



CONSTRUCTION ENGINEERED

CLIENT GUIDE – SURVEY & REALITY CAPTURE

Measure it once. Build it right.

What a full onsite laser scan from OD3 gives you — and the risk it takes off your project before anything is fabricated.

Trimble **X7**

Point accuracy **3.5 mm @ 20 m**

Point cloud → BIM

UK & **Ireland**

SCOPE MY SITE

DOWNLOAD THE PDF

01 — THE SHORT VERSION

What you are actually buying

Not a survey report. A verified digital record of your site, at a known accuracy, that every discipline downstream builds from.

Overruns on refurbishment, retrofit and plant work nearly always trace to one thing: the design assumed something the site did not confirm. A beam that will not land. A duct through a wall 90 mm out of plumb.

We scan what is physically there and hand you one source of truth. **Scanning a building costs a fraction of one clash found on site.**



• NEW STEEL MODELLED INSIDE THE MEASURED CLOUD

02 — HOW IT WORKS

One visit. Five stages.

Stages 01–03 are the capture engagement. Modelling, coordination and set-out follow on from the same data as additional services, available on request.



01

Scope & control

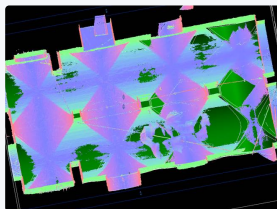
Tolerance agreed and tied to your grid or OS datum.



02

Onsite capture

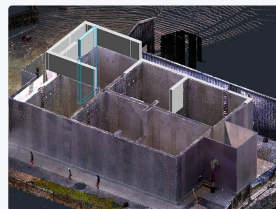
No power, no fixings, no interruption. Live plant is routine.



03

Registration & QA

Checked to tolerance. You get the numbers, not a promise.

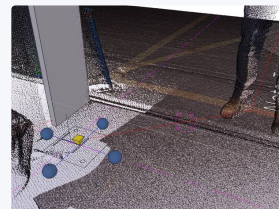


04

Model & coordinate

ON REQUEST

Scan-to-BIM, point-cloud-to-Tekla, then clash-tested.



05

Setout & verify

ON REQUEST

Robotic total station from the model, then re-scanned.

03 — THE NUMBERS

Accuracy, stated honestly

Three different accuracies exist in any scanning job. Most vendors blur them. We separate them.

3.5mm

Published 3D point accuracy at 20 m — the instrument's own precision.

<2.5mm

Range accuracy at 30 m, 3" angular, automatic dual-axis compensator.

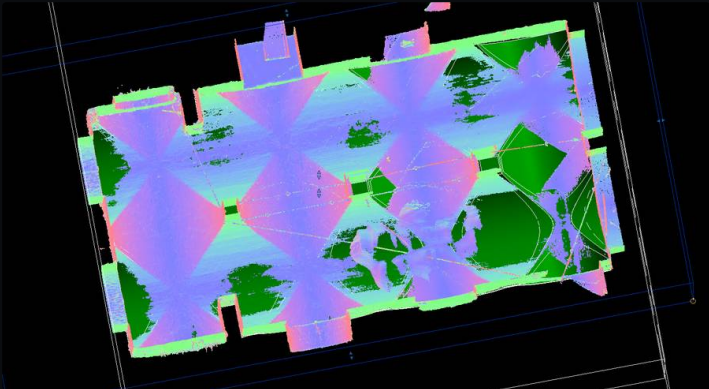
500kHz

Capture rate, 0.6–80 m range, self-calibrating in the field on every setup.

Deliverables are specified, not promised

Rather than a vague “millimetre accurate”, we specify the delivered model against the USIBD Level of Accuracy standard — so tolerance is contractual, agreed before we mobilise.

LEVEL	TOLERANCE	WHERE IT FITS
LOA10	5–15 cm	Feasibility, massing
LOA20	15 mm–5 cm	Architectural & services coordination
LOA30	5–15 mm	Steel interfaces, connection design
LOA40	1–5 mm	Precision plant, machine bases



● DEVIATION HEAT MAP — AS-BUILT VS DESIGN INTENT

Instrument figures: Trimble published data for the X7. Tolerance bands: USIBD Level of Accuracy Specification. Achievable project accuracy confirmed at scope stage and reported per project.

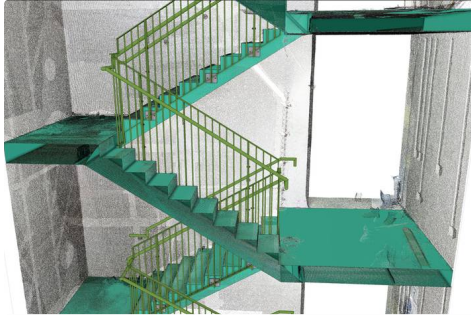
Want these figures stated against your own site?

REQUEST A SCOPE

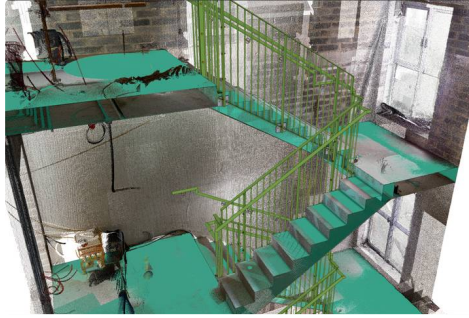
04 — CLOUD TO MODEL

What it looks like

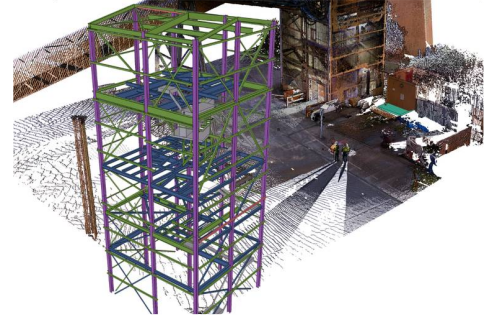
Real OD3 capture and models. Grey and colour is measured reality; the solid geometry is what we build from it.



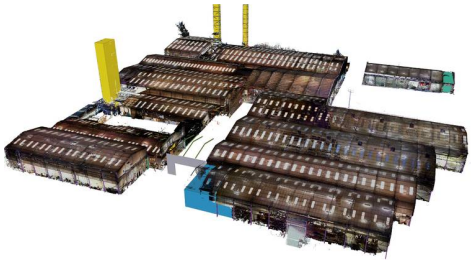
● EXISTING STAIR CORE, MODELLED



● ACCESS PLATFORMS IN A WET CHAMBER



● NEW TOWER STEEL INTO A QUARRY PLANT



● MANUFACTURING FACILITY, SCAN-TO-BIM



● WATER TREATMENT WORKS UPGRADE



● CONVEYOR & HOPPER, REVERSE ENGINEERED

If we can see it, we can measure it.

Underground, at height, over water, inside live plant — captured without anyone needing to reach it.

05 — MODEL COORDINATION

Clashes found in an office, not on a scaffold



● EXISTING CONDITIONS FEDERATED WITH PROPOSED DESIGN

Federation

Existing, structural, architectural, MEP and process in one environment.

Clash detection

Hard, soft and sequence clashes — each with a location and an owner.

Issue tracking

Tracked to closure in RedPen, our Tekla-native platform. Not lost in a PDF.

Constructability

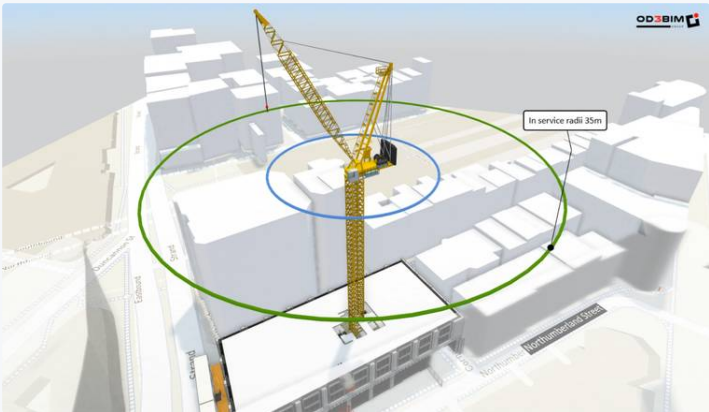
Crane access, temporary works, bolt-up clearance, erection sequence.

WITHOUT CAPTURE	WITH OD3
- Designed off legacy drawings that were never as-built - Clashes found by an installer with a crane on hire - Site variations, RFIs, remedial welding - Rework at site rates, not workshop rates - Arguments over who owned the dimension	- Designed against measured, verified conditions - Clashes resolved weeks before mobilisation - Fewer RFIs, faster approvals - Corrections made in the model at zero material cost - A defensible dimensional record for the whole team

06 — DESIGN ACCELERATION

Certainty is speed

The hidden cost of uncertain dimensions is not error. It is delay — and the contingency engineers add to protect themselves from it.



• 4D SEQUENCING AND CRANE RADIUS, PLANNED FROM THE MODEL

Design starts in days

The cloud is ready within days.
No waiting on repeat site visits.

No defensive padding

Known geometry means tight connections, not slotted holes and site welds.

One survey, every trade

Structural, mechanical, electrical and civils work off the same capture.

Earlier fabrication release

Confidence releases drawings to the workshop sooner — the longest lever on programme.

Fit-first-time steel

Point-cloud-to-Tekla: modelled against the structure it must bolt onto.

Options tested cheaply

Layouts, plant swaps and access routes trialled in the model in an afternoon.

07 — WHERE IT EARNS ITS MONEY

Sectors and use cases

Reality capture pays back hardest wherever new work has to meet something that already exists.



Industrial & manufacturing plant

- Machinery replacement & relocation
- Mezzanines, platforms, access & guarding
- Conveyors, hoppers, material handling
- Process line reconfiguration

RISK REMOVED

Shutdown overruns — scan during a planned outage, design while the plant runs.

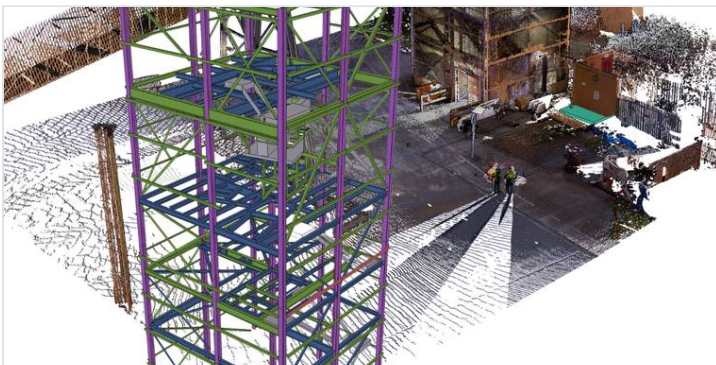


Main contractors & commercial build

- Refurbishment, fit-out and extensions
- Tie-ins to existing structures
- Slab level and poured concrete verification
- Heritage fabric, progress and dispute records

RISK REMOVED

Finding the building is not where the drawings said — after the frame is on order.



Steel fabricators

- Scan-to-Tekla of existing frames
- Connection design against measured conditions
- Baseplate and bolt hole confirmation
- As-built verification of erected steel

RISK REMOVED

Members returning to the workshop. Fit-first-time replaces cut-and-shut on site.



Water treatment & MEP

- Tank, filter and clarifier upgrades
- Pipework and pumping station retrofit
- Wet wells, chambers and confined spaces
- Plant room, riser and ceiling void routing

RISK REMOVED

Congested and hazardous spaces where physical measurement is slow or impossible.

08 — DELIVERABLES

What lands in your inbox

Point cloud and browser viewer are standard. Modelling, drawings, coordination and verification are additional services, available on request.

Registered point cloud

Full colour, your coordinate system. E57, RCP/RCS, LAS, TZF — with the QA report.

Browser viewer

Walk the site, measure and section it from a laptop. No licence, no training.

BIM model

ON REQUEST

Revit, Tekla or IFC at the agreed detail and LOA.

2D outputs

ON REQUEST

Plans, sections, elevations and setting-out drawings from measured data.

Coordination report

ON REQUEST

Clash schedule with location, severity and resolution, tracked to sign-off.

Verification data

ON REQUEST

Deviation and heat-map analysis — proof of what was actually installed.

Send a site address and a rough footprint — you get a fixed price and a programme back.

EMAIL [INFO@OD3.CO.UK](mailto:info@od3.co.uk)

09 – FULL CAPABILITY

Everything else OD3 does

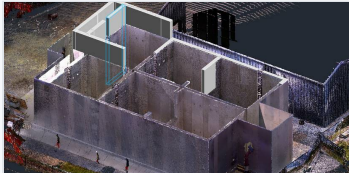
Reality capture is the front end of a single digital thread — point cloud to fabricated, verified steel. Take any part of it, or all of it.



01

Survey & Reality Capture

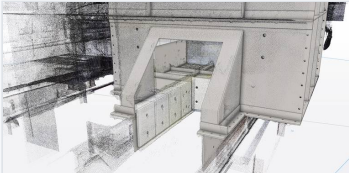
Trimble X7 scanning, measured building and topographical survey, registration QA, as-built verification, progress records.



02

BIM & Digital Construction

Scan-to-BIM in Revit, point-cloud-to-Tekla, federation, clash detection, MEP & plant coordination, digital twins.



03

Structural Engineering

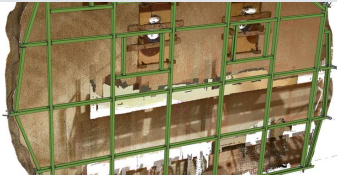
Analysis and design, connection design to Eurocode 3, PI-backed sign-off, temporary works, appraisal of existing structures.



04

Structural Steel Detailing

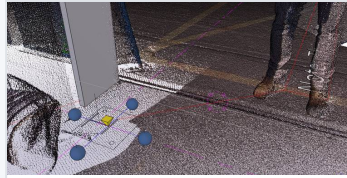
Full Tekla detailing, fabrication and erection drawings, CNC / NC1 & DSTV output, material lists and delivery schedules.



05

Mechanical & Plant Design

SolidWorks plant and machinery design, concept to workshop-ready package, bespoke guarding, access and plant layout.



06

Onsite Set-Out

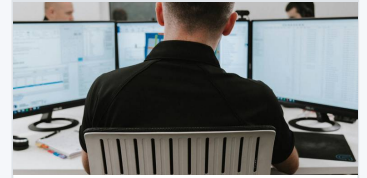
Robotic total station setout direct from the model, holding-down bolts, grids, levels and as-built sign-off surveys.



07

Project Delivery

4D sequencing and planning, project and technical management, RAMS administration, tender and bid visuals.



08

RedPen — OD3 Technology

Our Tekla-native quality and issue platform. Model-attached mark-ups, approvals and a full audit trail. Built by detailers.

10 — STRAIGHT ANSWERS

The questions clients ask first

Will it disrupt operations?

Rarely. Battery powered, tripod mounted, no fixings. We work around shifts, shutdowns and occupied buildings.

Do we need special software?

No. Browser access is included so anyone can view, measure and section it.

Is our data confidential?

Yes. Held securely, never published without written consent. Happy to sign your NDA.

How long does it take?

Typically a day or less on site for one building or plant area. Modelling duration depends on scope — quoted with a fixed programme.

What if the scanner can't see something?

Occlusions are identified on site and closed out with extra setups. If something is genuinely inaccessible, you hear it before we leave.

Is the engineering insured?

Yes — £1m professional indemnity, designed to Eurocode 3 (EN 1993) with NSSS adherence.

11 — WHY OD3



• THE SAME TEAM SCANS, MODELS, ENGINEERS AND DETAILS

One digital thread, one accountable party

Surveyors who detail steel

Not a survey bureau handing data to strangers. The capture is specified for what fabrication actually needs.

No handover gaps

The commonest failure in digital construction is the gap between disciplines. We remove it — and the argument that comes with it.

Technology we build ourselves

A practising consultancy and a software company. The tools on your project are the ones we use daily on our own.

NEXT STEP

Let us scope your site.

Send a site address, a rough floor area or plant footprint, and what you are trying to build or replace. You get a fixed price, a programme, and a clear statement of the accuracy you will receive — before committing to anything.

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OD3 Group — a Northern Ireland structural engineering consultancy and digital construction specialist. Reality capture, BIM, connection design, steel detailing, set-out and construction technology. Serving the UK & Ireland.

All imagery is OD3 project work. Instrument specifications quoted from Trimble published data for the X7. Tolerance bands referenced from the USIBD Level of Accuracy Specification.