

## Barrier Design for GreenBlue Urban

# Leonard Circus, London – Shared Space

*White Paper*



### SUMMARY

The Leonard Circus shared space in Hackney, London was completed in June 2014. During the first 5 years of use, numerous small collisions occurred between passenger and delivery vehicles and the Tree Protection Barriers.

GreenBlue Urban were tasked with developing a Tree Protection Barrier resistant to low speed collisions. They sought engineers to deliver functionality within strict cost and time limits and chose GRM for their experience of design, manufacturing understanding and simulation capabilities.

Having previously had the overall shape and style developed and approved by their customer, GreenBlue Urban required development of the functional performance.

GRM selected and engaged with key suppliers to monitor part costs, while maintaining the pre-developed aesthetics. By linking design and simulation aspects appropriately GRM was able to deliver the functional requirements and part costs.

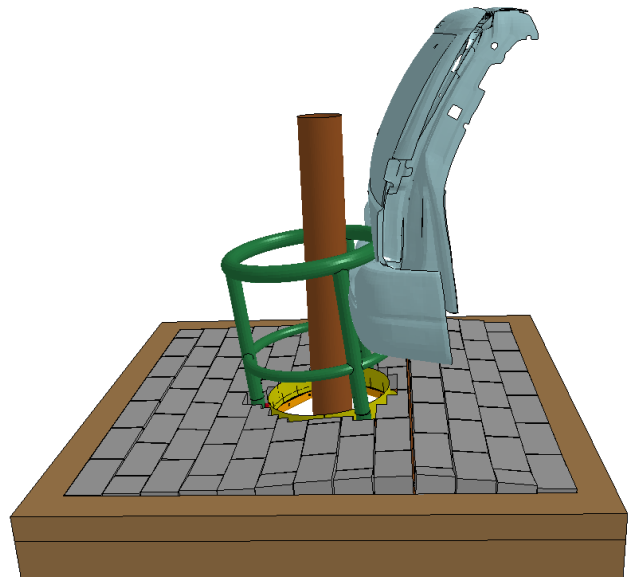
### GRM's Engineering Director, Oliver Tomlin notes:

*"The structure itself was relatively simple, but the complexity came when trying to integrate it with the existing tree root protection system and establishing realistic load cases. We worked hard to maintain the costs and avoid expensive materials and processes"*

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*Previous barrier damaged by vehicle*



*Simulation model of 5t van reversing into new barrier*

## **Design Process**

GRM has always approached any design project by first establishing the likely production volumes per annum and over the life of any product. By generating this early on and fixing the usage cases, the available manufacturing processes become clear.

GRM's skills are deployed by various customers to develop structures and we are proud to be the engineering partner behind some of the world's biggest brands. Our ability to create and generate solutions to structural problems sets us apart.

GRM has degree qualified engineers and software at its disposal which allow for efficient compensation for different materials. Through existing understanding of manufacturing processes, we are able to deliver design solutions in steel, aluminium and composites covering fabrication, stamping or extrusions with multiple joining mechanisms.

Our customers deploy us as over-spill support and also as advanced technology exploration with subsequent knowledge transfer and training. We can pass over methods to your engineers, ensuring knowledge capture for future technology development.

Through our selection of analysis software and our history, GRM's team is equally comfortable with static or dynamic loadings. Our methods allow compensation for materials as the rate of loading changes and their response is modified.