PROJECT PROPOSALS FOR THE 2ND CALL OF FP7

(DEC 2007 – JAN 2008)

Template for the project synopsis

1. Proposal for project name

Effective Ballast Management & Compaction

2. Problem that the project will address (why is the project being initiated?)

Ballast is the most expensive track component and the installation of the ballast controls the track geometry and therefore also the passenger ride and the track forces. If poorly installed track ballast can result in poor ride quality, increased maintenance costs, a shorter service life for all of the track components and the rolling stock.

There have been many projects (some EU funded such as Eurobalt) looking at aspects of ballast track behaviour. Most of these have looked the ballast as a material and have developed good quality relationships between support stiffness and track quality. This project takes the concept further by looking at the installation process. In practice a significant proportion of all renewals are not done using the modern generation of track laying machines but rather use traditional excavators and compactors. This is especially the case at S&C where the ballast stresses are anyway increased.

European practice differs widely when it comes to this type of renewal, as does the quality of the finished installation, by whatever method it has been done. This project is intended to produce the specification for new plant that can be developed specifically to perform this type of renewal, and that will install track ballast to the level of density required.

3. Scope of the project

The project is required to answer the following technical questions so that the specifications for appropriate installation equipment can be developed.

- What is the correct density for compacted track ballast that will allow lines to be opened at line speed?
- How can the installed density of the ballast be measured so as to allow the control of the installation equipment?
- What tolerance is needed on the level of the finished ballast to achieve the required finished track quality and to give increased reliability especially at S&C?
- How can the finished level of the ballast be controlled to a high degree of precision?

The project will seek to answer these four questions and finally to produce a plant design specification for future manufacture of such equipment.

4. Which section of the 2nd call draft is being addressed?

This project would fall under Section 15.

5. State of the art: previous or on-going research or standardization initiatives in this area

A good deal is known about ballast as a material and about the behaviour of the track bed under load and its resulting support stiffness. Research is continuing at a number of institutions along these lines and also looking the effects of stiffness on ride quality and track deterioration. This project seeks to take the existing academic knowledge and move it into the practical field of track renewals. The key element of new work here is the development of a means of measuring density in the field to control compaction plant as part of an integrated process.

6. Estimated budget (total and EC Contribution)
(Please note that under FP7 R&D activities as well as demonstration will be 50% funded)

Since a full last of partners is yet to be fully defined the costing can only be approximate at this stage. However, the anticipated to cost of the project is approximately €3.5 million. It is expected that 50% of this funding would come from the framework with remainder from the partners.

7. Project duration *(indicative range: between 24 and 48 months)*

The project is expected to last around 30 months.

8. The leader of the proposal preparation

Balfour Beatty Rail Technologies Limited will lead the project.

9. Main potential partners (names of companies supporting the proposal as opposed to potentially interested stakeholders)

The full list of partners is still to be established it is anticipated that Balfour Beatty Rail Technologies will find a Manufacturer of Compaction Equipment, at least one other European railway and two Universities to be involved in the project.

10. Contributions to standards – can the results of this projects be transferred into future EN standards? *(Maximum 5 lines)*

Contributions to standards are possible both in the area of track installation control and assessment.

11. Implications of the project for current individual company products and practices – is the proposal supported internally within each major partner at the strategic level? *(Maximum 5 lines)*

The partners involved in the project will each regard their area of work as core to their specific skill set. In the case of the industrial partners the ultimate of objective will be to build and operate the plant specified here.

12. Risk factors that could jeopardize the implementation of results. How to ensure market up-take and who will have the responsibility over the implementation? *(Maximum 5 lines)*

The key risk is that, while it may well be possible to specify such plant it may not prove technically practical or economic to construct it. The project will require an element of trials to ensure that the specifications proposed are viable.

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