/ ASSET PRESERVATION, STRUCTURAL REPAIRS & UPGRADING /

BEARING REPLACEMENT

Structural bearings are mechanical assemblies that transfer concentrated forces from one structural member to another. The most common application is for bridge bearings supporting the bridge deck on its piers and abutments. The design life of a bearing is often lower than that of the overall bridge structure. Bearings therefore have to be considered as an element requiring regular maintenance and periodic replacement.

VSL

A member of
Bouygues Construction

PARTNERING WITH AN EXPERT

VSL combines the knowledge and experience of specialist bridge construction, structural design and construction engineering with product know-how in order to supply bearings and heavy-duty jacking systems. We draw on more than 60 years of experience to deliver customised solutions, for even the most complex bearing replacement operations.

MASTERING TECHNIQUES

VSL has expertise in using fully synchronised jacking systems. The choice of the right jacking system depends on the structure's rigidity, required capacity and number of jacking points. Careful planning and structural analysis are used to determine the requirements for fixity and guided movement of the structure. These factors also need to be ensured at every temporary stage through proper detailing of the jacking points.

SUPPLY OF BEARINGS

VSL offers a range of spherical, pot, elastomeric and lead-rubber bearings designed and produced in its certified manufacturing facilities. Bearings provide support in one or more directions while allowing movements in other directions in a well-defined manner.

BEARING INSTALLATION

Regular inspections will indicate when the bearings will need to be replaced. Although the need for bearing replacement is predictable and understood, many bridges have not been detailed - and sometimes not even designed - to allow replacement. Any bearing replacement operation requires the transfer of concentrated loads to temporary supports and so it must be well engineered and executed. In most cases the asset has to remain in service during replacement, which adds to the complexity.

01

PREPARATION

The method statement, choice of equipment, design of access and temporary works and checks of stability and the loadings introduced at all stages need to be prepared. The existing geometry of the bearings and surrounding structure are surveyed in order to establish the space available and customise the new bearings.

02

TEMPORARY WORKS AND ACCESS

Bearing replacement requires safe access and the provision of temporary works to ensure stability at every stage, provide support for the jacking equipment or facilitate handling of the equipment and bearings.

03

JACKING OF THE BRIDGE DECK

VSL can deploy fully synchronised jacking systems. The fixity of the deck needs to be maintained during operations and this can be ensured at all temporary stages by proper detailing of the jacking points.

04

REMOVAL OF EXISTING BEARINGS

Jacking positions need to allow enough clearance for bearing removal. Temporary works such as sliding and lifting frames can be deployed to assist in removing the bearings.

05

SUPPLY OF NEW BEARINGS

New bearings are supplied in accordance with the latest requirements and can be customised to match existing masonry or other constraints if required.

06

INSTALLATION OF NEW BEARINGS

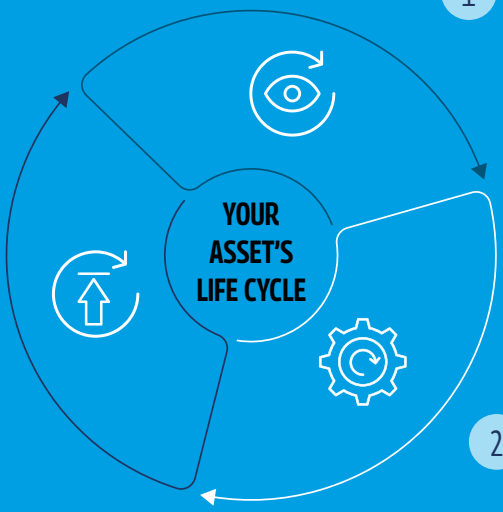
The new bearings are installed, surveyed, checked and grouted before being loaded by releasing the jacks. Grouting is carried out by specially trained personnel following strict quality control procedures.

ASSET PRESERVATION, STRUCTURAL REPAIRS & UPGRADING

1

ASSET PRESERVATION

PREVENTIVE MAINTENANCE
INSPECTION
ASSESSMENT
MONITORING



2

STRUCTURAL REPAIRS

REPAIR
REPLACEMENT

3

UPGRADING

STRENGTHENING
CHANGE OF USE
RESILIENCE ENHANCEMENTS

- CREATIVE ENGINEERING & EFFICIENT METHODS
- IN-HOUSE STRUCTURAL TECHNOLOGIES
- OPERATIONAL SKILLS IN COORDINATION & EXECUTION

WE'RE READY TO MAKE YOUR PROJECT POSSIBLE!

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