Case Study

Costain Skanska Joint Venture (CSJV)

Two-Way Radio System – C360 Projects

Project Summary

Design, supply and install a Two-Way Radio System

Market

Construction

Site Locations

1. Stepney Green
2. Paddington
3. Eleanor Street (Bow Road Station)
4. Mile End
5. Limmo Peninsula (Canning Town)

The Client

Crossrail is a new 118 kilometre high frequency rail route that will run from Maidenhead and Heathrow in the West, through new twin-bore 21 km tunnels under central London, before forking at Stepney Green for Shenfield near Brentwood and Abbey Wood, in Southeast London.

CSJV were awarded many contracts on this project including station sites at Stepney Green; Paddington; Eleanor Street (Bow Road Station); Mile End and Limmo Peninsula (Canning Town).

The Challenge

To provide Two-Way Radio communications to each site for site wide coverage.

In some cases, including Paddington, Stepney Green and Canning Town, shafts up to 40M deep and 16M diameter were being dug with multiple basement corridors off the shaft. These were providing ventilation and emergency exit facilities linking various underground tunnelled routes. It was in these areas the radio signal strength was poor or non-existent therefore produced site health and safety and communication issues. Our challenge was to resolve these.

The Solution

In each case Motorola digital DP4400 radios were supplied to the workforce.

Depending on the site location, either single or multiple Motorola MTR3000 or SLR8000 Repeater Base Units were supplied. Some were connected to Leaky Feed cable installed vertically down the Shaft with the Repeaters located in a site cabin near the Shaft opening with an Off-Set Omni-directional Antenna. This also provided site wide coverage at ground level.

Alternatively, where a single length of Leaky Feed cable and a single Antenna was not adequate, we designed and installed a Distributed Antenna System (DAS) below ground level throughout multiple Basements.

Motorola Repeater Base Units were connected to a Duplexer and/or Combiner System with Motorola Capacity Plus Software to allow numerous groups of users to communicate on multiple channels across the radio fleet.