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NR/BS/LI/072 – Issue 4: Letter of Instruction

This is a Letter of Instruction. In accordance with Section 9, of Network Rail Level 2 Document, NR/L2/STP/001 – *Network Rail Standards Management – Process requirements*, I give notice that the following changes shall be made with effect of **19 October 2007**:

STL Auxiliary Transformer Failures at Traction Substations or Switching Stations

Instruction

1. This instruction applies to all STL transformers installed at all the traction substations/switching stations identified below in **Table 1**. The transformers are normally in pairs adjacent to the substation building or module. The transformers are fenced off at some locations but at others are accessible from the running lines. A typical arrangement is shown in **Photograph 1**.

2. To allow for protection to staff and public the following additional precautions shall be carried out – temporary rigid impermeable fenced enclosure (e.g. Harris fencing made impermeable with $\frac{3}{4}$ " marine ply affixed), to be placed around the transformers to minimise the risk to staff and public. Temporary fencing to be bonded to transformer as necessary. Subject to standard clearances to running lines the fencing shall be erected a minimum of 2 metres from the transformers.
3. No persons shall be allowed within the fenced area of an identified transformer that is energised. If there is a requirement to enter the fenced area the transformer(s) are to be switched off by the relevant Electrical Control Operator (ECO). Signage shall be affixed to each side of the fenced area which shall read as follows **"Equipment within this compound shall be switched off before entering the enclosed fenced area"**.
4. The present restriction of no persons approaching any of the energized transformers closer than 2.5m shall apply until the impermeable fenced barrier is in place. If there is a requirement to approach within this distance the transformer(s) are to be switched off by the relevant Electrical Control Operator (ECO).

Table 1

Epsom	Richmond
New Eltham	Tolworth
Upper Halliford	

The reason for this restriction

In the last 2 - 3 years there have been a number of failures of new design STL auxiliary transformers. The failures prior to the last event have been contained within the transformer tank. The most recent failure ruptured the transformer tank presenting a hazard to the immediate area.

Since the issue of NR/BS/LI/072 - Issue 2, dated 6 July 2007, a review of installation dates and reports from previous failures has been conducted and the following conclusions have been drawn:

- a) All reported failures have occurred within the first 6 months of energisation.
- b) The nature of the failure modes indicate that it is unlikely that such defects would appear after an extended period.
- c) Therefore transformers commissioned more than two years ago have been assessed as low risk and are therefore removed from the previous restrictions.