Buildings & Structures

Client:
Sleaford Station Footbridge

Location:
Barkston South Junction to Skegness

Summary

Sleaford Station Footbridge is a single span Grade II listed structure, providing a vital pedestrian link between the Up (North) and Down (South) platforms over the twin tracks of the Barkston South Junction to Skegness line.

Project Overview

GRS2/7 Sleaford Station Footbridge is a single span Grade II listed structure consisting of two longitudinal wrought iron lattice truss girders supported between the brickwork of the station building at platform 1 and cast iron columns on the island platform 2/3. The bridge provides a vital pedestrian link between the Up (North) and Down (South) platforms over the non-electrified ballasted twin tracks of the Barkston South Junction to Skegness at track mileage 120 miles 1210 yards.

The Assessment of the bridge carried out by Network Rail determined that it was in poor condition, and that is was not capable of carrying the required loading under current standards.

The detailed design determined that the bridge could be strengthened by the replacement of the 9 existing 'U' Frame supports with new larger section steelwork, and the opportunity was taken to fully blast and paint the whole bridge as part of the scheme.

The challenges

Challenges addressed in carrying out these works included working in a live station environment. Because of this, most of the works were carried out at night when access to the external parts of the bridge required possession of the two railway lines below. The relatively short possessions prevented traditional encapsulation of the footbridge for containment of grit blasting materials and resulted in a more environmentally friendly process known as 'sponge blasting' being used. Sponge blasting involves the use of small sponges, impregnated with pieces of grit to remove rust and paint back to steel which then itself receives a profile. This process requires little encapsulation due to the very low levels of dust generated, and the sponge media can be re-used up to six times.

Public access to the platforms was maintained via a temporary footbridge erected to the west end of the station platforms during the construction works.

Summary of works completed

- Erection of temporary footbridge to maintain public access to platforms
- Removal of existing paint and rust from all areas of the bridge steelwork
- Application of a 3 coat protective paint system
- Replacement of all 'U' Frames with larger section steelwork
- Install bracing to staircase support columns
- Addition of steelwork to some of the main girder lattice steelwork to address low strength issues
- Replacement of timber floor and overlay with GRP non-slip deck panels.

Successes

- All works were completed on programme and within budget.
- An excellent working relationship was established from the outset with the Train Operating Company who ran the station, leading to minimal disruption for passengers.
- Good relationship with Local Authority Environmental Officer who was consulted and briefed at an early stage in the project cycle to discuss to mitigate against any negative impacts as a result of the construction works.
- Collaboration between Principle Contractor and two main Sub Contractors, working together to deliver the steelwork strengthening and painting works. The choice of Sponge Blasting allowed tasks to be carried out in close proximity to each other, thus maximising work output.