Item 1

28th November 2012

Glasgow City Council

Sustainability and Environment PD Committee

Report by Executive Director of Development and Regeneration Services

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CORPORATE GEODATA MANAGEMENT

Purpose of Report:

To present to the Committee the actions that are being taken to effectively manage the Council's geoscience and geoenvironmental data (Geodata) resource and to make this resource available to a wider group of stakeholders.

Recommendations:

That the Committee:

1. Notes the steps being taken to maximise the value from the geoscience and geoenvironmental data held by the Council.
2. Notes that the Executive Director for Development and Regeneration Services will examine the option of compelling third parties to utilise a standard format when submitting geoscience and geoenvironmental data above a threshold level to the Council in support of a statutory purpose.

Ward No(s):			Citywide:	x	
Local member(s) advised:	Yes ☐	No ☐	Consulted: Yes	☐	No ☒

1. BACKGROUND

1.1 The soils and rocks beneath Glasgow are naturally varied and in recent times, have also been significantly influenced by human activity (e.g. contamination from heavy industry and stability issues from mining). It is therefore essential that Council staff involved with any land use issues (e.g. planning, estates, construction, ecology, sustainability, etc.), are able to efficiently access and use key ground information to inform and improve their decision making processes.

1.2 A core function of the DRS Geotechnical Group is to provide advice on ground conditions; city-wide, to support the Councils' activities (building development, vacant and derelict land regeneration, contaminated land remediation, strategic planning, land transactions etc.).

1.3 The Geotechnical Group has developed and currently operates and maintains an expanding 'Geodatabank' library of information on ground conditions comprising primarily paper files located at 229 George Street.

1.4 This data library represents a unique corporate asset providing the capability to establish a rapid response service to requests for information on ground conditions for any area within the city. In total, in excess of 20,000 ground investigation reports (estimated replacement cost £100m+) have already been indexed and stored and are therefore currently available for reference as required. The spatial distribution of this information is shown below in Figure 1.

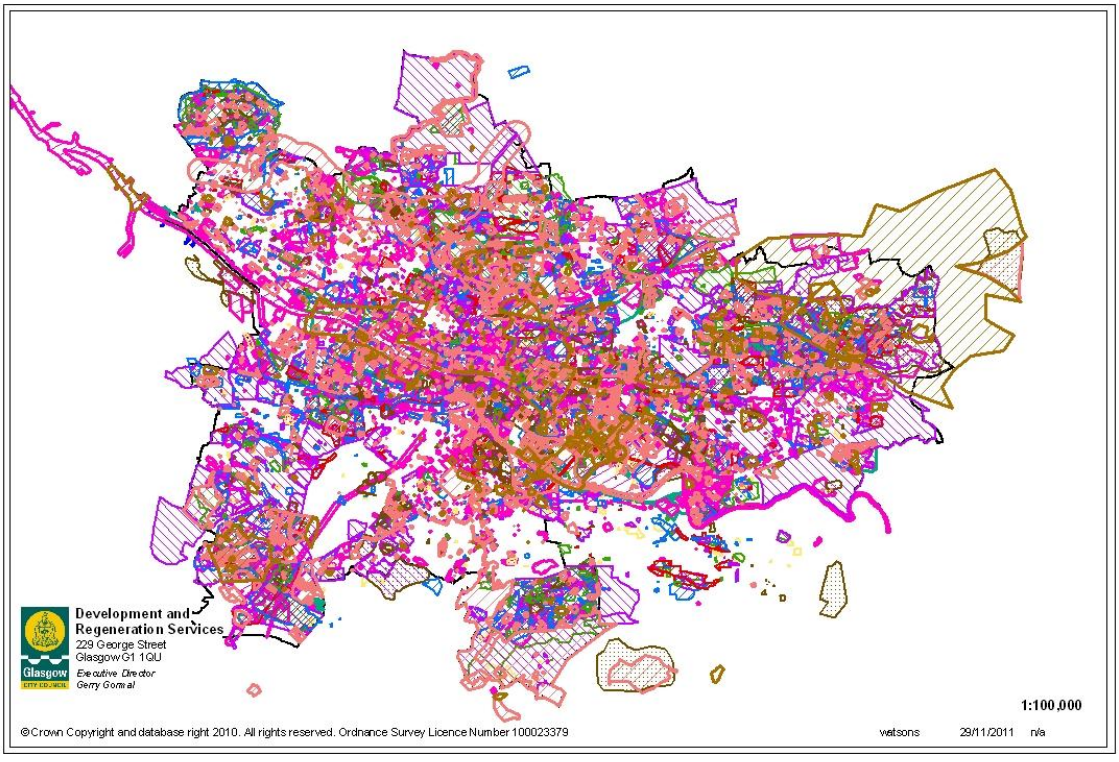

Figure 1 - GIS plot of indexed reports showing citywide data coverage

1.5 The information has been acquired from several sources as follows:

- Site investigation reports generated by the Council over several decades of capital investment and revenue expenditure;
- Reports on ground conditions submitted to the Council in support of Building Warrant applications;
- Information submitted in support of Planning Applications;
- Information associated with land transactions (sales and acquisitions); and
- Information generated by (statutory) Contaminated Land Inspections.

1.6 Local Authorities need comprehensive access to raw and interpreted data, national standards, methodologies, expertise and toolsets including the next generation of 3D models.

2. DATA MANAGEMENT CHALLENGES

2.1 The existing arrangement presents the following challenges:

- Paper files deteriorate gradually through usage and time and can go missing;
- Paper files are not digitally 'backed-up' and are therefore potentially vulnerable to catastrophic loss (through fire/flood etc);
- Not all data supplied to the Council is incorporated into the system (i.e. inefficient data capture);
- Current data handling procedures are not uniform across the Council (i.e. electronic file formats, storage media, software, paper, directory structures, names/identifiers); and
- A centralised paper data store is not readily accessible from work locations across the Council estate, resulting in inefficient consumption of staff time for storage, search and retrieval.

3. LOCAL AUTHORITY RESEARCH COUNCIL INITIATIVE

3.1 A number of the data management challenges described above were the subject of a Local Authority Research Council Initiative (LARCI) project, examining data handling protocols.

3.2 The LARCI project has helped to identify the many places and ways in which ground information is held by the Council including the limitations and restrictions on its use. The project has enabled new approaches to be developed to make the information more accessible, useful and visual by introducing new methods, tools and standard formats.

3.3 Specific conclusions drawn from the LARCI report included the following:

- The need for a corporate, Council wide Geodata handling protocol (i.e. a 'one-stop-shop') to improve efficiency of data acquisition, control and dissemination;
- The adoption of a fully digital data transfer mechanism between the Council and private sector organisations would be beneficial – in which raw borehole data is supplied to and handled by Council separately from interpretive reports using the digital '.ags' data format; and
- Confirmation of the importance of partnership working between Local Authorities and between the British Geological Survey (BGS) and Local Authorities.

4. CURRENT INITIATIVES AND DEVELOPMENTS

4.1 The DRS Geotechnical Group has developed several procedures to improve 'Geodata' handling in response to the above challenges including:

- Use of the ARC Geographical Information System (GIS) for indexing files;
- Integration of the ARC GIS and IDOX systems for storing and retrieving digital Geodata at PC workstations; and
- Deploying team resources when available to scan and index the existing paper files for back-up and to enable electronic retrieval at PC workstations via the ARC GIS/IDOX interface.

4.2 The opportunities afforded by the Electronic Data Records Management System (EDRMS) project, being developed as a key component of Tomorrow's Office, to accelerate the digitisation of the paper based Geodatabank are being explored. The completion of the digitisation process will help address key data management challenges described above and secure this unique, corporate data asset.

4.3 The significant Geodatabank held by the Council and the commitment to maximise for multiple stakeholders the value that can be gained from this resource, has led the BGS to select Glasgow as their demonstrator city for the development of next generation Geodata handling protocols and interpretative tools including on the Northeast Atlantic Geoscience (NAG) City initiative (http://nag-city.org/).

4.4 This collaboration with the BGS has included the development of a Pilot 3D Geological Model of the Clyde Gateway area of the city, which is now available at DRS Geotechnical Group PC workstations. Building on the success of the Pilot which helped to inform the Shawfield Remediation Strategy development and the 2012 Commonwealth Games Athletes Village remediation, a 'citywide' model will soon be available from BGS with additional geotechnical and groundwater attributes.

4.5 The use of 3D geological models for assimilating and interrogating information has been identified as the next (critical) development for delivering geological data handling efficiencies to support service delivery (e.g. redevelopment projects, city planning, statutory contaminated land, geothermal resource and geodiversity mapping etc.). A continuation of the collaboration between the BGS and the Council will enable the BGS to build and manage these models drawing on data shared by the Council. This will enable greater value to be derived from the data held by the Council without the development of a dedicated internal resource capability for such a highly-specialist function.

4.6 The value generated by the Glasgow 3D geological model by improving the understanding of the subsurface conditions across the city will be enhanced if new factual site investigation information is captured by the model as it is generated. This process requires the 'owner' of the Geodata to agree to share this information with the BGS. As a significant percentage of the site investigation information generated within the city flows through the Council, the Council aims to facilitate this process to the benefit of all Geodata users. Through discussions with Legal Services and building upon the experience gained through information release for the Clyde Gateway Pilot 3D Geological Model, a draft data consent proforma has been developed and is presented in Appendix 1. This takes account of potential constraints arising from more recent legislation and guidance (e.g. Public Records (Scotland) Act, 2011) and seeks to address the legal, copyright and data confidentiality issues surrounding the release of data submitted to the Council (e.g. building warrant applications) to the BGS.

4.7 The capture of new Geodata is also proposed to be facilitated by the adoption of a new data transfer protocol as recommended by the LARCI project. This has now been developed by the BGS and the Council and has been named the **G**lasgow **Spe**cification for AGS **C**ompliance (GSPEC) and is based on existing industry practice and data reporting standards defined by the Association of Geotechnical and Geoenvironmental Specialists (AGS). Data sharing is proposed to be limited to factual information and not extend to interpretative reporting. This protocol will now be implemented as widely as possible on a voluntary basis including the issue to all relevant Council services of an appropriate 'corporate' guidance document.

4.8 The partnership working established between the BGS and the Council forms a key component of 'shaping the future' working practices and philosophy. This collaboration is to be extended to all sections of the 'Geodata' using community through the initiation of a new Knowledge Exchange framework led by the BGS, **A**ccess to **S**ubsurface **K**nowledge (ASK). An ASK workshop event to engage with the user community was scheduled to be held at the Lighthouse on Friday 16th November 2012, with attendance confirmed by over 70 delegates.

4.9 Establishment of the ASK knowledge exchange network meets with many of the aims and objectives for 'open science' as described in the Royal Society Report 'Science as an open enterprise'; June, 2012. Initially to be established in Glasgow and environs, ASK could potentially be developed as an exemplar for adoption nationwide (UK).

4.10 The Network will also facilitate engagement with other relevant bodies (Local Authorities, SEPA, Scottish Water, Scottish Contaminated Land Forum etc.) to encourage implementation of common geological data sharing protocols across the wider, user community through the Access to Subsurface Knowledge (ASK) initiative. Such collaboration may also assist in meeting the demands of Scotland's Geodiversity Charter thereby also supporting the delivery of the Scottish Biodiversity Strategy, the Scottish Soil Framework, the Land Use Strategy and Scotland's Landscape Charter.

4.11 The Council proposes to establish a data sharing agreement with the BGS to support the management of all of Glasgow's factual 'Geodata' utilising the unique capabilities of BGS as the UK's national body responsible for the collation, storage, processing and dissemination of geological information. The Council would benefit directly from data handling efficiency gains and access to a BGS-supported, 'citywide' 3D Geological Model to enhance service delivery (i.e. both individual projects and strategic issues such as geothermal resource potential and geodiversity mapping etc.).

4.12 The proposed data sharing arrangement with the BGS will be incorporated within the Records Management Plan to be developed by the Council in accordance with the requirements of the Public Records (Scotland) Act, 2011. The arrangement would also significantly assist the Council in meeting its requirements under Environmental Information Regulations and Freedom of Information legislation.

5. COUNCIL STRATEGIC PLAN IMPLICATIONS

Economic Impact:	Improved access to geoscience and geoenvironmental data will support regeneration within the city.
Sustainability:	Enabling stakeholders to gain greater value from Geodata will facilitate the Council meeting it's sustainability goals.
Financial:	The potential for data-handling efficiency gains have been identified.
Legal:	The adoption and implementation of legally approved data receipt/submission protocols concerning data ownership and copyright issues have been developed in consultation with Legal Services. The proposed strategy will help the Council fulfil its obligations under relevant legislation (Freedom of Information, Environmental Information Regulations, Public Records (Scotland) Act, 2011).

Personnel:	The data-handling efficiency gains will off-set any staff time required to support the collaboration with BGS. The technical and specialist staff who routinely handle Geodata will be kept updated on protocols and the functionality that the Geodatabank supports.
Sustainable Procurement and Article 19:	None

6. RECOMMENDATIONS

6.1 Notes the steps being taken to maximise the value from the geoscience and geoenvironmental data held by the Council.

6.2 Notes that the Executive Director for Development and Regeneration Services will examine the option of compelling third parties to utilise a standard format when submitting geoscience and geoenvironmental data above a threshold level to the Council in support of a statutory purpose.

Development and Regeneration Services
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