

TUNNELWORKS

KS3 MATHS LESSON 1 WORKSHEET

THE RIGHT DIRECTION: TRIANGLES AND GRADIENTS

Email
To: Design Team

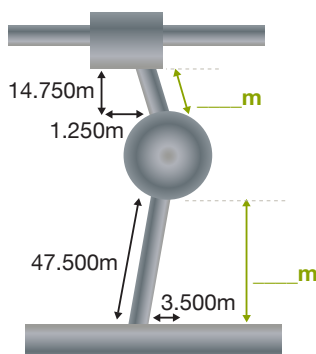
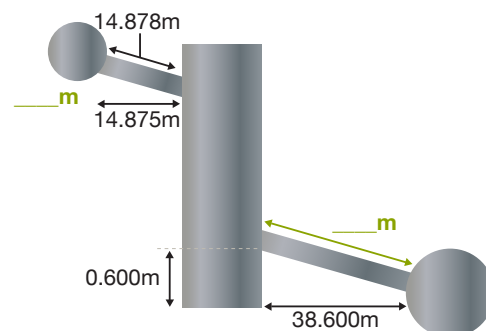
From: Quantity Surveyor's Team

We need to calculate the materials required for the Victoria Embankment and Blackfriars Bridge CSOs. Can you provide accurate dimensions for the structures? Thanks!

P.S. Could you double-check the main tunnel gradient between these points? It's vital we get this right so the Tunnel performs properly and reduces pollution entering the river.

Challenge 1: Complete the drawings

These engineering drawings are missing some dimensions. Use Pythagoras' Theorem to help you fill them in. Work to the same number of decimal places as shown.

Victoria Embankment plan view

Blackfriars Bridge elevation (side) view

Challenge 2: Check the gradients

What are the gradients for the connection tunnels in the engineering drawing for Blackfriars Bridge? Write your answers to five decimal places.

The Thames Tideway Tunnel should have a gradient of 1 in 790.

Check that this section meets this specification:

