

# Shared Learning

**The Thameslink Programme**

Issue Date: 08 March 2018 - For further info contact [sharon.fink@networkrail.co.uk](mailto:sharon.fink@networkrail.co.uk)

**Issue Number: TLP086 Title: Electrical Conduit Cut**

## Overview of Event:

Whilst undertaking 'soft stripping' works, an operative cut through a live conduit using a reciprocating saw. The isolation certificate issued for the works had not taken into account a live conduit which had previously been installed above a false ceiling. The operative believing the conduit was part of the soft strip cut through it in preparation for removal.

The conduit was cut through during the day shift works and the operative did not realise he had cut through a live conduit. It is believed that the main distribution board tripped instantly. Later the same night, the external façade lighting failed to switch on. This highlighted there was an issue. It was at this point the on-site electrical nightshift team identified the damage.

## General Key Messages:

- All known services must be identified on service drawings and made available to those responsible for works.
- Anyone providing isolation permits must make sure all services are identified and clearly marked up for removal (in this case orange ended as it is a local process).
- Supervisors must make sure that anyone working around electrical services understands the identification marking for any services to be removed.

## Photo of Event :

Photo of electrical feed that was cut



## Causes:

**Immediate** - The cutting of a live electrical conduit with a reciprocating saw.

### Root and Underlying Causes

**Error-proofing conditions:** An Isolation Certificate had been completed, however, this document was substandard and did not detail the location of the live electrical conduit as part of permanent work.

**Procedure:** In providing the isolation certificate there was a missed opportunity to check all service drawings for the unit. These drawings were in a separate design packs. There were temporary works design packs and permanent works design packs.

**Procedure & Communication:** There was a failure to inspect and check the location of all services in the retail unit with marked up services drawings and therefore these were also not made available with the isolation certificate work pack.

**Procedure:** The works proceeded at risk based on the Demolition Supervisor assumption (having worked previously in that same general location) that services were not live.

**Procedure:** The project has worked to an informal procedure where all cut ends are orange ended requiring all to work away from the cut end. The Demolition Supervisor believed the cables routed in cable containment above the false ceiling were isolated and proceeded with the removal of conduit however the cables had no orange end markings on them.

## Actions Taken As a Result of the Investigations:

- The orange end process has been documented and communicated to all project persons to include services that are cut and removed from the work area and where removal is not feasible then isolated services be clearly "orange ended" at sufficient locations such that the operatives undertaking the works can clearly see the service. If any live services remain live in the area they must be clearly marked and protected on site.
- The process for recording services – both 'as built' and 'as designed' will be improved. This will give up-to-date information and a simplified protocol of access to this information and will include a control on the permit to ensure location information is recorded.
- The revised isolation certificate now includes the requirement to undertake joint site visits to the area prior to any works. The permanent and temporary design drawings are to be reviewed and confirmed by the CRE for Fire Alarm, Electrical and Mechanical services representatives prior to work commencing.