

Iryna Bulich  
V.G. Shapoval, research supervisor  
O.D. Shvets, language adviser  
SHEI “National Mining University”, Dnipropetrovsk

## **London Bridge Designed Expressly to Hold Gardens**

British engineers develop a design that is both durable and aesthetically pleasing to achieve a one-of-a-kind bridge, which will be built in London and cross the River Thames. The idea is simple - to connect north and south London with a garden. It will be an expansive garden, complete with trees, flowering plants, shrubs, and meandering pathways, where people can stroll and relax as the river flows below. It should be noted that it is the first purpose-built bridge of its kind and its project presents a unique set of design and construction challenges.

It is reported that the Garden Bridge will be located between the Blackfriars Bridge and the Waterloo Bridge and will connect the areas of South Bank and Temple in central London. The 360 m long structure will have a total area of 6,000 m<sup>2</sup> and will boast wide gardens and winding brick pathways. The bridge's approximately 180 m long main span will be 12 m high at its center to provide sufficient clearance for the barges and other vessels that frequently travel the river. The bridge will gradually slope from its midpoint toward the riverbanks, where stairs and elevators will lead visitors into the respective neighborhoods on either side.

The following project decisions are applied to the concept of the bridge. It will have two in-water piers which will be founded on piles measuring more than 2 m in diameter. The fact that the gardens will be most densely planted over the piers, where the structure will be widest and capable of carrying the greatest vertical load is highlighted. The key factor in carrying the large vertical loads that will be imposed on the structure as a result of the gardens' soil, trees, and plants is foundation strength. The piers will be exposed concrete up to the water line, and above that, the concrete will be encased in copper-nickel, giving it a bronze appearance while also providing durability. The bonded plates will be attached to the bridge's frame, which comprises a series of steel radial trusses.

It is noted that the construction is scheduled to begin in early 2015 and to be completed in late 2017. The designer of this project is Thomas Heatherwick, who designed the Olympic Cauldron.

This new footbridge will create a unique place and an alternative public pedestrian route away from vehicles. The Garden Bridge will create new perspectives of the London skyline that are unavailable anywhere else and will be a major new visitor attraction for London.

In conclusion, the main purpose of this bridge is to be a signature landmark attraction, not just for the UK but worldwide.