CER Content Guidelines

CERs can describe general work practices or technical projects. A general work practices CER is useful for addressing Unit 1 of the framework and a few other descriptors such as Quality Systems. The technical project CER style can be used for most CERs addressing the required CER topics.

1   Technical Project CER Style

Technical CERs are required to describe the technical process used to complete the survey and to also address the requirements of the individual descriptors of the Surveyor Framework. It can be easier to break the CER up into a narrative describing the technical description of the project followed by a section addressing each of the descriptors claimed. This may require some duplication but it does ensure that the context of the descriptors has been addressed.

It is important to quantify accuracy specifications or expectations at the start of your report and to demonstrate these expectations have been met by appropriate quantified analysis of checks and results when describing most projects.

The following sections describe fairly typical CER topics that are often submitted for assessment in an attempt to highlight some often overlooked points.

1.1   Set-out Minor Works

The set-out survey is required to be related to design plans, models or specific criteria. Descriptor 3.1(i) requires you to demonstrate interpretation of designs; this can be done by preparing your own set-out data based on this information or by identifying inconsistencies in the data provided. The communication protocol is required to be explained (descriptor 3.1(iii)) with evidence of some written communication confirming set-out marks. A set-out sketch is also required to address 4.4(ii).

It is important to quantify accuracy expectations even if specific specifications are not supplied. This is important to allow you to demonstrate that initial expectations have been met. Sufficient checks (redundant measurements) should also be recorded and provided as evidence to demonstrate that the marks are placed in the correct location. Consider:

- Check supplied plans, models; produce a model for uploading
- Quantify survey requirements; select equipment and method
- Describe the control placed or connections to existing control (quantify checks to control)
- Place marks; quantify checks to marks placed; provide record of checks
- Communicate results; sketch plan / model
- 4.4(ii) sketch showing marks placed and their relation to works to be constructed

1.2   Topographic Surveys

The framework requires both terrestrial and GNSS topographic surveys one of which has to be a significant survey containing an adjusted network of stations, irregular surface, artificial and natural features, DTM, contours and supplementary data. It is possible to use a combination of the two surveys types into the one project. 3.2(iii) also requires you to describe the datums used, how they were obtained and to justify explanatory notes placed on plans. At least one survey is required to include a plan and title block, rather than just a model, to address 4.4(i). Consider:

- Quantify survey requirements; select equipment and method
- Describe the control placed or connections to existing control (quantify control checks)
- Describe checks to detail points e.g. checks to B/S F/S, points of known height and position, overlapping data, quality strings, previous surveys etc.
- Brief description of model and plan creation process with checks used

- Model checks to demonstrate initial requirements were met e.g. checks to data not used in model creation e.g. overlapping points, previous surveys or quality strings.

1.3   Volume Survey

The surveyor framework specifically requires you to discuss the characteristics of the topographic data collected and how it affects the calculated volume; and to calculate and report volumes to an accuracy justified by the measurement methods. Your CER should describe your survey methods, calculations and decision making processes you use in your workplace. The assessment requires you to justify your methods in the context of the framework. Consider:

- Quantify the survey requirements (topographic and volume), if no specifications quantify your expectations. Select equipment and methods based on expectations.
- Describe the processes used; checks undertaken and how the methods can achieve the required results. Demonstrate an understanding of the method used and the resultant uncertainties including interpretation of software reports.
- Review your QA checks and statistical data used to test your models.
- Provide a quantified estimate of your volume accuracy based on uncertainties in your models.
- Report the volumes to an appropriate accuracy, including justifying or explaining the "rounding" of the reported result.

1.4   Horizontal Control Networks

The horizontal control requires a network/s that use both GNSS terrestrial survey measurements. The GNSS portion can use either static or fast static and the network/s should be adjusted using a least squares adjustment. A minimally complying fast static GNSS network may consist of 3 existing datum control stations and 3 new control stations more than 750m apart (less than 10km baselines) containing multiple closed loops adjusted by least squares with appropriate analysis and evaluation. Consider:

- Determine the required quality (SP1 achievable results); define your network and the origin and quality of datum coordinates
- The requirements set in the SP1.
- Providing as documentary evidence
    - Sketch of the network
    - A session plan
    - Copies of any Forms 6 or Regulation 13 certificates
    - Some baseline processing evidence
    - Adjustment printouts
    - Final control co-ordinates and estimates of uncertainty

1.5   Vertical Control

This element refers to satisfying the requirements of SP1 for control station levelling. This requires 2-way levelling with a minimum of 2 datum quality AHD heights. A misclose assessment should be undertaken to verify that forward and backward runs of a levelling traverse, including any individual bays, are within the maximum allowable misclose. Optical, digital levels or total station levelling as described in SP1 can be used. Refer to the example provided in section 5 of SP1 (differential levelling) for an explanation of the testing and adjustment process.

An example of total station levelling (refer to SP1) can be provided to satisfy 6.4(ii) trigonometric levelling.