Specialised Data Specifications
Section 12 Contaminated Sites Data

Not GEMS Geo-enabled	
GEMS Geo-enablement Planned	
Content GEMS Geo-enabled	✓

12 CONTAMINATED SITES DATA

12.1 Scope of Specification

12.1.1 The specification defines the capture of data relating to known or potential contaminated sites on Defence properties. The purpose of this data is to inform Defence employees and contractors of contamination issues that may impact base planning and infrastructure development at the site.

12.1.2 Contaminated Sites data assists the Directorate of Contamination Assessment, Remediation and Management (DCARM) in the strategic management and tracking of known or potential contamination issues. While DCARM runs investigation and remediation programs, including the Regional Contamination Investigation Program (RCIP), other investigation, remediation and management programs are undertaken by other Directorates in E&IG.

12.1.3 Contaminated Sites Data shall be collected according to this specification to allow consistency in management and reporting.

12.1.4 All parties undertaking contamination investigations, remediation, monitoring and management projects and programs should collect spatial data as part of this work. Spatial data visually illustrate the outcomes of the project and assist in the improved management of the contaminated sites. Datasets of contamination have been collated to produce a "single point of reference" for interrogation of information to identify whether contamination will impact on planning, development, delivery or evaluation of an E&IG activity. The data is a valuable management tool for program planning across the Defence Estate and inform the decontamination provisions liability assessment.

12.1.5 This specification covers the capture and update of Defence Contaminated Site data that is collected by any project or program undertaking contamination investigations, monitoring and/or remediation on the Defence Estate. The Contamination datasets outline the spatial extent of the contamination. All attribute data in the Contamination datasets is stored in the GEMS Contamination Module.

12.1.6 The Contaminated Sites Datasets that are included within this specification are as described in Table 12-1: Contaminated Datasets which also shows how they align with Environmental Spatial Data types described in Section 13.3 (Environmental Data).

Table 12-1: Contaminated Datasets

Dataset	Description	Type of Environmental Spatial Data
Contaminated Sites	This dataset provides detailed information on areas of known and potential contamination within Defence properties. The dataset provides the geometries for GEMS Environmental Factor Records (EFR). These data are referred to in Appendix K as Environmental Factor Spatial Data.	Environmental Factor Spatial Data

Contaminated Sites Sampling Locations	This dataset details the location of soil sampling sites, groundwater sampling sites and sediment sampling sites. These data may be used in the process of determining the presence of contamination and hence will lead to the creation of one or more CSR EFRs, but are not themselves EFRs. These data are referred to in Appendix K as Environmental Asset and Survey Spatial Data	Environmental Asset and Survey Spatial Data

12.2 GEMS: Spatial Data Update and Creation

12.2.1 As GEMS manages the non-spatial elements of the Defence Contaminated Sites Register (CSR) it is also the source of all CSR EFR IDs. These are the unique identifier for each contaminated site documented in the CSR.

12.2.2 **Data Update**: when a project / activity is updating CSR spatial data any CSR Spatial data issued by Defence will contain an EFR ID for each site. These must not be altered in any way.

12.2.3 **Data Creation**: when a project / activity needs to create new CSR sites, new EFR IDs must be requested from the CSR Administrator via the NCRP mailbox (ncrp@defence.gov.au). These EFR IDs must then be applied to the spatial data associated with the new site(s).

12.2.4 **Function Code**: Care must be taken to use the correct Function Code value against each Contaminated Site polygon appropriate to Update or Creation transactions as per Table 12-2.

Table 12-2: Function Codes

Transaction Type	Allowable Function Code Values
Creation	**C** – Create
Update	**U** – Update **V** – Void (use this to delete) **A** – Archive

12.3 Property Contaminated Site Map Requirements

12.3.1 A map shall be provided at the Property level showing all current Contaminated sites on the property. The purpose of the map is to support operation and maintenance of the property as well as planning and compliance activities. The requirements for these maps are outlined in Table 12-3: Property Contaminated Sites Map Presentation Guidelines and an example is provided at Figure 12-1: Example Property Contaminated Sites map.

Table 12-3: Property Contaminated Sites Map Presentation Guidelines

<table>
<tr><th>Map Element</th><th>Guideline</th></tr>
<tr><td colspan="2">All map elements should be located to avoid obscuring Contaminated Sites and key items of detail relevant to Contaminated sites on the property.

A title strip along the bottom of the map will accommodate: Title, Legend, Scale bar, Disclaimer, logo, suppliers reference etc. If sufficient space is not available in the title strip an additional floating frame may be used.</td></tr>
<tr><td>Map Window</td><td>Minimum Map content:
CSR Data: Thematically mapped polygons representing contaminated sites, labelled with EFR_ID.
Background: Either imagery or topographic map background as best suited to the property and map scale. The date of the background map, particularly imagery, will be shown in the title strip. Preference is top right corner of the title strip.
Back ground labels: Key roads and topographic features such as water bodies will be labelled. These will be minimal in number and will not obscure Contaminated Sites or labels. The number of labels will be sufficient for a reader to reliably understand the location of Contaminated Sites on a property,
Building/Structure EBI: In order to assist users, interpret the impact of contamination, buildings and relevant structures will be shown and labelled with their EBI. The preferred source of these data is the properties Master Site Plan (Section 3).
A Contaminated Site that has been archived as a consequence of an investigation or is already denoted for archiving on GEMS, should not be included on the map.
Notes map be used to clarify the status or extent of Contaminated Sites. The preferred location of notes as at the bottom left of the map window.</td></tr>
<tr><td>Contaminated Sites Symbology</td><td>Contaminated Sites will be thematically mapped by CRAT/ ERAT Risk Ranking as shown in the GEMS CSR module for each site as follows:
<table>
<tr><th>Risk Description</th><th>Colour (RGB Values)</th></tr>
<tr><td>Very High</td><td>R: 255, G: 0, B:0</td></tr>
<tr><td>High</td><td>R: 255, G: 170, B:0</td></tr>
<tr><td>Medium</td><td>R: 255, G: 235, B:0</td></tr>
<tr><td>Low</td><td>R: 0, G: 255, B:0</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Map Element</th><th>Guideline</th></tr>
<tr><td>Defence Property Boundary Symbology</td><td>The Defence property boundary will be shown as follows:
<table>
<tr><td>Line Style</td><td>Dual Solid Stroke Layer</td></tr>
<tr><td>Base Line Colour</td><td>R: 255, G: 255, B:255</td></tr>
<tr><td>Base Line Weight</td><td>2.5</td></tr>
<tr><td>Dashed Line Pattern</td><td>4 2 4 2 1 2</td></tr>
<tr><td>Dashed Line Colour</td><td>R: 255, G: 127, B:127</td></tr>
<tr><td>Dash Line Weight</td><td>2.5</td></tr>
</table></td></tr>
<tr><td>Map Size and Scale</td><td>1. A3 size for all properties.
2. The maps shall be scaled such that the entire property is contained within the map frame.
3. For large properties or where CSR information is crowded additional map pages (enlargements) will be created showing such areas at larger scales so that CSR data, labelling and background mapping is clearly readable;
4. Where enlargements are employed (as above) a key line will be shown on the main map indicating the extent of the enlargement. These key lines shall be labelled with their Map number. E.g. “Refer Map 2”
5. The Main Map will be Map 1.
6. Where enlargements are employed, they will be numbered as Map number of the total map count. E.g. Map 2 of 3.</td></tr>
<tr><td>Title</td><td>The map title shall follow the following schema:
[PropertyEBI] – [Property Name], [State/Territory Abbreviation]

Contaminated Sites.
A subscript will follow stating which Defence entity has issued the map.
e.g. “Map issued by DCARM”</td></tr>
<tr><td>Legend</td><td>The map legend shall show symbols as per Contaminated Sites and Defence Property Boundary Symbology as above.</td></tr>
<tr><td>North point</td><td>Where ever possible the map must be oriented so that north is up the page. The preferred position of the north point is at the top left of the Window. It may be pre-positioned if the preferred location detracts from the information content of the map. E.g. it covers a contaminated site.</td></tr>
<tr><td>Creation and Revision dates</td><td>1. The date of the map’s creation must be shown.
2. Revision number must be shown.
3. The date of the map revision must be shown.</td></tr>
<tr><td>PDF delivery (fonts)</td><td>Care must be taken to ensure all fonts are embedded to ensure maps render accurately on end users computers.</td></tr>
</table>

Figure 12-1: Example Property Contaminated Sites map

12.4 Data Deliverable – Map Template

12.4.1 A file template containing all file settings, features, symbology, attributes and layer structures, is available on the Defence Estate Quality Management System (DEQMS) at the following location.

http://www.defence.gov.au/estatemanagement

A file containing sample data is also available.

12.5 Data Deliverable Specification

12.5.1 The specification details any additional requirements in addition to those detailed in the Section **2** General Data Specification.

12.5.2 The deliverables required for a given scope of work will be defined by the work scope. These will be one or more of the following:

- Contaminated Sites CSR EFR spatial data records – See Appendix K – Environmental Data Model
- Contaminated Sites Sampling Locations records – See Appendix K – Environmental Data Model

12.5.3 All datasets created or updated in association with these specific datasets shall form part of the project deliverables. Datasets may include groundwater mapping or contours, soil salinity or associated outputs.

12.5.4 An SDMP compliant metadata record shall be produced for each dataset.

12.5.5 Property Contaminated Sites Map must be provided as self-contained soft copy (e.g. PDF) and in editable form (NOTE – ESRI ArcGIS.mxd map documents are preferred). Where a map product unavoidably includes licensed reference data (e.g. background imagery), a clear description of the data Defence will need to re-source to allow the map to be updated must accompany the map.

12.5.6 Data Format

12.5.6.1 Data shall be provided in an ESRI Shapefile.

12.5.7 File Names

12.5.7.1 The contaminated sites datasets shall be named as follows:

Contaminated Sites

- Refer to Appendix K – Environmental Data Model.

Sampling Locations

- Refer to Appendix K – Environmental Data Model.

Property Contaminated Sites map

- Files shall be names as per the following schema:

CSR_[GEMS Property EBI][GEMS Property short

name]_YYYYMMDD

Example: CSR_1426Laverton_20200207.pdf

12.5.8 Spatial Accuracy

12.5.8.1 Boundaries for Contaminated Sites will collected by reference to the best available spatial data relevant to the contamination issue or by GNSS techniques to an accuracy of ± 2m or better.

12.5.8.2 Sampling locations shall be captured using a GNSS technique to an accuracy of ±2m.