

Project
Twickenham Stadium East Stand
Extension

Project No.
366764

Our reference
366764-DN-0001

Division
BNI/BSE/BCL

Project Manager
Matthew Pearce

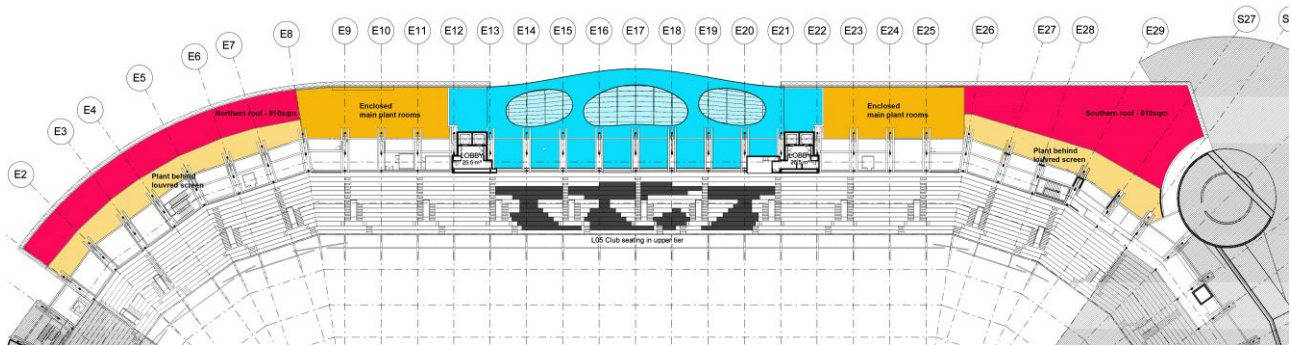
Project Director
Rob Hazell

Subject
Level 5 Green roof

Date
19th July 2016

1. General

The configuration of the proposed roof level plan to the proposed new extension comprise two primary enclosed plant spaces, with remaining plant located on the new L4A roof wrapping close to the existing stadium structure behind a louvred screen to visually hide the elements of plant. Within the centre zone of the roof between the two enclosed plant areas, is the Level 5 roof terrace (concourse area), which has a lightweight ETFE and single-skin canopy covering. After deduction of the level 5 terrace, the enclosed roof plant areas and the screened roof plant areas, the residual roof area to the north and south ends of the extension is 510sqm (to the south) and 360sqm (to the north).



Level 5 Layout (by KSS)

In assessing the opportunity of incorporating a green roof, the associated implications have been considered. In a number of cases, the impact associated with installing a green roof would result in increased energy consumption and embodied energy which would appear to be counter-intuitive to a sustainable building design approach.

2. Structure and associated loading

The current roof is a concrete deck and high-performance membrane roof supported on a steel structure designed for occasional maintenance access to reach surface water roof outlets. The associated supporting structure and foundations have similarly been designed to carry no additional roof loading to keep associated beam depths to a minimum, which in turn enables the roof level to be kept lower to achieve the required internal clear ceiling heights to the hospitality space.

Any increase in loading and resulting depth will result in an increased building height – height of elevation, increased area of cladding with the associated embodied energy in order to achieve the same qualitative aspects of the internal space (ceiling height). The increased tonnage of steel required to support the green roof has been calculated to be circa 15 Tonnes, while the increased depth of structure (or increase in elevation/building height) would be between 150-175mm (equivalent to an additional 45sqm of facade).