

## **Idaho Technology Authority (ITA)**

### **ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA**

**Category: S4XXX – Dam Inventory Standard**

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#### **I. DEFINITION**

See ITA Guideline [G105](#) (ITA Glossary of Terms) for definitions.

#### **II. RATIONALE**

A statewide Dam Inventory layer and data standard, which is part of the Hazards data theme, is a critical source of information for land managers, emergency managers, transportation engineers, developers, and researchers. Standardized landslide inventory data supports those groups by providing an authoritative, centralized, statewide database.

#### **III. APPROVED STANDARD(S)**

See Attachment

#### **IV. APPROVED PRODUCTS(S)**

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

## **V. JUSTIFICATION**

A statewide Dam Inventory dataset is a critical source of information, as stated under 'II Rationale' in this standard. A data exchange standard supports the use of the Dam Inventory dataset to facility a predictable format, improve collaboration and encourage of this dataset.

## **VI. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS**

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

## **VII. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS**

Data will be shared in accordance with ITA Standard [S4250](#) –Geographic Information System (GIS) Data Sharing Standards.

## **VIII. PROCEDURE REFERENCE**

The format, content, and development of this standard adhere to ITA Policy [P5030](#) - Framework Standards, ITA Standard [S4250](#) - Data Sharing Standards and ITA Standard [S4220](#) - Geospatial Metadata.

## **IX. REVIEW CYCLE**

Review will occur at least annually.

## **X. CONTACT INFORMATION**

For more information, contact the ITA Staff at (208) 605-4064.

## **REVISION HISTORY**

XX/XX/202X – Standard Presented to the IGC-EC



STATE OF IDAHO

# Idaho Dam Inventory Standard

Part of the Other Theme

Version 1

Effective Month Day, 2023

Developed by the Other Technical Working Group

## Contact

ITA Staff

Office of Information Technology Services

(208) 605-4064

[contact@its.idaho.gov](mailto:contact@its.idaho.gov)

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## 1. **Introduction to the Dam Inventory Standard**

A statewide Dam Inventory is a critical source of information for land managers, emergency managers, transportation engineers, developers, and researchers. Those groups will benefit from this data because this standard is an authoritative, centralized, statewide landslide inventory. Many private sector and local, state, and federal government agencies have business needs for landslide inventory data.

A Dam Inventory Standard is intended to facilitate integration and sharing of up-to-date Dam Inventory data and enhance the dissemination and use of Dam Inventory information. This standard does not instruct on how Dam Inventory databases are designed for internal use.

This standard was developed by the Hazards Technical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This standard will be reviewed at least annually and updated as needed.

### 1.1. **Mission and Goals of the Standard**

The Dam Inventory Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Dam Inventory Framework. The standard will communicate with, and may have similar attributes to, other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial Dam Inventory data to contribute to the Dam Inventory Framework.

The Dam Inventory Framework will be appropriately shared and beneficial to all. The fields in the Dam Inventory Data Exchange Standard will be general enough to incorporate basic information without requiring major changes in internal data models. This standard allows for expansion to a more complex data structure and schema.

### 1.2. **Relationship to Existing Standards**

This Dam Inventory Exchange Standard relates to existing standards as follows:

- No other standards apply.

### **1.3. Description of the Standard**

This standard describes the vision and geospatial data structure of a Dam Inventory Framework in the state of Idaho. This standard is devised to be:

- Simple, easy to understand, and logical.
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review

### **1.4. Applicability and Intended Uses**

This standard applies to the Dam Inventory element of the Hazards theme of The Idaho Map (TIM).

When implemented, this standard will enable access to, and exchange of, Idaho's dam data for both existing use and future planning. A predictable standard will support data collaboration, improve data collection techniques, help identify and report errors, correct inaccurate entries, and allow a variety of agencies to incorporate this data into their own data products with some known level of confidence in the veracity of the product.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of Dam Inventory data.

### **1.5. Standard Development Process**

The Hazards Technical Working Group is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2023, the Dam Inventory Lead began developing the standard for the Dam Inventory Framework using the standard development automation tools developed by the IGC-EC to generate the first draft of the Standard. This standard was then reviewed and edited by the members of the Hazards Technical Working Group.

After initial development, the draft standard document was shared with the Idaho Geospatial Council Executive Committee (IGC-EC) and the Idaho Geospatial Council (IGC) in accordance with the review and approval process described in ITA Policy [P5030](#) Framework Standards Development.

## 1.6. Maintenance of the Standard

This standard will be revised on an annual basis and as needed and in accordance with the ITA Framework Standards Development Policy ([P5030](#)).

## 2. Body of the Standard

### 2.1. Scope and Content

The scope of the Dam Inventory Data Exchange Standard is to describe a statewide layer which identifies the physical locations and attributes of mapped dams in Idaho.

### 2.2. Need

Dam Inventory maps are a key dataset needed for land managers, emergency managers, transportation engineers, developers, and researchers. This standard provides the foundation to aggregate dam data for centralized access and stewardship information.

Dam Inventory data is needed because public access to locations of significant land features, such as water storage dams, benefits a vast audience; the list is nearly endless.

### 2.3. Participation in the Standard Development

The development of the Dam Inventory Data Exchange Standard adheres to the ITA Policy [P5030](#) - Framework Standards Development. The Other Standard Team tasked with development, invite input and comments from private, county, state, and federal organizations. As the standard is reviewed in accordance with Policy [P5030](#) requirements, there will be opportunity for broad participation and input by stakeholders. The process will be equally broad for input on updates and enhancements to the standard. As with all Idaho Framework standards, public review and comment on the Dam Inventory Data Exchange Standard is encouraged.

### 2.4. Integration with Other Standards

The Dam Inventory Data Exchange Standard follows the same format as other Idaho geospatial framework data standards. The Dam Inventory standard may contain some of the same attributes as other framework standards and may adopt the field name, definition, and domain from the other standards to promote consistency.

## **2.5. Technical and Operation Context**

### **2.5.1. Data Environment**

The data environment is a digital vector point with a specific, standardized set of attributes pertinent to the Dam Inventory Framework. Dam Inventory data shared under this standard must be in a format supporting vector points.

### **2.5.2. Reference Systems**

The Dam Inventory Framework will be published in the Idaho Transverse Mercator NAD83 (IDTM83) coordinate system, which is the State of Idaho's single-zone coordinate system. Data is not required to be submitted in the IDTM83 coordinate system but must have a defined coordinate system clearly described in the metadata.

### **2.5.3. Global Positioning Systems (GPS)**

Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable.

### **2.5.4. Interdependence of Themes**

Dam Inventory geometry data may coincide with other framework data. For example, the aerial extent of the dam and the impounded reservoir must coincide exactly to the real property on which they both occupy. Vertical layers also must coincide, i.e., height, elevation, and bathymetry.

Attributes found in the Dam Inventory layer are related to the attributes found in the elevation data sets.

### **2.5.5. Encoding**

When data is imported into and exported from the Dam Inventory Framework, encoding will take place to convert data formats and attributes.



#### **2.5.6. Resolution**

Resolution will be documented in the metadata.

#### **2.5.7. Accuracy**

No specific requirements for accuracy are specified in this standard. Accuracy will be documented in the metadata.

#### **2.5.8. Edge Matching**

No edge matching between jurisdictions is required.

#### **2.5.9. Unique Identifier**

The unique identifier is DamID, which is a computer generated ID that is unique for Idaho.

#### **2.5.10. Attributes**

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

#### **2.5.11. Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to the Dam Inventory Framework. Details of stewards, their roles and responsibilities, and processes are set forth, or are being planned to set forth in a Dam Inventory Framework Stewardship Plan and related documents.

#### **2.5.12. Records Management and Archiving**

Data are managed by the Idaho Department of Water Resources and hosted on ArcGIS Online.

#### **2.5.13. Metadata**

The Dam Inventory Framework metadata will describe the methods used to update and aggregate the individual Dam Inventory data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in ITA Standard [S4220](#) Geospatial Metadata.

### 3. Data Characteristics

#### 3.1. Minimum Graphic Data Elements

The geometry of the features in the Dam Inventory Framework is vector point.

#### 3.2. Optional Graphic Data Elements

Not applicable.

#### 3.3. Standard Attribute Schema

Field Name	Data Type	Length	Description	Examples
DamID	Integer		Computer-generated unique ID for each dam record	142
NIDID	String	20	National Dam ID	ID06064
StateID	String	20	Water right number associated with dam for storage or power purposes; if it includes XXX, no water right is associated with the dam	17-2000, 27-xx15
DamName	String	100	Name of dam	SMITH POND
Status	String	20	Status of dam	REGULATED NON REGULATED
YearCompleted	Integer		Year dam construction was finished	1975
YearModified	Integer		Most recent year dam construction was modified from original specifications	2005
DamHeight	Double		Height of dam in feet measured from original ground surface to top	35
HydraulicHeight	Double		Height in feet from original ground surface to pool elevation	29

Field Name	Data Type	Length	Description	Examples
NormalStorage	Double		Storage in acre feet of the impounded water at design pool elevation	880
SurfaceArea	Double		Surface area in acres of impounded water at design pool elevation	54.00
DrainageArea	Double		Drainage area in square miles above dam location	26.60
DownStreamHazardPotential	String	20	Risk to property downstream of dam in event of dam failure	HIGH, LOW, NOT RATED, SIGNIFICANT
Source	String	100	Stream on which or nearest to which the dam is constructed	BIRCH CREEK
SourceQualifier	String	100	Qualifier to stream	WEST FORK
TributaryOf	String	100	Stream is tributary to this stream	BEAR RIVER
TributaryOfQualifier	String	100	Qualifier to TributaryOf stream	SOUTH FORK
DataSource	String	550	Method used to create the point for the dam's location	Digitized, GPS - Downloaded
MetalTagNumber	String	8	Metal tag affixed to the dam or nearby	A0000111
TRS	String	36	Concatenation of Public Land Survey Township/Range/Section the dam is located within	09N42E28
County	String	50	County dam is located in	FREMONT
SpatialDataID	Integer			486796

### 3.4. Data Quality

Data quality considerations for Dam Inventory include:

- a) All Dam Inventory should have Dam Inventory IDs.

## Appendix A: References

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy*. <https://ita.idaho.gov/psg/P5030.pdf>

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information*

*Systems (GIS) Data, Category: S4220 Geospatial Metadata.* <https://ita.idaho.gov/psg/S4220.pdf>

Idaho Department of Water Resources (IDWR). *Dams of Idaho, Status and Downstream Hazard Potential.* <https://maps.idwr.idaho.gov/agol/DamsOfIdaho/>

## **Appendix B: Glossary**

See ITA Guideline [G105](#) (ITA Glossary of Terms) for definitions.

