



# Secure Underground Archive Storage

Approved by The National Archives



## Introduction



Genus provides long-term archival storage services via its commercial relationship with Deepstore. Through this relationship, Genus is able to offer this unparalleled service to a much wider group of customers by consolidating collections which would not normally be considered for this facility.

Deepstore provides expert document storage and retrieval services at the UK's premier below ground facility, established in 1998. The site in Winsford, Cheshire stores over two million boxes with a dedicated operational team of over 60 people.

Alongside heritage storage, our services include records management services, magnetic media storage and other high-value and alternative media storage, electronic document records management (EDRM) – scanning & imaging, confidential shredding and destruction services.

## Summary of Services



- Custom built repositories exceeding BS EN16893:2018 compliance and built to the original BS 5454 specification requirements
- Unique underground secure facility
- Threat free environment from Fire, Vermin, Flooding
- 14°C, 50% RH constant Temperature and Humidity Environment
- Repository only illuminated when occupied
- Access to repository will be limited to security cleared staff
- Staff trained to TNA Care of Collection Standards responsible for handling
- Health & Safety policies and systems managed according to the Mine Regulation Act 2015

**This facility has the highest environmental credentials in terms of its comparatively low energy usage and its imaginative re-use of a pre-existing space. It offers an amazingly stable temperature and relative humidity alongside naturally very high security.**



## Capacity and Access

### Capacity

We have over 100,000m<sup>3</sup> of undeveloped space at this location. Space is engineered and racked to meet the necessary standards and made available as and when demand necessitates. Whenever extra storage space is required, we develop new repositories to meet the requirement.

The storage space is accessed via one of three lifts. The largest lift has a capsule size of 3600mm width x 2350mm high & 2100mm depth and has a carrying capacity of 15 tonnes.

There are no restrictions around floor loading.

### Certification

The site is certified to ISO 9001:2015, ISO 14001:2015 and ISO/IEC27001 accreditation.

Historically the standard that was used for the recommendations for the storage and exhibition of archival documents was a British Standard - BS5454. It specified security standards, fire resistance, structural qualities for document storage buildings, environmental parameters (temperature and humidity ranges) designed to protect documents, shelving schemes, and materials for document containers. The most recent version of this standard was published in 2000.

It was withdrawn in 2012, being replaced by PD 5454:2012 Guide for the Storage and Exhibition of Archival Materials. In 2018, PD 5454 was superseded by BS 4971:2017 and EN 16893:2018.

One of the key revisions to the standard, recommended that archive repositories could maintain a storage environment in which the temperature and humidity could fluctuate within a wider range. This was in contrast to the original BS5454:2000 which recommended that conditions should not fluctuate by more than +/- 1°C in temperature and +/- 5% in relative humidity.

This revision was implemented to assist museums, galleries, archives and libraries with the cost of renewing their displays or stores, which were effectively required to install plant designed to control the environment within tight limits. The consequence is that such schemes have a high carbon footprint, resulting both from the embedded energy in elaborate and expensive plant which requires regular maintenance and replacement on a 15 year cycle, and high energy use to run the plant.

We have the natural advantage of being able to maintain the temperature and humidity of the stores within the tight limits of the previously published BS5454 standard without having to install plant or expend energy. This puts us in the unique position of being able to continue to provide archivists with the gold standard conditions of storage without it impacting our customers' carbon footprint.

## Summary of Services

### Environmental Conditions

#### Air Circulation

Sufficient air is circulated to maintain the recommended temperature and relative humidity (RH), and to avoid stagnant air. To avoid pollutants, we will ensure that the air shall be filtered in accordance with BS EN 779, G3 & K7 at all times.

Using Munters De-Humidifiers MLT1400's, dry air will be discharged at 1,400 m<sup>3</sup>/hr, giving 2.76 air changes per day, preventing the possibility of any stagnant air pockets.

Return air ducts (filtered with a G4 pleated pre filter to BS EN 779:2002) will introduce make-up air at a rate of 10% and therefore not exceed 2.76 air changes per day.

Return air will be passed through a 2-stage filter system before re-introduction.

A 3-stage filter process (comprising a G4 pleated panel filter, an F8 bag filter and a G4 pleated after filter, all conforming to BS EN 779:2002, will filter dust & pollutants.

The infiltration will allow the repository to achieve a constant positive air pressure to prevent particulate and moist air contamination when the doors are opened.

#### Temperature

Being underground, the repository will be naturally at 14°C with negligible variation.

As a failsafe, DeepStore will set the Munters units to 14°C +/- 0.5°C.

Digital sensors allow monitoring & recording of the environmental conditions, should conditions fall outside the set parameters, the units will raise an alarm.

#### Humidity

Being underground, the repository will be naturally at 60% humidity with negligible variation.

As a failsafe, DeepStore will set the Munters units to 50% humidity; the similarity to the ambient humidity means the variation will not exceed +/- 5% in any one day.

Digital sensors allow monitoring & recording of the environmental conditions, should conditions fall outside the set parameters, the units will raise an alarm.

#### Lighting

Being underground means there is no natural light present and DeepStore will only activate the repository's lights whilst occupied by working personnel.



## Summary of Services cont...

### Flood Risk

The records will be stored 150 metres below the ground. Due to the geology of the seam of salt that encases the storage facility, it prevents water infiltration. At times of high rain fall, when the water table drops and meets the highest seam of salt, the water starts to dissolve until the resultant brine solution becomes saturated at 26% salt. Once the brine reaches this saturated level, it forms an impermeable membrane preventing water going any lower, thus encasing the mine – which is on the third layer of salt. Therefore the mine is dry at all times.

The only way that water could enter the mine in any significant way would be for flood water to enter one of the lift shafts. However, the reality of a flood event reaching the mine via the shaft collars would be extremely unlikely to occur.

It should also be noted that the most recent insurance audit was carried out in February 2020 by Hawcroft risk assessors and they considered risk of flooding as remote.

### Ensuring compliance

We electronically record the temperature & humidity of the repository at all times and produce monthly compliance reports.

#### **In the event of environmental non-conformity:**

- Alerts will flag-up on supervisors' desktop displays
- Emails will automatically be sent out to Operations staff
- Our staff will inform the Authority's key contacts as soon as reasonably practical

#### **In addition:**

- Our supervisors will physically check the Munters units each morning
- Our engineers will inspect the Munters units each month
- We will maintain a 6 monthly servicing contract with Munters
- The Munters units will be connected to the SCADA system for live fault-alerts

#### **To rectify any environmental non-compliance:**

We will maintain a 24-hour response service contract with Munters.

### Pest Control

The naturally dry underground environment precludes the survival of any pests or fungal moulds. Any lifeform, whether it is a rodent, insect or fungus will require a source of water to survive and the lack of water ensures that the entire facility will remain pest free.

Food and drink is forbidden from all storage areas across the facilities.

## Approved by National Archives



The National Archives (TNA) have been storing their low activity collections with Deepstore since 2004. Earlier in 2020, after a full tender exercise, TNA awarded a new fifteen year contract to Deepstore. There are currently 35km of TNA records stored here. Deepstore provide a regular retrieval and collection service to/from their offices in Kew, SW London. TNA audit Deepstore on a quarterly and ad-hoc basis to ensure they are complying with TNA's exacting standards.

Deepstore's operational staff team have received training from TNA on their Care of Collection Standards. This ensures that staff responsibly handle the valuable material that is entrusted to the facility.

## Retrieval services including frequency and volume



We have an extensive fleet of vehicles at our disposal. Our fleet is fitted with alarms, immobilisers, GPS trackers and on-board CCTV cameras. The entire fleet is registered to FORS, the registration number is: 006843  
All vehicles have GPS tracking devices fitted, which allows us to manage the safety and speed of our drivers which in turn reduces the risk to their client's records that could occur in a motor vehicle accident. The Supatrak system also allows our transport department to pre-plan the route from the storage facility to the client's premises and for the return journey. Should the vehicle be diverted from this route without notification, it will alert our transport department.





## Disaster planning and recovery

To mitigate the impact to any business operations we have a formal Business Continuity Management programme with documented procedures based on risk assessment and subject to regular review.

Risk Management procedures are prepared in line with ISO27001 procedural requirements.

### INFOSEC Approach

Our approach to managing Business Continuity is through a proven Forum Management team that meet on a quarterly basis.

The INFOSEC (Information and Security Management) Team consists of senior management personnel from Operations, IT and Commercial and the Forum is headed by Popi Curran, the Quality and Compliance Officer responsible for quality management.

Each meeting is documented and monitored as part of the Quality Management System and covers the following items:

- Review of INFOSEC actions
- ISMS Maintenance for BSI Accreditations and Standards
- Bespoke Key Customer Service and Delivery Requirements
- Access Controls
- Resilience Testing
- Planned changes/innovation
- Supplier performance
- Review of Helpdesk Requirements
- Review BCP Plans for IT and DeepStore
- Review Internal Processes and Documentation
- Maintenance of GDPR

In addition to the focus areas detailed the Forum also carry out fictional Disaster Recovery desktop exercises for incidents covering power outages, communication disruption etc.

Also as part of our BCP, we maintain a contract with a leading document recovery company, called Harwell Document Restoration Services.

## Safety and Security Conditions



Our facility lies 150 metres below the Cheshire countryside. This single fact makes us a unique and highly secure facility. There are only three entrances to the mine, which are all covered by the Mine's security access system. Access to the mine can only be gained when an access card is passed in front of a close proximity card reader to allow entry through a turnstile.

### Surface Site Security

Compass Minerals UK, the owners and operators of the mine, are responsible for the site security on the surface which is carried out according to Standing Instruction S15. A full copy is available on request. The perimeter of the site is fenced and gated. It is left open for access during normal working hours of the mine but closed and locked outside these hours. Access to the underground workings is via one of three lift shafts, each housed within a secured building. Entrance to any of the lift shaft buildings is by a proximity card reader controlled by a PC card issuing software system. CCTV monitors the entrances to the lift shaft buildings and they are also monitored out of hours by intruder alarms with PIR detectors. Any unauthorised access triggers an alarm, monitored 24 hours a day. The surrounding areas of the site are patrolled by a security guard outside the mine opening hours. However, should an intruder gain access to the site outside normal working hours, and then access to the building, they would find the lift shafts to be inoperable. Power to the three lift shaft mechanisms is closed off outside the mine opening hours. In an emergency, if access was required to the mine for retrieval purposes, local mine staff would be on call and access could be affected within half an hour of their arrival on site.

### Underground Security

Once underground, a separate integrated monitoring and control system is used to manage security on a zoned area basis. It comprises three main subsystems, the Alarm System, the Access Control System, and the CCTV Control System. Access to the segregated storage units are controlled with a secure fireproof door which can be unlocked with a valid magnetic photo ID card. Each authorised employee has their own photo ID card, each card has a security level assigned to it, which will grant entry to specific storage units dependent on their clearance level. This allows for a complete register of personnel who have accessed the repository. The only people that have access to the storage units are our full-time employees. Security at our facilities is paramount in protecting the Health and Safety of personnel and to ensure customer assets stored are protected. No person is allowed into the Mine until they have passed a Mine induction or they are accompanied by an appointed authorised person.

## Safety and Security Conditions

### Staff Vetting

All of our employees are fully pre-employment police security vetted. The vetting is undertaken externally by the UK Police Security Vetting Process. Individuals are not appointed to work without first being vetted. In addition, as part of their standard recruitment policy requires:

- Passport, birth/marriage or driving licence certificate ID – originals copied and returned
- Address check – 5 years plus
- Previous employment verification – 5 years plus
- Education/professional qualification proof – originals are copied and returned to individuals
- References – personal and previous employment
- Citizenship/right to work permit
- All employees undergo a pre-employment medical questionnaire and examination

Employees who are offered a permanent contract are notified in their provisional offer letter that a successful police vetting check will be required as a condition of their employment. This applies to all staff regardless of whether or not they will be directly involved with handling any client material. They are asked to complete and return a copy of the vetting form, which is processed by a Police Authority for screening to NPPV level 2/3.

### Fire Protection

A summary of the key elements of our fire protection arrangements are shown below:

- Zonal monitoring systems linked to Chubb, via RedCare
- Zone controlled fire suppression systems
- Extensive local extinguisher facilities
- Fire tender
- IFEX firefighting system
- Onsite Mines Rescue Team
- Smoking is prohibited across all of our sites
- All doors, shutters and gates are closed and locked when not in use
- Underground vehicles have self-extinguishing units fitted
- Fire Exits are alarmed even during working hours
- Electrical supply is steel wire armoured low smoke & fume to comply with BS4066-3
- Light fittings are Thorn Aqua proof high frequency polycarbonate

### Fire Prevention and Suppression

Fire detection here is provided by a sensitive detection system (VESDA - BS 5839) and portable fire extinguishers (to BS5306) including several IFEX (high volume water mist) units. An addressable fire detection system is provided in all areas throughout the units. There are no fixed or sprinkler systems within the storage units, which carry an associated water damage risk and are not effective. In terms of fire suppression, we control the airflow into the storage units – in the event of a detected fire, the airflow would cease thus causing a fire to self-extinguish due to a lack of oxygen – this is modelled to be more effective than sprinkler systems. Fire service modelling has been conducted, which shows that a fire in an effectively sealed room would consume the available oxygen in a room and self-extinguish within 30 minutes.



Genus, Records and Document Storage

## What we do



Digitisation Solutions  
Scanning & Capture Services  
Document, Book & Microfilm  
Scanners



Microfilm Solutions  
Fujifilm  
Conversion Services  
Conversion Hardware



Technical Support  
Hardware Support  
Software Support



Content Management  
Electronic Document Management  
Digital Asset Management



Print Solutions  
Print  
Design  
Web

## Ways to get in touch



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