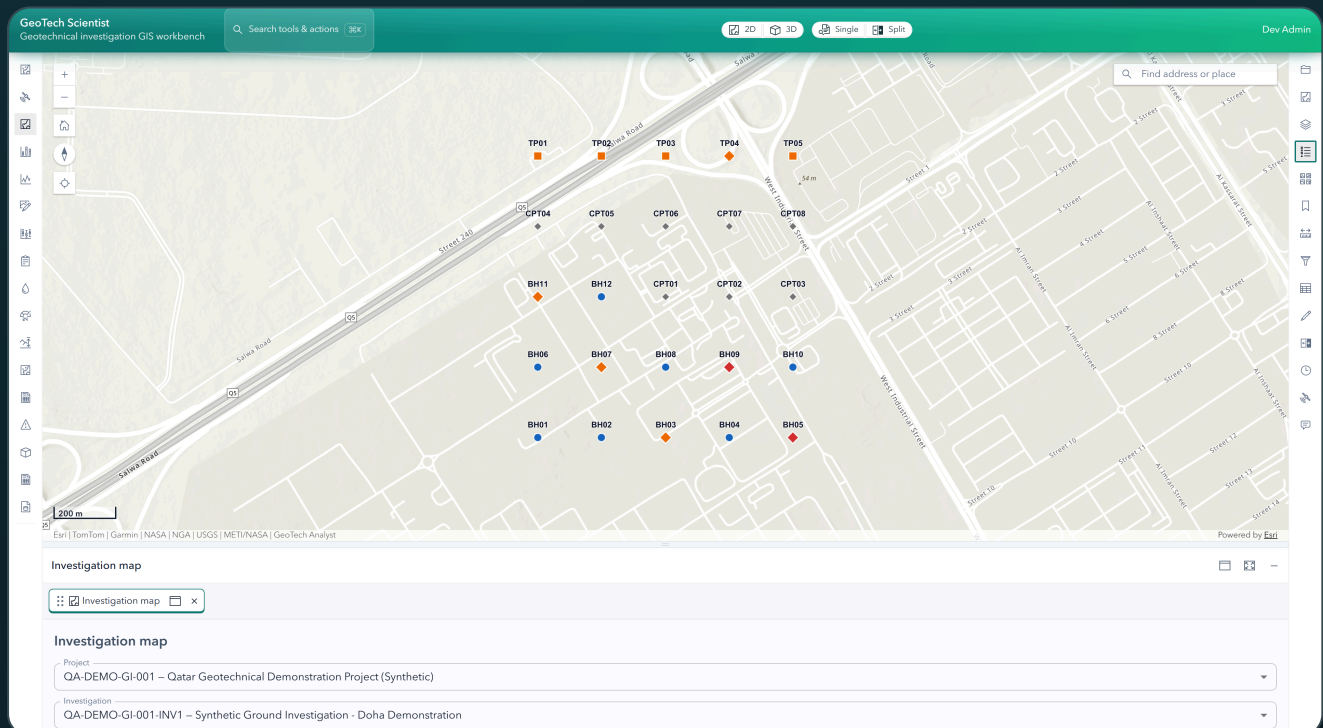


GeoTech Scientist

Integrated Geotechnical Investigation & Subsurface Intelligence

One platform from field investigation to engineering decision — boreholes, in-situ and laboratory tests, logs, GIS, cross sections, 3D ground models, and governed interpretation, all traceable to source.



THE PLATFORM IN ONE LINE

A single environment for ground investigation and subsurface intelligence

Geotechnical projects generate some of the most valuable — and most fragmented — data in civil engineering. GeoTech Scientist unifies that data across the whole investigation lifecycle, so a value logged in the field can be followed all the way to a design parameter and a report, without leaving the platform.

Field → Design

One connected data thread from borehole to design parameter

Web-based

Runs in the browser on a governed FastAPI + SQL Server backend

AGS4 & DIGGS

Import and export the industry geotechnical exchange formats

WHAT'S INSIDE THIS BROCHURE

01 — 03

The challenge & the platform

Why geotechnical data fragments, and how GeoTech Scientist connects it.

04 — 08

Investigate, log & test

Mapping, boreholes, drilling, laboratory, and CPT/in-situ testing.

09 — 12

Model & interpret

Cross sections, 3D ground models, design parameters, and hazards.

13 — 20

Assure, exchange & deliver

Traceability, exchange, reporting, users, and applications.

THE GEOTECHNICAL INFORMATION CHALLENGE

Ground data is valuable — and usually scattered

Across a typical investigation, the ground truth ends up spread across spreadsheets, PDFs, logging tools, GIS files, and email. That makes review slow, correlation manual, and traceability fragile.

**Fragmented spreadsheets**

Field, lab, and interpretation data live in separate files with no shared identity.

**Disconnected field & lab**

Samples and results drift away from the borehole and depth they came from.

**Inconsistent logs**

Every author draws logs differently, so deliverables vary project to project.

**Limited spatial context**

Locations, sections, and ground models are hard to see together on one map.

**Manual reporting**

Logs, sections, and factual reports are re-assembled by hand for each output.

**Fragile traceability**

When a parameter is questioned, the path back to the source record is unclear.

COMPONENT ECOSYSTEM

One platform, connected geotechnical components

Data captured once flows through logging, correlation, interpretation, and reporting. Each component reads the same governed project, so nothing is re-keyed.

01

Project & investigation setup

Projects, sites, investigations, and planned locations.

02

Investigation mapping

Every borehole, trial pit, and test on one filterable GIS map.

03

Logging & field records

Strata, SPT, groundwater, core, and drilling as standard logs.

04

Samples & laboratory

Samples and lab tests linked to depth and borehole.

05

CPT / CPTu & in-situ

Cone traces, derived parameters, and soil behaviour type.

06

Cross sections & 3D models

Correlate units and build 3D ground models.

07

Interpretation & hazards

Governed design parameters and a risk register.

08

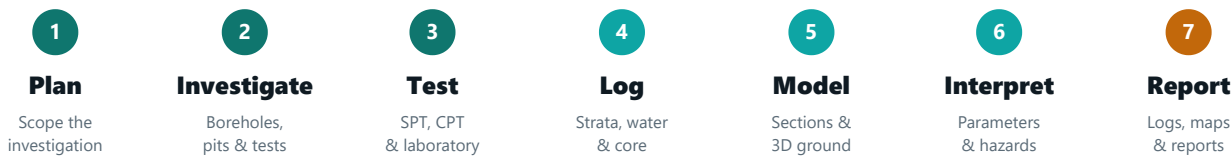
Exchange & reporting

AGS4/DIGGS exchange and factual deliverables.

CONNECTED INVESTIGATION WORKFLOW

From plan to report, on one thread of evidence

Each stage builds on the last, and every result stays traceable to the record it came from.



EVERY OUTPUT STAYS TRACEABLE TO ITS SOURCE RECORD

A parameter, a section line, or a report figure can be followed back to the borehole, sample, or test it came from.

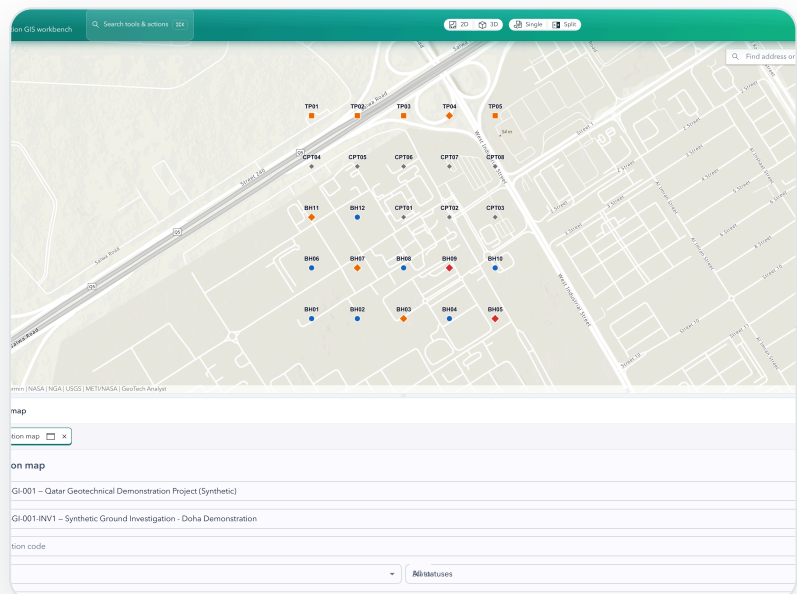
PROJECT & SITE MANAGEMENT · GIS

See the whole investigation on one map

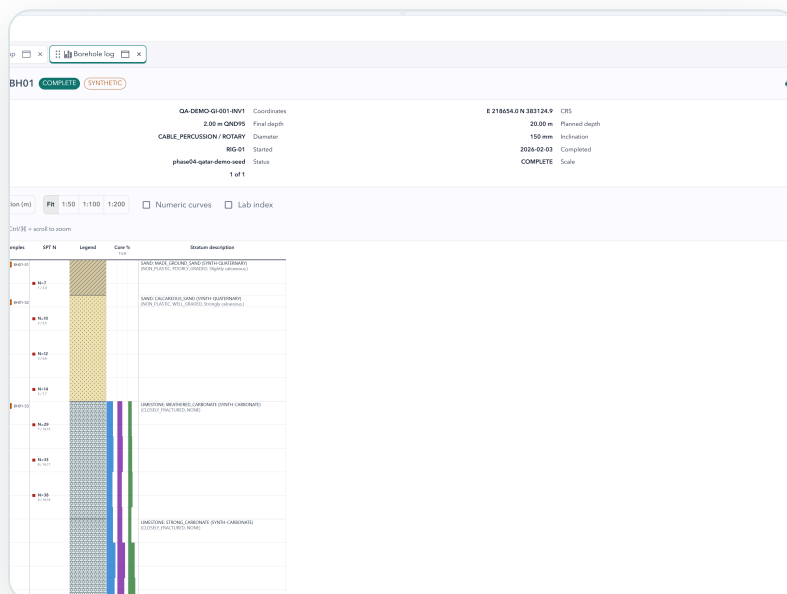
Set up projects, sites, and investigations, then plot every borehole, trial pit, and in-situ test on a single filterable map. Search, type and status filters, and color-by symbology keep large ground investigations legible.

The map is the entry point to the platform: selecting a project brings its locations, sections, interpretation, and hazards into context for every other component.

- Boreholes, trial pits, and tests as one located dataset
- Filter by type, status, and attributes; read coordinates live
- Shared selection populates logs, sections, and interpretation



Investigation map — every location plotted, filtered, and searchable.



Industry-standard borehole log — lithology hatching, SPT, samples, water strikes, and core.

GEOLOGICAL & GEOTECHNICAL LOGGING

Field records, rendered as logs a reviewer can trust

Capture strata and lithology, SPT N-values, groundwater observations, samples, and core recovery, then read them back as a consistent, industry-standard borehole log — the same format on every project.

- Lithology hatching, SPT, water, sample and core tracks
- Consistent, print-ready log sheets across authors
- Synthetic and real records clearly distinguished

OUTCOME

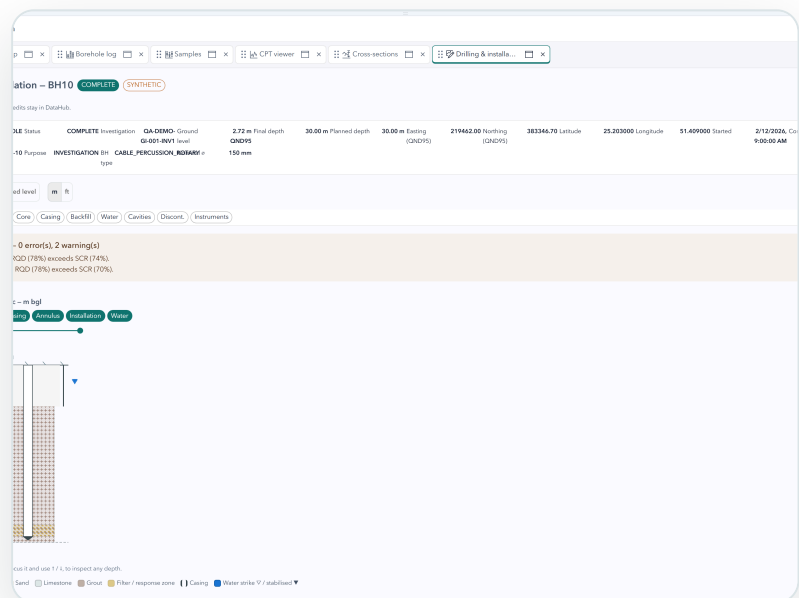
Standardised logs that read the same whoever produced them — and stay linked to their underlying records.

FIELD INVESTIGATION

Drilling and installation, beside the log

Review drilling runs, casing, backfill, and installed instruments as construction detail alongside the geological record — so how a hole was advanced and instrumented is never separated from what it found.

- Drilling runs and construction intervals
- Casing, backfill, and instrument installation detail
- Lithology context kept alongside the schematic



Drilling & installation detail with construction intervals and instruments.

Type	Depth (m)	Quality class	Recovery %	Provenance	Sampled
DISTURBED	0.20 - 0.45	CLASS_2	90.0	RECEIVED SYNTHETIC	2/5/2026, 1:00:00 PM
DISTURBED	1.80 - 2.25	CLASS_2	85.0	RECEIVED SYNTHETIC	2/5/2026, 2:00:00 PM
CORE	6.20 - 6.65	CLASS_1	95.0	RECEIVED SYNTHETIC	2/5/2026, 3:00:00 PM

Samples and laboratory tests linked to the borehole and depth they came from.

LABORATORY DATA
MANAGEMENT

Samples and
lab results that
never lose their
origin

Track samples from the field to the bench and link laboratory tests back to the exact borehole and depth interval they represent — keeping classification and engineering properties connected to ground truth.

- Sample register with type, depth, and status
- Laboratory tests linked to source samples
- Results ready to feed classification and interpretation

OUTCOME

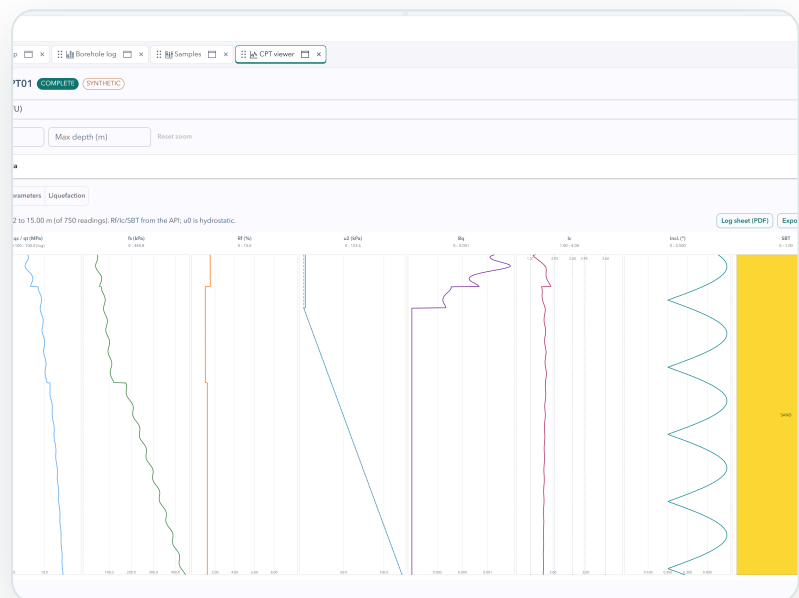
Laboratory data that stays connected to the subsurface, not stranded in a separate spreadsheet.

CPT / CPTU & IN-SITU

Cone profiles with derived parameters in view

Read multi-track CPT/CPTu logs — cone resistance, sleeve friction, and pore pressure — with derived parameters and soil behaviour type classification alongside the profile, and window the depth range for closer inspection.

- Multi-track cone logs with a depth crosshair
- Derived parameters and soil behaviour type (SBT)
- Depth-windowed refetch for detailed review



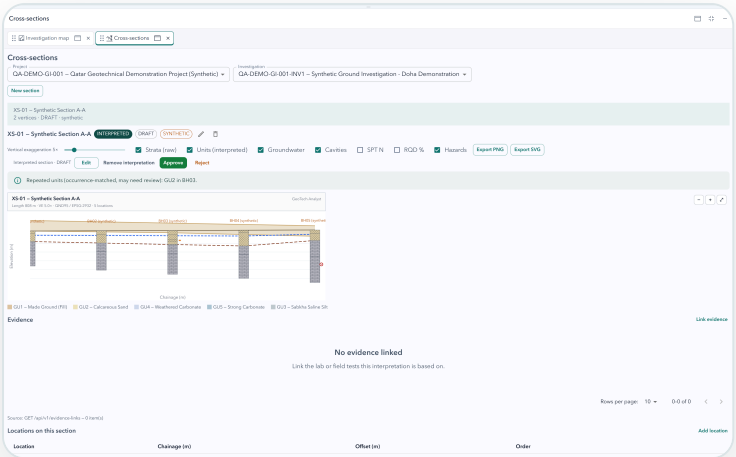
CPT viewer — cone traces with soil behaviour type classification.

CORRELATION

Correlate the ground between boreholes

Draw scaled geological cross sections that correlate units, rockhead, and surfaces across selected locations — turning point data into a picture of the ground.

- Scaled sections with tagged units and rockhead
- Built from the same located boreholes
- Export for inclusion in reports



Geological cross section correlating strata across boreholes.

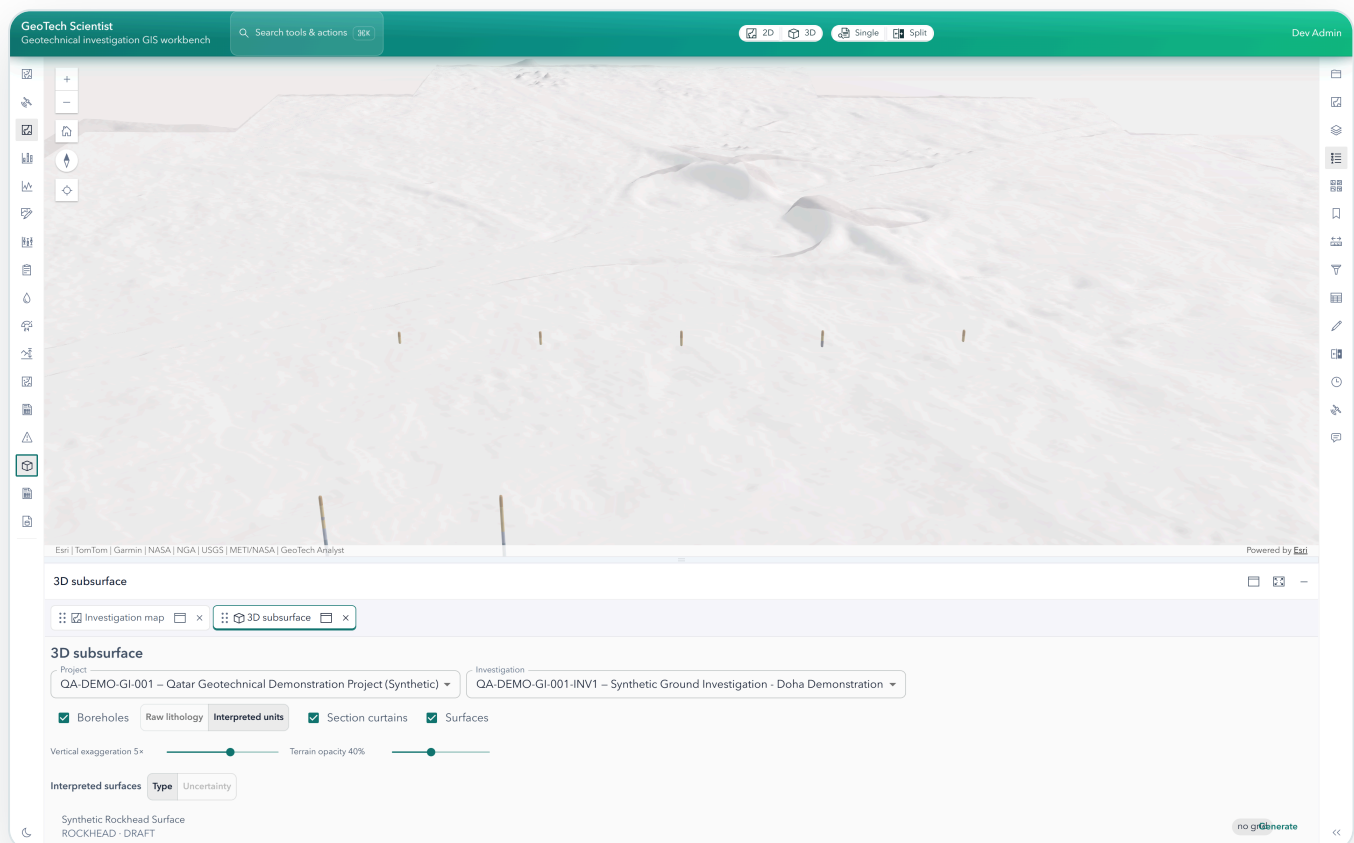
FROM BOREHOLES TO A SECTION



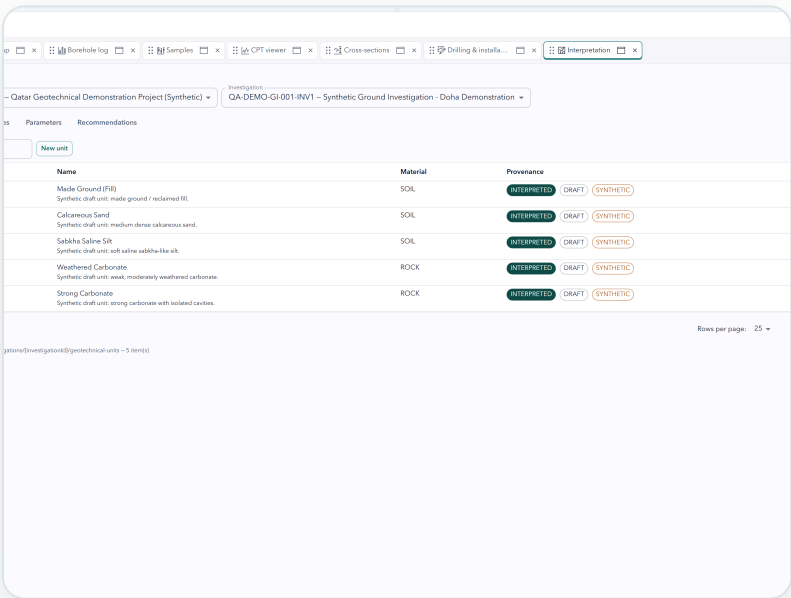
3D SUBSURFACE VISUALIZATION

Build a 3D picture of the ground

Render boreholes, lithology, correlated units, and section curtains as a 3D ground model in a terrain-aware scene — so ground conditions can be understood in space, with vertical exaggeration and layer toggles for review.



Boreholes, lithology, and correlated units as a 3D ground model.



The screenshot displays the 'Interpretation' tab of the GeoTech Scientist software. It features a table with columns for Name, Material, and Provenance. The table lists five geotechnical units: Made Ground (Fill), Calcareous Sand, Saline Silty, Weathered Carbonate, and Strong Carbonate. Each unit has a 'SYNTHETIC' status and a 'DRAFT' status. The 'Provenance' column contains buttons for 'INTERPRETED', 'DRAFT', and 'SYNTHETIC'. The interface also includes a 'New unit' button and a 'Rows per page' dropdown set to 25.

Name	Material	Provenance
Made Ground (Fill) Synthetic draft unit: made ground / reclaimed fill	SOIL	INTERPRETED DRAFT SYNTHETIC
Calcareous Sand Synthetic draft unit: medium dense calcareous sand	SOIL	INTERPRETED DRAFT SYNTHETIC
Saline Silty Synthetic draft unit: soft saline subbitu-like silt	SOIL	INTERPRETED DRAFT SYNTHETIC
Weathered Carbonate Synthetic draft unit: weak, moderately weathered carbonate	ROCK	INTERPRETED DRAFT SYNTHETIC
Strong Carbonate Synthetic draft unit: strong carbonate with isolated cavities	ROCK	INTERPRETED DRAFT SYNTHETIC

Governed geotechnical design parameters with validation and provenance.

ENGINEERING INTERPRETATION

Design parameters, governed and traceable

Record and govern geotechnical design parameters with controlled vocabularies, validation, and status — so interpreted values carry provenance and can be defended when questioned.

- Controlled vocabularies and lookups
- Validation and record status (draft / interpreted)
- Values traceable to the evidence behind them

DATA QUALITY & RISK

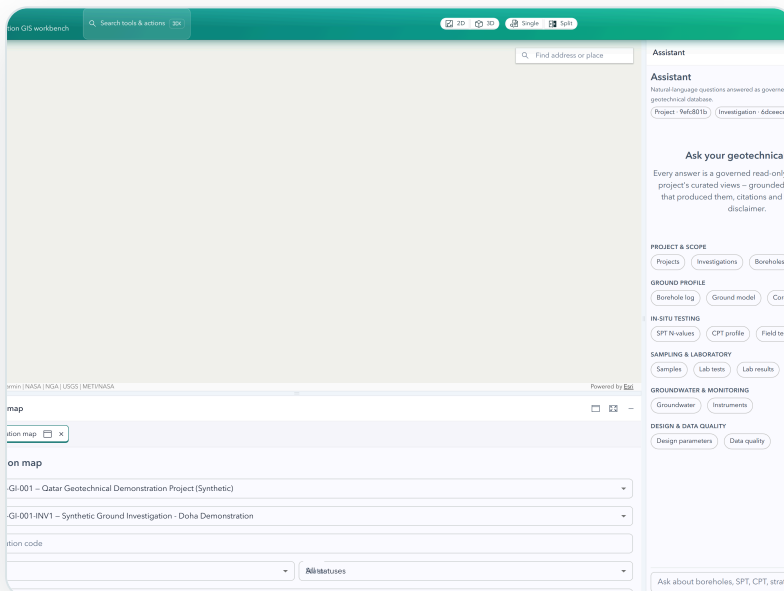
A geotechnical hazard & risk register

Maintain a live register of ground-related hazards with a likelihood–consequence matrix, filters, and depth context — keeping risk beside the evidence rather than in a separate document.

- Hazard register with code sets and filters
- 5×5 likelihood–consequence risk matrix
- Risk kept next to the investigation data

Title	Severity	Likelihood	Risk	Status	Review	Depth (m)	Location	Pop.
ground	Moderate	Possible	Moderate	Open	Draft	2.85 - 4.50	TP04 (TRIAL PIT)	INTERPRETED SYNTHETIC
ground	Moderate	Possible	Moderate	Open	Draft	4.75 - 5.55	BH07 (BOREHOLE)	INTERPRETED SYNTHETIC
ground	Moderate	Possible	Moderate	Open	Draft	5.00 - 5.80	BH11 (BOREHOLE)	INTERPRETED SYNTHETIC
ground	Moderate	Possible	Moderate	Open	Draft	5.25 - 6.05	BH03 (BOREHOLE)	INTERPRETED SYNTHETIC
	High	Possible	High	Open	Draft	19.50 - 19.80	BH05 (BOREHOLE)	INTERPRETED SYNTHETIC
	High	Possible	High	Open	Draft	19.50 - 19.80	BH09 (BOREHOLE)	INTERPRETED SYNTHETIC

Hazard & risk register with a 5×5 likelihood–consequence matrix.



The governed assistant — scoped, read-only questions over the project's geotechnical data.

AI-ASSISTED, GOVERNED

Ask the data, within guardrails

Pose plain-language questions scoped to the project's geotechnical data. The assistant is designed to be governed and read-only, so answers stay grounded in the underlying records. AI assists qualified professionals; it does not replace review.

- Scoped, categorized questions over project data
- Governed and read-only by design
- Answers kept grounded in source records

EXCHANGE & DEPLOYMENT

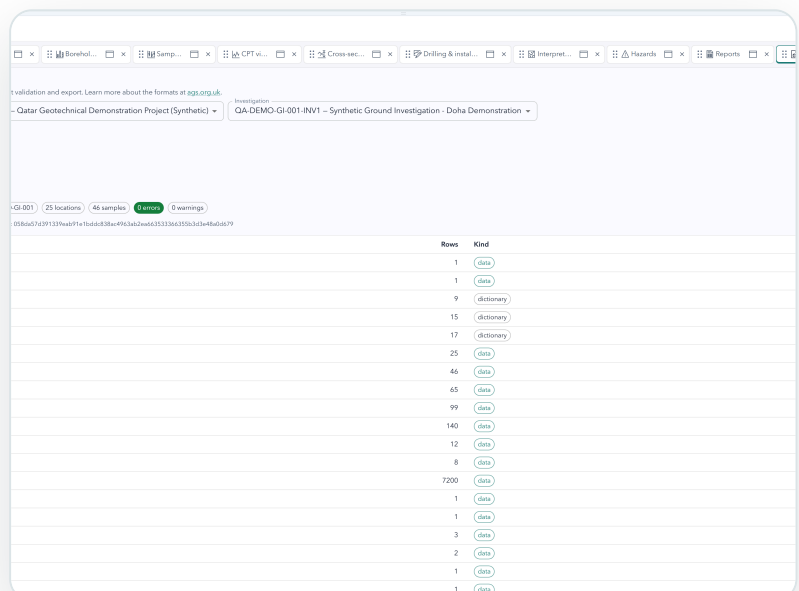
Move data in the formats the industry uses

Import and export AGS4 and DIGGS with validation, so GeoTech Scientist fits alongside existing tools and supply chains rather than replacing them wholesale.

- AGS4 and DIGGS import and export
- Validation on exchange
- Web-based on a FastAPI + SQL Server backend

DEPLOYMENT

A browser-based application backed by a governed API and SQL Server database, with same-origin API access.



The screenshot displays the GeoTech Scientist web application interface. At the top, there's a navigation bar with various icons and tabs. Below the navigation bar, there's a header section with a title and a dropdown menu. The main content area features a table with two columns: 'Rows' and 'Kind'. The table contains multiple rows of data, with 'Rows' values ranging from 1 to 7200 and 'Kind' values including 'data', 'dictionary', and 'warning'. The interface is clean and modern, with a light blue and white color scheme.

Rows	Kind
1	data
1	data
9	dictionary
15	dictionary
17	dictionary
25	data
46	data
65	data
99	data
140	data
12	data
8	data
7200	data
1	data
1	data
3	data
2	data
1	data
1	data

Import and export industry exchange formats — AGS4 and DIGGS — with validation.

REPORTS & DELIVERABLES

Deliverables generated from the same data

Produce factual reports, logs, and sections from the records you have already captured — so deliverables reflect the live project rather than a re-keyed copy of it.

Investigation mapBorehole logSamplesCPT viewerCross-sectionsDrilling & installa...InterpretationHazardsReports

Reports

Allowed, versioned report packages built as tracked, checksum-stamped jobs. Preview renders the issued document; Print saves it as PDF.

ProjectQA-DEMO-GI-001 – Qatar Geotechnical Demonstration Project (Synthetic)InvestigationQA-DEMO-GI-001-INV1 – Synthetic Ground Investigation - Doha Demonstration

Report definitions

DefinitionRevisionIssued to (client)Request build

Report runs

DefinitionStatusAll statuses

Definition	Version	Status	Review	Checksum	Requested	Completed	
borehole-logs	v4	COMPLETED	DRAFT	26d28c289982..	7/21/2026, 6:41:39 PM	7/21/2026, 6:41:40 PM	PreviewDownloadSubmit for review
borehole-logs	v3	COMPLETED	DRAFT	b3298960e16d..	7/21/2026, 4:10:15 PM	7/21/2026, 4:10:15 PM	PreviewDownloadSubmit for review
borehole-logs	v2	COMPLETED	DRAFT	c8e98878c6a5..	7/21/2026, 2:18:48 PM	7/21/2026, 2:18:48 PM	PreviewDownloadSubmit for review
borehole-logs	v1	COMPLETED	DRAFT	4a83ca207478..	7/21/2026, 1:53:01 PM	7/21/2026, 1:53:01 PM	PreviewDownloadSubmit for review

Rows per page: 251-4 of 4

Source: GET /api/v1/reports/runs - 4 item(s)

Report-ready deliverables — logs, sections, and factual reports from one dataset.

WHO IT'S FOR

Built for the teams behind ground investigation

Geotechnical engineers

Interpretation, design parameters, and reporting.

Engineering geologists

Logging, stratigraphy, and correlation.

Field investigation teams

Borehole, drilling, and in-situ records.

Laboratory teams

Samples and test results linked to source.

GIS professionals

Investigation mapping and spatial context.

Project managers & consultants

Progress, deliverables, and traceability.

WHERE IT APPLIES

Buildings & foundations

Roads & highways

Bridges

Tunnels

Railways

Dams & embankments

Ports & marine

Airports

Industrial facilities

Mining & resources

Utilities & pipelines

Urban development

WHY GEOTECH SCIENTIST

Evidence-based differentiators

GeoTech Scientist is built around one idea: keep ground investigation data connected and traceable, from the field to the report.

One connected dataset

Projects, boreholes, tests, logs, sections, and interpretation share the same governed data — captured once, used throughout.

Standardised deliverables

Industry-standard logs and sections that read the same across authors and projects.

Traceable interpretation

Governed design parameters and hazards that carry provenance back to source records.

Spatial & 3D context

Investigation mapping, cross sections, and 3D ground models in one workspace.

Industry exchange

AGS4 and DIGGS import/export so the platform fits existing supply chains.

Governed & web-based

Browser-based on a FastAPI + SQL Server backend, with AI kept read-only and reviewable.

REQUEST A DEMO

See GeoTech Scientist on your own investigation workflow

Talk to SpatialTechSolutions about product fit, implementation scope, data import from AGS/DIGGS, integrations, and deployment. We will walk through investigation setup, logging, sections, 3D models, interpretation, and reporting on representative data.

Product fit

Map your investigation workflow to the platform's components.

Data readiness

Review AGS4/DIGGS import and how your data would land.

Governance

Authentication, roles, and read-only AI review controls.

Deployment

Browser-based on a FastAPI + SQL Server backend.

SpatialTechSolutions

Enterprise GIS · Groundwater · Geotechnical intelligence

spatialtechsolutions.com
connect@spatialtechsolutions.com

[Request a demo](#) · [/request-demo](#)