that a QC/QA program exists. Technicians that are involved only in plans production do not count toward prequalification.

- B. While achieving a minor bridge classification might be possible for some specialty engineers, it does no good if their area of expertise is, say, bascules or steel box girders. There are specialty engineers in small firms who are widely recognized for their experience in what will and will not work on state-of-the-art bascules. Under the proposed language, the staffing requirements of Chapter 14

would prohibit them from submitting contractor initiated changes or addressing repair designs.

Response: I Understand comment.

- C. The proposed definition of a Specialty Engineer includes “*The Specialty Engineer may also provide designs and details for items of the permanent work declared by the State Construction Office to be “minor” or “non-structural”* “. This language only works if the terms minor and non-structural are defined and their continuity assured as Construction Office personnel change. Non-structural, for example, could be construed to limit the specialty engineers to evaluating items such as non-structural cracks or the performance of out of spec joint sealant.

Response: True but there is no way to fully list what will be considered as minor or non-structural. It must be looked at on a case by case basis.

- D. A key role of the specialty engineer is providing a prompt response when work critical to the schedule is on hold awaiting analysis or redesign. The process would be slowed if the Construction Office had to make a decision whenever the contractor proposed a specialty engineer for bridge remedial work. Clearly, some manner of pre-approval is needed to keep the proposed language from delaying the process.

Response: There a few ways to overcome this point. The Contractors EOR should be already under Contract to provide services as required. Also, the SCO stated that only a phone call was required to be made to the office and they would advise which engineer would be required.

- E. Another important specialty engineer service is the analysis of piles or drilled shafts installed out of tolerance. The proposed language for 455-5.15.5 and 455-21 would limit this work to the Contractors Engineer of Record, regardless of whether or not the Construction Office deemed it minor. Where the analysis does not involve ship impact or other significant lateral loads, or a determination of pile or shaft bearing capacity, I see no reason why the work cannot be performed by a specialty engineer as it has for many years. Typically, the specialty engineer obtains the Designer’s calculations for loads to the foundation and shows that the pile/shaft loads are within the design loads set by the project geotech.

Response: When the Specialty Engineer is a single individual, the DOT is having to perform the QC of the engineering work submitted. Department wide, QC/QA is the function of the contractors and consultants and not the function of the DOT. Analysis of foundation loads is critical to the success and longevity of a structure and thus must be properly evaluated.

Suggested Changes to the Draft Specification

- F. My first thought upon reading the proposed change is to simply reword the next to last sentence in the first paragraph of the proposed Article 1-3 definition of Specialty Engineer to *“The Specialty Engineer may also provide designs and details for items of the permanent work other than complex bridges, pile or drilled shaft bearing capacity, box girder superstructures and foundations subject to ship impact or significant lateral load.”* This “solution” addresses the areas that I believe are most susceptible to a bridge specialty engineer stepping outside their area of expertise and areas that the Department would, understandably, want handled by a Chapter 14 design firm. The Structures and Construction office may have areas in addition to what I have cited. Implementing the proposed sentence would require the rewriting of some changes in the present draft that exclude specialty engineers – such as those in Section 455.

Response: Again, a single person firm can not be checking the work being submitted. Also, there can be some complicated situations arise on projects that are not complex.

- G. A second but more involved approach is to introduce the prequalification of specialty engineers by the Construction Office. Extend the first sentence of the second paragraph under the definition of Contractor’s Engineer of Record with, *“Chapter 14-75 or prequalified with the State Construction Office as a Contractor’s Engineer of Record for the subcatagories listed in Chapter 14-75(c)1. The State Construction Office may prequalify a firm as a Contractor’s Engineer of Record based on one professional engineer meeting the experience criteria.”* This approach gets around the staffing requirements of Chapter 14. It would need some restrictions so that firms taking on major design changes or VECP’s comply fully with Chapter 14.

Response: I will leave this decision up to the SCO. This is similar to the original direction that I was headed but the definition of the work under each category was difficult to describe just as the word “minor” is difficult to define.

- H. If broad approach changes to the draft are not made, I strongly recommend changing the proposed wording in Section 455. Evaluating out of tolerance piles and shafts is a large part of many specialty engineer’s work and in most cases it involves simply calculating individual pile loads based on the as-built pile group “section properties”. Design EOR’s are ready to furnish their original calculations because they expedite our work and the efforts of the EOR in checking and approving the contractor’s submittal. I suggest changing the proposed Section 455 language as follows. *“Employ a Specialty Engineer to perform any redesign and sign and seal the redesign drawings and computations. In cases where the foundation is subject to ship impact or significant lateral load, or where bearing capacity must be reanalyzed, employ the Contractor’s Engineer of Record.”*

Response: Disagree, see “F” above.

- I. Again, if the Department decides to stay with the present draft, consider replacing the words “minor or nonstructural” with the less restrictive word “non-complex” in the definition of Specialty Engineer.

Response: The word “non-complex” is really no more defined than “minor” or “non-structural”.

I believe the draft specification in its present form, while well intended, curtails to too great a degree a process that has served the Department and its contractors well for many years. Please give strong consideration to my Suggestion “F”, as it preserves much of the present process while limiting the special technical areas and large VECP’s to the Contractors Engineer of Record. Your careful consideration of my input is appreciated. I am available at your convenience at mbone@ceconstruct or at 954-205-3505 to discuss this proposed change.

Response: The present process has served us well when a good specialty engineer was involved. The frequency of mistakes, poor recommendations and severe problems is increasing quickly. Plus the Departments general move to placing the QC/QA function of the contractors and consultants has accelerated and this part of the work must also be brought into compliance.

Sincerely,
Construction Engineering Consultants
Michael C, Bone, P.E.
President
