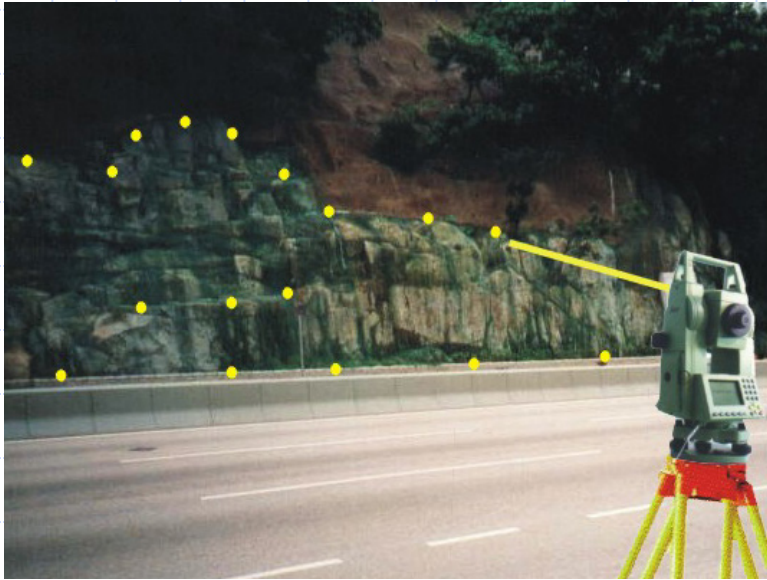


Why Laser Scanning?

Conventional Survey



Point by point - slow and limited to points often chosen by the chainman

3D Laser Scan Survey



Acquires millions of 3D points over an entire structure in minutes
Provides complete 3D representation of the structure

Hong Kong Laser Scanning Projects by **Geomatic Surveyors**

- ◆ **Hong Kong Mandarin Oriental Hotel**
- ◆ **Hong Kong Sanatorium & Hospital**
- ◆ **Grand Lisboa Hotel & Casino, Macau**
- ◆ **Pacific Place Mall, Hong Kong**
incl. Marriott Hotel, Conrad Hotel and Office Towers

Mandarin Oriental Hotel

Redevelopment Project

1. Enclosing of balconies to increase guest room size
2. Curtain wall design and installation

Required Survey Deliverables

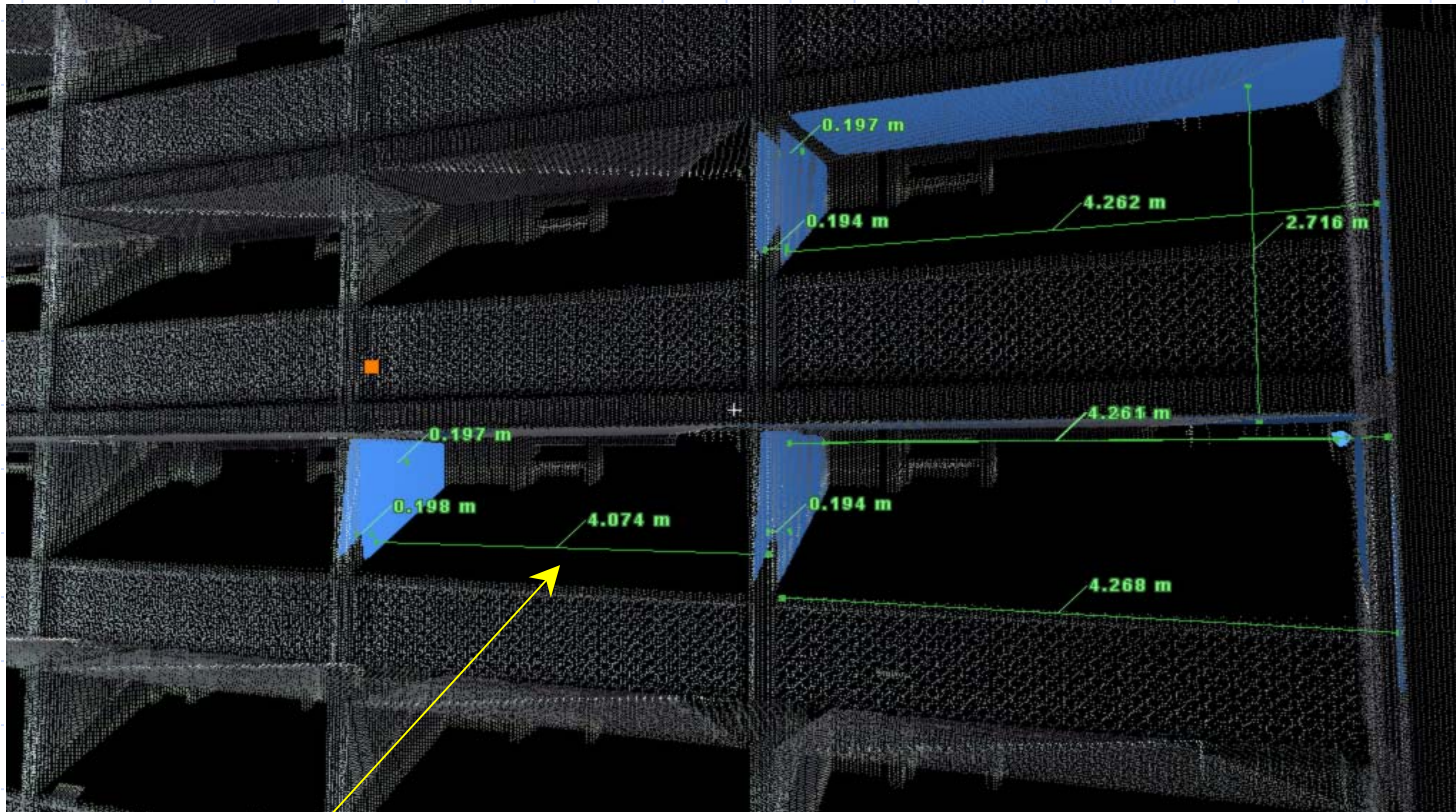
- ◆ As-built dimensions and alignments of all balcony structures
- ◆ Building verticality and alignment
- ◆ 3D Model for Future Developments



Mandarin Oriental

Balcony Scans

Direct Dimension Measurements

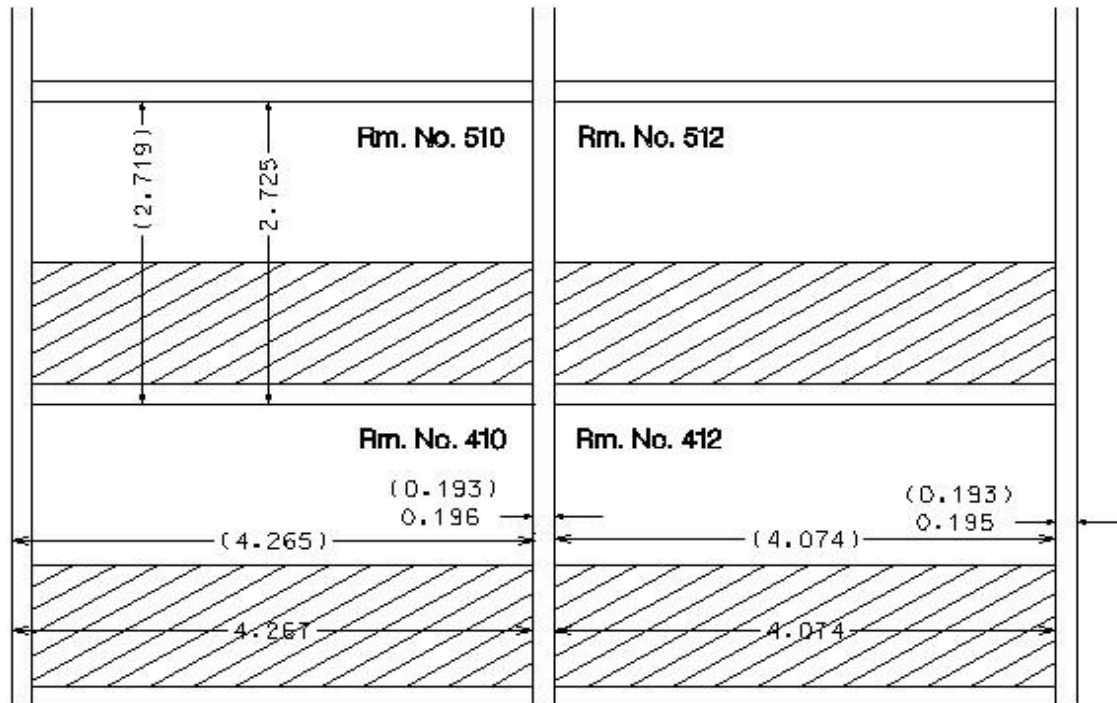


- Dimensions measured inside the computer
- No direct access to hotel room required

Mandarin Oriental Hotel

Laser Scanning v Direct Taping

Comparison Of Laser Scanning Dimension With Actual Taped Dimension



Notes :

- 1) 0.201 denotes actual taped dimension
- 2) (0.198) denotes laser scanning dimension
- 3) laser scanning and actual measurement are not taken at the same position

Maximum Difference only 6mm

Hong Kong Sanatorium & Hospital

Client Redevelopment Project

1. Tower extension and curtain wall redevelopment
2. Client requirement - accurate as-built survey and verticality of building for the design works

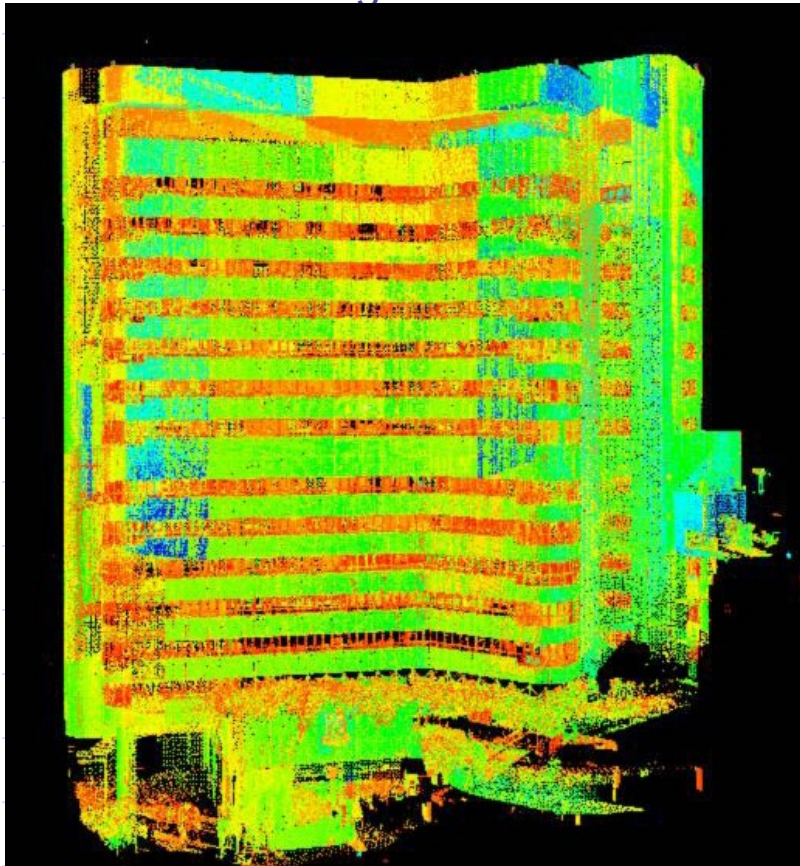
As-Built Survey Deliverables:

Dimension of each window
Floor layout plans
Building verticality
Cross sections & deviations
3D model

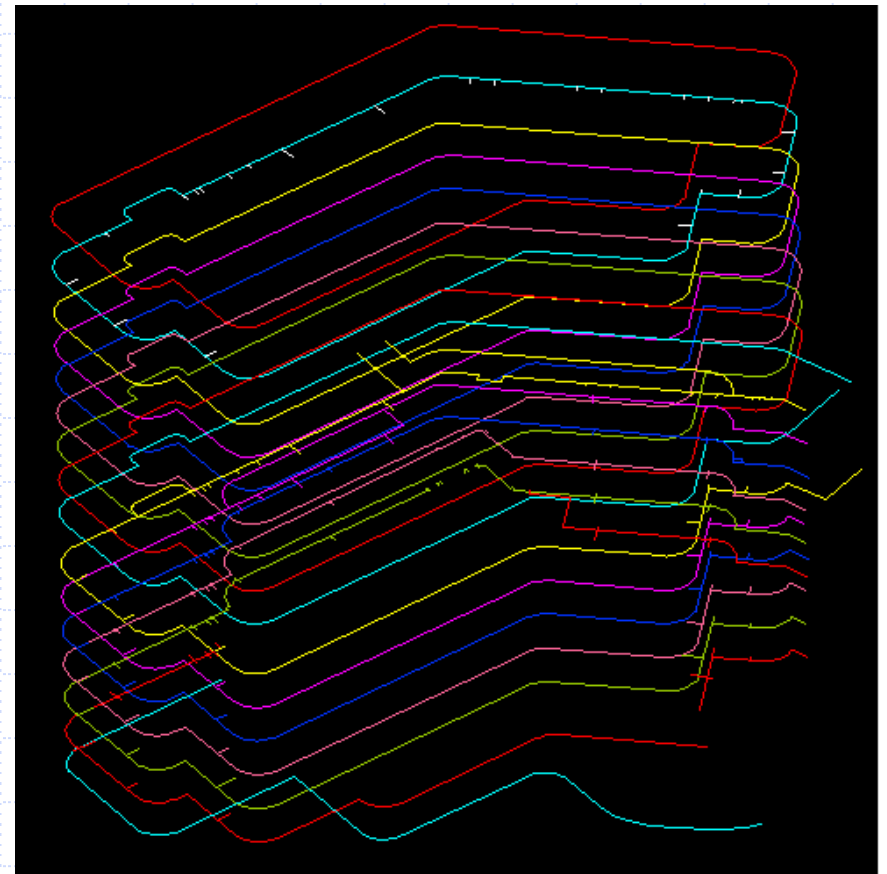


HK Sanatorium & Hospital

Laser Scan Image

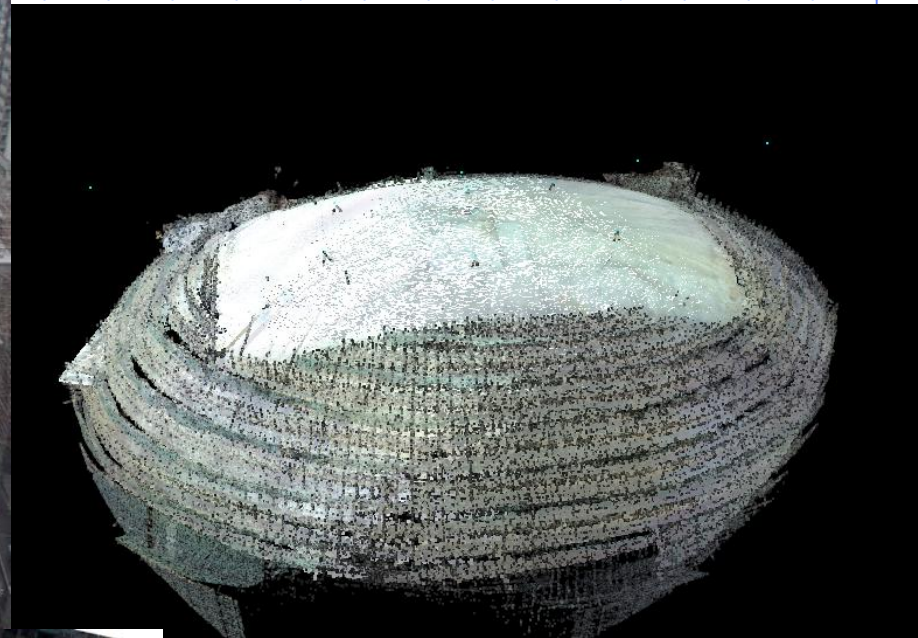
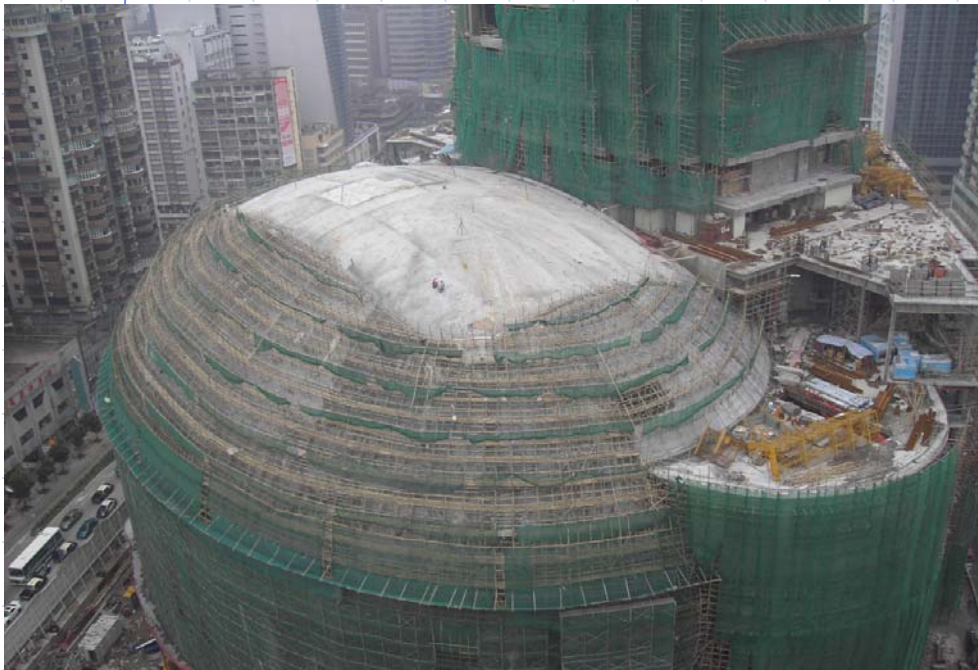


AUTOCAD Generated Floor Plans



Grand Lisboa Hotel & Casino, Macau

Requirements: Bracketry and glass to clad 'Egg' structure in design ellipsoid shape.
Specified concrete tolerances for bracket installation +/- 25mm



- 3D Laser Scan model collected from 4 different scanning locations
- As built 3D model accurate to +/- 6mm

Stage 1: The Existing Structure

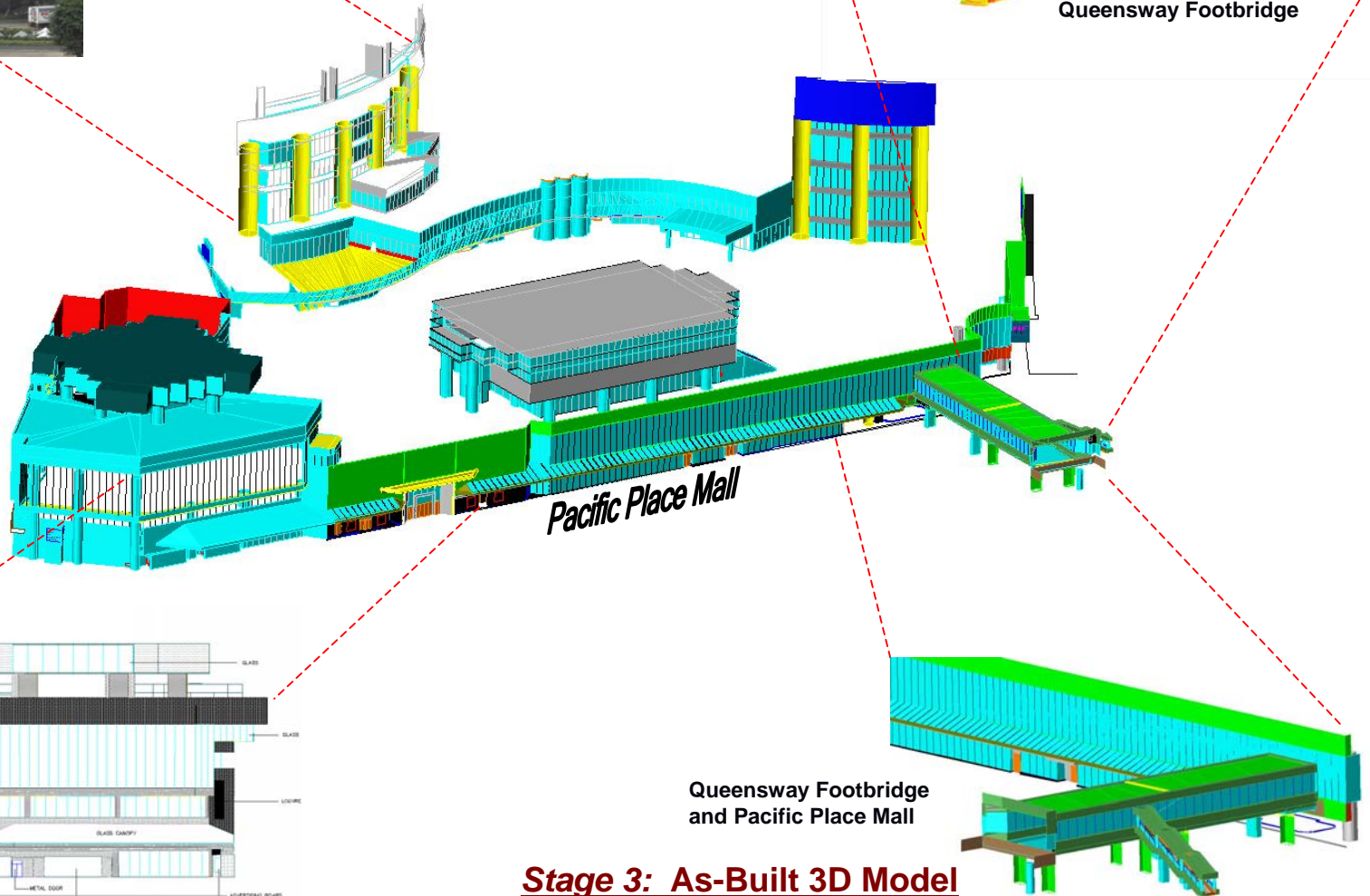


Conrad Hotel

Stage 2: 3D Scan



Queensway Footbridge



Stage 3: As-Built 3D Model

Marriott Hotel and Pacific Place Mall

Queensway Footbridge and Pacific Place Mall



Stage 4: As-Built 2D Elevations

Queensway Footbridge at Pacific Place



The Structure

No direct access to structure

Main road with heavy and continuous traffic

Heavy pedestrian area at staircase

Intricate pipe alignment under bridge soffit

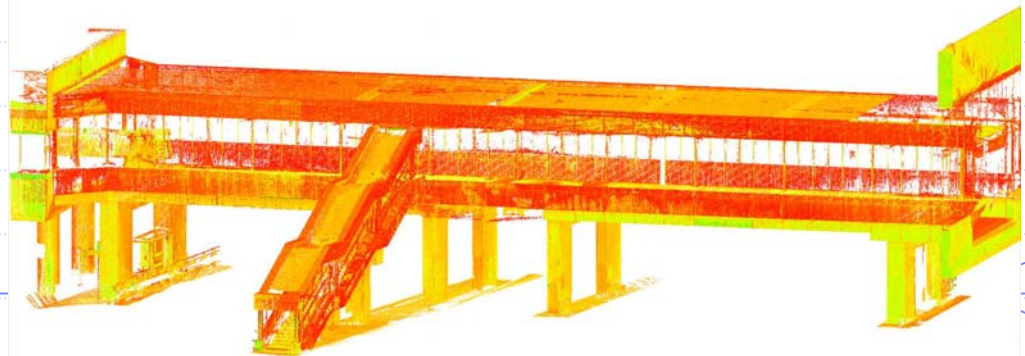
The Scan

Entire as-built survey collected

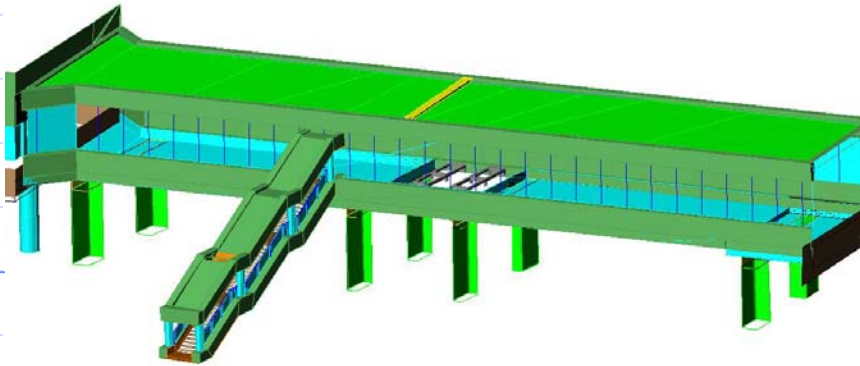
All detail clearly recorded

No access to structure required

All data recorded in x,y,z



Queensway Footbridge at Pacific Place



The 3D Model

Created from the scan data sets
Surface model complete with all detail
AutoCAD/Microstation compatible

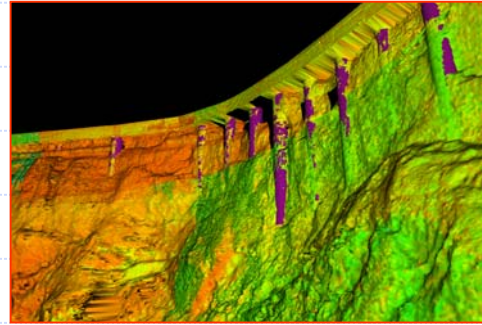
2D Elevations

Elevation drawings converted from 3D model
Architectural standard drawings
AutoCAD/Microstation format

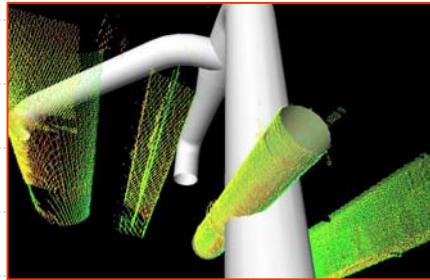


Other Application Examples

Slopes

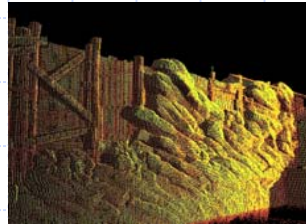


Structures



- ◆ Catches *every* interference
- ◆ Catches reality's flaws, e.g. bent pipes
- ◆ Designer benefits of working in 3D

Theme Parks



Heritage

