Case study

# Project Resilience

## Oxford

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| Customer | Harwell Campus |
| Completion | Q1 2025 |
| Project Value | £150m |
| Programme | 100 weeks |
| Form of contract | Design + Build |
| Architect | Scott Brownrigg |
| Engineer | BNP |
| MEP | Hoare Lee |

A fast-track delivery of a specialist life sciences facility at Harwell Campus, enabling large-scale mRNA vaccine manufacturing in support of the UK's pandemic resilience strategy.

### Scope of Works

- Construction of two high-specification buildings totalling 143,440 sq ft for manufacturing, distribution, and clinical R&D
- Delivery of shell and core facilities designed to accommodate GMP-compliant cleanrooms and laboratories
- Integration of a prefabricated modular clinical biomarker laboratory installed on-site
- Provision of enabling infrastructure, including utilities, drainage, service yards, and logistics areas
- Structural design to support high-load process equipment and specialist plant installations
- Installation of sustainable systems, including photovoltaic arrays and energy-efficient building services

BREEAM Rating **Excellent**

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## Digital Engineering

Digital engineering played a central role in coordinating the complex building and service interfaces. A federated BIM model was utilised to manage multidisciplinary coordination, ensuring alignment between structural, architectural, and MEP systems.

Clash detection and digital rehearsals were undertaken to de-risk the integration of specialist services and future process equipment. The model also supported stakeholder engagement, enabling client-side technical and compliance teams to review and validate design intent in line with GMP requirements.

Data-rich models were developed to facilitate downstream fit-out activities, ensuring continuity between base build delivery and specialist installation phases.

## Design

Developed to support complex mRNA vaccine manufacturing, both facilities were delivered to shell-and-core specification, enabling flexible GMP-compliant tenant fit-out.

Steel-framed structures sit on reinforced concrete foundations and slabs designed for high process and equipment loads. Envelope detailing allows future penetrations and service integration without compromising performance.

Building services coordination enabled integration of mechanical, electrical, and process systems, including HVAC, clean utilities, and containment strategies required for pharmaceutical manufacturing.

Externally, service yards, dock levellers, drainage, and flood mitigation were integrated, alongside biodiversity and landscape enhancements across the wider campus.

Provision was also made for future expansion and evolving process requirements within the structural and service strategy overall.

## Construction & Delivery

The project was delivered on a fast-track programme to meet critical national timelines for vaccine manufacturing capability, requiring close coordination between design, construction, and specialist process teams. Early resolution of interfaces ensured the steel frame and associated structural elements could support highly complex life sciences fit-out without disruption to programme milestones.

Structurally, both buildings were formed around steel frame superstructures designed for long-term flexibility and future adaptation. These were supported on reinforced concrete foundations engineered to accommodate high loadings from GMP manufacturing equipment, cleanroom infrastructure, and heavy mechanical plant. Ground-bearing and suspended slabs were detailed to support vibration-sensitive operations and concentrated point loads associated with laboratory and production environments.

Key structural and construction elements included:

- Steel frame superstructures designed for large-span, column-free internal environments
- Reinforced concrete foundations sized for high process and plant loadings
- Ground-bearing and suspended slabs engineered for vibration control and heavy point loads
- Structural provision for future service penetrations, risers, and plant interfaces
- Integrated reinforced concrete service yards and dock leveller zones for logistics operations

The building envelopes were delivered to shell and core standard, with structural allowances embedded to enable efficient integration of complex MEP systems and future tenant-specific requirements.

Below ground drainage and attenuation systems were also coordinated with the structural works to ensure seamless incorporation within slab and foundation zones.

A key delivery feature was the installation of a prefabricated modular clinical biomarker laboratory, craned into position onto a purpose-designed structural platform and integrated into the wider building and services framework. Throughout construction, careful attention was given to tolerances, coordination zones, and interface detailing to ensure full compatibility with downstream GMP fit-out requirements.

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## Sustainability

The development was delivered in accordance with low carbon construction principles and achieved BREEAM Excellent certification.

Sustainability measures include the integration of photovoltaic panels, energy-efficient building systems, and responsible material selection. The scheme also incorporates sustainable drainage solutions and flood mitigation strategies, alongside enhancements to on-site biodiversity and landscaping.

## Social Value

The project contributes to the UK's long-term healthcare resilience by enabling domestic vaccine manufacturing capability.

During construction, the scheme supported local employment, skills development, and engagement with the regional supply chain. Its location within a leading science and innovation campus further strengthens the UK's position as a hub for advanced research and life sciences.


"Glencar Construction were excellent. The Moderna scheme was really complicated with a significant amount of tenant change. Glencar acted really professionally and managed to balance the level of change really well never letting up on programme and quality prioritisation. Because of their delivery, we have since appointed them for two further projects. They're a very safe pair of hands who deliver a great product with excellent communication and a careful eye on safety always."

**Richard Todd MRICS, MEng (Hons) – Bidwells, Head of Built Environment**

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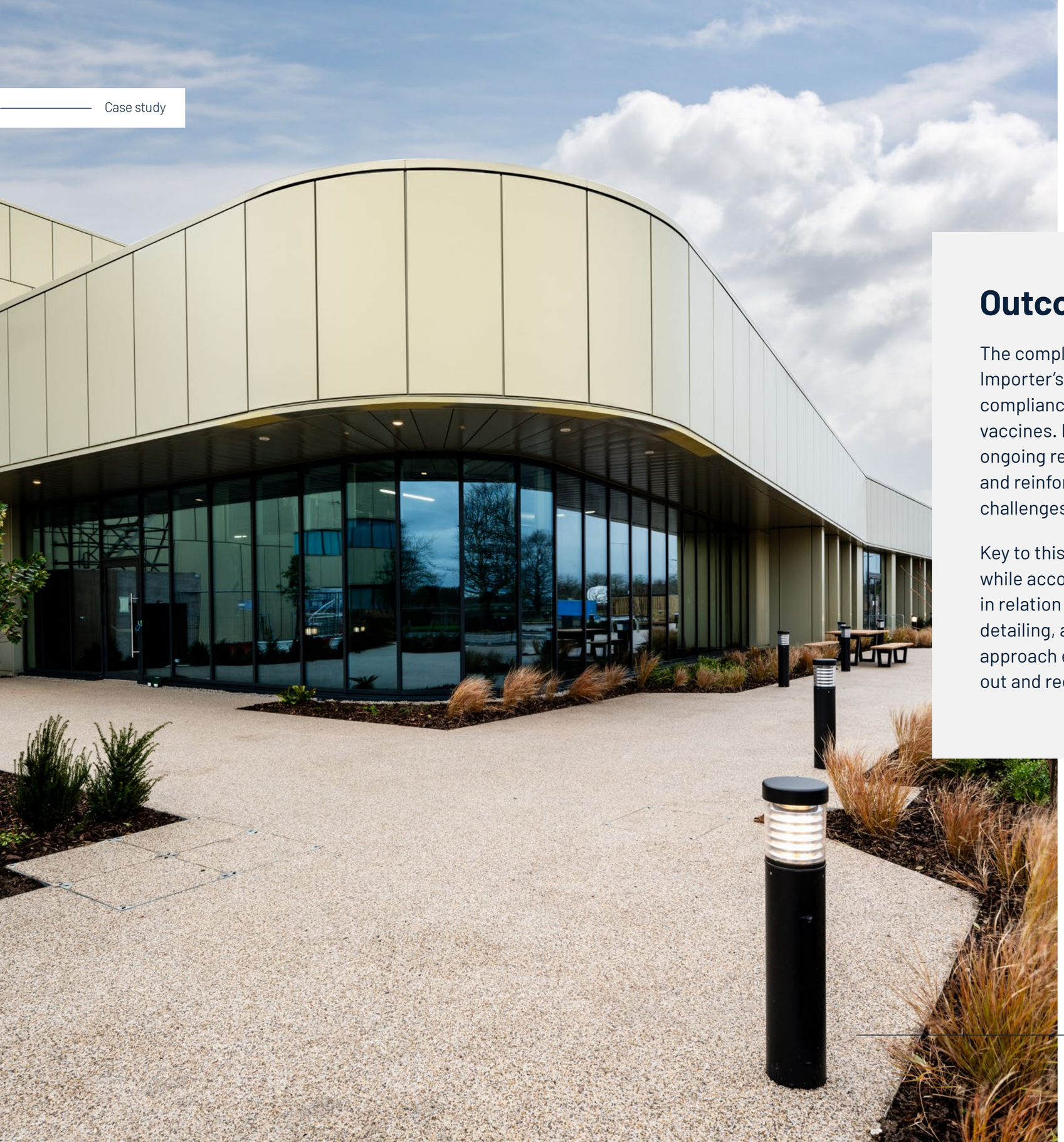

## Outcome

The completed facility has successfully achieved Manufacturer's/ Importer's Authorisation (MIA) from the MHRA following GMP compliance inspection, enabling the production of mRNA vaccines. It now provides a critical national asset, supporting ongoing research, development, and manufacturing of vaccines, and reinforcing the UK's preparedness for future public health challenges.

Key to this success was Glencar's ability to maintain build integrity while accommodating significant technical change, particularly in relation to specialist MEP integration, structural interface detailing, and GMP-driven design evolution. This disciplined approach enabled seamless transition from construction to fit-out and regulatory inspection readiness.

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