

DGT Associates
Surveying & Engineering

CASE STUDY

Mapping a 13-Acre Campus, Above and Below Ground

CLIENT

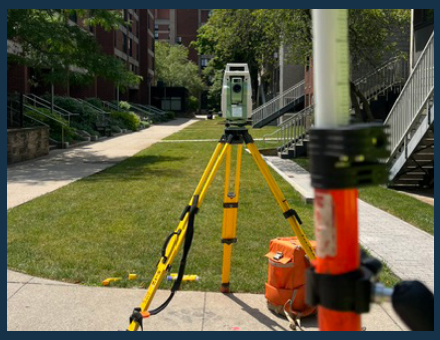
Mission Park LP

PROJECT NAME

Mission Park Existing Conditions Survey

SERVICES

- Boundary Surveying
- Topographic Surveying
- Subsurface Utility Investigation & Mapping to ASCE 38-22 Quality Level B
- 3D Scanning



SITE HISTORY

Mission Park occupies a 13.5-acre parcel in Boston's Roxbury district, at the foot of Mission Hill situated between the Emerald Necklace parkway system and the Longwood Medical Area. Built in the 1970s, the affordable housing complex includes more than 700 residential units across a high-rise tower, mid-rise buildings, and townhouses.

The original development of Mission Park marked a period of significant change in the neighborhood. As Harvard's medical campus expanded, local residents organized through Roxbury Tenants of Harvard (RTH) to advocate for affordable housing in the surrounding community. Their efforts helped shape Mission Park's development, transforming a large section of the neighborhood into the residential complex that stands today.

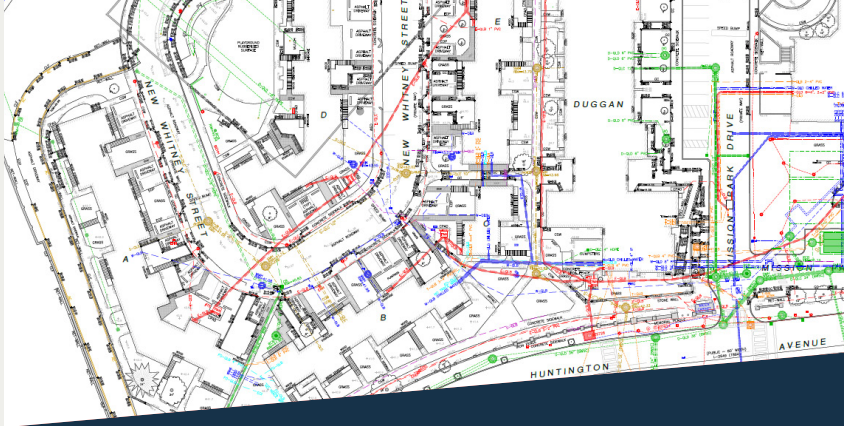
Before its redevelopment, much of the property was occupied by the House of the Good Shepherd, a Catholic institution. Construction of Mission Park also introduced an underground parking garage in 1977, extending beneath much of the campus, with several residential buildings rising directly from the structure. These successive uses have created a layered site, where the infrastructure visible today is only part of the picture. Earlier foundations, abandoned utilities, and incomplete historical records can all complicate efforts to document existing conditions decades after the original construction.

PROJECT OVERVIEW

To support planned renovations to Mission Park's residential units, Mission Park engaged DGT Associates to document existing conditions across the property. The scope combined boundary and topographic surveying, 3D laser scanning, and a subsurface utility investigation to ASCE 38-22 Quality Level B. All of the work was tied to the same survey reference points, so the boundary, topographic, utility, and scan data would line up on a single plan.

Before stepping onto the site, our team researched deeds and recorded plans for the boundary and reviewed record plans for the utilities. Decades of redevelopment had left gaps in the records that only fieldwork could fill. Field crews located and surveyed visible utility structures across the grounds, building an inventory of manholes and catch basins. They then used electromagnetic line tracing and ground-penetrating radar to trace buried lines between structures, including some that didn't appear on any record, and surveyed each one into the plan.

The underground garage called for a different approach. Across much of the campus, the ground surface is the garage roof, and many of the utilities serving the buildings above run exposed along the garage's ceilings and walls. Our crews captured the garage interior with a NavVis wearable laser scanner to document those connections and used the same scanner to speed up surface data collection across the grounds. Our team then compiled the records, field data, and scans in CAD, reconciling differences between the plans and field conditions.



OUTCOME

With fieldwork complete, our team delivered CAD drawings of the boundary, the topography and existing conditions, and the utilities. The utility map meets ASCE 38-22 Quality Level B and includes an inventory of manholes and catch basins. Our client also received the point cloud from the NavVis scans, which captures the garage interior and the utilities running through it.

Because every dataset shares the same reference points, the drawings and point cloud line up with one another, giving Mission Park and their design team a coordinated record of the grounds, the buried utilities, and the garage infrastructure. Our delivered plan set can be used to update Mission Park's existing plans, and designers and contractors can use it to plan the renovations around existing utilities and spot potential conflicts before construction begins.

ABOUT DGT

DGT Associates is New England's premier surveying and engineering firm. With clients spanning the cross section of community stakeholders from developers and construction managers to municipalities and homeowners, DGT provides unparalleled experience in the region. DGT is committed to thoughtful innovation in the surveying and engineering industries. We utilize cutting edge technology, combined with decades of field work experience, to deliver valued, meaningful results. Our professional crews are trained and perform to the highest standards of precision and safety. And our team is sized for the flexibility required to take on projects of varying scales, timeframes and complexity.

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