



## A Practitioner's View of CEEQUAL: 'Crossrail and CEEQUAL'

### *Crossrail's Sustainability Strategy:*

Firstly I would like to provide a bit of background to the Crossrail project and then move onto how we are using CEEQUAL.

Crossrail has a sustainability strategy, in which Crossrail Ltd defines how we view sustainability and their governance works.

At the Board level Crossrail have created the sustainability portfolio group, now called the sustainability committee. This currently chaired by the new CEO of Crossrail, Andrew Wolstenholme. We are very encouraged by his appointment as he challenges our views and thoughts in regards to what will define Crossrail as a world class project when it comes to sustainability.

At a Practitioners' level Crossrail has created the sustainability co-ordination group to ensure that we are connected to the day-to-day activities of the organisation.

The strategy identifies the key themes and initiatives. Crossrail has derived its sustainability themes by firstly mapping the UK Government sustainability strategy. The organisation looked at this in regards to the sustainability framework of TfL (one of Crossrail's sponsors) and identified the key themes for Crossrail. The Environmental Objectives which became part of Crossrail's sustainability strategy are as follows:

1. Seek ways to reduce Carbon Footprint;
2. Reduce the amount of construction waste going to landfill, with maximised beneficial reuse of the material;
3. Seek ways to incorporate environmental opportunities within the design;
4. Ensure that Contractors comply with the environmental management elements of the Crossrail Environmental Minimum Requirements and in particular the Construction Code; and
5. Reduce waste and energy use within the Crossrail office.

The way that we translate point 4 into our contract documents is to make this part of the works information. The contractor doesn't need to know the list of the environmental requirements but they can go onto Crossrail's website and find out what they are. We expect all our Tier 1 contractors to be compliant with ISO 14001 and have mature management systems. The contractors are therefore very much in control of their impacts.

If the Contractors are compliant with the works information then they are compliant with our environmental minimum requirements. Crossrail's environmental minimum requirements are set quite high. We think this helps us in the CEEQUAL Assessment by ensuring high scores in a number of credit areas.

### **Crossrail & CEEQUAL:**

Moving onto CEEQUAL, most of you are aware of the various subheadings of CEEQUAL (Version 4):

1. Project Management
2. Land use
3. Landscape Issues
4. Ecology & biodiversity
5. Historic environment
6. Water Resources and the Water Environment
7. Energy & carbon
8. Material use



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9. Waste management
10. Transport
11. Effect on neighbours
12. Relations with stakeholders

Through comparison of CEEQUAL's sub-headings and Crossrail's sustainability themes, we found that there was a significant overlap. It was therefore concluded that CEEQUAL would be the ideal tool to manage and monitor Crossrail's performance.

Crossrail has applied for a Whole Project with Interim Award. Crossrail has decided that the Interim verifications for the subprojects are to occur during the RIBA D + stage of design. All our subprojects have received an 'Excellent' rating at this stage. We are very pleased with this outcome but are conscious there is still a long way to go with the construction of the project.

### The Crossrail route:

I will focus on the central section of the Crossrail route which covers just to the west of Paddington and comes out near Pudding Mill Lane in Stratford and on the other Spur at Custom House near the London Docks and then under the Thames, emerging at Plumstead.

The central section consists of:

- 21 km of 6.2m diameter twin-bore tunnel
- 5 portals
- One major refurbishment
  - The surface section in Connaught tunnel, an existing tunnel dating back to approximately 1860, we are also using a piece of derelict railway line.
  - Use of Connaught tunnel is a good CEEQUAL story as we are re-using existing infrastructure.
- 5 shafts
- (6 underground and 2 over ground station)
  - Assessed under BREEAM

The Design Procurement Packages broke down in the following way:

- C121 sprayed concrete lining – carried out by one design consultant
- C122 tunnels – carried out by one design consultant
- C123 shafts – carried out by one design consultant
- C150/152/154/156 – number of designers

These all had their CEEQUAL Client & Design Interim verifications at the outline design stage (RIBA D+). But then came along the Construction Procurement Packages which were divided in the following way:

- C300 – tunnel/shaft/SCL (C121/C122/C123)
- C305 – tunnel/shaft/SCL (C121/C122/C123)
- C350 – portal (C150)
- C310 – tunnel and 2 portals (C122/C156)
- C315 – surface & major tunnel refurbishment (C122)
- C335 – portal (C156)
- C340 – portal (C154)

Pulling together all the design procurement packages and aligning them with the construction procurement packages. As you can see from the list, individual construction procurement packages sometimes incorporated several of the design elements. Working with Ian Nicholson (CEEQUAL Technical Manager), we decided that

more overleaf...



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we could divide these in a number of ways. Taking the shafts as an example; they were all designed by the same designer and are situated in a number of geographical areas. There are a number of generic elements to the Assessment and there are some site specific ones. If we look at the various elements is there anything there from the specific elements that would skew the analysis either way to a particular location? Fortunately, we found there was little evidence that this would happen. This decision was made easier with the fact that all the design packages had received an 'Excellent' rating from CEEQUAL.

### Crossrail's view of the benefits of CEEQUAL

- Provides an established benchmark of performance.
- Provides a rigour and consistency to the analysis.
- Provides a basis for discussion during inter-contract performance meetings.
- Helps create a competitive tension.
- Enables linkage of CEEQUAL assessment to other contractor performance metrics – balanced scorecards.

Crossrail is currently the biggest construction project in Europe. We thought it was important to show that we were using the tool and using it effectively.

We have not held specific CEEQUAL workshops in their entirety but instead hold subject based workshops, for example Energy workshops.

We bring in our contractor community for a meeting about energy, whether it be embodied energy, use of energy during the construction process, and challenge them on how to reduce those impacts. This gives us the opportunity to share information with one another.

We also have worked closely with WRAP in terms of facilitating workshops. Firstly with our designers, trying to design-out any waste and then with our contractors to look at how those actions can be implemented on site and how we can further reduce waste on site. By having all the contractors in the same room together we are hoping for a lot of cross fertilisation of ideas and use that to improve performance.

We have created balance score card for our contractors which measures performance against CEEQUAL and certain aspects of performance against sections along with what we consider key drivers of Crossrail.

### Key Lessons learned by Crossrail

- Complexity of combining design packages with construction packages.
  - It is important to have this discussion early.
  - The procurement strategy for contractors might be developing out of kilter with your design work but the better idea you have of what the contractor packages are might help you decide what you include in your design assessment
- Consider what is the optimum time for award verifications
  - As I said before we went for Client & Design Interim Award at RIBA D+ stage.
  - In reflection I would make a recommendation that the interim verification was taken after detailed design. By having at RIBA D+ stage we have found that we are in the situation where the contractors are trying to do their part of the CEEQUAL Assessment and at the same time we have to go back to our designers to obtain further evidence for the stages between RIBA D+ and RIBA F. This means trying to get evidence and information from designers that have not been working on this job for over two years in some cases.



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### What would I like to see in CEEQUAL in the future?

- Development into a more balanced sustainability tool
  - As you can see from the previous presentations from Ian Nicholson and Roger Venables I do think that CEEQUAL is beginning to move into this direction.
- Readjustment of the rating threshold
  - I am delighted to hear that in Version 5 this is indeed the case.

For me, Version 5 is a move in the right direction. I do believe that CEEQUAL was a key tool in driving our performance forward. We have received an 'Excellent' rating for all our Client & Design Interim Awards, but we still have the large construction challenge ahead of us. Our first completed construction package is Royal Oak Portal which is currently with our CEEQUAL Verifier, and we are extremely hopeful that we will be able to uphold our 'Excellent' rating. This is an excellent start to the construction stage of Crossrail and also sets the bar to other contractors working on the Crossrail project.

Transcript