

CASE STUDY – *Palace of Westminster, Subway Development*

Client:

Parliamentary Works
Directorate

Principal Contractor:

Stonewest Ltd

Value: £500k

Date:

2000-2004 Programme of
Works & Maintenance



Description

Following the Jubilee line extension works there was a requirement to develop the existing Palace subway network. This included the formation of an enlarged tunnel running underneath Big Ben to Portcullis House. The original 150 year old access tunnel, running approximately 1m beneath the main road, rendered unsafe from the effects of high volumes of traffic.

Stonewest utilised surplus materials previously used on other aspects of the Palace and which had been in long term outdoor storage. These salvaged Ketton stones were cleaned, re-worked and then assembled, like pieces from a large jigsaw, to form the basis of the new vaulted ceiling. A delicate operational process followed.

The works involved:

- Utilising screw jacks and head trees, the individual pieces were fixed in place. Fractured stones were pinned and secured with resin. Hydraulic lime mortar repairs and re-pointing were carried out to existing parts of the tunnel walls and detailing.
- Supports and moulds for the vaulted ceiling were made up and fitted within the tunnel and the stonework was fixed in place and dry packed as opposed to grouting.
- Our stonemasons suggested that ancient methodology would provide the desired results and so a plan was agreed. The stones were all fixed and packed in place and thereafter all the screw jacks and supports were loosened. The walls and floor of the tunnel was given suitable protection. All screw jacks were roped together and the ropes extended either end of the tunnel.
- All non essential personnel were removed from the area and the entrances cordoned off. The ropes were pulled from both directions simultaneously and all screws jacks and supporting materials fell away at the same time leaving the stonework in place. This method was carried out to achieve a consistent level of the ceiling throughout as opposed to risk any single stone settling lower than others if single screw jacks were loosened.
- All stones to the vaulted ceiling stayed in place and the tightly packed joints were re-pointed and all stones were subsequently grouted following the set of the pointing.