



Construction work has been undertaken around a 'live' railway environment, as the station is on the busy Reading to Basingstoke line.



# Steelwork arrives at new station

Safety concerns and technical challenges have been overcome with the use of prefabricated steel elements for the main building and footbridge at the new Green Park station in Reading.

**S**ustainable transport in Reading is getting an important boost as a new railway station will open at the end of the year, providing a new link to the south of the Berkshire town.

Green Park will be a new station at the northern end of the existing Reading to Basingstoke line. Travellers will be able to reach Reading's main station in just six minutes and Basingstoke in 20 minutes, with both destinations offering connections to London and beyond.

Reading Borough Council says the station will help to alleviate queues on the already busy A33 by offering an alternative sustainable mode of travel. This will be a boon to both residents and workers alike, as the station sits within the fast-growing Green Park Village residential scheme, which has plans for more than 1,000 new homes, and adjacent to Green Park Business Park.

Reading FC are currently not having the best season, but their supporters and those of visiting teams will be cheered by the fact that this new transport development will also serve the nearby Madejski Stadium.

Tony Page, Reading Borough Council Lead for Strategic Environment, Planning and Transport says: "When operational, Green Park will form an integral part of Reading's ever-growing sustainable transport infrastructure, serving the homes, businesses and leisure developments planned in the south of the borough.

Steel construction has taken the driving seat in the design of the station. Connecting the two 150m-long platforms is a 15m-long steel

footbridge, while other steel structures include the east platform's main building/ticket office and an attached canopy, and a further shelter canopy structure on the west platform.

Complementing these facilities, the station will also be part of a multi-modal interchange with surface level car parking, bus stops, a taxi rank and cycle parking.

Using steelwork has provided the project with a number of benefits, such as speed of construction, as well as the fact that steel elements can be brought to site as prefabricated units that can be lifted into place with less onsite work required. This has been important, as Green Park is on a 'live' railway line and any lifting work undertaken had to be liaised with Network Rail to avoid any possible disruption to rail services.

Main contractor Balfour Beatty were also required to liaise closely with Network rail during their preliminary works, in order to find safe positions for their piling rig. Some of the piles, supporting the precast platforms, which were completed prior to the steelwork erection, are up to 30m-deep and were safely installed within metres of the 'live' railway line.

Bourne Rail & Special Projects Divisional Director Craig Galway says: "The new station at Green Park is a very exciting project and we had to overcome the challenges of working next to a 'live' track in terms of safety systems and short notice changes to shift patterns. By undertaking assembly, cladding and glazing offsite, we de-risked the installation of the main footbridge span."

Overall, the footbridge was brought to site in

a number of fully assembled and prefabricated elements, which were lifted into place during four separate overnight rail possessions.

As well as the main span, this consisted of two sets of stairs, two support towers, two lift shafts and two lobby areas (that connect the lifts to the main overbridge), which were all lifted into place using a 200t-capacity mobile crane.

Each of the prefabricated elements are substantial, as the main span, which is an enclosed, glazed steel-framed box, measures 15.2m-long x 2.9m-wide x 3.4m-high and weighed 18t. Each of the prefabricated 10m-high lift shafts weighed 9.6t, the lobbies weighed 5.3t and the stairs 10.5t.

"Locations where we could position the crane were limited, while overhead high-tension wires on the western side of the tracks created another challenge as they had to be avoided during our

**FACT FILE**

**Green Park station, Reading**

Main client: Reading Borough Council

Main contractor: Balfour Beatty

Structural engineer: Arup

Steelwork contractor: Bourne Rail & Special Projects (part of Bourne Group)

Steel tonnage: 215t



Close coordination between all stakeholders ensured the safe erection and installation of the station structures.

lifts,” explains Bourne Rail & Special Projects’ Adam Barlow.

“Steelwork could only be delivered to the eastern side of the station and because there were underground cables in this area, we had to install crane mats to safely straddle these services for all of our [lifting operations](#).”

Other parts of the steelwork package also had to be erected during rail possessions. This consisted of the cantilevering beams and channels forming the canopy edges, on both platforms, as they were deemed to be too close to the ‘live’ railway to be erected during normal working hours.

The main station building/ticket office is a steel [braced box](#) measuring 8.4m-long × 2.9m-wide and 6.1m-high. The design specified [universal beams](#) and columns, while the canopy structures are typically constructed with tubular [RHS sections](#).

The building has a canopy over the platform along its entire length, while another canopy, attached to and wrapping around the base of the overbridge stairs, is positioned next to it.

The western platform also has a canopy structure, supported on steel columns, measuring 39m-long × 6m-wide, it extends southwards from the overbridge stairs.

Summing up, GWR Business Development Director Tom Pierpoint says: “It’s exciting to see Reading Green Park station starting to take real shape. We are working closely with the Council and Network Rail to deliver a project which will provide even better connectivity for customers.

“Reading is a key destination on our network and this new station will help to secure the economic prosperity of the region as we seek to build back better from the pandemic.”



The complete footbridge was erected during four overnight rail possessions.