Ground Data for Growth Bill: Industry Response to Core Framing Questions from the Department of Science, Innovation and Technology

On 12 March 2026, the Department of Science, Innovation and Technology (DSIT) requested that the Digital Transformation of Ground Data initiative respond to a series of questions to give them, and Ministers, enough confidence that there is (1) a value case; (2) that consensus that change is needed exists across the industry; and, (3) that intervention is feasible. The Digital Transformation of Ground Data initiative drafted responses and, on 31 March 2026, distributed the draft responses to a variety of consultancies, contractors, client organisations, trade bodies, professional organisations, and others. The draft responses were also distributed to attendees of the Engineering Group of the Geological Society's Annual Conference, which this year also included the Geotechnical Asset Owners Forum. The organisations had until 14 April 2026 to respond, in advance of a roundtable meeting with DSIT on 16 April 2026.

Due to this short time period to gather responses, the trade bodies and professional organisations were unable to gather views from their members and their responses originate from nominated individuals from executive committees. These queries have touched on several details that will need to be worked through with industry engagement, and the views of industry need to be fully sought. This document therefore offers initial thoughts to be tested and refined through this process.

The following companies and organisations were contacted to generate this industry response:

- The companies and organisations in blue have provided comments.
- The companies and organisations in green did not comment but expressed support.
- The companies and organisations in black were contacted but did not respond.

Consultancies	GI Contractors	Construction Contractors	Client organisations	Trade Bodies & Professional Organisations	Others
ASquared Studio Engineers	Geotechnical Engineering Ltd	Balfour Beatty	National Highways	British Geotechnical Association	Equipe Group
AECOM	Soil Engineering Geoservices		Network Rail	Federation of Piling Specialists	University of Exeter
Arup	BAM		HS2	Quaternary Research Association Engineering Group	University of Southampton
Arcadis	Structural Soils Limited			British Drilling Association	
AtkinsRéalis	Ruddlesden Geotechnical			Association of Geotechnical and Geoenvironmental Specialists (AGS)	
Coffey Geotechnics	Fugro				
COWI	Van Elle (Strata Geotechnics)				
Geotechnical Consulting Group					
Haskoning					
Jacobs					
Mott MacDonald					
Reynolds Geo-Solutions Ltd					
Tony Gee & Partners					
Stantec					

The UK Geoscience Strategic Alliance has chosen to submit a separate one page statement of support as they felt that this was more appropriate given their wider remit than coming in as signatories on the more detailed version. Their response can be found in Appendix A.

The AGS response is included as Appendix B. All relevant parts of the AGS response have been used to inform the text in the body of this document.

This document has been updated following the industry roundtable that was held in London on 16 April 2026. The roundtable was operated under Chatham House Rules. It was attended by industry representatives of clients, contractors, and consultancies from industry, representatives from geological surveys, and representatives from the public sector including Arcadis, Arup, the Association of Geotechnical and Geoenvironmental Specialists, AtkinsRéalis, BAM, British Geological Survey, DSIT, Geological Survey of the Netherlands, Geological Survey of Northern Ireland,

Geotechnical Engineering Limited, Jacobs, Mott MacDonald, National Highways, Network Rail, and Structural Soils Limited.

CORE FRAMING QUESTIONS AND ANSWERS: SUMMARY

This section comprises a summary of the key points from the responses to each of the core framing questions.

No.	Question	Response
1	**Defining the problem (what's not working, who is it not working for)**	• Major infrastructure decisions in the UK are frequently made using incomplete or poor-quality ground investigation (GI) data, resulting in avoidable delays, increased costs, safety risks, and disputes; up to 40–60% of transport and linear projects have been reported to suffer delays due to unforeseen ground conditions. • Despite significant annual investment (estimated by others at £1.2bn), much GI data from publicly funded projects is not shared, leading to repeated investigations and inefficient use of public funds. • The British Geological Survey (BGS), a critical resource for early-stage risk reduction, receives only a fraction of GI data collected each year, limiting its effectiveness for planning, design, and safety compliance. • Existing best practice (i.e. the Construction Playbook) to share GI data is applied inconsistently, with legal, cultural, and awareness barriers and a lack of appreciation of the value in doing so; clients' legal teams often block data sharing, undermining productivity and data-driven decision-making. • The roundtable summarised that the key barriers for data sharing were ambiguity and inconsistency with regard to data ownership and liability. There are also legal barriers including database rights, GDPR etc and insurance considerations. • This lack of data sharing inhibits early design decisions, overly conservative designs, higher carbon emissions, reduced value for money, and has led to significant extra costs and delays in major projects such as large highways schemes.
2	**Define scope (data, actors, timing, geography)**	• Data in Scope: Primarily factual ground investigation (GI) data from publicly funded projects, including borehole logs, lab tests, in-situ tests, monitoring records, and surface geophysical methods. Essential data must comply with relevant standards (ISO, BS, ASTM), while interpreted data are currently out of scope but may be considered in future. • Minimum Viable Dataset: Intrusive GI data in AGS format with location metadata (ID, coordinates, elevation) and stratum descriptions. Report PDFs may supplement AGS files, but digitisation is required for use. Metadata specifics and non-AGS formats should be explored in pilot projects.

No.	Question	Response
		• Projects and Actors: Scope covers all publicly funded projects across regulated industries and infrastructure sectors (utilities, ports, roads, rail, water, housing, energy). Sensitive projects (e.g. MOD) may be exempt. Legislation should allow future inclusion of private sector projects, though complexity increases. • Timing of Obligations: Data should ideally be uploaded when the Final Factual Report and AGS file are submitted at the end of each ground investigation phase. Enforcement mechanisms (e.g. planning/building control) influence timing, and practicalities for large/complex projects require piloting. • Geographical Scope: Applies to all onshore, and ideally nearshore, and offshore GI data within UK territorial waters, with alignment considerations for England, Wales, Scotland, and Northern Ireland. Northern Ireland legislation differs, requiring data from boreholes exceeding 15 metres, while shallower investigations are not statutorily captured.
3	**Benefits and opportunities**	• Maximising GI data availability would enable faster, more informed decision-making, reduce project risks, and minimise costly disputes, particularly during the early stages of major infrastructure projects. • A comprehensive national database of ground investigation data supports strategic site selection, improves ground risk understanding, and drives more sustainable, efficient engineering designs. • Greater data sharing would help reduce avoidable costs such as duplicate investigations, conservative over-design due to uncertainty, and remediation expenses caused by unforeseen ground conditions. • A greater availability of data would enable more targeted investigations and the use of more advanced testing techniques, and would have the potential to raise the overall quality of ground investigation in the UK. • Structured, standardised data formats (such as AGS) are essential for unlocking the full benefits of digital data reuse, AI-driven analysis, and advanced modelling, whereas PDFs limit usability and increase digitisation costs. • Public and private clients, asset owners, local authorities, designers, and the supply chain would benefit most, with enhanced industry resilience, international competitiveness, and opportunities for innovation across the UK construction sector.
4	**Options**	• Statutory Duty for Data Sharing: A statutory requirement is recommended to ensure public bodies procuring ground investigations share their data with the BGS, as voluntary approaches have proven ineffective.

No.	Question	Response
		• Lessons from Previous Initiatives: Past voluntary and guidance-based initiatives, such as BIM for the Subsurface, Dig2Share, and Common Ground, have had positive impacts but not resulted in widespread industry change, highlighting the need to address underlying barriers before mandating data sharing. • Mandate vs Guidance: It is proposed that government mandates data sharing for publicly funded projects, regulated industries, and critical national infrastructure, while guidance and voluntary standards alone are insufficient for industry-wide compliance. • Preferred Operating Model: Utilise the British Geological Survey as a single mandated repository for ground investigation data, ensuring clear terms for data use and free access to raw data, while considering how the BGS may repurpose submissions for statutory duties. • Integration with NUAR and Data Accessibility: NUAR integration should involve exposing ground investigation data alongside OS NUAR and other products via the National Geographic Data Hub, with longer-term aims for open web services and alignment between relevant data models to facilitate industry tool integration.
5	**Costs/impacts (who pays, how much, for what)**	• **Staff time** is a primary cost driver, despite the time taken to upload AGS files being low. While uploading existing AGS files is quick, creating them represents significant resource investment by ground investigation contractors which is a skilled and iterative process, often requiring several hours or days for complex projects. This process is, however, the industry standard for most ground investigations in the UK. In particular, public projects are anticipated to be using AGS the majority of the time, whereas smaller private projects may not use AGS (e.g. smaller house builders). • Costs currently fall mainly on contractors who generate and upload data for ground investigation contracts. While the unit cost per upload is low, the aggregate cost across large programmes and increased volume under new legislation would not be negligible for organisations. • Ongoing stewardship costs for BGS include increased baseline costs for managing a larger data set, data storage, curation, validation, and IT infrastructure improvements, as well as commitments to timely data availability and user support. The BGS are 'delivery ready' given the existing IT infrastructure and team managing the National Geoscience Data Centre, therefore, the higher initial costs other countries have experienced starting from scratch should not apply in the UK.

No.	Question	Response
		Unfunded mandate risks centre on long-term sustainability; there is industry concern over commercialising value-added products from donated data. Stable, sustainable funding and governance are seen as essential for maintaining free public access to raw data. • Retrospective data collation and submission would be the most expensive activity, though this is outside the scope of the proposed reforms. Additional costs may arise for client organisations to report compliance with new data sharing requirements.

CORE FRAMING QUESTIONS AND ANSWERS

1. Defining the problem (what's not working, who is it not working for)

a. What decision(s) are currently being made with incomplete or poor-quality ground investigation (GI) data? What's the consequence (time, cost, safety, redesign, dispute)?

Ground engineering is fundamental to the future of the UK. It relies on understanding of ground conditions, which vary considerably across the UK in plan and with depth. Knowledge of ground conditions has been captured historically and currently through ground investigation, which has fed into our geological maps. Every project gathers existing data and information, as far as that is available, in the early stages of design, which is used as a base from which to specify the investigation needs of a project and reduce commercial, ground and safety risks. Risk management is an essential part of every project to comply with the Construction (Design and Management) (CDM) Regulations (2015) which ensures risks are identified, eliminated or reduced, and communicated through good information management.

The British Geological Survey (BGS) is the most important resource for this data in the earliest phase of a project before any ground investigation has been commissioned. As identified in the ICE publication 'Effective procurement of ground investigation' (2025)[1], an adequately specified and delivered ground investigation will reduce commercial, ground and safety risks which run through the whole construction phase and beyond. Over 50,000 onshore exploratory holes were downloaded from the BGS GeoIndex open data portal each month up to 2013[2]. In general, funds for ground investigation are limited, and the better the available information to start with, the more the site specific risks can be understood. In addition, in many ground conditions we are still reliant on historical published papers for measured and back-analysed soil parameters. We have great variety in ground conditions in the UK and in many instances the data is limited because much has not been published.

Ground engineering impacts a vast range of construction, essential for our society to function. Examples of the importance of ground engineering to the future include:

- Assessing and safeguarding the resilience of our infrastructure needed for transport, power and water. Much of this is constructed on earthworks or relies

[1] Effective Procurement of Ground Investigation

[2] Urban geoscience report : the value of geoscience data, information and knowledge for transport and linear infrastructure projects - NERC Open Research Archive

on ground support by ageing retention systems, all of which are vulnerable to climate change.

- Assessment and protection of our coastline against erosion
- Design of new sustainable infrastructure, inland and coastal, bearing on the ground, supporting the ground or in conduits within the ground. Road, rail and air transport, water storage and distribution, flood alleviation, wind and nuclear power, oil and gas, underground storage, geothermal energy, all rely on ground engineering expertise.
- Assessment, containment and remediation of waste and contamination.
- Mitigation of the legacy of historic mining operations leaving underground voids.
- Design of foundations for new commercial and public buildings and housing
- Efficient use of congested underground space in urban areas, including foundation reuse and strengthening
- Addressing the legacy of offshore foundations and foundations of decommissioned power stations
- Development of carbon friendly solutions including for instance plant and bio-based solutions, new technologies for cement and reinforcement
- Identification, assessment and improvement of new energy solutions such as ground source, geothermal, hydro-electric, re-use of old mine waters, landfill gases and gravity systems.

Maximising the potential in engineering for a sustainable future across all these areas needs optimisation of the use of existing data and storing new data for mutual benefit. This will facilitate designs and construction methodologies becoming as efficient as possible.

The British Geological Survey (BGS) estimates that the UK invests approximately £1.2bn annually in ground investigations (GI) for construction[3]. However, the BGS's National

[3] The estimated £1.2bn/year value of the ground investigation (GI) market by the BGS does not appear to represent the actual size of the onshore ground investigation market and the figure is likely to include nearshore and offshore ground investigations for wind farms and specialist investigations for geothermal and other studies. The Office of National Statistics' report indicates that the UK construction output totaled approximately £215.7bn in 2024, with 44% attributed to repair and maintenance. Assuming an investment in GI of 0.1% (that is the typical lower-bound level of investment in GI compared to the project capital expenditure), the value of the UK GI onshore ground investigation market may be at least £400m/year.

Geoscience Data Centre (NGDC) contains "just" 1.3m boreholes from the 1800s to-date and the BGS estimate that a further 0.5M boreholes are drilled annually. If the BGS estimate is correct, significant amounts of public and private GI data are not being shared with the BGS.

Despite this, and despite numerous initiatives by the BGS and others over the years (e.g. Dig to Share, BIM for the Subsurface, Common Ground) data are not shared as often as they should be. It is evident that the 2022 UK Government Construction Playbook, which sets up best practice to share GI data from publicly funded projects[4], is inconsistently complied with; for example, the authors are aware of many publicly funded projects that have not yet deposited their GI data with the BGS. This lack of compliance could also be attributed to a lack of awareness in parts of the industry.

The Institution of Civil Engineers' ICE State of the Nation 2026 Report states that client organisation legal team's response to requests to share data is '*a flat no*'[5]. The report also reads: "*We've failed to tackle building-block issues such as data-sharing and interoperability. If we don't deal with that, we won't make headway*".

The same situation had been previously evidenced by the 2024 UK Government – Office for Science's Future of the Subsurface Report that indicated that 40%-60% of UK linear and transport development suffer from delays due to unforeseen ground conditions.

Incomplete or poor-quality ground investigation data that, at best, means the design process becomes overly conservative to compensate for the unknowns and mitigate geotechnical risks. This often leads to, for example, foundations being over-designed, resulting in unnecessary use of concrete, rebar, and deeper excavations. Such practices not only increase costs and time but also have a significant environmental impact due to the extra materials involved. At worst, the consequences of under-design due to lack of knowledge of important ground characteristics revealed on adjacent sites could be catastrophic to project viability, costs and programme.

b. Where does the process fail today: capture, standardisation, discovery, access, or permissioning? Which step is the biggest bottleneck?

The reasons for GI data not getting deposited to the BGS, and why this has not improved despite the introduction of the 2022 UK Government Construction Playbook (and other

[4] It is acknowledged that some publicly funded projects also include elements of private funding.

[5] The legal ownership and contract law under which GI Contractors operate requires careful consideration as part of the pilot to prevent a perception that these aspects are being circumvented because someone wants to see and benefit from other people's datasets.

initiatives), are generally centred around permissioning and incentivisation to share data. Potential reasons for not sharing GI data include the following (in priority order):

Permissioning

These reasons include, but are not limited to the following:

- There are no compulsory (legislated and/or contractual) requirements for any parties (i.e. clients, consultants, contractors, approving or consenting bodies, ...) to submit the GI data to the BGS and best-practice is not being implemented because it is not enforceable. The parties involved need to be economical with their effort/time and therefore are not engaging in activities that are not-required/not-compulsory, and there are no consequences in not-implementing best-practice. A notable exception to this is National Highways who have invested significantly in their ground investigation data management processes over several decades and have set up semi-automated data sharing with the BGS. The lessons learnt from National Highways could be explored and shared as part of a pilot.
- Publicly funded projects might have committed to the principles of the "2022 UK Government Construction Playbook" but this has not been turned into project policy and practice and certainly not into any contractual requirements/specifications to have to be implemented by consultants or contractors. This is despite two example contractual clauses for sharing GI data being published with the Construction Playbook.
- It is noted that several large publicly funded projects, that are presently not submitting GI data to the BGS, awarded the GI contracts before the publication of the 2022 UK Government Construction Playbook.

Incentivisation

A key barrier to data being provided currently is incentivisation. Benefits are not directly seen by the individuals uploading data, and decision makers are often not in the ground engineering industry and, therefore, are not aware of the wider benefits. Data uploads to the BGS are often reserved until the end of the project when people are moving onto the next project and there is little time or motivation for uploading the data, particularly when agreement has not been reached with the client in advance and where data ownership is unclear. There is also a cost involved in this, which cannot always be covered through a project, due to contractual restrictions.

At present, there are very limited incentives for ground investigation contractors to make their data available for unrestricted use by others. The majority of the tangible benefits from such arrangements tend to accrue to consultants and clients, rather than to the organisations that incurred the cost and risk of collecting the data.

Discovery & Access

The BGS GeoIndex is the portal for finding available ground investigation data that has been shared with the BGS. This data is limited to mainly PDFs of exploratory hole logs which are often old and sometimes incomplete. Although the availability of AGS data[6] is growing through the efforts of the BGS' citizen science initiative 'Big Borehole Dig' where volunteers digitise PDF boreholes into AGS data.

Some data is also marked 'confidential' which often renders the data inaccessible; for example just over 25% of all exploratory holes within the Network Rail boundary are marked confidential.

While the BGS GeoIndex is a valuable portal, it is not the only data portal available: checking whether data is available via the BGS website is not entirely intuitive and could be made easier (i.e. all data, regardless of format, visible on one map, where data can also be selected and downloaded).

The BGS is currently piloting exposing more GI data via its Common Ground project which would see in situ and laboratory test data made available in addition to the exploratory hole log data[7]. The data is not itself in AGS data format but we understand that BGS are exploring options to deliver the data in AGS data format alongside other formats such as Excel and Geo Hex grids.

Liability

There is an inherent resistance in the industry to share data due to real/perceived risk, security, commercial, competitive advantage, and liability concerns[8].

[6] The AGS data format is the industry data format for ground investigation data. It is curated by the AGS Data Management Working Group and is a 'gold standard' example of a common data format in the civil engineering industry. It has been adapted for use internationally by other countries including Australia, Hong Kong, and New Zealand. There is no mandatory requirement for UK ground investigation data to be provided in AGS Data Format; for example, BS 5930:2015+A1:2020 states that all data must be provided in a digital form and suggests the AGS Data Format as a suitable option.

[7] There are uncertainties in industry regarding the BGS motive, stability and funding that are causing concern in some parts of the industry.

[8] Limiting their liability, and/or the costs of providing collateral warranties is a real concern for GI contractors. Safeguards must therefore be put in place to limit contractors liability if data is made open

Although the terms and conditions of the BGS National Geoscience Data Centre (NGDC) state that data is provided as-is and without warranty, this only covers use for downloading and consumption of the data. Unexpected consequences of the release of data are not covered, for example the disclosure ground issues that may affect adjacent properties outside of the project bounds.

Although public disclosure of these issues may be covered by existing law protecting the publication of facts, in the unlikely event that there are mistakes in the data that did not get picked up during quality assurance, these could be seen as negligible/misleading actions which could result in legal action if there is financial loss to third parties adjacent to the project. At the roundtable, it was discussed that open data is not covered by insurance which represents a considerable risk for Ground Investigation Contractors.

The wording of the clauses in the Construction Playbook imply that the data is treated as open rather than confidential, although it can be marked as confidential when it is deposited in the NGDC. This raises a concern where the underlying contract is, in fact, confidential. In such cases, data ownership (and associated liabilities) do not appear to change, yet the data may effectively become openly accessible and reusable by third parties. This creates a potential imbalance whereby liability remains with the GI Contractor, while control over data use is significantly reduced. The British Geological Survey is "consented to use the data for secondary purposes" where, under BGS' current business model, GI data is made freely available as raw data under the Open Government Licence and is used to update maps and geological models. The data is also used to inform derived data products that the BGS sell back to industry; the extent to which GI data is used for this purpose in future could be considered as part of a pilot.

Data ownership

Data ownership falls into two categories: Intellectual Property Rights (IP) for factual reports, and Database Rights for collation and provision of AGS files[9].

This is a topic that has been broadly discussed by industry bodies, with no clear outcome. We understand anecdotally that there are inconsistent legal opinions regarding data

access. For example, GI contractors should be protected from claims brought against them from third parties who have used data without regard to its limitations or out of context.

[9] It is true that raw data, that is, the underlying facts and figures, are not covered by IP unless they require interpretation or presentation. However, AGS Data is within scope of Database Rights for a number of reasons including that the creation of AGS data format files requires a substantial effort to gather, verify, and present the data. It would therefore seem that the producer of the data owns the data, rather than the client organisation who is purchasing the data. This question of data ownership would need to be examined as part of a pilot.

ownership, raising concerns on whether it can be “legally” shared. GI Contractors operate under contracts with their clients, and those contracts explicitly define ownership, liability, and data-sharing requirements. These terms are not ambiguous, but vary from project to project depending on the client and contract form. Across the thousands of ground investigations undertaken each year, it is entirely normal for these contractual arrangements to differ, and those differences directly determine ownership and liability.

The BGS currently states that the uploader must confirm they are the owner of the data or that they have permission of the data owner to upload the data, pushing the responsibility of ensuring that permissions are in place onto the uploader. Without an established, written, mutual agreement to share, this leaves potential liabilities over disputes of data ownership and permissions.

Professional duty of care remains with the contractor. Regardless of ownership, the contractor is still responsible for the data accuracy, the methodology of collecting said data, and the compliance with the associated standards. If data is later reused out of context, misinterpreted, or relied upon by third parties, there is a risk that the originating contractor remains associated with said data, and potentially exposes them to reputation damages, disputes or claims. Responsibility persists, even where control and ownership do not.

Loss of work for GI Contractors

Contractors are predominantly remunerated on volume based site activities rather than on uncertainty reduction or long term data stewardship. In this context, mandatory open release of contractor generated datasets shifts where economic value is realised in the system. There is a concern in some parts of the industry that a greater availability of GI data in the BGS’s database will result in a contraction of the GI market which is sometimes triggering survival-instinct reactions and concerns over a loss of competitive advantage. From the perspective of ground investigation contractors, “additional GI” sustains businesses, employs skilled staff, and pays wages that allow people to make a living.

Part of a pilot could be to engage with industry to establish how greater availability of ground investigation data would affect the size of the GI market (i.e. an economic impact assessment), and whether (as many respondents believe) legislation will lead to more quality investigations because designers will be more informed and so more able to see where the gaps in understanding are, and therefore target their GI requirements. A pilot could also establish and, importantly, communicate the mechanism by which legislation is expected to lead to more (and/or higher quality) ground investigations —

which, from the perspective of GI contractors, would be a positive outcome. Achieving an industry shift to quality over cost would require a concerted effort for all stakeholders to communicate what we do and why it is important. This could have additional benefits, such as helping promote the appetite for new starters to come into industry plus apprenticeship programs to support them.

Other factors

Even where there is the will to make GI data available, action might be inhibited by various factors, for instance:

- There is a concern of losing a competitive edge by sharing data as some GI Contractors place a high degree of commercial value on the data they collect[10].
- The digitalisation of the industry is inconsistent and, typically, with lesser capability and capacity in SME's. Digital delivery requires investment in hardware, software, training, etc. As noted above, a large volume of historical and presently generated data are in PDF format;
- There is no standard clause in the Association of Geotechnical Specialists UK Specification for Ground Investigation "Yellow Book" to encourage all new ground investigations to be provided to the British Geological Survey routinely[11].
- The 2025 BGS geotechnical data tools (part of the Common Ground project)[12] was a pilot for user testing. The BGS intends to scale this to offer a national service by the end of Phase 2 of the Common Ground project, subject to further market research and confirmation of a sustainable funding model. This tool would alleviate certain practical issues.
- Lack of knowledge/competence to ensure verification/validation of data and upload to the BGS is included in project remits.

Data capture

While the AGS data format is widely used in mid and top tier organisations, there is anecdotal evidence that it is less used elsewhere in the ground engineering industry; this is partly because proprietary software is required to create, manage, and validate the data. As far as we are aware, there is only one free software option to create and edit individual AGS files however this is not open-source software. This software does not

[10] When AI is combined with open data, commercial comparison, interrogation, and benchmarking will inevitably occur, with a range of downstream consequences that need to be acknowledged and addressed.
[11] The Digital Transformation of Ground Data group has drafted a proposed clause that is currently going through approval processes at the AGS to be included in the specification
[12] Pilot geotechnical data services - British Geological Survey

include a database which enables many different AGS files to be managed (created, edited, validated etc).

Effective production of AGS data also depends on having staff who (1) understand the AGS format, (2) have sufficient time allocated to prepare AGS outputs, and (3) collect and record data in accordance with the appropriate standards and structures from the outset. Software alone does not address these requirements. AGS data should therefore not be viewed as a simple "press-a-button" software output; it is a process that spans skills, resourcing, data quality, and organisational practices.

c. What is the "counterfactual": what does "good" look like in 2–3 years? (e.g., "we can search and reuse GI within X days," "duplicate investigations reduced by Y").

The BGS estimates that about 500,000 exploratory holes are undertaken in the UK annually but the proportion of this figure that constitutes exploratory holes from publicly funded projects is unknown[13]. If it was assumed (very conservatively) that between 20% and 70% of these holes were from publicly funded projects, the database could increase in size by between 8% and 27% in the first year.

The Basisregistratie Ondergrond (BRO) is the Netherlands' national statutory register for subsurface data, established under the Wet Basisregistratie Ondergrond (in force since 1 January 2018). In 2021, the Ecorys agency concluded that in the most conservative scenario, the BRO will generate 231.5 million euros in benefits until 2031, and that benefits could easily amount to 600 million euros[14]. As explained at the roundtable, the BRO "*makes data gathering a national effort*", and is one of a set of vital government databases. The Geological Survey of the Netherlands has three functions: (1) to provide a free data service, (2) to provide advisory services to the government of the Netherlands, and (3) to undertake research. Importantly, these functions do not mix and the BRO cannot be used for competitive advantage by the Geological Survey of the Netherlands. Users can also rely upon the data unlike the UK where the BGS provided data on a non-reliance basis.

d. Why hasn't the status quo improved despite existing voluntary/contractual mechanisms? (Probe around incentives, procurement practice, commercial sensitivities, fragmentation, lack of standards enforcement.)

The status quo has not seen a step change in improvement due to all the issues listed in (b) above. In summary, the status quo has not improved despite voluntary and

[13] The size of the UK ground investigation market would need to be determined as part of a pilot. The impact of 'mega-projects'' such as nationally significant highways and rail projects, new nuclear power plants etc. would also need to be assessed against the size of the typical market.

[14] Research into the social costs and benefits of the BRO | Basic registration subsurface

contractual mechanisms due to several overlapping factors. Chief among these are a lack of mandatory requirements for submitting ground investigation (GI) data, meaning best practice is not enforceable and there are no consequences for non-compliance. Incentives to share data are weak, with additional cost and time required, and no clear benefit for parties involved. Procurement practices often do not embed data-sharing requirements into contracts, especially if contracts were awarded prior to the publication of the Construction Playbook (2022). Commercial sensitivities, such as concerns about losing competitive advantage and industry resistance rooted in perceived risks and liabilities, further hinder data sharing. Fragmentation is evident in inconsistent legal opinions over data ownership and a lack of strategic vision across the sector. The digital capability of organisations, particularly SMEs, is variable, and the industry lacks standardised clauses in specifications to encourage routine submission of GI data.

e. Which part of the system creates the biggest negative externality? (e.g., publicly funded data not deposited; inconsistent formats; limited discoverability; licensing friction).

The part of the system that creates the biggest negative externality is publicly funded data not being shared with the BGS in the first place[15]. The infrastructure for sharing and validating data, and making it available and accessible, already exist. It is possible that stress testing of the system may be required as part of a pilot depending on the amount of data, and the demand, it may be projected to handle in future.

GI is and remains an investment; a GI database should likewise be treated as an investment which requires funding.

[15] Note that some publicly funded projects are sensitive (for example, MOD and critical infrastructure projects)

2. Define scope (data, actors, timing, geography)

a. What data is in scope? Borehole logs, lab tests, in-situ tests, monitoring, interpreted models, reports, metadata only—what's essential vs "nice to have"?

The scope comprises largely factual[16] ground investigation data from publicly funded projects[17]. Interpreted models and data, aside from geology codes that are included within factual ground investigation reports, are not the focus at this stage.

To understand the data that is within the scope, it is necessary to define ground investigation:

Ground investigation is the systematic process of collecting, recording, and interpreting factual data about the ground and groundwater conditions at a site, to inform the safe, economic, and sustainable planning, design, construction, and operation of engineering works. This data is normally collected under a specific ground investigation contract. Other activities that are undertaken outside of a ground investigation contract are excluded, for example a main works contractor digging pits to identify subbase for streetworks[18]; i.e. it is the purpose of the works that is key.

Precise scope boundaries, such as minimum depths, minimum scale of investigation, will need to be defined through an industry consultation process.

Essential data to be captured

The essential data to be captured for each of the ground investigation methods listed below should be in accordance with the data that is required by the relevant ISO Standard or British Standard (or ASTM or another international standard where no ISO Standard or British Standard exists).

For the avoidance of doubt, the following data is required for all the methods listed below:

[16] 'Largely' factual as some data, for example CPT and geophysical data, is interpreted from a raw data set.

[17] The data format used by industry to transfer factual ground investigation data is the AGS data format. The AGS data format has extensions for interpreted data (AGSi) and piling data (AGS piling). We believe the initial focus being on the clear use of case of ground investigation data, whilst keeping the door open for future expansion into these connected topics. It is noted that this could cause a perception that GI Contractors are being asked to share their factual data and that consultancies are not being asked to share their interpreted data.

[18] We understand anecdotally that a minimum depth has not been proposed as the primary legislation for ground investigation data sharing in the Netherlands does not define a minimum depth.

- Location Details (Location ID, Coordinates in OSGB, Ground Level relative to Ordnance Datum)
- Construction records, including drilling data and sampling details[19]
- Date/Time of acquisition of the data

Intrusive ground investigation methods:

- Boreholes, window, and windowless (or dynamic sampling) holes including:
    - Installation details
    - Coring data (TCR, SCR, RQD, FI, Inclination)
    - Construction records, including the reason for the termination of the exploratory hole
    - In-situ testing such as downhole testing (calliper logging, acoustic logging etc.), standard penetration tests, borehole vanes, high pressure dilatometer tests, pressuremeter tests, cross hole testing etc.
    - Monitoring of gas, groundwater, and geophysical monitoring.
    - Laboratory testing
- Trial pits, including in-situ testing such as infiltration tests, plate bearing tests etc. and laboratory testing.
- Cone penetration tests
- In situ tests such as dynamic penetrometer tests.
- Monitoring records.

Non-intrusive ground investigation methods that are undertaken as part of a ground investigation contract[20]:

- Surface geophysical methods such as resistivity, seismic, ground penetrating radar, multichannel analysis of surface waves etc[21].
    - Note that this data is a growth area and likely to become more prevalent in future.

[19] In future, this may include drilling data including parameters from the drilling rig e.g. torque, rate of progress etc.
[20] To exclude GPR and other surveys undertaken for utility surveys etc.
[21] Note that is not currently possible to transfer this data in AGS data format.

- Raw data
- Processed data
- Interpreted data

Data that is 'nice to have'

- Geoenvironmental data could be optional, providing the option for data to be excluded if required as this often sensitive and time-bound.
- Remote sensing data that is commissioned as part of a ground investigation contract[22].
- The factual report that would accompany the AGS file[23]

Out of scope – potential future 'nice to have'

- Interpreted data, including ground models[24], are not required where the interpretation does not form part of a typical factual ground investigation report.
- Remote sensing data that is not commissioned as part of a ground investigation contract.
- New technology and innovative methodologies are being continuously developed and commercialised (for instance Muon technology); ideally there should be a provision to ensure data from these future techniques can be shared.

Data format

The following data types would be required:

- AGS data (4.x or later format)[25]
    - The BGS already accepts and validates data in this format.
- Note that geophysical data comes in many different data formats. We would need to explore how this data could be uploaded to the BGS database. This

[22] Note that this data cannot currently be transferred in AGS data format.
[23] As noted elsewhere in this text, the GI Contractor may need to remove their intellectual property from the factual report prior to it being shared more widely than the client for which it was produced.
[24] These data can be transferred using the AGSi data transfer format.
[25] It should be acknowledged that alternative data formats may exist in future, therefore legislation should consider whether to mandate AGS data or to leave options open.

could be developed and tested as part of a pilot project working with the BGS and the AGS Data Management Working Group.

Data that is not in AGS format would need to be in PDF; submitting the whole factual report would be unreasonable as these reports contain a significant amount of ground investigation contractor intellectual property, developed through experience, methodology, and investment. A pilot would therefore need to explore what could be submitted, and how this would be funded and governed.

b. What is the minimum viable dataset that unlocks the majority of benefits? (e.g., factual GI in AGS format + report PDFs + location/metadata).

The minimum viable dataset required would be restricted to intrusive data and comprise:

1. Meta data comprising the locations of the exploratory holes (ideally in AGS format), including estimated easting and northing (in OSGB), elevation (to Ordnance Datum); and,
2. Stratum descriptions (including descriptions of artificial ground) with depth that can be related to the meta data (PDF, or ideally AGS format)

The minimum viable dataset within an AGS file comprises the following fields for exploratory holes:

- Locations details (LOCA) – including a minimum of Location ID, Coordinates in OSGB, and Ground Level relative to Ordnance Datum
- Field Geological Descriptions (GEOL) – including a minimum of top and base depths of each stratum, a description of the material within that stratum, and the BGS Lexicon code (GEOL_BGS[26])

Report PDFs are useful but if they are uploaded without an AGS file, then the data within the report requires digitisation before it can be used. Nowadays, this is relatively quick using AI but it will require extra time/personnel and there is a cost associated with the AI usage. AI is not permitted to be used on all projects, particularly UK Defence projects, therefore more time consuming digitisation methods are used.

[26] It is noted that GEOL_BGS is not commonly included in many AGS files, unless it is specifically specified. It requires an element of interpretation, so it is not strictly factual data. The inclusion of this field as part of a minimum-viable-product would need to be based on how useful the industry and the BGS find this field in practice; this could be tested as part of a pilot.

Metadata may be useful but we would need to be specific about what metadata the BGS would need and what its use case would be. This could be explored as part of a pilot project.

However, capturing data for exploratory holes alone would be short sighted particularly when a single AGS file is most commonly produced for each project that contains all the data from that project that can be in AGS format.

c. Which projects are in scope? Publicly funded only first? Which sectors (roads/rail/water/housing/energy)?

The ground investigation data that would be within the scope of this legislation would be for projects from **publicly funded projects**, including all regulated industries (utilities, ports etc), major infrastructure projects, including new-build, maintenance, enhancements, and renewals for existing infrastructure and assets. Sensitive publicly funded projects (for example, MOD projects) may need to be exempt[27].

The legislation is recommended to keep the door open to extend to private sector projects in future[28].

The ground investigation data is anticipated to be most useful in urban settings as it is most likely to support future construction and development. The density of data in urban settings is likely to be greater than in rural areas: it is important to note that nationally significant projects such as future long linear infrastructure projects, solar farms, power grids, major water transfer pipelines to increase resilience would likely benefit from rural ground investigation data. Also, in non-urban areas, the ground investigation data will help to fill major knowledge gaps that are key to understand macro systems like regional hydrogeology that are fundamental for water management, flooding and master planning. Ground investigation data isn't just used for first time design, it is needed for ongoing maintenance, repair and risk assessment.

The data would be required from all sectors as the data is ubiquitously applicable regardless of the sector it was originally collected for.

[27] A pilot could explore the necessity of including this data within a national database.
[28] Extending legislation to the private sector will certainly add a layer of complexity. Although some private sector clients will likely respond favourable to data share requests, many will refuse to comply, particularly if the ground investigation has revealed issues such as ground contamination (note that we recommend not sharing this data as it is time-bound). Others will release data on payment of a fee - often to the value of the cost of the original ground investigation.

d. When should obligations apply? At commissioning; at completion; at handover; at planning application; or at "as built"?

There are various enforcement mechanisms that can be used, including planning and building control. The timing of the obligation will be influenced by the enforcement mechanism.

Multiple ground investigations are often undertaken at different times throughout the life cycle of a single project. Overall, the project lifecycle may last decades. Therefore, the data should be uploaded when the Final Factual Report (i.e. the factual part of a ground investigation report) (including the final AGS file) is submitted to the Client at the end of each phase of ground investigation[29]. To submit data on any other cycle could result in not being able to take advantage of the data for long periods of time. According to the Construction Playbook (2022)[30], the Ground Investigation Contractor[31] should upload the ground investigation data to the NGDC however, as highlighted at the roundtable, the Ground Investigation Contractor is not always the data owner and therefore cannot upload the data unless they have permission from the data owner under current NGDC guidelines. As noted in 1b above, the identity of the data owner is not always clear[32]. At the roundtable, it was noted that it was the client bodies who were responsible for submitting data to the BRO.

It is acknowledged that client organisations or asset owners themselves (which may include the UK Government) might have reasons for not wanting to make data available for a certain period of time or for sensitive projects. Landowners where the land is not owned by the developer may not want data in the public domain. This would need to be considered as part of a pilot.

[29] Some client organisations may object to the requirement to share data before the construction phase of the project is complete. Additionally the precise timing of data upload in relation to financial transactions, technical, and contractual obligations associated with the investigation should be explored. Finally, the practical implications for large or complex projects need to be addressed. This would all need to be tested as part of a pilot.

[30] Network Rail standards state that the Contractor's Engineering Manager or Contractor's Responsible Engineer (Design) or equivalent is responsible, which places the responsibility onto an individual with geotechnical competence.

[31] The Ground Investigation Contractor is the data producer and therefore is the most appropriate party to upload the data. This also gives them to upload parts of an accompanying factual report, or a factual report that has had any intellectual property removed. Having the AGS data and the factual report would be very valuable.

[32] Note that some ground investigation contracts can involve more than one ground investigation contractor, but often one of these is the 'lead' ground investigation contractor who collates the data and information into a single AGS file and PDF factual report.

e. What geography? England/Wales/Scotland/NI alignment considerations

All onshore, and ideally nearshore, and offshore[33] (within UK Territorial waters) ground investigation data would be included.

The British Geological Survey is responsible for Great Britain and operates the Geological Survey of Northern Ireland (GSNI) on behalf of the Department for the Economy (DfE). There is some divergence in legislation for Northern Ireland as set out below:

The primary legislative instrument governing the collection and deposit of geological and geotechnical data in Northern Ireland is the **Minerals (Miscellaneous Provisions) Act (Northern Ireland) 1959**, as amended by the Mineral Development Act (Northern Ireland) 1969. These provisions contain similar but wider-reaching obligations to those found in equivalent GB legislation, such as the Mining Industry Act 1926. They are intended to ensure that all information from the sinking of shafts, boreholes, or excavations for minerals, water, or engineering works reaching a depth of more than 15 metres is made available to the Geological Survey of Northern Ireland (GSNI). Under the Act, any person who sinks a borehole or well, or makes an excavation intended to reach a depth of more than fifty feet below the surface, must keep a journal of that work, along with specimens of the strata passed through — whether as cores or cuttings — for a period of not less than two months or such longer period as the Ministry may direct. Crucially, data can be required to be sent directly to the Survey, and information from geochemical and geophysical surveys, and the production of geophysical logs, is unequivocally covered by the Act — a broader scope than equivalent legislation in England and Wales.

In practice, GSNI — an office of the Department for the Economy (DfE) staffed by British Geological Survey scientists — holds responsibility for archive management, and its scientists provide data and advice to support the legislative responsibilities of DfE and other Northern Ireland government departments. Data deposited with or held by GSNI is managed in conjunction with the BGS's National Geoscience Data Centre (NGDC), through which drilling records must be formally submitted. It is GSNI and NGDC policy that ownership of the data remains with the originating party, and that by depositing through the NGDC portal, the NGDC is granted a non-exclusive, in-perpetuity licence to use and disseminate the data; data delivered from the portal is provided under the Open Government Licence[34]. It is worth noting that the drilling of shallow site

[33] The impact of data sharing on offshore industries should be explored as part of a pilot.
[34] The Open Government Licence requires the user to acknowledge the source of the data or information in their product or application by including or linking to any attribution statement specified by the Information Provider (i.e. the BGS). The attribution statement should include “caveats”, “notes on limitations” or “service constraints” which would be outlined in the pdf of ground investigation report from which the data or PDF borehole logs originated but the BGS’ portal (GeoIndex) does not provide a link

investigation boreholes is not covered by the Northern Ireland legislation unless they exceed 15 metres in depth, meaning a significant volume of geotechnical data from shallower investigations is not captured by any statutory requirement.

3. Benefits and opportunities

a. If you could change one thing about GI data availability, what would it be, and what benefit would it unlock? (Time saved, risk reduced, better design, fewer disputes.)

The BGS state that the value derived from geological information is at its highest when[35]:

- The cost of using the information is low (i.e. a public-good service)
- There are no constraints on the use of the information
- Decision makers can act, at the right time, in response to learnings from the information. Particularly at the outset of a project where major decisions are made (e.g. route alignment)
- The cost of making a wrong decision is high

Therefore, the benefits of a larger and growing national database of ground investigation data could include:

- Better strategic decision making and more informed route or site selection, particularly for large infrastructure projects;
- Increased data availability can improve the maturity of ground risk understanding, but it should also be recognised that additional data may reveal variability or inconsistency that justifiably leads to further investigation rather than immediate risk reduction.
- By reducing the risks there will be a decline in potential lengthy project overruns and costly disputes
- When no ground investigation data is available within a site boundary or nearby, we are reliant on published papers for measured and back-analysed soil parameters for different geological units. We have great variety in ground conditions in the UK and in many ground conditions the data is limited because much hasn't been published. Therefore more research and publications about

between the AGS data and PDF logs and the factual report: Creating such a linkage could be considered as part of a pilot.

[35] Urban geoscience report : the value of geoscience data, information and knowledge for transport and linear infrastructure projects - NERC Open Research Archive

less well-known geological units could lead to earlier identification of material uncertainties;

- The risk of encountering "unforeseen-ground conditions" [36] may be reduced for some projects in the long-term, however for large infrastructure projects geological complexity, programme constraints, and risk allocation are likely to remain dominant factors even in data-rich environments.
- A potential cultural shift triggered by legislation: It is possible that greater data sharing could result in an increase in historical GI data being voluntarily shared with the BGS;
- An update of maps (geology, flooding risk, …) by BGS and other Agencies in line with their planned cycle utilizing better ground and groundwater data than would otherwise be available. This could mean new opportunities for development and better land management;
- Improvement to design practice that will translate into leaner and more sustainable designs. An excellent case study demonstrating this is Farringdon Station on the Elizabeth Line in London[37]. Tangible outcomes could materialise in the medium term;
- A greater focus on higher quality targeted investigations which may require more specialised and advanced testing and monitoring. This will mean a better understanding of the ground, thus reducing risk that will lead to facilitating consent of development and greater certainty of investment;
- -Enhanced availability of (digital) ground investigation data at an early stage in the project would lead to faster, more informed data driven decision-making; unlocking significant opportunities for the use of AI for understanding ground conditions, and the development of innovative techniques for mapping and modelling building on a comprehensive, structured and accessible dataset of one the most geologically diverse countries in the world[38].

[36] Estimates of the proportion of claims for unforeseen ground conditions exist and additional reported consequential construction costs vary from 10 to 50%. These numbers could be updated as part of a pilot.

[37] Urban geoscience report : the value of geoscience data, information and knowledge for transport and linear infrastructure projects - NERC Open Research Archive

[38] It is important to acknowledge that AI could be viewed as a significant threat to the ground investigation industry, and the implications of AI having access to a national ground investigation dataset of significant size should be explored as part of a pilot.

b. Where do you see the biggest avoidable costs today? (Duplicate investigations; conservatism due to uncertainty; redesign; contractor claims; delays.)

Early decision making setting the direction for a project, cost plan, programme, and ground investigation objectives that does not benefit from existing ground information is a key avoidable cost. This can result in changes to designs, increased cost and programme relative to initial cost plans, and inefficient ground investigations.

A large avoidable costs is likely to be those incurred due to duplicate ground investigations[39] and conservatism due to uncertainty (i.e. designing with a later confirmatory GI). For example, Farringdon Station is one of the flagship stations on the newly opened Elizabeth Line forming part of the London underground network. The BGS, alongside the project partners, were able to utilise a wealth of historical borehole data both held by the different project partners and augment this with newly acquired ground investigation data, to better predict the ground conditions. This led to a 70% reduction of in-tunnel probing from original plans and delivered a cycle of risk reduction thereby saving significant amounts of time and costs[40].

Costs can also be incurred during the construction period when unforeseen ground conditions are encountered, causing delays and redesign to be undertaken which inflates the project costs. In relation to development of brownfield sites, the BGS and DEFRA estimate that £210m per year is spent unnecessarily on remediation due to poor ground investigation and unforeseen ground conditions in the UK[41].

Groundwater (i.e. the hydrogeology) of a site is a common cause of delays during construction. Hydrological and hydrogeological change being driven by climate change reduces the resilience of existing geotechnical assets: Groundwater monitoring data is therefore essential for designing climate-resilient infrastructure and reduced delays during construction.

Currently pile design is typically done without sufficient GI in place, so the worst case scenario is usually designed for which means that foundations are often over designed foundations and capable of bearing far more load than they will ever realistically be

[39] It is noted that when approached by clients seeking to rely on existing ground investigation data, contractors do not encourage new investigations for commercial gain. Instead, the industry follows established and recommended legal practice: where appropriate and with the original client's contractual consent, data can be warranted or licenced for reuse by a new party. This approach ensures that liability, professional indemnity, and insurance cover are correctly managed and that all parties remain legally compliant.

[40] Urban geoscience report : the value of geoscience data, information and knowledge for transport and linear infrastructure projects - NERC Open Research Archive

[41] Urban geoscience report : the value of geoscience data, information and knowledge for transport and linear infrastructure projects - NERC Open Research Archive

required to take. The Federation of Piling Specialists believe that this is one of the biggest opportunities for reducing project costs.

Greater availability of ground investigation data would assist in assessments for foundation reuse and decommissioning; foundation reuse in particular would save costs generated by the need to remove and then reconstruct foundations and increase the sustainability of many projects. In addition, it would lead to less conservative designs and therefore avoid excessive usage of carbon-heavy materials such as steel and concrete.

c. What benefits would be realised specifically from publicly funded GI being reusable?

In addition to the reasons stated in (a) above, the 'BRO' register in the Netherlands where ground investigation data sharing is mandated through legislation was projected to enable a reduction in subsurface related failures of between 2% and 5%[42].

Additionally, stated above, in many ground conditions we are still reliant on published papers for measured and back-analysed soil parameters. We have great variety in ground conditions in the UK and in many instances the data is limited because much has not been published. It would be of huge benefit to access a wider database of information and also to be able to get back to the source data for published case studies. For instance, there is a general move towards finite element analysis to help better capture the effects of soil structure interaction and so improve efficiency of design and construction; the better the data we can input, the more will be the benefit of using this sophisticated tool.

There is also a real potential that greater data sharing could raise the overall quality of ground investigation in the UK; this would have the knock-on effect of reducing project risks.

d. What benefits depend on standards vs simply granting access? (i.e., would raw PDFs help, or is structured data essential?)

This is all about the Data, Information, Knowledge, Wisdom triangle (DIKW). If the data is retained in company archives then the industry and the country cannot make use of data and information, and cannot increase in knowledge and potentially wisdom.

PDF files are information: the data contained within the files would need to be extracted for it to be used. Digitising data has a cost attached and often the data is not shared

[42] Urban geoscience report : the value of geoscience data, information and knowledge for transport and linear infrastructure projects - NERC Open Research Archive

back to the BGS. Digitising data from PDFs can be undertaken using several methods, for example by manual typing, using python code, or by using AI.

Structured data (i.e. AGS data) would mean that there is no need for digitisation, and therefore be more beneficial to future projects.

While the AGS data format goes a long way to standardise ground investigation data, it does not currently capture data from all types of ground investigation (in particular geophysical data[43], all raw data from laboratory tests[8], analytical laboratory test certificates[44] etc) and it does not constitute a complete digital version of the factual part of a ground investigation report[45].

Ideally an AGS file should be a digital representation of the factual part of a ground investigation report. It also needs to become more AI friendly, and to address future data-sharing and interoperability requirements. The AGS Data Management Working Group is currently developing the AGS 5 data format which may include options so that an AGS file could be a complete digital version of the factual part of a ground investigation report but these concepts are at an early stage. As part of the conceptualisation, it has become clear that the data format will need to evolve away from a grouped table style file format, and be able to be packaged with files in other data formats, in order to be able to transfer large data files from advanced laboratory tests and geophysical data.

The AGS Data Management Working Group is made up of industry data experts volunteering their time, and therefore large scale changes to the format take many years to develop[46]. The AGS 5 format is not expected to be released before 2030. Adoption of a new data format often takes several years as software companies need to adapt their software to accept the new data format.

[43] Expanding scope to include geophysical data and raw laboratory test data significantly increases the level of complexity involved: the AGS Data Management Working Group has begun to engage within the context of AGS 5, but which is acknowledged to be a major undertaking in its own right given that the AGS data format AGS was deliberately designed to transfer reported data, not the underlying raw constituent data.

[44] Some labs consider the certificate to be the only true record of the work carried out rather than their AGS data submission.

[45] Relying upon the AGS data alone without the accompanying factual report can carry significant risk, particularly relating to data quality issues and other site constraints.

[46] Working group members are not motivated by commercial profit or competitive gain, but by a shared objective to act in the best interests of the industry as a whole, while being mindful of the disruption that poorly managed change can cause. The AGS Data Management Working Group actively considers the needs and perspectives of all stakeholders — including small, medium and large organisations, contractors, consultants, clients, software vendors; and specialist technical providers. Meaningful and sustainable industry change can only be achieved by engaging with, and accommodating, this full spectrum of industry parties.

All of this is critical for leveraging the full benefits of data reuse, AI-driven analysis, and advanced modelling.

e. Which user groups benefit most? Designers? Asset owners? Local authorities? Regulators? Supply chain?

Users of the data (indirectly such as clients or directly such as consultants) are anticipated to see the greatest benefit. Providers of the data (typically ground investigation contractors and their supply chain) are not anticipated to see as significant a benefit. This has been evident in industry consultations, whereby the greatest level of support has been received from users of the data.

As a whole, the community of organisations making up the ground engineering industry includes:

- Clients both public and private (i.e. asset owners and local authorities) would benefit most from this legislation:
  - Many Agencies (e.g. Environment Agency), asset owners (e.g. Canal River Trust that manages 5000 km of assets) and local authorities do not manage in a central repository ground investigation data for projects they have undertaken. Therefore having this data accessible within the BGS database would mean that these groups would not need to fund their own repositories, thereby saving tax payer money.
  - The projects commissioned by these groups would be more likely to happen as they would be more likely to gain consents, and be delivered on time and to budget.
  - The designs for projects commissioned by these groups may be more effective, greater value-for-money, less conservative as more would be understood about the ground conditions earlier in the project, therefore the designs could be cheaper to build and more sustainable.
- Consultants, including geotechnical engineers, geologists , engineering geologists and hydrogeologists
- Geoenvironmental consultants
- General and specialist foundation and earthworks contractors
- Ground investigation contractors
- Soil and rock testing laboratories
- Monitoring contractors
- Public and private educational establishments, also key to carrying out research towards the future of the industry

- Our many professional bodies representing organisations and individuals across the industry
- Our trade magazines and scientific journals

The work of all these organisations will be enhanced through greater availability of existing ground information, providing enormous benefit to the future resilience of the UK constructions and the economy.

In addition, our ground engineering industry is at the forefront of world engineering skills and knowledge, with many of our companies operating across the world. The BGS is also a world leading organisation. An important benefit of the proposed national database of ground information, and the potential for it to lead onto other sets of public foundation and engineering data, is the promotion of the UK industry across the world.

4. Options

a. What is the least intrusive intervention that would materially change behaviour? (Procurement requirement? funding condition? statutory duty? incentives?)

A Statutory Duty may be appropriate as this would make the public bodies procuring the GI's responsible for sharing their data with the BGS[47].

At the roundtable, it was discussed whether it is for industry to find a solution itself. Research and experience have, to date, demonstrated that a voluntary approach yields limited and inconsistent implementation, which ultimately does not lead to the full economic benefit: The BGS have run several initiatives in collaboration with industry partners over almost 20 years which, while there has been some success, have not materially changed the behaviour of the industry. These initiatives include:

- ASK Network (2008 – 2015)[48]
- BIM for the Subsurface (2015-2017)[49]
- Dig to Share (2020 - ?)[50]

[47] At the roundtable, it was suggested that if a company digitises data that is held as a PDF record in the NGDC, it should be mandated that this data is uploaded to the NGDC.
[48] XVIECSMGE2015_0604_Final.pdf
[49] UKRI BIM for the Subsurface
[50] Join our Big Borehole Dig - British Geological Survey. Gilder et al. (2021) 'Capturing the views of geoscientists on data sharing: a focus on the Geotechnical Community' reports the results of a survey carried out at the Janet Watson Meeting 2018: A data Explosion: The Impact of Big Data in Geoscience held at the Geological Society of London, and compares these results with the results of interviews undertaken during the Dig to Share project. Gilder_et_al_QJEGH_accepted_manuscript_with_figures.pdf

- Common Ground Phase 1 and recently Phase 2[51]

Best practice guidance issued via the Construction Playbook (which includes exemplar contract clauses) has also not had the desired effect. This would suggest that a procurement requirement alone is ineffective. An important aspect of a pilot would be to establish why these initiatives have not achieved the desired outcomes to avoid introducing further resistance (by mandating data sharing) rather than resolving the underlying challenges.

We have challenges similar to that of National Underground Asset Register (NUAR). There is precedence for a statutory duty in Northern Ireland as discussed in 2e above.

b. What would you expect government to mandate vs what can be left to guidance/industry standards?

As explained above, a new Statutory Duty may work best given that previous voluntary initiatives have not fully achieved their desired outcomes. Like with NUAR, industry needs a mandate for sharing of all ground investigation data for publicly funded projects, all regulated industries (utilities, ports etc), and work on Critical National Infrastructure projects[52]. As noted at the roundtable, it is essential that this mandate provides clarity around issues regarding data ownership, liability, and insurance. Importantly, if the underlying issues are not solved, legislation risks adding to the existing problem.

As above, guidance (i.e. via the Construction Playbook) and voluntary initiatives (i.e. those undertaken in partnership with the BGS) have only been partially effective, although it is acknowledged that the benefits of these initiatives may have yet to be realised.

c. What operating model works best: a single mandated repository (e.g., BGS), federated approach, or hybrid?

A single repository for ground investigation data exists at the British Geological Survey: the National Geoscience Data Centre is a UKRI funded national capability. The BGS already has an ingestion, validation and publication system for ground investigation

[51] The Common Ground project - British Geological Survey. Common Ground is primarily focused on the delivery of geotechnical data to improve accessibility, rather than focused on improving ingestion of GI data. However there are overlaps and as part of Phase 1, BGS did gather evidence on the value of GI data and the barriers associated with GI data submission.
[52] A above, noting that some sensitive projects may need to be exempt.

data in AGS data format. It also has clear terms and conditions for use and reuse of data.

What needs to be established is if/how the BGS is allowed to repurpose the data for their statutory duties/national capability, and produce subsequent products: At present, there is a concern that the legislation could require industry to submit ground investigation data to the BGS at no cost, after which value added data products derived from that same information may be developed and commercialised back to industry. In our view, the 'raw' data that is deposited should be freely available.

d. What would "NUAR integration" mean in a way that's genuinely useful (and doesn't overload NUAR's safety critical purpose)?

NUAR integration is considered on the basis of NUAR as a programme assembling underground data, rather than NUAR as a database and platform. NUAR integration might take the form that the data is eventually exposed alongside the OS NUAR data and OS core products through the National Geographic Data Hub - possibly also alignment with the National Data Library. We do NOT foresee there to be any deeper architectural integration. The MUDDI data model does have some links and we should look at possible alignment between OGC/MUDDI/AGS, however, AGS is the proposed data transfer format given its widespread use and proven benefits across the UK and globally.

A longer term goal could be for the data to be made available by the BGS using free web services so it could be integrated into various tools used by those in the industry.

5. Costs/impacts (who pays, how much, for what)

a. What are the main cost drivers to comply? (Data cleaning, conversion to structured formats, QA, redaction, staff time.)

Staff time is the main cost. However, AGS data is transferred in a fully QA'd format to clients and designers for each project, so the time and QA level should not be significant. It takes approximately 5 minutes to upload an existing AGS file and fill in the details requested by the BGS data upload portal, but far longer to create the AGS file itself.

Producing AGS data requires skilled staff time and is often an iterative process between data producer and recipient, frequently involving multiple revisions. For complex projects, compiling a compliant, quality assured AGS submission can take many hours or even days, alongside substantial interaction to achieve mutual agreement and QA signoff – however, AGS is almost always adopted on complex projects so the additional

time would be negligible. While the client and consultant ultimately receive a fully quality assured AGS file from which they derive value, it is important not to undervalue the effort, expertise, and resource invested by the ground investigation contractor in creating that deliverable.

As noted above, AGS data is not always specified or used by all parts of industry, particularly at a small scale on private projects. At the roundtable, it was noted that a high percentage of publicly funded projects did specify AGS data, so the additional time cost should be limited for public projects. Smaller private projects are likely to see the greater additional time cost, which would need to be assessed along with the productivity benefits from using a standardised data format. The market is becoming more competitive, but no free or open-source options exist. This would be particularly helpful for SMEs facing challenges with capital outlay. A pilot could consider the viability of making an open-source solution available; which would encourage greater competition among large software companies and help lower prices, improving affordability for SMEs[53]. As a result, it is likely that this could mean SMEs would be more likely to produce AGS data and therefore be more likely that this AGS data would be shared with the BGS.

b. Where do costs sit today vs under the proposed reforms? (Consultancies, contractors, clients, BGS, central government.)

Costs are associated with uploading data that has already been generated for current GI contracts, although the costs are not insignificant costs associated with large major programmes which have hundreds of exploratory holes with data. These costs are often borne by the GI Contractor. While the unit cost of uploading data to the BGS may be relatively low, that cost cannot be viewed in isolation. When multiplied across the significant increase in volume implied by this legislation, the cost may not be negligible for some organisations.

Costs associated with retrospective data collation and submission are outside of the scope of the proposed legislation.

[53] Software vendors have always been an integral part of the AGS Data Management Working Group, and their continued support for the AGS format is both valued and essential to the ongoing success of the wider industry. As noted previously, meaningful industry wide change cannot occur without active engagement from software vendors alongside contractors, consultants, and clients. The AGS Data Management Working Group has already demonstrated this collaborative approach through its entry into the open source space via the AGS Validator project.

There would be additional costs to BGS due to, for example, commitments to make the data available within a certain time from submission, and for improvements and scaling to their IT infrastructure and for baseline operating costs of a larger dataset.

Depending on requirements, there may also be some costs to client organisations to be able to report on compliance with any new data sharing legislation.

During the roundtable, it was discussed that the BRO costs about €50 million to develop, of which about €25 million was used by the Geological Survey of the Netherlands to develop the IT infrastructure that was needed including a repository and data standard. In the UK, we already have an operational repository (NGDC) and an industry data format (the AGS data format).

c. What ongoing stewardship costs exist beyond initial ingestion? (Storage, curation, validation, user support, compliance monitoring.)

At the roundtable, it was noted that 20% of the investment in BRO is used for maintenance. Validation tools can be built in to help with AGS data review, and the BGS already have a tool to validate AGS data which is based on the AGS Validator provided by the AGS Data Management Working Group. AI could be used to help to reduce data cleansing time to increase data consistency - e.g. helping map fields. However, the current version of the AGS data format (AGS 4) is not the most 'AI friendly' format; the future AGS 5 format may be a JSON file which can potentially be more compatible with AI.

As stated in (b) above, there would be additional costs to BGS and there may also be some costs to client organisations.

As discussed above, there is a concern that the legislation could require industry to deposit ground investigation data at no cost, while enabling the BGS to generate revenue through the curation, enhancement, or monetisation of that same data. There are also governance questions such as who retains control over how industry-supplied datasets are subsequently used, modified, or repurposed, and how changes to datasets for example through processing, aggregation, or the application of AI tools[54] are managed, governed, and attributed.

[54] The New Zealand Geotechnical Database is an example of where AI tools are being used to make it more efficient to search the database. The AI has been given strict guardrails, including that users cannot use it for geotechnical analysis. Link to article: Pairing geotechnical data with AI helps New Zealand to build better - Source Asia

d. What are the "unfunded mandate" risks and how would you mitigate them?

BGS are currently responsible for funding the process to receive, curate and store the data. The BGS are delivery ready to scale up the existing system for this purpose. However, we understand that the funding that supports this service is not ring-fenced and is subject to wider strategic priorities and funding pressures. Furthermore, we understand that this pressure is driving BGS to sell 'added value' datasets back to industry. Our view is that the 'raw' data should be freely available to whoever needs it in perpetuity[55] with the necessary sustainable funding. The idea of BGS 'making money' off freely donated data, potentially even when they have added value to it, is unlikely to be viewed favourably by industry.

For a national geological archive of this importance, long-term, stable funding and governance arrangements are essential.

NEXT STEPS: A PILOT

Following in the footsteps of the NUAR pilot that was undertaken in 2019, a geotechnical data sharing pilot should be initiated. The pilot could consider the following:

- Full business case and for greater GI data sharing including a comprehensive whole industry economic impact assessment and research to answer the following questions[56]:
    - How many publicly funded exploratory holes and private works exploratory holes have been drilled in the last 5 years?
    - How much geophysical data is shared with the BGS?
    - What is the size of the GI market? How is this market expected to change over the next 5 to 10 years? In particular:

[55] The BGS National Geoscience Data Centre (NGDC) terms and conditions already state that although the ownership of data remains with the uploader, the provider grants a perpetual licence to the NGDC for any-use, including commercial. From our understanding, the NGDC have an obligation to collect and store data, but not necessarily to make it freely available. The fact that data is currently publicly available and free, does not guarantee it will always be.

[56] At the roundtable, it was explained that the economic case for BRO was made by identifying the monetary provision that was made in government contracts for unforeseen ground conditions; a proportion of this provision was then taken to represent a conservative estimate of how much these provisions could be reduced by using the BRO.

        - Test whether greater availability of historical ground investigation data would affect the size of the GI market.
        - Establish the implications for the large number of small, independent drillers and ground investigation contractors who do not provide specialist, advanced, or long-term monitoring services.
    - What proportion of delays are due to unforeseen ground conditions? How have these figures changed since the government surveys of the 1980s and more recent estimates?

- Legislative review of relevant government acts (e.g. Minerals Acts, British Geological Survey - the legislative framework - MediaWiki) and establish the legal framework required, e.g. amend existing acts or fresh legislation
- Seek firm legal advice on liabilities regarding data sharing and data ownership
    - Explore the possibility of providing clarity on data ownership through legislation or another instrument.
    - Include whether data sharing would affect protections offered by indemnity insurance with reports and data only covered for direct use on the project under a specific scope, therefore leaving the potential for liabilities outside of existing insurance frameworks.
    - The legal ownership and contract law under which GI Contractors operate requires careful consideration as part of the pilot to prevent a perception that these aspects are being circumvented because someone wants to see and benefit from other people's datasets.
    - Review the wording of the clauses in the Construction Playbook as they may imply that the data is treated as open rather than confidential. This raises a concern where the underlying contract is, in fact, confidential. In such cases, data ownership (and associated liabilities) do not appear to change, yet the data may effectively become openly accessible and reusable by third parties. This creates a potential imbalance whereby liability remains with the Contractor, while control over data use is significantly reduced.
    - In the Construction Playbook, it is also unclear what is meant by the British Geological Survey being "consented to use the data for secondary purposes"

- Most existing GI contracts are based on defined client use, limited third-party reliance, and controlled distribution of data. Open data frameworks introduce unlimited third-party access, indefinite reuse, and loss of control over context. Without reform, existing contract structures are not compatible with open licencing requirements.
- A standard contract term is that a specialist contractor should not rely on any of the data or information provided by the client. This pushes the risk on to the specialist contractor. A pilot could investigate the viability of promoting that contractors can rely on data and information from ground investigations undertaken in accordance with the UK Specification for Ground Investigation.

- Stakeholder engagement
  - At the roundtable, it was explained that many lessons could be learnt from the ASK Network[57], and that the findings from that experience would be valuable for a pilot.
  - At the roundtable, it was agreed that further engagement with geotechnical asset owners via the Geotechnical Asset Owners Forum was essential.
  - Engage with all government clients to establish blockers
  - Identify lessons learnt from National Highways approach to sharing AGS data with the BGS that could apply to other stakeholders
  - Establish whether project underwriters would support the use of historical data which the client organisation may be unwilling to validate.
  - Establish the reasons different stakeholders may have for not wanting to make ground investigation data available for a certain period of time or for sensitive projects.
  - Consider implications of data sharing for off-shore drilling[58]

[57] The ASK Network (XVIECSMGE2015_0604_Final.pdf) was a public–private subsurface data and knowledge exchange network led primarily by the British Geological Survey (BGS) in the late 2000s–mid-2010s. Its purpose was to improve how ground investigation (GI) and urban subsurface data were captured, standardised, shared, and reused across local authorities, utilities, consultants, contractors, and asset owners. The network is best described as an early, place-based data-sharing ecosystem, rather than a single national database.

[58] Note that the AGS Data Management Working Group already has an offshore subgroup who contribute to the fundamentals of the AGS format.

- Establish and, importantly, communicate the mechanism by which legislation is expected to lead to more (and/or higher quality) ground investigations — which, from the perspective of GI contractors, would be a positive outcome.
- It is important to acknowledge that AI could be viewed as a significant threat to the ground investigation industry, and the implications of AI having access to a national ground investigation dataset of significant size should be explored.

- AGS Data considerations[59]
  - Exploration of the viability for funding the development of AGS 5 with the aim of it becoming a complete digital version of the factual part of a ground investigation report. This would need to be undertaken in partnership with the AGS Data Management Working Group.
  - Identify whether GEOL_BGS should be included as part of a minimum-viable-product.
  - Establish whether processes can be put in place to ensure that AGS data submissions do not inadvertently infringe General Data Protection Regulations (GDPR) regulations[60].

- BGS engagement, data, and systems
  - Understand why BGS data sharing initiatives have not achieved the desired outcomes.
  - Test that the BGS systems are capable, operational and sustainable to operate the NGDC on a full scale

[59] At the roundtable, it was explained that the AGS data format cannot be made a British Standard because this would mean that the AGS Data Management Working Group would be unable to develop and maintain it. The AGS data format would therefore be left unsupported and unmaintained which is not sustainable. Importantly, the AGS data format was produced by industry, for industry.

[60] AGS Data, although mostly technically, does contain elements that may fall under the scope of General Data Protection Regulations (GDPR). For example, the files contain operative names and time related remarks that may contain important information for a project such as time records containing notes on absence (which may be related to an illness), incidents (which may relate to injury or safety investigations) or notes of training information. GDPR covers all information identifiable to a living individual, and anything related to health (e.g. absence) or training records may be classed as sensitive information. Under the current system, the BGS collects all information (all groups) from AGS files but only publish a subset of information. With the view to expand what information is shared, there is a real risk that even historic submissions may constitute breaches of GDPR with future changes to published information.

- Digitisation of more of the BGS' PDF data - particularly given the advent of AI enabled digitisation tools
- Development and testing upload and download of geophysical data to/from the BGS, working with key contractors in the industry to engage and discuss this.
- Establish what metadata would be needed by the BGS
- Consider creating a direct link between the AGS data and PDF borehole logs, and (potentially) parts of the factual report[61] from which they originate. The Open Government Licence requires the user to acknowledge the source of the data or information in their product or application by including or linking to any attribution statement specified by the Information Provider (i.e. the BGS). The attribution statement should include "caveats", "notes on limitations" or "service constraints" which would be outlined in the pdf of ground investigation report from which the data or PDF borehole logs originated but the BGS' portal for accessing ground investigation data (GeoIndex) does not provide a link between the AGS data and PDF logs and the factual report.

- Software considerations
  - Exploration of the viability for the expansion and promotion of free software for creating/editing AGS files that is accessible to anyone in industry and/or development of a free app to create AGS data files. An app could be more practical for 'one person' drilling companies to use as they could create AGS data using their phones rather than having to rely on a computer with an Excel addin (for example). Software companies should be consulted.
  - Exploration of the viability of developing/expanding open-source geotechnical data management software
- Historical data (even though the current bill does not include historical data),
  - Assess the legacy data issue[62], including the question of whether the underlying issue is less about *open* data and more about *controlled and appropriately accessible* data: how much is valuable and unique and

[61] These reports are governed by intellectual property rights, and may contain copyrighted material belonging to the producing organisation, bespoke methodologies or other commercially sensitive information that could reduce competitiveness. The pilot would therefore need to explore how to remove sensitive content, and how this would be funded and governed

[62] At the roundtable, it was discussed that future data becomes more valuable than historical data as the national repository grows as the incoming data is higher quality than the historical data. Some experience suggests that much historical data is not high enough quality to ingest into NGDC.

explore options for increasing the discoverability and accessibility of this data[63].

The pilot could be tested against a publicly funded project (e.g. school or similar) to identify whether the design would have benefitted from historical ground investigation information, if the information had been available at the time of the design.

The Pilot would need to be run in all parts of the UK.

[63] When approached by clients seeking to rely on existing ground investigation data, contractors do not encourage new investigations for commercial gain. Instead, the industry follows established and recommended legal practice: where appropriate and with the original client's contractual consent, data can be warranted or licenced for reuse by a new party. This approach ensures that liability, professional indemnity, and insurance cover are correctly managed and that all parties remain legally compliant. Importantly, this route is typically far more cost effective for clients than commissioning a duplicate investigation, while still protecting both the original data owner and the GI contractor. In this way, contractors actively support reuse of existing information where it is legally and professionally viable, rather than defaulting to additional site works.

Appendix A: Geotechnical Data Bill - Response from UK Geoscience Strategic Alliance

Improving the availability and reuse of ground investigation (GI) data represents a significant opportunity to enhance infrastructure delivery, reduce risk, support better long-term planning and investment decisions across the UK.

Whilst existing record services (e.g. those provided by BGS) provide a level of reuse of GI data, there is broad alignment across the UKGSA that greater access to and reuse of high-quality, structured GI data would reduce duplication, improve design efficiency, and help address the persistent issue of unforeseen ground conditions and costs highlighted in recent reports. However, the scale of transformation required should not be underestimated, particularly given the significant volume of GI data that is not currently shared and the variability in data standards, digital maturity, and data-sharing practices across industry.

While mechanisms for the voluntary deposition and sharing of ground investigation data already exist, given their variable uptake we broadly support the use of other incentives, such as the Bill proposed or other relevant policy or legislative drivers, to enable widespread and consistent participation.

To be effective, any intervention will need to be underpinned by a clear mandate and proportionate delivery model. This includes establishing a defined minimum dataset, ensuring clarity on data ownership and liability, and adopting a phased implementation approach; ideally building on existing activities to confirm the economic benefit case. Long-term stewardship, including data curation, validation, and access, will require sustained investment and a clear operating model that balances public-good data provision with a sustainable approach to ongoing management. Managing expectations around the timing of benefits will also be important, as many of the most significant gains are likely to materialise over the medium to long term rather than immediately.

Appendix B: Geotechnical Data Bill - Response from the Association of Geotechnical and Geoenvironmental Specialists (AGS)

In Summary

It's been difficult to collate all the feedback, but below are the salient points from everyone who responded. A few chose to respond with their own documents; a few provided personal opinions and some an organisation view.

Two major and consistent comments:

- the time available to devote to reviewing the document is insufficient
- the whole industry has not been involved in the process to date

The recommendation from the AGS is that we reset. A proper industry consultation must take place. It would be preferable to find a more practical solution to this which effectively ensures a more regular supply of data to a central repository for Public Projects. If this is proven to work, this could naturally be expanded to include private projects.

General Comments

The comments collated were as follow:

- The response time for this process is unacceptably short.
- A considered response will take some time as there are so many items to deal with including the objectives, the methodology and the legal and contractual aspects.
- There is strong objection to the comments about the unsuitability of the AGS Data Format. The problems outlined in the document are a failure of data management not the AGS Data Format.
- The devil lies in the details and the unexpected consequences. Apart from the obvious ones of accuracy, ownership and liability there are concerns about when the data is made available, the use of the data in contracts, both in the bidding stage and for dealing with unexpected ground conditions and other commercial implications for contractors and clients alike.
- This is not a simple, "let's publish the data" action, it's far more complex. Respondents are not convinced the benefits are as large as the paper seems to indicate, whilst the unforeseen consequences may be quite problematic. This

initiative must be appropriate for the whole industry, not just one component, for example, designers.

- The idea could be beneficial, but only if the details are properly thought through in a timely manner.
- The presumption that legislation is the only way to get people to share data is misguided, legislation should always be a last resort.
- We have a great geotechnical community already, which works by using standards and sharing best practice. One self-appointed group has seen fit to dictate what others must do.
- Clients will bear most of the responsibility for complying with a law and they have been left out of the conversation.
- Our community needs to reset and look at the problem again.
- National Highways has the template that others can follow. It's not perfect, but it has a proven track record, and it works. Let's start with that rather than hitting people with legal sticks.
- The document states that there is an overspend on Ground Investigation in the UK due to lack of public information, but at the same time says that releasing more information publicly will not lead to less work for contractors. These statements are not necessarily compatible.
- The questionnaire seems mainly concerned with further actions to make it compulsory to share the data without addressing the underlying issues and concerns.
- The document indicates that the scope is for projects from public works, including all regulated industries (utilities, ports etc), and work on major infrastructure projects. It's not clear whether the intention is to include privately funded regulated industries and major infrastructure projects. Have the relevant trade associations been consulted?
- How would sensitive data be handled – would there be exemptions – for example MOD data?
- Could the widespread public release of data create a risk that UK companies are outbid on projects by overseas competitors with superior AI capabilities?

Other Documents

See attached documents for other individual specific views.