AGS Data Transfer Format

Jackie Bland
Geotechnics Limited / Fugro Engineering Services
(Chair - AGS Data Management Working Party)
4th March 2014
AGS Data Format Laws

1. Enter the data once and use it many times
2. The format is ‘by the industry and for the industry’
3. If you can......get someone else to enter your data and transfer it to you in a standard way
Guiding Principles

- To exchange data (a.k.a. government BIM mandate)
- Allow for easy archive
- Accessible – must be software independent
- Self-defining
- Allow for transfer of information described by a specification
- Align to industry standards and UK practice
Why the Association of Geotechnical and Geoenvironmental Specialists?

• Trade Organisation - exists to serve the industry
• Provides the mechanism and mandate for the format to exist
• Impartial
• Software independent
• Has many like-minded individuals
AGS Data Transfer Timeline

1985

AGS 03/92

AGS 07/94

AGS 3

AGS 3.1

AGS 4

AGS 5?

1990

1995

2000

2005

2010

2015

World Leaders
Maggie Thatcher
Mikhail Gorbachev
Ronald Reagan

Berlin wall falls

Atlantis Space Shuttle docks with Mir space station for first time

Millennium Bug

Facebook launched

Matt Smith becomes 11th Dr Who

ASK Network Workshop
Format Progression

• AGS 1
  o AGS 1 took just 9 months to publish

• AGS 1 => AGS 2
  o Proved the basis was sound, but more headings needed

• AGS 2 => AGS 3
  o Concept of Abbreviations or ‘pick lists’ introduced
  o Ability to add User Defined Headings & Groups

• AGS 3 => AGS 3.1
  o Monitoring from AGS-M (2002) incorporated
  o More headings for more data
Format Progression 3.1 => 4

- ...even more headings for more data; 123 groups, over 2050 headings including:
  - Quality Assurance information
  - Eurocodes required changes
  - Geoenvironmental information
- Revised internal file layout (and revised rules)
- Supported by resources on AGS website
- Scope expanded to include process of data collection
Data Transfer, not Database

• AGS Format definition is not a specification for *what* data is transferred but *how* it is transferred

• AGS Format is a definition of a language; dictionary and grammar

• Defines *how* to say something but not *what* is said
Think........

Empty crate + note for milkman
(AGS Format + specification)
Format Definition

**Included**
- A lot of empty boxes!

**Excluded**
- What to pack...
- How much to pack ... and what to leave behind...
- What to unpack...and which boxes go straight to the loft
- Where to position items...
- Checking for damage...
AGS Transfer Format

**Included**
- Boxes (or containers) for data
- Rules to allow interpretation
- Self-definition
- Extensible

**Excluded**
- Data content / extent of specification
- Validation of data (integrity/completion)
- Acceptance of transfer files into data systems

Data Format

Data Management
SAMP Group

- SAMP group enhanced to incorporate a unique sample identifier **in addition** to the existing Location id, Sample depth, type and reference
  - LOCA_ID, SAMP_TOP, SAMP_TYPE, SAMP_REF (from AGS 3.1)
  - SAMP_ID (added in AGS 4.0)

Both valid SAMP_ID values
Laboratory Test Scheduling groups LBSG/LBST/CHOC added

- LBSG for Testing Schedule details, when results required by etc.
- LBST for listing the tests required on each sample
- CHOC for managing the sample to its destination (Chain of custody)

LABORATORY GEOТЕCHNICAL TESTING SCHEDULE

<table>
<thead>
<tr>
<th>Borehole Number</th>
<th>Sample Tip</th>
<th>Sample Per</th>
<th>Sample Type</th>
<th>Moisture Content</th>
<th>Atterberg Limits</th>
<th>Sieve</th>
<th>Density &amp; Void Ratio</th>
<th>UPL/ML</th>
<th>CBR</th>
<th>MCY/MCC/CCV</th>
<th>Split Description</th>
<th>UCS/Point Load</th>
<th>Organic content</th>
<th>Triaxial Cell</th>
<th>Direct Shear / Consolidation</th>
<th>Shear Box etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH1</td>
<td>0.50</td>
<td>1</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH2</td>
<td>0.50</td>
<td>1</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH3</td>
<td>2.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH4</td>
<td>3.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH5</td>
<td>3.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH6</td>
<td>3.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH7</td>
<td>3.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH8</td>
<td>3.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH9</td>
<td>3.00</td>
<td>0</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARGNS
To include odometer, triaxial multistage, shearbox and hydraulic cell loads or pressures, combination of samples, sample preparation, ACEC test suite, etc.
Laboratory Test Groups

The principle of each test having its own group or paired grouping has been introduced throughout the format, so CLSS and ROCK groups have been split

### Soil test groups
- CBRG / CBRT: California Bearing Ratio Test
- CMPG / CMPT: Compaction Test
- CONG / CONS: Consolidation Test
- LDEN: Density Test
- LDYN: Dynamic Testing
- ESCG / ESCT: Effective Stress Consolidation Test
- FRST: Frost Susceptibility Test
- GCHM: Geotechnical Chemistry Testing
- LSTG / LSTT: Initial Consumption of Lime Test
- LPEN: Laboratory Hand Penetrometer Test
- PTST: Laboratory Permeability Test
- LVAN: Laboratory Vane Test
- LLIN: Linear Shrinkage Test
- LLPL: Liquid and Plastic Limit Test
- MCVG / MCVT: MCV Test
- LNMC: Moisture Content Test
- LPDN: Particle Density Test
- GRAG / GRAT: Particle Size Distribution Analysis
- SHBG / SHBT: Shear Box Test
- LSLT: Shrinkage Limit Tests
- SUCT: Suction Test
- LSWL: Swelling Index Testing
- TNPC: Ten Per Cent Fines Test
- TREG / TRET: Triaxial Test - Effective Stress
- TRIG / TRIT: Triaxial Test - Total Stress

### Rock test groups
- RCCV: Chalk Crushing Value Tests
- RPLT: Point Load Testing
- RELD: Relative Density Tests
- RDEN: Rock Porosity and Density Tests
- RUCS: Rock Uniaxial Compressive Strength and Deformability Tests
- RSCH: Schmidt Rebound Hardness Tests
- RSHR: Shore Scleroscope Hardness Tests
- RTEN: Tensile Strength Testing
- RWCO: Water Content of Rock Tests

### Materials testing groups (***NEW****)
- AAVT: Aggregate Abrasion Test
- ACVT: Aggregate Crushing Value Test
- ARTW: Aggregate Determination of the Resistance to Wear (micro-Deval)
- AELO: Aggregate Elongation Index Test
- AFLK: Aggregate Flakiness Test
- AIVT: Aggregate Impact Value Test
- APSV: Aggregate Polished Stone Test
- ASNS: Aggregate Soundness Test
- AWAD: Aggregate Water Absorption Test
- ALOS: Los Angeles Abrasion Test
- ASDI: Slake Durability Index Test
Abbreviation Changes

• Chemical (CODE group) and ‘pick list’ abbreviations (ABBR) rolled together to form one giant ABBR group holding everything

• Pre-defined abbreviations are no longer contained as a fixed list within the AGS4 document, but held at www.ags.org.uk

• ABBR group should contain *all* abbreviations used within an AGS submission and all shorthand notations used throughout the file where appropriate

```
e.g.       ABBR_HDNG     ABBR_CODE    ABBR_DESC
           LLPL_PL        NP           Non-plastic
           GEOL_DESC     **          Drillers description
           CORE_RQD      NI           Non Intact
```
# Abbreviations

<table>
<thead>
<tr>
<th>Table</th>
<th>Field</th>
<th>Type of test (ARTW_TYPE)</th>
<th>List items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploratory Hole Backfill Details</td>
<td>Backfill legend code (BFL_LEG)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Compaction Tests - General</td>
<td>Compaction mould type (CMPG_MOLD)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Compaction Tests - General</td>
<td>Compaction test type (CMPG_TYPE)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Consolidation Tests - General</td>
<td>Type of consolidation test (CONG_TYPE)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>User Defined Groups and Headings</td>
<td>Type of data and format (Note: This data is REQUIRED where DICT_TYPE=&quot;HEADING&quot;) (DICT_DTYPE)</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>User Defined Groups and Headings</td>
<td>Heading status KEY, REQUIRED or OTHER (Note: This data is REQUIRED where DICT_TYPE=&quot;HEADING&quot;) (DICT_STAT)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Discontinuity Data</td>
<td>Discontinuity termination (lower, upper) (DISC_TERM)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Dynamic Probe Tests - General</td>
<td>Dynamic probe type (DPRG_TYPE)</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

[Download Full ABBR](#) | [RSS Feed available](#)
www.ags.org.uk

- Document download
- On-line data dictionary – groups & headings
- Download example files
- Abbreviations
- Discussion board
- Guidance notes (*AGS3 Appendix 6 replacement*)
Specification of Data Deliverables

• Tabulate key information for clarity:
  o AGS Data Submission schedule
  o Which groups and headings you require
  o Preset your data – give the Location ID’s, project name, client name in advance of project start
  o Codes – especially geological strata names
  o User defined headings (careful...this adds cost, think ££££ here!)
A3 Schedule for submission of data

The data will normally be submitted in accordance with the reporting requirements given in the contract. Where these require the electronic data to be submitted separately, or to a different schedule, then the following information shall be given.

The electronic data is to be submitted in accordance with the following schedule:

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field data</td>
<td>Within two days of completion of hole</td>
</tr>
<tr>
<td>Preliminary</td>
<td>Within one week of completion of test</td>
</tr>
<tr>
<td>Final prelim</td>
<td>Within two weeks of completion of all testing</td>
</tr>
<tr>
<td>Final</td>
<td>Within one week of Engineers approval of final prelim report</td>
</tr>
</tbody>
</table>

A4 Notes on Particular AGS Groups & Fields

Where particular or project-specific requirements are required they are listed below:

<table>
<thead>
<tr>
<th>Group</th>
<th>Field</th>
<th>Note / example</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJ</td>
<td>PROJ_ID</td>
<td>Contractors project/investigation reference</td>
</tr>
<tr>
<td></td>
<td>PROJ_NAME</td>
<td>ACME Gas Works Redevelopment Phase 1</td>
</tr>
<tr>
<td></td>
<td>PROJ_CLNT</td>
<td>ACME Developments plc</td>
</tr>
<tr>
<td></td>
<td>PROJ_ENG</td>
<td>ACME International</td>
</tr>
<tr>
<td>TRAN</td>
<td>TRAN_STAT</td>
<td>Preliminary, Draft or Final</td>
</tr>
<tr>
<td>LOCA</td>
<td>LOCA_ID</td>
<td>See list in Schedule</td>
</tr>
<tr>
<td></td>
<td>LOCA_TYPE</td>
<td>Compound codes to be used where appropriate, e.g. CP+RC</td>
</tr>
<tr>
<td></td>
<td>LOCA_NAT</td>
<td>Used to report hole collar position in UK National Grid coordinates and datum</td>
</tr>
<tr>
<td></td>
<td>LOCA_NATN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOCA_GL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOCA_LOCX</td>
<td>Used to report hole collar position in site coordinates and datum</td>
</tr>
<tr>
<td></td>
<td>LOCA_LOCY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOCA_LOCZ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOCA_CLST</td>
<td>Set to Phase 1</td>
</tr>
</tbody>
</table>
Summary

AGS + on or ≈ Adobe PDF

Report Deadline
5:00 PM