Flood Spatial Data Specification

Version 2.1

July 2021

Relevant template geodatabase version is 2.0

Document Control

Contact for Enquiries

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Document History

Version	Date	Author	Summary of changes
1.0	June 2020	Kedar Kumthekar	A guide to ensure there are consistent and clear instructions to format spatial data produced as part of a project to capture flood related information. Key changes include: - Study Identifier to reflect project completion date. - Decommission *StudyARI* table. - Revised naming convention for a Product. - Introduce table *StudyScenario* in the data model to link one or more scenarios to an ARI and associate alternate study type to a scenario. - Ability to link a spatial product to one or more scenarios via *StudyScenario* table. - Introduction to an automated process to validate a geodatabase.

2.0	Jan 2021	Kedar Kumthekar	- Introduce new products:
			  ○ Spot Information
			  ○ Assets Impacted
			- Rename Levee products
			- Incorporate feedback for sections:
			  ○ StudyScenario
			  ○ ModelledProduct
			  ○ ProductType
			- Rename vector products in section 5.2 to match the layer names in the template geodatabase.
			- Updates to template geodatabase:
			  ○ Reference tables:
			  ▪ StudyType
			  ▪ Basin
			  ▪ Locality
			  ▪ WaterwayList
			  ▪ ProductType
			  ○ User populated tables:
			  ▪ StudyLocality

Version	Date	Author	Summary of changes

2.1	June 2021	Kedar Kumthekar	- Purpose updated to exclude compliance of the 1% AEP mosaic
			- Description updated for fields:
			  ○ *GaugeID* in *GaugeHeight* table
			  ○ *Description* in *ModelledProduct* table
			- Added
			  ○ Example of a product name incorporating FCL.
			  ○ QA criteria for vector and raster products.
			  ○ A section to verifying spatial products/layers imported in the Platform.
			  ○ Reference table definitions
			  ○ FAQ item relating to 1% regional extent.

Contributors and Reviewers

The following people were involved, to different extents, in the process of developing and finalising this document, but were not responsible for its authorship:

- Contribute – had input into the creation of the document
- Review – receives the document in order to review and provide feedback

Name and title	Contribute	Review
Members of the spatial focus group for the Flood Intelligence Platform	✓	✓
Members of the Floodplain Management Unit		✓
Flood Intelligence Platform administrators	✓	✓

Contents

1. Overview

1.1 Purpose

The purpose of this document is to assist consultants in formatting spatial data requested as part of a project/study in a consistent format across the state of Victoria and include it on the Flood Intelligence Platform.

This document provides a standard and structured model to collate spatial data related to flooding from a variety of sources. It provides instructions and examples to populate attributes of vector layers and user populated tables.

This specification can be applied to the spatial data produced for a range of projects/study types, including:

- Riverine flood study
- Dam break flood study
- Coastal flood study
- Flash flooding study
- Levee study
- Historical flood data
- Post event data collection activities

This specification applies to projects/studies that are yet to be completed. The decision to update spatial data collected for previous projects / studies to meet the published version of this specification is at the discretion of the owner of the data.

This specification does not apply to 1% AEP mosaic extent developed and maintained by the individual CMA.

1.2 Background

Victoria Flood Data (VFD) specification originated from the Flood Data Transfer Project (FDTP). This project was commissioned by the Department of Natural Resources and Environment in 1998 to consolidate flood records and flood data held by a variety of authorities as plans, reports, files and photographs for the state of Victoria.

The spatial data collected from different sources is stored on the Flood Intelligence Platform (FIP), which is a central system used by Flood Analysts and Catchment Management Authorities (CMAs) to prepare, plan and respond to flood events.

Over time VFD specification has been updated to incorporate raster datasets. In order to incorporate spatial outputs of evolving flood modelled scenarios and meet end user requirements an overhaul of the VFD specification was necessary. As a result, Flood Spatial Data Specification or SDS was created.

This new specification Flood Spatial Data Specification (SDS) discussed in this document has adapted many of the elements from the VFD specification and provides a flexible data model that can incorporate a variety of products created as part of the project and provides better guidance to format spatial data.

1.3 How to use this document

This document should be used in conjunction with template geodatabase which is available from www.floodzoom.vic.gov.au. The template geodatabase is partially populated with data in the format outlined herein and can be edited by the user. Please download a latest version of the template geodatabase prior to formatting your spatial data.

1.4 Template geodatabases

Template geodatabase represents a relationship between datasets to ensure spatial information collected or produced as part of the project is recorded in a consistent format across the state. This relationship between datasets is defined as a data model and it consists of inter-related tables, and raster and vector products grouped by a project/study.

Spatial data produced as part of the project/study must be grouped into a geodatabase, which contains tables, rasters and shapefiles for each unique project. Vectors and rasters should be stored directly in the geodatabase and not in a sub-folder as individual feature classes.

Please see section 9.3 for FAQ related to geodatabase.

2. Validating geodatabase

A compliant geodatabase significantly reduces the time and effort required to import data into the FIP and it also ensures consistent information is recorded and displayed on the FIP for managing a flood emergency.

Validating your geodatabase is a 2-step process:

2.1 Step 1 Manual user check

Providers of spatial data must quality assure their own data by following the QA checklist provided in section 5.1.1 and section 5.2.1.

At a minimum the providers must ensure the following:

- *StudyArea*, a vector product, is included in the geodatabase and has only 1 row. Please see section 5.2.8 for more information on this product.
- All spatial products provided in the geodatabase are within the *StudyArea* polygon or the PMF extent or the extent for the highest modelled AEP or ARI.
- Number of rows in the *ModelledProduct* table and total number of spatial products in the geodatabase are the same.

2.2 Step 2 automated SDS compliance check

After completing step 1, the providers must use the automated geodatabase validation tool discussed in section 6 to ensure the geodatabase is compliant with this specification.

3. Naming conventions

3.1 Study Identifier

The study identifier or study ID is used as a placeholder to categorise where the data originated and to group the user-populated tables and flood data. It is also a key component in naming the products.

The study ID must reflect the study area/location and the year of its completion. It should be consistent across the geodatabase and no longer than 10 characters. It is defined in the *Study* table see section 4.2.6.

The study ID follows the following format:

> ✓ Four letters representing a unique flood study code expressed as a name abbreviation followed by two numbers representing the year when the study was completed.

In special cases the name abbreviation can be up to eight letters. The study ID must not be more than 10 characters long.

For example, a flood study for Ballan completed in 2016 can be reflected as BALL16 or BALLAN16 provided that a single *studyID* is consistently used across the geodatabase containing data for the Ballan 2016 Flood Study and is no more than 10 characters long.

You can contact the FMU or FIP support for further advise on generating a unique study ID for your project.

3.2 Product name

The user will need to manually name the spatial data products in *ModelledProduct* table see section 4.2.2.

This *ProductName* is also displayed to the end users in FIP and is part of the repository used for searching layers in FIP which is why the spatial data products must have standardised names which must adhere to the following format:

> ✓ {StudyID}{StudyType}{ProductType}{ScenarioCode}{Value}_[Extra]

Example: Extent produced for Horsham riverine flood study completed in 2019 depicting a modelled scenario of ARI100 will be Hors19RvExtentARI100.

Items in square brackets '[]' are optional elements; all other elements are mandatory. Mandatory elements are validated and must follow the sequence in the naming convention.

Mandatory elements include {StudyID}{StudyType}{ProductType}{ScenarioCode}{Value}

- {StudyID} = Must be the same as the *StudyID* field in the *Study* table see section 4.2.6.
- {StudyType} = Must be the same as the *StudyType* field in the *StudyScenario* table see section 4.2.8.
- {ProductType} = This field corresponds to a *ProductType* field listed in the *ProductType* reference table see section 9.2.9.
- {ScenarioCode} = This field corresponds to *ScenarioCode* column(s) name populated for the associated product in *StudyScenario* table see section 4.2.8.
- {Value} = This field corresponds to value entered under the *ScenarioCode* column for the associated product in *StudyScenario* table see section 4.2.8.

  Note: If ScenarioCode and value are not applicable, then do not enter any special character or a blank space after the product type example Ball15RvStudyArea.

Optional elements [EXTRA]

- EXTRA = Any other extra information to be included must start with an underscore (_), noting that the product name can be up to 50 characters long. Text entered for optional elements in not

validated example *Ball15RvExtentDAY20100907_Historic*. Instances where it might be appropriate to add EXTRA information include:

- List the relevant scenario that cannot be quantified eg FCL levels
- Where different flood mitigation options are tested
- Levee failure scenarios
- Specify contour interval or a hazard type e.g. _200mmInterval
- Dam break scenarios e.g. _Breach, _spillway failure, _embankment failure
- Where a Monte Carlo approach is used to model the hydrology for a flood study, multiple hydrology scenarios may be mapped in the hydraulic model and multiple sets of flood maps produced.

Examples for product naming convention:

Scenario	Product name
Floor level data for a riverine flood study for Ballan, completed in 2015	Ball15RvFloorLevel
100 year ARI flood extent polygon from a riverine flood study for Ballan, completed in 2015	Ball15RvExtentARI100
100 year ARI Water Surface Elevation raster from the same study	Ball15RvWSEARI100
100 year ARI flood extent from a riverine flood study for Ballan, completed in 2015, which corresponds to a local gauge height of 29.86 m	Ball15RvExtentARI100GH2986
Flood extent corresponding to a historic flood on 7 September 2010 and mapped or used as a calibration event by the flood study completed in 2015	Ball15RvExtentDAY20100907_Historic
Flood extent corresponding to a historic flood in 2010 and mapped or used as a calibration event by the flood study completed in 2015	Ball15RvExtentYR2010
PMF for Ballan 2015 flood study where ARI is not applicable	Ball15RvExtentARIPMF
Area protected post mitigation works	Ball15RvMitArea
Study area for the 2015 flood study	Ball15RvStudyArea
Depth product for a modelled Dam Crest Flood (DCF) breach scenario for lake Buffalo	Buff19DbDepth_DCF_Breach_270_30_SE
Assets impacted as a result of the 100 year ARI flood modelled scenario done for Ballan 2015 flood study	Ball15RvAssetsImpactedARI100
Major FCL product which is similar to ARI100 or 1%AEP scenario for Mitchell 2019 flood study	Mitch19RvExtentARI100_FCLMajor
Extent product depicting a modelled moderate FCL for Mitchell 2019 flood study	Mitch19RvExtent_FCLModerate

3.3 Product description

Every spatial data product listed in the *ModelledProduct* table, see section 4.2.2, must have a description.

This *Description* is part of the repository used for searching layers in FIP and is displayed to the end users of the platform.

- At a minimum the *Description* must include full locality name abbreviated in the *StudyID*, completion year of the study, product type and applicable scenarios including associations to a Flood Class Level

The description can include any combination of the following information: full flood study name, product type, waterway name, scenario etc

Examples of good layer description are below:

- Concongella 2015 Riverine flood Extent ARI10 5% AEP
- Cudgee 2018 Extent 5% AEP or 1 in 20 ARI
- Upper Traralgon Creek Flood Study - 10% AEP Flood WSE
- ARI10 Urban Flood Contour for existing condition East Shepparton flood study 2016
- Raster Peak flood depth for dam break scenario
- Mitchell 2019 1%AEP or 1 in 100 ARI or Major FCL extent

> ✖ Don't not include StudyID or comma "," in the description.
>
> Example of what is not allowed: Upper Traralgon Creek flood study – UTC19 10% AEP Extent Narracan Creek, Morwell River and Tyers river.

3.4 ARI

The Revised Australian Rainfall and Runoff (ARR) guidelines advise using Annual Exceedance Probability (AEP) instead of Average Recurrence Interval (ARI) to expresses the likelihood of a flood event occurring. Victorian Floodplain Management Strategy also advises using AEP to expresses the likelihood of a flood event occurring but due to technological constraints this document and the template geodatabase is making references to ARI. However, provisions have been made to record relevant AEP information in the product description column or as part of the optional element in the product name column after the underscore (_) or AEP column of the *ModelledProduct* table.

4. Tables in template geodatabase

This section provides information that will assist in formatting key tables listed in the template geodatabase.

The Data model contains two types of tables:

- Reference tables (✍) – which are pre-populated in the template geodatabase and standard across all projects and don't require updates from the user.
- User populated tables (✎) - which must be edited by the user. These tables are empty in the sample Geodatabase template.

Listed below are the key tables that must be included in your final geodatabase submission to pass the online data validation before being imported and displayed in the FIP.

Table Name	Table type	Comment	User to add information
Basin	✍	The designated river basins of Victoria are unlikely to change.	
ContourType	✍	Contour types available for the users.	
Locality	✍	A list of localities across the state.	Y[#]
MappingMethod	✍	A list of mapping methods.	Y[#]
MappingScenario	✍	A list of modelled mapping scenario types.	
ModelMethod	✍	A list of flood mapping modelling methods and software.	Y[#]
NoteType	✍	A list of available note types.	
PPOWType	✍	A list of levee potential points of weakness types.	Y[#]
ProductType	✍	A list of spatial products that are currently captured.	Y[#]
Reliability	✍	A list of potential reliability ratings.	
StudyType	✍	A list of potential study types.	
WaterwayList	✍	A list of watercourses from the Vicmap Watercourse spatial layer.	
Study	✎	Information about the study or the project.	Y
StudyScenario	✎	Unique entry of the event type or scenarios relating to the products produced as part of the project or a study.	Y
ModelledProduct	✎	A list of layer and product names delivered as part of the study.	Y
GaugeHeight	✎	Capture information to link products to a gauge height via *studyscenarioID.*	Y
NoteCode	✎	Captures user-generated notes specific to the study.	Y
ReportCode	✎	Captures report details relating to the study.	Y
Source	✎	Name of the organisation that commissioned the flood study.	Y
StudyLocality	✎	Locality, postcode and state (abbreviated) information relevant to the study area.	Y
WaterwayKey	✎	List of watercourses which are located within the study area.	Y

[#] *In some cases, users will need to add to reference tables. Please advise the Floodplain Management Unit or FIP team about these changes by emailing Floodplain.Management@delwp.vic.gov.au and include support@floodzoom.vic.gov.au so that the template geodatabase can be updated and a revised version will be provided to you promptly and subsequently supplied to other flood data creators.*

4.1 Reference tables

These tables are pre-populated in the template geodatabase and standard across all projects. These don't require updates from the user. Please see appendix 9.2 for sample entries in these reference tables.

4.2 User populated tables

This section will provide insight into the table definition and sample entries for the tables that are required to be populated by the user. Some values are sourced from the reference tables listed in appendix 9.2.

4.2.1 GaugeHeight

This table captures gauge heights that relate to specific ARI values. This table can be left empty if the modelled scenarios do not relate to a gauge height.

These gauge heights are linked to spatial products using the *StudyScenarioID* field. Flood Class Levels must be represented as a numeric height configured for a gauge.

The link between a gauge height and spatial product is displayed in the FIP and is critical in preparing a response to the flood event.

Attributes

Key	Field	Data Type	Description
PK	GaugeHeightID	Long Integer	a unique number for each gauge level recorded
PK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8.
PK	GaugeID	Text (10)	Example: 224200 used to search for Mitchell River @ Bairnsdale gauge in FloodZoom. This cannot be blank or set to unknown.
	GaugeAHD	Double	A specific water elevation measured at the gauge in metres AHD that relates to mapped flood data. If unknow please make it the same as GaugeHeight
	GaugeHeight	Double	A specific water level measured at the gauge in metres that relates to mapped flood data
FK	StudyID	Text (10)	The assigned S*tudyID*
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD

The user should enter a row for each gauge height that is relevant to the study that corresponds to the ARI considered.

Sample:

GaugeHeightID	StudyID	GaugeID	GaugeAHD	GaugeHeight	StudyScenarioID	Modified
1	Clun13	407214	297.7	1.25	Mere15ARI100GH125	20150418
2	Clun13	407214	298.6	0.46	Mere15ARI10GH46	20150418

4.2.2 ModelledProduct

This attribute table stores the map layer product names pertaining to the study. Instructions to name raster and vector products are provided in the Product naming convention, section 3.2.

Instructions to format raster and vector products are provided in section 5.

Attributes

Key	Field	Data Type	Description
PK	ProductName	Text (50)	{StudyID}{StudyType}{ProductType}{ScenarioCode}{Value}[_Extra] See section 3.2 for more information. This information is displayed to the users in FIP. *ProductName* is part of the repository used for searching layers in FIP.
FK	StudyID	Text (10)	The assigned study ID
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8.
	AEP	Text (8)	If known enter the equivalent AEP value
FK	ProductType	Text (30)	Product Type Code defined in *ProductType* reference table
	Description	Text (128)	At a minimum the Description must include full locality name abbreviated in the StudyID, completion year of the study, product type and applicable scenarios including associations to a Flood Class Level. No comma i.e. "," or *StudyID* allowed in description. Detailed description of the product layer and any additional information that needs to be captured. See section 3.3 for more information. This information is displayed to the users in FIP. Description is part of the repository used for searching layers in FIP.
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD
	Version	Long Integer	Should be the last version number (update sequence) of the product

Sample:

ProductName	StudyID	StudyScenarioID	AEP	Product Type	Description	Modified	Version
Ball15RvExtentARI100	Ball15	Ball15ARI100	1%	Extent	ARI 100 or 1% AEP Riverine flood extent Ballan flood study 2015	20150418	1
Ball15RvExtentARI50	Ball15	Ball15ARI50	2%	Extent	ARI 50 Riverine flood extent Ballan flood study 2015	20150418	1
Ball15RvFloorLevel	Ball15	Ball15		FloorLevel	Floor level survey Ballan flood study 2015	20150418	2
Ball15RvExtentDAY20100907_Historic extent	Ball15	Ball15 DAY20100907	1%	Extent	2010 Historic extent included in Ballan 2015 flood study	20150418	1
Ball15RvStudyArea	Ball15	Ball15		StudyArea	Study area for the Ballan 2015 flood study	20150418	1

4.2.3 NoteCode

This table captures user-generated notes specific to the study. Notes are a general way of communicating extra information related to the product / map layer.

Attributes

Key	Field	Data Type	Description
PK	NoteCode	Long Integer	A numeric value from 1 to n to be used when a new Note is required. Should be incremented for every new entry of Note in the table for a *studyID*. The database manager will assign a unique *NoteCode* value
PK	StudyID	Text (10)	The assigned S*tudyID*
FK	NoteType	Text (30)	A note type value referenced from the *NoteType* reference table.
	Note	Text (254)	Report detail that is referenced by the *NoteCode* and *StudyID* in a feature layer

Sample:

NoteCode	StudyID	NoteType	Note
1	Mere15	MAPPING METHOD	Modelled
2	Mere15	INFO SOURCE	Data collected following flood in 2005
3	Mere15	OWNERSHIP	Flood study data IP owned by Meredith Shire Council
4	Mere15	NOTE-EXTENT	This Stat1 extent is a result of design works done for the construction of the Marina Estate by Connell Wagner.

4.2.4 ReportCode

This table allows for Report Details to be captured and distinguished by the study. As indicated by the example, it is permissible to specify multiple reports per flood study. For example, if a flood study was staged around multiple milestone reports, each report can be entered in the *ReportCode* table, with a brief description of its content.

Attributes

Key	Field	Data Type	Description
PK	ReportCode	Long Integer	A numeric value from 1 to n to be used to expand Report Details (ReportDesc) is required. Should be incremented for every new entry of ReportDesc in the table for a *StudyID.* The database manager will assign a unique ReportCode value
PK	StudyID	Text (10)	The assigned *StudyID*
	ReportDesc	Text (254)	Report Details that is referenced by the *ReportCode* and *StudyID* in a feature layer

Sample:

ReportCode	StudyID	ReportDesc
1	Mere15	Meredith Flood Study 2015 FloodModellers Pty Ltd for Meredith Shire Council
2	Mere15	Updated flood study to incorporate data collected from flooding in 2015

4.2.5 Source

This table captures the name of the organisation that commissioned the flood study. The source should always be the entity that commissioned the study rather than the consultant who undertook it.

Attributes

Key	Field	Data Type	Description
PK	Source	Text (50)	The CMA, Local Government Authority (LGA) or organisation that commissions the study

Sample:

Source
Meredith Shire Council

4.2.6 Study

This table captures information pertaining to the project or a study. *StudyType* field in this table is the main study type for the project and is sourced from *StudyType* reference table.

Only 1 row is permitted in this table.

Attributes

Key	Field	Data Type	Description
PK	StudyID	Text (10)	Unique code for study e.g. SKIP13 or WARK07. ***Note***: *A StudyID is a unique code that represents a group of layers (products) see section 3.1.*
	StudyName	Text (50)	Name of the Study
FK	StudyType	Text (2)	Study Type as defined in *StudyType* reference table.
	CommissionedDate	Long Integer	Date of study commission YYYYMMDD.
	Source	Text (50)	The CMA, Shire or organisation that commissions the study This should never be the consultant. Avoid multiple organisations. Ideally ownership should reside in a single organisation.
	Consultant	Text (100)	Consultant's name
	Description	Text (100)	Miscellaneous additional information about the study
	CompletedDate	Long Integer	Date of study completion YYYYMMDD.

Sample:

StudyID	Study	StudyType	CommissionedDate	Source	Consultant	Description	Completed Date
Mere15	Meredith Flood Study	Rv	20140710	Meredith Shire Council	Flood Modelling and Mapping Pty Ltd	Flood study for Coolebarghurk Creek through the township of Meredith	20150125

4.2.7 StudyLocality

This table is populated by the user and lists locality, postcode and state (abbreviated) information relevant to the study area. There could be multiple localities and postcodes for a single study.

Attributes

Key	Field	Data Type	Description
PK, FK	StudyID	Text (10)	The assigned *StudyID*.
PK, FK	Locality	Text (50)	Locality within the study. Refer to the *Locality* reference table.
PK, FK	PostCode	Text (4)	Postcode for Locality. Refer to the *Locality* reference table.
PK, FK	State	Text (3)	State abbreviation, e.g. 'VIC'. Refer to the *Locality* reference table

Sample:

StudyID	Locality	PostCode	State
Mere15	Meredith	3333	VIC
Mere15	Lethbridge	3332	VIC

4.2.8 StudyScenario

This table is populated by the user and is used to classify products based on one or more event type classifications and quantity value. Values in this table also assist in grouping modelled products and where appropriate link them to the *GaugeHeight* table discussed in section 4.2.1.

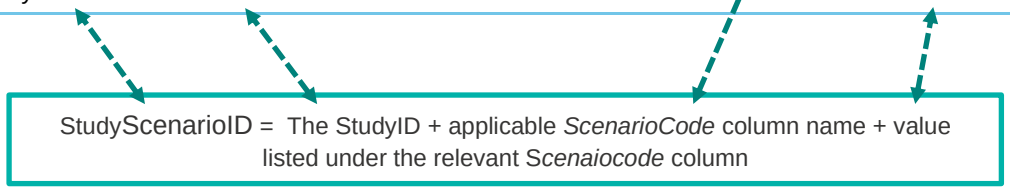
This table enables the users to associate a study type or an output type for a scenario that is different to the study type defined for the project in the *Study* table discussed in section 4.2.6 by listing the alternate study type in the *StudyType* column of this table. Please ensure this alternate study type matches to one of the values listed in the *StudyType* reference table discussed in section 9.2.11.

Attributes

Key	Field	Data Type	Description
PK	StudyScenarioID	Text (34)	The StudyID + applicable *ScenarioCode* column name+ value listed under the relevant *ScenarioCode* column.
FK	StudyID	Text (10)	The assigned study ID
FK	StudyType	Text (2)	Refers to the value listed in *StudyTpe* reference table
	ARI	Text (4)	Enter numeric value up-to 4 characters representing the average recurrence interval of the flood occurrence. Reserved values include PMF. Leave blank if this value is not known or not applicable.
	GH	Long integer	Corresponding gauge height or specific water level measured at the gauge (if known) in centimetres represented by up to four numeric characters. Leave blank if this value is not known or not applicable.
	IRI	Long integer	Climate change increase in rainfall intensity represented by up to four numeric characters. Leave blank if this value is not known or not applicable.
	SLR	Long integer	Sea Level Rise in centimetres represented by up to four numeric characters. Leave blank if this value is not known or not applicable.
	Day	Long integer	Expressed as eight numeric characters in the format YYYYMMDD. Leave blank if this value is not known or not applicable.
	Mth	Long integer	Expressed as an integer value up-to 6 characters in the format YYYYMM. Leave blank if this value is not known or not applicable.
	YR	Long integer	Expressed as an integer value up-to 4 characters in the format YYYY. Leave blank if this value is not known or not applicable.

Sample:

StudyScenarioID	StudyID	StudyType	ARI	GH	IRI	SLR	Day	Mth	YR
Mere15ARIPMFSLR1	Mere15	Rv	PMF			1			
Mere15ARI100GH125	Mere15	Rv	100	125					
Mere15	Mere15	Rv							
Mere15YR2016	Mere15	Sw							2016
Mere15ARI100IRI10	Mere15	Rv	100		10				
Mere15ARI20SLR20	Mere15	Cs	20			20			
Mere15ARI100GH125	Mere15	FF	100	125					
Mere15Day20100907	Mere15	Rv					20100907		



- As a simple example consider, a flood extent product corresponding to a historic flood on 7 September 2010 used as a calibration event by the flood study completed in 2015 will have StudyScenarioID as Mere15Day20100907 as depicted in the above sample table.
- For complex examples, if there a more than one scenario code applicable, then the scenario code and value should follow a priority order that begins with ARI > GH > IRI > SLR > Day > Mth > YR see example Mere15ARI100GH125 in the above sample table.
- Example of using reserved value of PMF in ARI column, the ARI value of PMF is reserved for products relating to Probable Maximum Flood. See example Mere15ARIPMFSLR1 in the above sample table.
- Please ensure that all the *ScenarioCode* columns are left blank and the *StudyScenarioID* is set to *StudyID* for products that cannot be quantified, or scenarios are not applicable. This will group products like study area, floor Level, Mitigation area, DTM and products relevant for a flood class level and levee that cannot be quantified. See example Mere15 in the above sample table.

Please contact the FMU or FIP support if further clarification is required on how to populate this table.

4.2.9 WaterwayKey

This table is populated by the user. This table lists the watercourses which are located within the study area. This information will enhance search capability in the FIP.

Attributes

Key	Field	Data Type	Description
PK, FK	StudyID	Text (10)	The assigned study ID
PK, FK	WaterwayID	Long Integer	A unique ID for each watercourse and is internal to the geodatabase. It is possible that there are multiple rivers in Victoria with the same name. However, each river name and basin combination will have a unique WaterwayID. See *WaterwayList* reference table

Sample:

StudyID	WaterwayID
Mere15	4598

5. Products in template geodatabase

This section provides information that will assist in formatting spatial products and populate associated tables produced as part of the project or flood study. The requirement to provide data products will depends on the particulars of the project.

5.1 Raster products

For contemporary flood studies, raster (i.e. gridded) data products, such as flood water surface elevation, velocity and depth, will be major project outputs. It is relatively straightforward to conform raster data to the SDS data format requirements, as these do not have data attributes.

The provision of raster data depends upon the requirements of the project. However, the user must ensure that a raster data layer is provided for each of the raster products listed in the *ModelledProduct* table discussed in section 4.2.2.

Raster product names must be as per the naming convention set out in section 3.2

Example raster

0	0	1	1	1	0	0	0
0	1	1	1	1	1	1	0
0	1	2	2	2	1	1	0
0	2	2	2	2	1	1	0
0	0	2	2	2	2	0	0
0	0	2	2	2	2	0	0
0	0	2	2	2	0	0	0
0	0	0	0	0	0	0	0

Rasters should be geo-referenced and provided in GCS_GDA94.

Rasters should be stored directly in the geodatabase and not in a sub-folder as individual feature classes.

5.1.1 QA raster products

Users must quality assure their own data. As a minimum, those who submit data should check:

- Product name must follow the naming convention outlined in section 3.2
- Are min/max values appropriate? (i.e. nothing lower than zero or zero)
- Product names do not have blank space at the start or at the end of the name?
- Do all grids have the same origin?
- Have all model methods, models, and project outputs been peer reviewed?
- Are all files provided?
- Is the data projected correctly?
- Do the various data extents match up for each ARI provided (i.e. Contours/ Extents/ Grids)?
- Are flood water velocities within a feasible range (say generally less than 3-5m/s and less than 10m/s in extreme cases, e.g. steep catchments)?
- Are flood water depths within a feasible range (say less than 10-15m)?
- Do water depths, surface water elevations, velocities, and VxD increase with increasing ARI values?
- Is VxD less than or equal to the product of the velocity and depth grid for a given ARI or scenario?
- Are all values rounded to at least the nearest centimetre (nearest decimetre may be more appropriate)?

Raster products do not have table attributes.

> ✔ All raster products produced must fit within the *StudyArea* polygon

5.2 Vector products

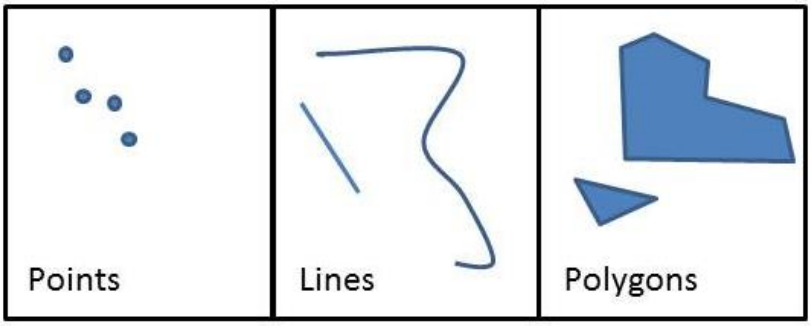
Vector type products include points, lines and polygons. The extent of the flood study area is defined by a polygon.

This is a compulsory feature of the data model. Vector products such as flood extents, contours and levees are mandatory depending on the particulars of the project.

The product types which are provided by the user must correspond to those listed in the *ModelledProduct* table discussed in section 4.2.2.

Vector product name must be as per the naming convention set out in section 3.2

Example of vector product types



vectors should be geo-referenced and provided in GCS_GDA94

Vectors should be stored directly in the geodatabase and not in a sub-folder as individual feature classes

5.2.1 QA Vector products

Users must quality assure their own data. As a minimum, those who submit data should check:

- Product name must follow the naming convention outlined in section 3.2
- There are no products prefixed with “Ref_” in the final GDB
- Have all model methods, models, and project outputs been peer reviewed?
- Are all files provided?
- Is the data projected correctly?
- Do the various data extents match up for each ARI provided (i.e. Contours/ Extents/ Grids)?
- Are the associated attribute tables populated?
- Product names do not have any space at the start or at the end of the name?
- Referenced values do not have a blank space at the start or at the end of the text?
- Ensure vector products produced are within the study area polygon

The following section provides more information on populating attribute tables related to frequently or commonly requested vector products.

These frequently or commonly requested vector products are also included in the template geodatabase and are prefixed with “Ref_”. Please delete not applicable vector products prefixed with “Ref_” before submitting your geodatabase for validation.

All vector products produced must fit within the *StudyArea* polygon

5.2.2 Ref_ContourARI_NN

This polyline product type captures modelled or historic water surface elevation contours. Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
	Shape_Length	Double	Field will be automatically generated and populated by ArcGIS
FK	StudyID	Text (10)	The assigned study ID
	AEP	Text (8)	If known enter the equivalent AEP value
FK	MappingMethod	Text (75)	Mapping method used. See reference table *MappingMethod* for valid reference values.
FK	Reliability	Text (10)	Reliability of source information. See reference *Reliability* for valid reference values.
	Surveyor	Text (75)	If relevant, the surveyor or survey company engaged to capture historic flood information. This information could be useful if, at a future date, further information is required regarding the mapping method or reliability.
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8.
	CaptureDate	Long Integer	Date of capture in the case of historic data, in format YYYYMMDD as an integer. Can leave blank if not applicable.
	CaputreHr	Long Integer	Time of capture in the case of historic data, in 24 hour format, e.g. 1302 for 1:02 pm. Can leave blank if not applicable.
	PlanNo	Text (10)	Use the original document plan number, if known, when the mapping was from existing maps or plans– otherwise leave blank.
	Scale	Double	Scale of original documents, if information was digitised from maps or aerial imagery. For features captured from digital imagery interpretation, use the following as a guide – 2x r / 0.0005 – where r is image pixel size in metres. For example, 35cm aerial photography, r = 0.35, scale = 0.7/0.0005 = 1,400. 30m Landsat TM imagery, r = 30, scale = 60/0.0005 = 120,000 May leave blank if unknown.
FK	ContourType	Text (20)	Used to determine 'declared' or 'unspecified' height contours as per the reference table *ContourType*
FK	ReportCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded report details are required. The expanded Report Details to be entered in the *ReportCode* table and referred here by the *ReportCode* and *StudyScenarioID* key
FK	NoteCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded notes are required. The expanded Note to be entered in the *NoteCode* table and referred here by the *NoteCode* and *StudyScenarioID* key. A value of 0 (zero) indicates no data
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
	Height	Double	In metres, above the Australian Height Datum (AHD)
	Length	Double	Length in metres

Sample:

Nath05RvContourARI100_200mmInterval

OBJECTID *	Shape *	StudyID	AEP	MappingMethod	Reliability	Surveyor	StudyScenarioID	CaptureDate	CaptureHr
1	Polyline	Nath05	100	Modelled	Medium	<Null>	Nath05ARI100	<Null>	<Null>
2	Polyline	Nath05	100	Modelled	Medium	<Null>	Nath05ARI100	<Null>	<Null>
3	Polyline	Nath05	100	Modelled	Medium	<Null>	Nath05ARI100	<Null>	<Null>

sample contd.

ourARI100_200mmInterval

PlanNo	Scale	ContourType	ReportCode	NoteCode	ModifiedDate	Version	Height	Length	Shape_Length
<Null>	<Null>	Unspecified	1	1	20051109	1	101	0.741200793235989	0.000008
<Null>	<Null>	Unspecified	1	1	20051109	1	101	0.251423102748026	0.000002
<Null>	<Null>	Unspecified	1	1	20051109	1	100.800003	299.196829909624	0.003052

Additional notes:

In the case of historic flood contours, it is important to note whether the time of capture corresponds to the peak of the flood. This information can be recorded using the *NoteCode* field.

5.2.3 Ref_ExtentARI_NN

This polygon product type captures modelled or historic flood extents. Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
	Shape_Length	Double	Field will be automatically generated and populated by ArcGIS
	Shape_Area	Double	Field will be automatically generated and populated by ArcGIS
	AEP	Text (8)	If known enter the equivalent AEP value
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8
FK	MappingMethod	Text (75)	Mapping method used. See reference table *MappingMethod*.
FK	Reliability	Text (10)	Reliability of source information. See validation table [Reliability] for valid descriptors.
	Surveyor	Text (75)	If relevant, the surveyor or survey company engaged to capture historic flood information. This information could be useful if, at a future date, further information is required regarding the mapping method or reliability.
FK	StudyID	Text (10)	The assigned study ID
	CaptureDate	Long Integer	Date of capture in the case of historic data, in format YYYYMMDD as an integer. Can leave blank if not applicable.
	CaputreHr	Long Integer	Time of capture in the case of historic data, in24 hour format, e.g. 1302 for 1:02 pm. Can leave blank if not applicable.
	PlanNo	Text (10)	Use the original document plan number, if known, when the mapping was from existing maps or plans– otherwise leave blank.
	Scale	Double	Scale of original documents, if information was digitised from maps or aerial imagery. For features captured from digital imagery interpretation, use the following as a guide – 2x r / 0.0005 – where r is image pixel size in metres. For example, 35cm aerial photography, r = 0.35, scale = 0.7/0.0005 = 1,400. 30m Landsat TM imagery, r = 30, scale = 60/0.0005 = 120,000 May leave blank if unknown.
FK	ReportCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded report details are required. The expanded Report Details to be entered in the *ReportCode* table and referred here by the *ReportCode* and *StudyID* key
FK	NoteCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded notes are required. The expanded Note to be entered in the [NoteCode] table and referred here by the NoteCode and StudyID key. A value of 0 (zero) indicates no data
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
	Area	Double	Feature area in square metres
	Perimeter	Double	Perimeter in metres. Should be updated by GIS calculation

Sample:

Nath05RvExtentARI100

OBJECTID *	Shape *	Area	Perimeter	AEP	StudyScenarioID	MappingMethod	Reliability	Surveyor	StudyID	CaptureDate	CaptureHr
1	Polygon	98468266.6883	528872.03971	100	Nath05ARI100	Modelled	Medium	<Null>	Nath05	<Null>	<Null>
2	Polygon	83987.009117	2623.944973	100	Nath05ARI100	Modelled	Medium	<Null>	Nath05	<Null>	<Null>

sample contd.

PlanNo	Scale	ReportCode	NoteCode	ModifiedDate	Version	Shape_Length	Shape_Area
<Null>	<Null>	1	1	20051109	1	5.33104	0.00985
<Null>	<Null>	1	1	20051109	1	0.026089	0.000008

Additional notes:

In the case of historic flood extents, it is important to note whether the time of capture corresponds to the peak of the flood. This information can be recorded using the *NoteCode* field.

5.2.4 Ref_FloorLevel

This point product type captures the floor level of properties within the study area. Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ObjectID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
FK	StudyID	Text (10)	The assigned *StudyID*
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8
	Easting	Double	Point location provided either in the GDA94 MGA zone 54 or 55 projection.
	Northing	Double	Point location provided either in the GDA94 MGA zone 54 or 55 projection.
	NaturalSurface	Double	Level of natural ground surface, in metres above the Australian Height Datum (AHD).
	FloorLevel	Double	Floor level of property, in metres above the Australian Height Datum (AHD).
	Address	Text (100)	Street address of the property. e.g. 12 GOLDFIELD STREET MEREDITH 3333 VIC
	BuildingType	Text (35)	Building type, e.g. weatherboard.
	BuildingUse	Text (100)	Building use e.g. residential, shed, commercial, industrial, unknown.
FK	MappingMethod	Text (75)	Data capture method, e.g. from survey, as constructed drawings, LiDAR, aerial photography, etc as per the reference table *MappingMethod*.
FK	Reliability	Text (10)	Reliability of source information. as per the reference table *Reliability*.
	Surveyor	Text (75)	If relevant, the surveyor or survey company engaged to capture Floor level information. This information could be useful if, at a future date, further information is required regarding the mapping method or reliability.
	CaptureDate	Long Integer	Date of capture of data in format YYYYMMDD as an integer.
	NoteCode	Long Integer	Assign a numeric ID from 1 to n, incremented by 1. Only use if expanded notes are required, otherwise enter ‘0’. Provide expanded notes in a separate table (NoteCode), up to 254 characters of description. Only one code per note description, however, may have many spatial features to one note code.
FK	ReportCode	Long Integer	A numeric value from 1 to n to be used to expand Report Details (ReportDesc) is required. Should be incremented for every new entry of ReportDesc in the table for a *StudyID*. The database manager will assign a unique *ReportCode* value.
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer
	Version	Long Integer	Should be 1 for the first update

Sample:

EShe16FFFloorLevel

OBJECTID *	Easting	Northing	Shape *	StudyID	StudyScenarioID	NaturalSurface	FloorLevel	Address	BuildingType	BuildingUse	MappingMethod
1	352692.3241	5972146.339	Point	EShe16	Eshe16	<Null>	112.37	1 AGNEW STREET	WEATHERBOARD	DWELLING	Survey
2	352704.0937	5972157.559	Point	EShe16	Eshe16	<Null>	112.22	3 AGNEW STREET	WEATHERBOARD	DWELLING	Survey
3	352717.8341	5972160.759	Point	EShe16	Eshe16	<Null>	112.32	5 AGNEW STREET	BRICK	UNIT	Survey

sample contd.

Reliability	Surveyor	CaptureDate	NoteCode	ReportCode	ModifiedDate	Version
High	SKM SURVEY - SHEPPARTON-MAROOPNA	20010101	1	1	20170303	1
High	SKM SURVEY - SHEPPARTON-MAROOPNA	20010101	1	1	20170303	1
High	SKM SURVEY - SHEPPARTON-MAROOPNA	20010101	1	1	20170303	1

Additional notes:

For the purpose of this data model, it is assumed that all levels will be reported in metres AHD. If this is not the case, the user should contact the Floodplain Management Unit and the FIP team on Floodplain.Management@delwp.vic.gov.au and include support@floodzoom.vic.gov.au

5.2.5 Ref_Levee_Line

Captures data pertaining to levees, which are physical features of the landscape and are not related to an ARI / flood mapping scenario. Levee vector types can include polylines (e.g. levee alignments and cross sections) and points (e.g. spot heights). The full list of levee product types is listed in the *ProductType* table in section 9.2.9.

Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description	
	ObjectID or FID	ObjectID	Field automatically generated by ArcGIS	
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS	
	LvName	Text (50)	Levee name (if the levee does not have a name write “Unnamed”)	
	Levee_ID	Text (10)	Unique ID originating from the original study, if you are adding a new levee leave blank.	
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8.	
	ConstructionYr	Long Integer	Year of construction YYYY (if the year of construction is unknown leave blank)	
	ConstructionMat	Text (50)	Construction material (if the construction material is unknown leave blank or write “Unknown”)	
	LvHeight	Double	Levee design height with freeboard (if the height is unknown leave blank) in m AHD	
	Freeboard	Double	Constructed (not design) free board in meters (if the freeboard is unknown leave blank)	
	LvLOP	Text (50)	Modelled level of protection. In many instances the design flood level will be unknown. However, modelling may be used to determine the level of protection, by comparing the levee height to the water level of a modelled or historic flood. Potential field values could be “1992” or “1% AEP”, for example.	
	LandStatus	Text (50)	Land Status (See Additional Notes, below)	*In the future these attributes (LandStatus, LandManager, LvMgmtStatus, Method) may be selected from reference tables*
	LandManager	Text (50)	Land Manager (See Additional Notes, below)	
	LvMgmtStatus	Text (50)	Levee Management Status (See Additional Notes, below)	
	LvOwner	Text (50)	Levee manager which, which may be different to the land manager. If management arrangements are unclear, can leave blank or write “unknown”.	
FK	MappingMethod	Text (75)	Data capture method, e.g. from survey, as constructed drawings, LiDAR, aerial photography, etc. See validation table [MappingMethod] for reference values.	
FK	Reliability	Text (10)	Reliability of source information. See validation table [Reliability] for valid descriptors.	
	Surveyor	Text (75)	If relevant, the surveyor or survey company engaged to capture levee information. This information could be useful if, at a future date, further information is required regarding the mapping method or reliability.	
	Source	Text (30)	Organisation from where the information was sourced. Usually LGA or Government agency. Not the consultant. Typically CMA or LGA LGA	
FK	StudyID	Text (10)	The assigned study ID	

FK	NoteCode	Long Integer	Assign a numeric ID from 1 to n, incremented by 1. Only use if expanded notes are required, otherwise enter '0'. Provide expanded notes in a separate table (NoteCode), up to 254 characters of description. Only one code per note description, however, may have many spatial features to one note code.
FK	ReportCode	Long Integer	A numeric value from 1 to n to be used to expand Report Details (ReportDesc) is required. Should be incremented for every new entry of ReportDesc in the table for a *StudyID*. The database manager will assign a unique ReportCode value.
	CaptureDate	Long Integer	Date of capture of data in format YYYYMMDD as an integer
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
The following additional attributes are relevant to points only:			
	Easting	Double	Point location provided either in the GDA94 MGA zone 54 or 55 projection
	Northing	Double	Point location provided either in the GDA94 MGA zone 54 or 55 projection
	Height	Double	In metres above the Australian Height Datum (AHD)
The following additional attributes are relevant to polylines only:			
	Shape_Length	Double	Field will be automatically generated and populated by ArcGIS
	Length	Double	Length of PPOW feature in meters

Sample:

Snow17Rv_Levee_Line

OBJECTID *	Shape *	LvName	Levee_ID	StudyScenarioID	ConstructionYr	ConstructionMat	LvHeight	Freeboard	LvLOP	LandStatus	LandManager	LvMgmtStatus
1	Polyline	L35	<Null>	Snow17	<Null>	<Null>	5.22	<Null>	<Null>	<Null>	<Null>	<Null>
2	Polyline	L34	<Null>	Snow17	<Null>	<Null>	5.97	<Null>	<Null>	<Null>	<Null>	<Null>
3	Polyline	L27	<Null>	Snow17	<Null>	<Null>	9.27	<Null>	<Null>	<Null>	<Null>	<Null>

sample contd.

LvOwner	MappingMethod	Reliability	Surveyor	Source	Length	StudyID	CaptureDate	NoteCode	ReportCode	ModifiedDate	Version	Shape_Length
<Null>	Modelled	High	<Null>	<Null>	740.9	Snow17	2001	1	1	20170424	1	0.008156
<Null>	Modelled	High	<Null>	<Null>	561.7	Snow17	2001	1	1	20170424	1	0.006204
<Null>	Modelled	High	<Null>	<Null>	360.4	Snow17	2001	1	1	20170424	1	0.003844

Additional notes:

When recording elevation, for the purpose of this data model, it is assumed that all levels will be reported in metres AHD. If this is not the case, the user should contact the Floodplain Management Unit and the FIP team on Floodplain.Management@delwp.vic.gov.au and include support@floodzoom.vic.gov.au

5.2.6 Ref_Mitigation_Area

Captures the area protected by flood mitigation infrastructure. For example, the area behind a levee, or the area protected by an upstream retention basin.

Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ObjectID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
	Shape_Length	Double	Field will be automatically generated and populated by ArcGIS
	Shape_Area	Double	Field will be automatically generated and populated by ArcGIS
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8
FK	StudyID	Text (10)	The assigned *StudyID*
	NoteCode	Long Integer	Assign a numeric ID from 1 to n, incremented by 1. Only use if expanded notes are required, otherwise enter '0'. Provide expanded notes in a separate table (NoteCode), up to 254 characters of description. Only one code per note description
FK	ReportCode	Long Integer	A numeric value from 1 to n to be used to expand Report Details (ReportDesc) is required. Should be incremented for every new entry of ReportDesc in the table for a *StudyID*. The database manager will assign a unique ReportCode value.
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer.
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
	LvName	Text (50)	Levee name (if the levee does not have a name write "Unnamed"). Should match the name entered into relevant levee layer. If not applicable, write "N/A"
	MitName	Text (50)	The flood mitigation infrastructure may not be a levee. In that case, record the name here, e.g. "Frank Street Retarding Basin". NOTE: It may be necessary to modify the data model at a later date, so that the infrastructure details (e.g. the construction date of a retarding basin) can be captured as for a levee.
	MitLOP	Text (50)	Modelled level of protection. Potential field values could be "1992" or "ARI100", for example.
	Freeboard	Double	Constructed (not design) free board in metres (if the freeboard is unknown leave blank)
FK	MappingMethod	Text (75)	Data capture method, e.g. from survey, as constructed drawings, LiDAR, aerial photography, etc.
FK	Reliability	Text (10)	Reliability of source information. See validation table [Reliability] for valid descriptors.

Sample:

OBJECTID *	Shape *	StudyID	StudyScenarioID	ReportCode	NoteCode	ModifiedDate	Version	Shape_Length	Shape_Area	LvName
1	Polygon	Dnld14	Dn1d14	<Null>	<Null>	20190429	1	0.023962	0.000007	Donald Flood Protection Levee

sample contd.

MitName	MitLOP	Freeboard	MappingMethod	Reliability
<Null>	2011 or 0.5% AEP	600	<Null>	<Null>

5.2.7 Ref_SpotHeight

This point product type captures modelled or historic flood spot heights. Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
FK	StudyID	Text (10)	The assigned study ID
	AEP	Text (8)	If known enter the equivalent AEP value
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8
FK	MappingMethod	Text (75)	Mapping method used as per the reference table *MappingMethod*.
	Reliability	Text (10)	Reliability of source information as per the reference table *Reliability*.
	Surveyor	Text (75)	If relevant, the surveyor or survey company engaged to capture historic flood information. This information could be useful if, at a future date, further information is required regarding the mapping method or reliability.
	CaptureDate	Long Integer	Date of capture in the case of historic data, in format YYYYMMDD as an integer. Can leave blank if not applicable.
	CaputreHr	Long Integer	Time of capture in the case of historic data, in 24 hour format, e.g. 1302 for 1:02 pm. Can leave blank if not applicable.
	PlanNo	Text (10)	Use the original document plan number, if known, when the mapping was from existing maps or plans– otherwise leave blank.
	ReportCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded report details are required. The expanded Report Details to be entered in the *ReportCode* table and referred here by the *ReportCode* and *StudyScenarioID* key
	NoteCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded notes are required. The expanded Note to be entered in the *NoteCode* table and referred here by the *NoteCode* and *StudyScenarioID* key. A value of 0 (zero) indicates no data
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
	Easting	Double	Point location provided either in the GDA94 MGA zone 54 or 55 projection
	Northing	Double	Point location provided either in the GDA94 MGA zone 54 or 55 projection
	Height	Double	The height the floodwaters reaches, in metres above the Australian Height Datum (AHD)
	PeakCaptured	Text (1)	Was the peak captured, Y or N? Leave blank if unknown.
	NatSurface	Double	The natural ground level, in metres above the Australian Height Datum (AHD)
	Descriptor	Text (100)	e.g. Water mark halfway up front door of house

Sample:

MalleeHist16RvSpotHtYR2016

	OBJECTID *	Shape *	StudyID	AEP	StudyScenarioID	MappingMethod	Reliability	Surveyor	CaptureDate	CaptureHr
	1	Point ZM	Mall16	YR2016	Mall16YR2016	Height survey (AHDm) positional accuracies of +/- 20 - 25mm. GDA 1994 (MGA Zone 54).	High	Price Merrett (Gary Dunstone)	20160831	
	2	Point ZM	Mall16	YR2016	Mall16YR2016	Height survey (AHDm) positional accuracies of +/- 20 - 25mm. GDA 1994 (MGA Zone 54).	High	Northern Land Solutions (Wesle	20160816	
	3	Point ZM	Mall16	YR2016	Mall16YR2016	Height survey (AHDm) positional accuracies of +/- 20 - 25mm. GDA 1994 (MGA Zone 54).	High	Northern Land Solutions (Wesle	20161028	

sample contd.

vSpotHtYR2016

PlanNo	ReportCode	NoteCode	ModifiedDate	Version	Easting	Northing	Height	PeakCaptured	NatSurface	Descriptor
			20170331	1	675222.29	6158562.693	55.379543	N	55.379543	Belsar bridge (natural ground level AHD), Peg no 82
			20170331	1	675643.5	6158147.587	58.175606	N	58.175606	Narcooyia -Coxy's pump (natural ground level AHD), Peg no 6
			20170331	1	696456.13	6156521.616	62.385384	N	62.385384	Boundary Bend (natural ground level AHD), Peg no 64

Additional notes:

If a photo is recorded at the same location as a spot height, take care that the Easting and Northing of the photo point (recorded in the PhotoPoints product type) is similar or identical.

5.2.8 Ref_StudyArea

This polygon product type captures the mapped / spatial area included in the flood study/project. All spatial products produced must fit within the study area polygon.

Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

The associated *StudyArea* table is populated by the user and captures information pertaining to the study area. One polygon extent, or multiple discrete (i.e. not overlapping) polygons, should be provided per study. Multiple overlapping polygons are not permissible as this creates ambiguity as to the extent of the mapped area.

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
	Shape_Length	Double	Field will be automatically generated and populated by ArcGIS
	Shape_Area	Double	Field will be automatically generated and populated by ArcGIS
PK, FK	StudyID	Text (10)	The study ID assigned
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8.
	StudyDate	Long Integer	The year of completion of the study YYYY.
	DEMDate	Long Integer	The year of capture of DEM data YYYY. Leave blank if no DEM was used (e.g. in the case of historic flooding). If the DEM was created from multiple LiDAR products, choose the capture year of the LiDAR product which covers the greatest extent. Additional information should be provided in the linked report or note code.
FK	ModelMethod	Text (100)	Refer to the reference table *ModelMethod* for the Software used. Leave blank if not applicable.
	StudyResMin	Double	Minimum area of grid cell or mesh element, in meters squared. Leave blank if not applicable.
	StudyResMed	Double	Median area of grid cell or mesh element, in meters squared. Leave blank if not applicable.
	StudyResMax	Double	Maximum area of grid cell or mesh element, in meters squared. Leave blank if not applicable.
FK	Source	Text (50)	Organisation from where the information was sourced. Usually an LGA or CMA, not a consultant.
FK	ReportCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded report details are required. The expanded Report Details to be entered in the *ReportCode* table and referred here by the *ReportCode* and *StudyID* key
FK	NoteCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded notes are required. The expanded Note to be entered in the *NoteCode* table and referred here by the *NoteCode* and *StudyID* key. A value of 0 (zero) indicates no data
	ModifiedDate	Long Integer	The date of the revision (update) in the format YYYYMMDD
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
	Area	Double	Area of the StudyArea polygon in square meters
	Perimeter	Double	Perimeter of the StudyArea polygon in meters

Sample:

Nath05RvStudyArea

	OBJECTID *	Shape *	StudyID	StudyScenarioID	StudyDate	DEMDate	ModelMethod	StudyResMin	StudyResMed	StudyResMax
▸	1	Polygon	Nath05	Nath05	2005	1993	RMA2	<Null>	<Null>	<Null>

sample contd.

yArea

Source	ReportCode	NoteCode	ModifiedDate	Version	Area	Perimeter	Shape_Length	Shape_Area
Moira Shire and Goulburn Broken CMA	1	1	20030101	1	197543369.272512	73364.153576	0.757734	0.019766

Additional notes:
In the case of a regular grid, the minimum, maximum and medium study resolution will be the same.

5.2.9 Ref_VelocityVectorARI_NN

Velocity vectors are polygons which have a magnitude (velocity value) and a direction (direction of flow). Please rename this table to be same as the product name listed in the *ModelledProduct* table in section 4.2.2

Attributes:

Key	Field	Data Type	Description
	ObjectID or FID	ObjectID	Field automatically generated by ArcGIS
	Shape	Geometry	Field will be automatically generated and populated by ArcGIS
	Shape_Length	Double	Field will be automatically generated and populated by ArcGIS
	Shape_Area	Double	Field will be automatically generated and populated by ArcGIS
FK	StudyID	Text (10)	The assigned study ID
	AEP	Text (8)	If known enter the equivalent AEP value
FK	StudyScenarioID	Text (34)	As defined in the *StudyScenario* table, see section 4.2.8
FK	MappingMethod	Text (75)	Mapping method used as per the reference table *MappingMethod*.
	Reliability	Text (10)	Reliability of source information per the reference table *Reliability*.
	Surveyor	Text (75)	If relevant, the surveyor or survey company engaged to capture historic flood information. This information could be useful if, at a future date, further information is required regarding the mapping method or reliability.
	CaptureDate	Long Integer	Date of capture in the case of historic data, in format YYYYMMDD as an integer. Can leave blank if not applicable.
	CaputreHr	Long Integer	Time of capture in the case of historic data, in24 hour format, e.g. 1302 for 1:02 pm. Can leave blank if not applicable.
	PlanNo	Text (10)	Use the original document plan number, if known, when the mapping was from existing maps or plans– otherwise leave blank.
	Scale	Double	Scale of original documents, if information was digitised from maps or aerial imagery. For features captured from digital imagery interpretation, use the following as a guide – 2x r / 0.0005 – where r is image pixel size in metres. For example, 35cm aerial photography, r = 0.35, scale = 0.7/0.0005 = 1,400. 30m Landsat TM imagery, r = 30, scale = 60/0.0005 = 120,000 May leave blank if unknown.
	ReportCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded report details are required. The expanded Report Details to be entered in the [ReportCode] table and referred here by the ReportCode and StudyID key
	NoteCode	Long Integer	A numeric value from 1 to n (where n is any integer) to be used where expanded notes are required. The expanded Note to be entered in the *NoteCode* table and referred here by the *NoteCode* and *StudyID* key. A value of 0 (zero) indicates no data
	ModifiedDate	Long Integer	Date of revision in format YYYYMMDD as an integer
	Version	Long Integer	Should be 1 for the first update, unless it is an update to the existing data
	Velocity	Double	Flow velocity in m/s

Sample:

EShe16FFVelocityVectorARI100

	OBJECTID *	Shape *	AEP	StudyScenarioID	MappingMethod	Reliability	Surveyor	StudyID	CaptureDate	CaptureHr
	1411	Polygon ZM	100	EShe16ARI100	Modelled	High	<Null>	EShe16	<Null>	<Null>
	1412	Polygon ZM	100	EShe16ARI100	Modelled	High	<Null>	EShe16	<Null>	<Null>
	1413	Polygon ZM	100	EShe16ARI100	Modelled	High	<Null>	EShe16	<Null>	<Null>

sample contd.

PlanNo	Scale	ReportCode	NoteCode	ModifiedDate	Version	Velocity	Shape_Length	Shape_Area
<Null>	<Null>	1	1	20170303	1	0.055	0.000959	0
<Null>	<Null>	1	1	20170303	1	0.204	0.001056	0
<Null>	<Null>	1	1	20170303	1	0.055	0.001091	0

6. Automated geodatabase validation

After the manual checks outlined in section 5.1.1 and section 5.2.1 are completed, the geodatabase containing the outputs of the project must be zipped and uploaded to a central location to ensure it is compliant with this spatial data specification and have it included on the Flood Intelligence Platform.

The central location is a secure FTP folder called ‘datavalidation’ and looks like below:

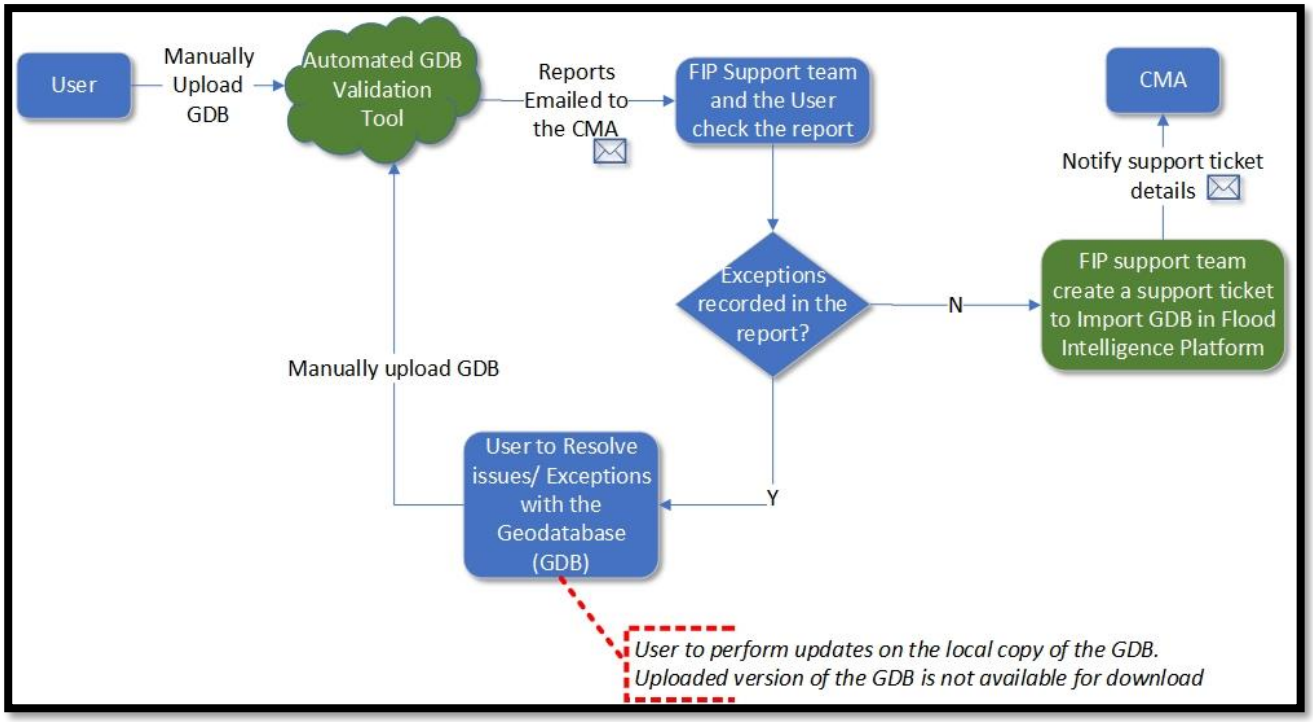
The zipped version of the geodatabase must be uploaded in this ‘datavalidation’ folder. Details to access this folder can be sourced from the relevant CMA.

As a first step the automated data validation compares the uploaded geodatabase with the template geodatabase and records any discrepancies example missing tables, incorrect column definitions etc.

Second step, it applies rules created to ensure data integrity and records any discrepancies example checking if the correct *ProductType* consistently used in the geodatabase or checking for blank spaces either before or after the user has entered values from a reference table etc.

As a final step a report documenting all the discrepancies is emailed to the CMA.

This validation process and providing data to FloodZoom is depicted below;



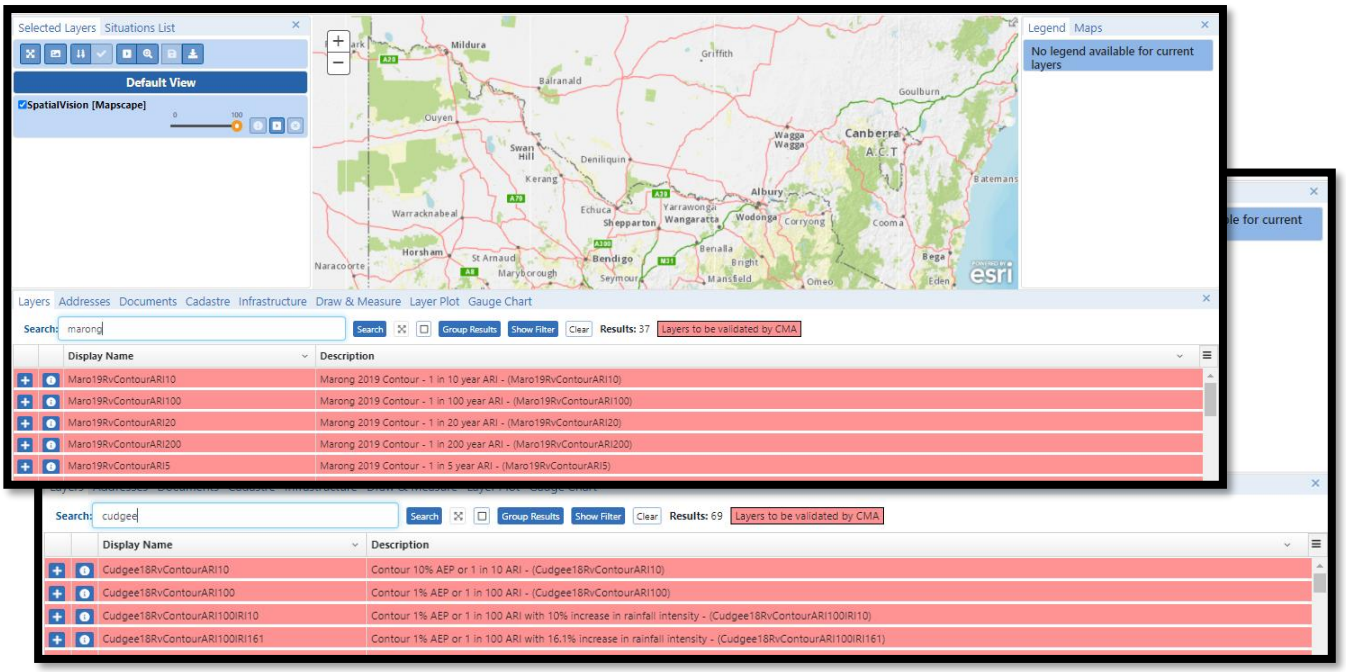
The validation process runs every 3 hours starting at 9 am every day. The geodatabase can be validated as many times as required until all the discrepancies are cleared. The Flood Intelligence Platform support team will import successfully validated geodatabase that has no discrepancies into the FIP as a priority item.

Please see section 9.3 for FAQ relating to this automated geodatabase validation process. A troubleshooting guide (Spatial Data Validation Tool Troubleshooting Guide_V2.2.pdf) to resolve compliance errors is available from www.floodzoom.vic.gov.au by clicking on the About > Spatial Data specification link.

7. Verify layers in FloodZoom

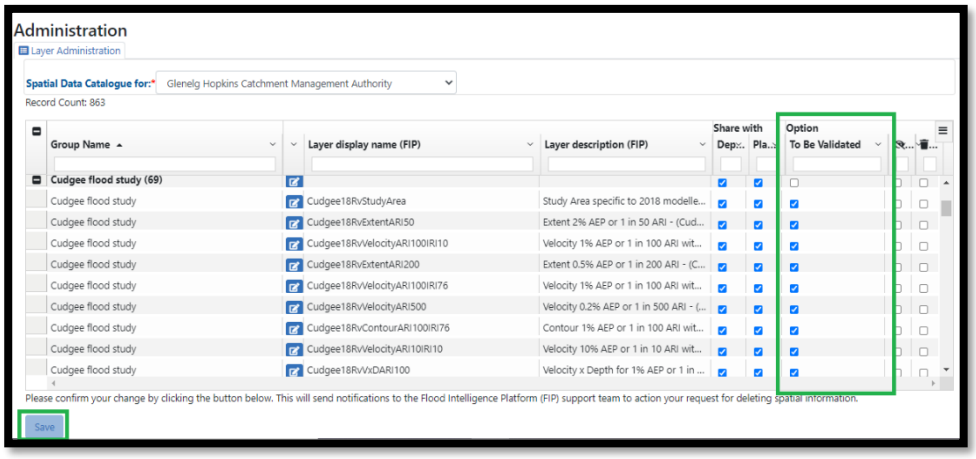
Flood Intelligence Platform team performs due diligence to ensure spatial data is correctly converted and displayed in FloodZoom. However, to ensure the use of accurate and authenticated data during an event it is important for the CMA to verify the layers available on FIP.

Layers awaiting verification in FIP are highlighted in Red, example:



7.1 How to verify layers?

Search for layers awaiting validation in FloodZoom map >Layers Tab. Add the layers to the map and confirm they are being displayed correctly. Then make use of the Layer Administration capability (screenshot below for reference) to authenticate/validate the spatial data available in FIP. This can be done by unticking the box “to be validated” next to the verified spatial data/layers and saving the changes.



Note: By ticking the box under column with icon  and saving your changes, you will immediately hide the layer or exclude it from being returned as a result for either a text-based or spatial search performed by the user.

8. Roles and responsibilities

In DELWP, Floodplain Management Unit (FMU) is the **Flood Data Custodian**. CMAs and Melbourne Water are responsible for ensuring that the data in the Flood Intelligence Platform for their region remains complete, current and quality assured. The CMAs and Melbourne Water are therefore the **Data Stewards**. This role is assigned to one or more individuals within each organisation.

These roles and responsibilities are consistent with the *Water Act 1989* 'Statement of Obligations for Catchment Management Authorities' (2018):

Section	Requirement
22.3	The Authority shall collaborate with the Department to identify, prioritise and collect data following a significant flood, and must share information with the Department.
22.4	…The Authority will…Ensure that a copy of all flood study outputs are provided to the Department…
22.6	The Authority shall collect, maintain and enhance flood information for its region, and ensure that this information is provided to the Department to be included in statewide databases.

Note: It has been agreed by the spatial focus group for the FIP that each CMA will be responsible for providing FIP with the 1% mosaic extent for their regions. As a guide, FIP will be provided with a revised version when a revision to the existing flood study or a new flood study is completed and ready to be imported into FIP. See section 9.3.15 for more details.

9. Appendix

9.1 Glossary

SDS	Flood Spatial Data Specification
AEP	Annual Exceedance Probability
ARI	Average Recurrence Interval
FDTP	Flood Data Transfer Project
FK	Foreign Key; is a field (or collection of fields) in one table that uniquely identifies a row of another table. In simpler words, the foreign key is defined in a second table, but it refers to the primary key in the first table.
GH	Gauge Height. Used as an abbreviation for products modelled to specific Gauge Heights
PK	Primary Key; is a key in a relational database that is unique for each record.
Products	Artefacts related to a flood study. For example, any map related layers of rasters, photos, etc.
Raster	A raster is a matrix of cells (or pixels) organized into rows and columns (i.e. grid) where each cell contains a value representing information, such as water surface elevation.
StudyID	The identification code of a particular flood study. It is used as a placeholder to categorise where the data originated and to group the data.
YR	Year. Used as an abbreviation for products modelled to depict specific historical or projected year.
IRI	Increase in rainfall intensity
SLR	Sea level rise
FCL	Flood Class Level
FIP	Flood Intelligence Platform

9.2 Reference table definition and values

Below are screenshots of the reference table definition and the values listed in them. For an updated list please download the template geodatabase from www.floodzoom.vic.gov.au.

9.2.1 Basin

A subset of the values in is listed below for a full list please download the template geodatabase from www.floodzoom.vic.gov.au.

Basin

OBJECTID *	Basin
1	Avoca River
2	Barwon River
3	Broken River
4	Campaspe River
5	East Gippsland
6	Glenelg River
7	Goulburn River
8	Hopkins River
9	Kiewa River
10	Lake Corangamite
11	Latrobe River
12	Loddon River
13	Mallee
14	Maribyrnong River

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
Basin	Text

Click any field to see its properties.

Field Properties

Alias	Basin	
Allow NULL values	Yes	
Default Value		
Length	40	

9.2.2 ContourType

Values in the table

ContourType

OBJECTID *	ContourType
1	Declared
2	Documented
3	Unspecified

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
ContourType	Text

Click any field to see its properties.

Field Properties

Alias	ContourType	
Allow NULL values	Yes	
Default Value		
Length	20	

9.2.3 Locality

A subset of the values in is listed below. For a full list please download the template geodatabase from www.floodzoom.vic.gov.au

Locality

OBJECTID *	Locality	PostCode	State
1	LINDSAY POINT	3496	VIC
2	MURRAY-SUNSET	3490	VIC
3	WARGAN	3505	VIC
4	CULLULLERAINE	3496	VIC
5	YELTA	3505	VIC
6	NEDS CORNER	3496	VIC
7	MERBEIN WEST	3505	VIC
8	MILDURA	3500	VIC
9	BIRDWOODTON	3505	VIC
10	CABARITA	3505	VIC
11	MERBEIN SOUTH	3505	VIC
12	IRYMPLE	3498	VIC
13	RED CLIFFS	3496	VIC
14	IRAAK	3494	VIC
15	NANGILOC	3494	VIC
16	COLIGNAN	3494	VIC
17	ROBINVALE	3549	VIC
18	ROBINVALE IRRIGATION DISTRICT SECTION B	3549	VIC
19	ROBINVALE IRRIGATION DISTRICT SECTION C	3549	VIC
20	MERBEIN	3505	VIC
21	NICHOLS POINT	3501	VIC
22	KOORLONG	3501	VIC
23	MERRINEE	3496	VIC
24	CARDROSS	3496	VIC
25	MERINGUR	3496	VIC
26	WERRIMULL	3496	VIC
27	CARWARP	3494	VIC

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
Locality	Text
PostCode	Text
State	Text

Click any field to see its properties.

Field Properties

Alias	Locality	
Allow NULL values	Yes	
Default Value		
Length	50	

Field Properties

Alias	PostCode	
Allow NULL values	Yes	
Default Value		
Length	4	

Field Properties

Alias	State	
Allow NULL values	Yes	
Default Value		
Length	3	

9.2.4 MappingMethod

Values in the table

MappingMethod

OBJECTID *	MappingMethod
1	Detailed contour and flood info
2	Reasonable contour info and detailed flood info
3	No contour info and detailed flood info
4	Site specific flood map based
5	Flood aerial photography
6	Modelled
7	Detailed contour info and some flood info
8	Reasonable contour info and some flood info
9	No contour info, some flood info & geo maps
10	No contours & some flood info
11	Little info available
12	Not applicable
13	Sourced from planning scheme spatial data
14	Uncorrected GPS (greater than 1 metre error)
15	Corrected GPS survey (less than 1 metre error)
16	Height survey where vertical accuracy is 50 millimetres or less

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
MappingMethod	Text

Click any field to see its properties.

Field Properties

Alias	MappingMethod	
Allow NULL values	Yes	
Default Value		
Length	75	

9.2.5 MappingScenario

Values in the table

MappingScenario

OBJECTID *	ScenarioCode	Description
1	ARI	Average Recurrence Interval
2	YR	Year
3	Mth	Month
4	Day	Day
5	GH	Gauge Height
6	IRI	Climate change increase in rainfall intensity
7	SLR	Sea Level Rise

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
ScenarioCode	Text
Description	Text

Click any field to see its properties.

Field Properties

Alias	ScenarioCode	
Allow NULL values	Yes	
Default Value		
Length	3	

Field Properties

Alias	Description	
Allow NULL values	Yes	
Default Value		
Length	100	

9.2.6 ModelMethod

A subset of the values in is listed below. For a full list please download the template geodatabase from www.floodzoom.vic.gov.au

ModelMethod

OBJECTID *	ModelMethod
1	ANUGA - 1D Steady State
2	IRWASP - 1D Steady State
3	SAMOZ - 1D Steady State
4	CELLS - 1D Unsteady State
5	MIKE-Flood - 1D Unsteady State
6	SMS - 1D Unsteady State
7	DELFT FLS - 2D Steady State
8	MIKE-Storm - 2D Steady State
9	SOBEK - 2D Steady State
10	DRAINS - 2D Unsteady State
11	MIKE11 - 2D Unsteady State
12	UNET - 2D Unsteady State
13	ESTFLOW - 3D
14	MIKE21 - 3D
15	Wallingford Hydraulic Model - 3D
16	ESTRY - Backwater Analysis
17	MIKE-Urban - Backwater Analysis
18	WASP - Backwater Analysis
19	EXTRAN - Physical Model
20	MOUSE - Physical Model
21	WASURF - Physical Model
22	FLOW2D - Quasi 2D Steady State
23	PL2DFLOW - Quasi 2D Steady State
24	WICELL - Quasi 2D Steady State
25	FPLAIN - Quasi 2D Unsteady State
26	Rating Curve - Quasi 2D Unsteady State
27	XP-Storm - Quasi 2D Unsteady State
28	HEC-2 - Standard Step Method
29	RMA - Standard Step Method

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
ModelMethod	Text

Click any field to see its properties.

Field Properties

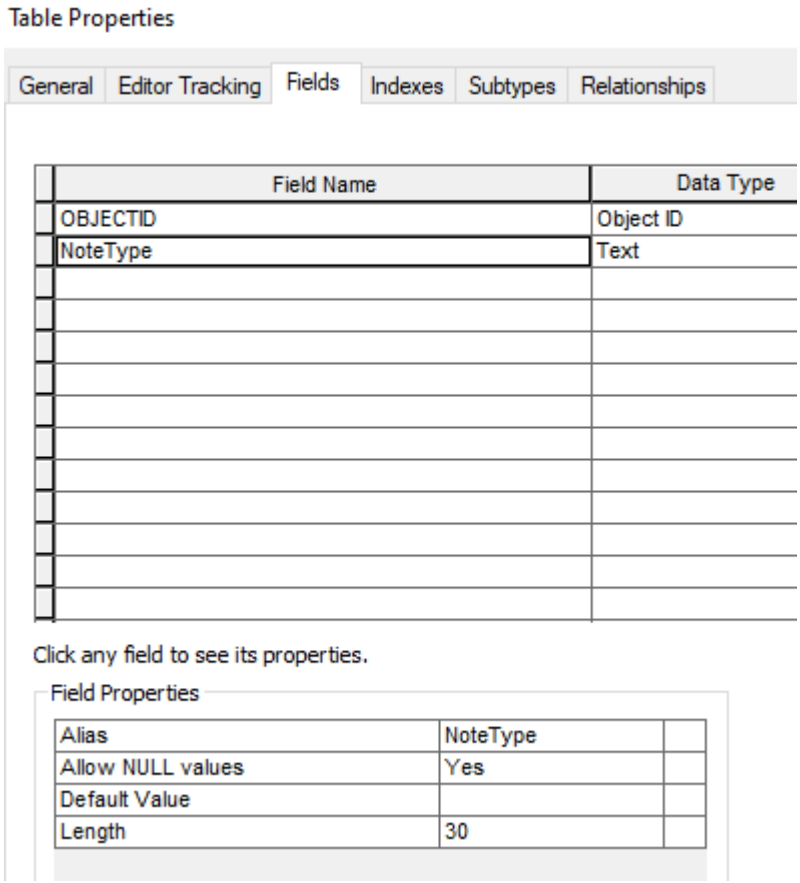
Alias	ModelMethod	
Allow NULL values	Yes	
Default Value		
Length	100	

9.2.7 NoteType

Values in the table

NoteType

OBJECTID *	NoteType
1	CONDITION
2	FEATURE TYPE
3	INFO SOURCE
4	MAPPING METHOD
5	NAME SOURCE
6	NOTE-EXTENT
7	NOTE-HEIGHT
8	NOTE-RUNNING DIST
9	OWNERSHIP
10	PLANNING SCHEME
11	INFO PIPE NETWORK



9.2.8 PPOWType

Values in the table

PPOWType

OBJECTID *	PPOWType
1	Culvert - Culvert
2	Erosion - Ants Nest
3	Erosion - Cracks
4	Erosion - Poor Material
5	Erosion - Pugging
6	Erosion - Rilling
7	Hole - Erosion
8	Hole - Fallen tree
9	Hole - Rabbit Burrow
10	Hole - Sink Hole
11	Hole - Wheel Ruts
12	Low Crest - Road Crossing
13	Other - Recent Works
14	Other - No Vegetation
15	Other - Overtopping
16	Pipe - Pipe
17	River Bank - Outside
18	River Bank - Straight
19	Structure - Stay
20	Structure - Electricity Supply Pole
21	Structure - Dam
22	Trees - Mature in Bank
23	Trees - Mature in Crest
24	Trees - Sapling in Bank
25	Trees - Sapling in Crest
26	Trees - Stump in Bank
27	Trees - Other (eg. Root)

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
PPOWType	Text

Click any field to see its properties.

Field Properties

Alias	PPOWType	
Allow NULL values	Yes	
Default Value		
Length	35	

9.2.9 ProductType

Values in the table

Table

ProductType

OBJECTID *	ProductTypeName	ProductType	Description
1	Depth	Depth	Raster Peak Flood Depth for ARI/Yr/GH
2	Velocity	Velocity	Raster Peak Flood Velocity for ARI/Yr/GH
3	Water Surface Elevation	WSE	Raster Peak Water Surface Elevation for ARI/Yr/GH
4	Velocity x Depth	VxD	Raster Velocity multiplied by Depth for ARI/Yr/GH (also known as hazard)
5	DTM	DTM	Digital Terrain Model
6	Study Area	StudyArea	Study Area Extent
7	Extent	Extent	Flood Extent for ARI/Yr/GH
8	Contour	Contour	Flood Surface Water Elevation Contour for ARI/Yr/GH
9	Spot Information	SpotInfo	Flood realted information for a spot impacted by the modelled scenario
10	Floor Level	FloorLevel	Floor Level point data
11	Levee Line	LeveeLn	General levee alignment
12	Levee Point	LeveePt	Levee spot height at general location
13	Levee Crest Line	CrestLn	Levee alignment at crest
14	Levee Crest Point	CrestPt	Levee spot height at crest
15	Levee Natural Surface	NatSurfLn	Levee alignment at natural ground surface
16	Levee Natural Surface Point	NatSurfPt	Levee spot height at natural ground surface
17	Levee Toe Line	ToeLn	Levee alignment at toe
18	Levee Toe Point	ToePt	Levee spot height at toe
19	Levee Cross Section	CrossSectLn	Levee cross section
20	Levee Cross Section Point	CrossSectPt	Levee spot height at cross section
21	Levee PPOW Line	PPOWLine	Levee Potential Point of Weakness Line
22	Levee PPOW Point	PPOWPoint	Levee Potential Point of Weakness Point
23	Levee PPOW Cross Section	PPOWCrossSectLn	Levee Potential Point of Weakness Cross Section
24	Photo Point	Photo	Photo Points (photos currently not included in FloodZoom)
25	Mitigation Protection Area	MitArea	The area protected by flood mitigation works, e.g. behind a levee
26	Velocity Vector	VelocityVector	A point with a direction and a magnitude reflecting the velocity at that point
27	Assets Impacted	AssetsImpacted	Assets impacted by a modelled scenario
28	Spot Height	SpotHt	Flood Spot Height for a modelled scenario

1 (0 out of 28 Selected)

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
ProductTypeName	Text
ProductType	Text
Description	Text

Click any field to see its properties.

Field Properties

Alias	ProductTypeName
Allow NULL values	Yes
Default Value	
Length	30

Field Properties

Alias	ProductType
Allow NULL values	Yes
Default Value	
Length	15

Field Properties

Alias	Description
Allow NULL values	Yes
Default Value	
Length	100

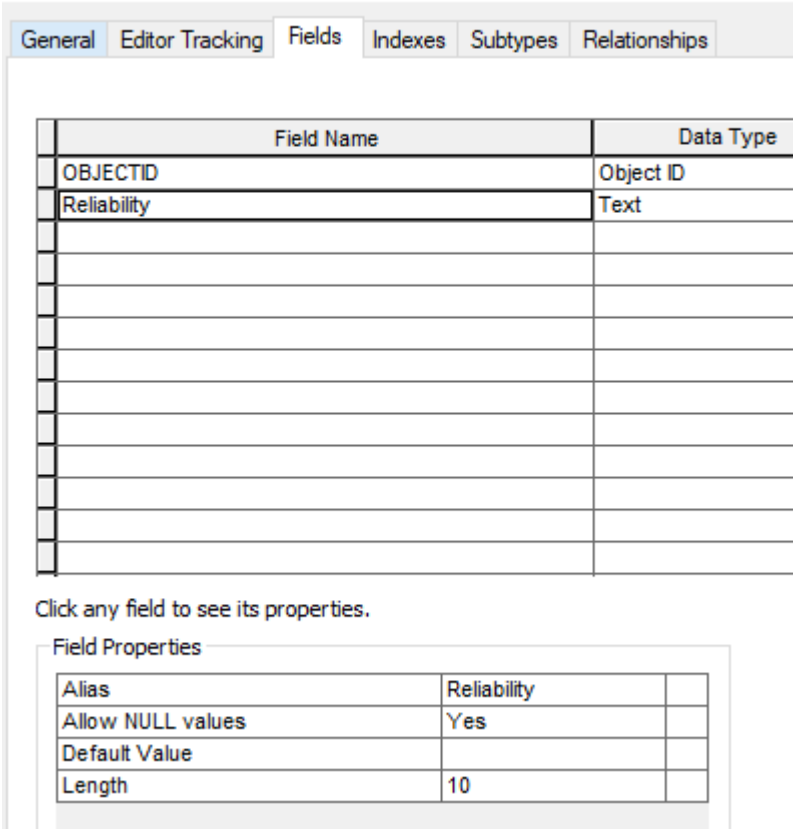
9.2.10 Reliability

Values in the table

Reliability

	OBJECTID *	Reliability
▸	1	High
	2	Medium
	3	Low
	4	Unknown

Table Properties



9.2.11 StudyType

Values in the table

StudyType

OBJECTID *	StudyType	Description
1	Rv	Riverine Flood Study
2	Db	Dam Break Flood Study Scenario
3	Lv	Levee Study
4	Cs	Coastal water Flood Study
5	FF	Flash Flooding Study
6	Sw	Storm water
7	Ss	Storm surge

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
StudyType	Text
Description	Text

Click any field to see its properties.

Field Properties

Alias	StudyType	
Allow NULL values	Yes	
Default Value		
Length	2	

Field Properties

Alias	Description	
Allow NULL values	Yes	
Default Value		
Length	50	

9.2.12 WaterwayList

A subset of the values in is listed below for a full list please download the template geodatabase from www.floodzoom.vic.gov.au

WaterwayList

OBJECTID *	WaterwayID	Name	Basin
1	1	ABBOTS CREEK	UPPER MURRAY RIVER
2	2	ABBOTT CREEK	GOULBURN RIVER
3	3	ABECKETTS CREEK	OTWAY COAST
4	4	ABERFELDY RIVER NORTH BRANCH	THOMSON RIVER
5	5	ABERFELDY RIVER SOUTH BRANCH	THOMSON RIVER
6	6	ABERFELDY RIVER	THOMSON RIVER
7	7	ACCOMMODATION CREEK	SNOWY RIVER
8	8	ACE OF CLUBS CREEK	EAST GIPPSLAND
9	9	ACHERON RIVER	GOULBURN RIVER
10	10	ADA RIVER	EAST GIPPSLAND
11	11	ADA RIVER	LATROBE RIVER
12	12	ADAMS CREEK	BUNYIP RIVER
13	13	ADAMS CREEK	YARRA RIVER
14	14	ADEKATE CREEK	LODDON RIVER
15	15	ADOLPH CREEK	LATROBE RIVER
16	16	AFFLECK CREEK	LATROBE RIVER
17	17	AFFLECK CREEK	SOUTH GIPPSLAND
18	18	AGNES RIVER	SOUTH GIPPSLAND
19	19	AH CHOW CREEK	TAMBO RIVER
20	20	AH COLLS CREEK	TAMBO RIVER
21	21	AH KOW GULLY	WERRIBEE RIVER
22	22	AH LOK GULLY	MITCHELL RIVER (VIC)
23	23	AHOY CREEK	YARRA RIVER
24	24	AIRE RIVER	OTWAY COAST
25	25	AITKEN CREEK	YARRA RIVER
26	26	AITKEN GULLY	HOPKINS RIVER

Table Properties

General | Editor Tracking | Fields | Indexes | Subtypes | Relationships

Field Name	Data Type
OBJECTID	Object ID
WaterwayID	Long Integer
Name	Text
Basin	Text

Click any field to see its properties.

Field Properties

Alias	WaterwayID	
Allow NULL values	Yes	
Default Value		

Field Properties

Alias	Name	
Allow NULL values	Yes	
Default Value		
Length	50	

Field Properties

Alias	Basin	
Allow NULL values	Yes	
Default Value		
Length	40	

9.3 FAQ

9.3.1 Is there a naming convention to name the geodatabase or how do I name the gdb?

Geodatabases must be named in a way that it identifies the CMA, area of study, the year study was completed and version history if it has been revised. Example: GBCMA_Yea06_v9.gdb or WGCMA_Agnes_River_Flood_Modelling_2015.gdb

9.3.2 Can I zip the file using software's like 7zip or winrar to compress the gdb?

Yes, you can so long as the software can produced the compressed file in .zip extension example GBCMA_Yea06_v9.zip. Compressed file extensions like .7zip or .rar are not supported.

9.3.3 what software can I use to upload my gdb for validation or software to connect to the SFTP folder?

You can use software's like FileZilla or Winscp to connect to the SFTP folder and upload your geodatabase (gdb) for validation. Any other software's similar to the ones mentioned above approved by your organisations IT can also be used.

9.3.4 What is the central location or folder name where the zipped gdb needs to be uploaded for automated geodatabase validation?

The folder is called '*datavalidation'*. The gdb zip file that needs to be checked for compliance must be uploaded inside this folder.

9.3.5 Where can I find the Connection details or credentials to access the '*datavalidation*' SFTP folder?

The relevant CMA can provide you with the connection details.

9.3.6 I am a consultant working for the CMA, will I or can I have the results of the automated geodatabase validation process emailed to me directly?

No, results of the automated geodatabase validation are emailed to the CMA only. You can request the CMA to forward you these results.

9.3.7 Do I have to upload a compressed gdb for it to be validated using the automated validation process?

Yes, the gdb you wish to have validated must be zipped and uploaded in the "*datavalidation*" or else the validation process will exclude your submission and an empty result files will be generated.

9.3.8 Is the central location where the gdb is validated secure?

Yes, the central location to upload the gdb is secure. It is a SFTP folder on FIPs AWS cloud instance. The information access is restricted to a CMA i.e. data uploaded by CCMA cannot be viewed by NCCMA and vice versa.

9.3.9 How often is this specification updated?

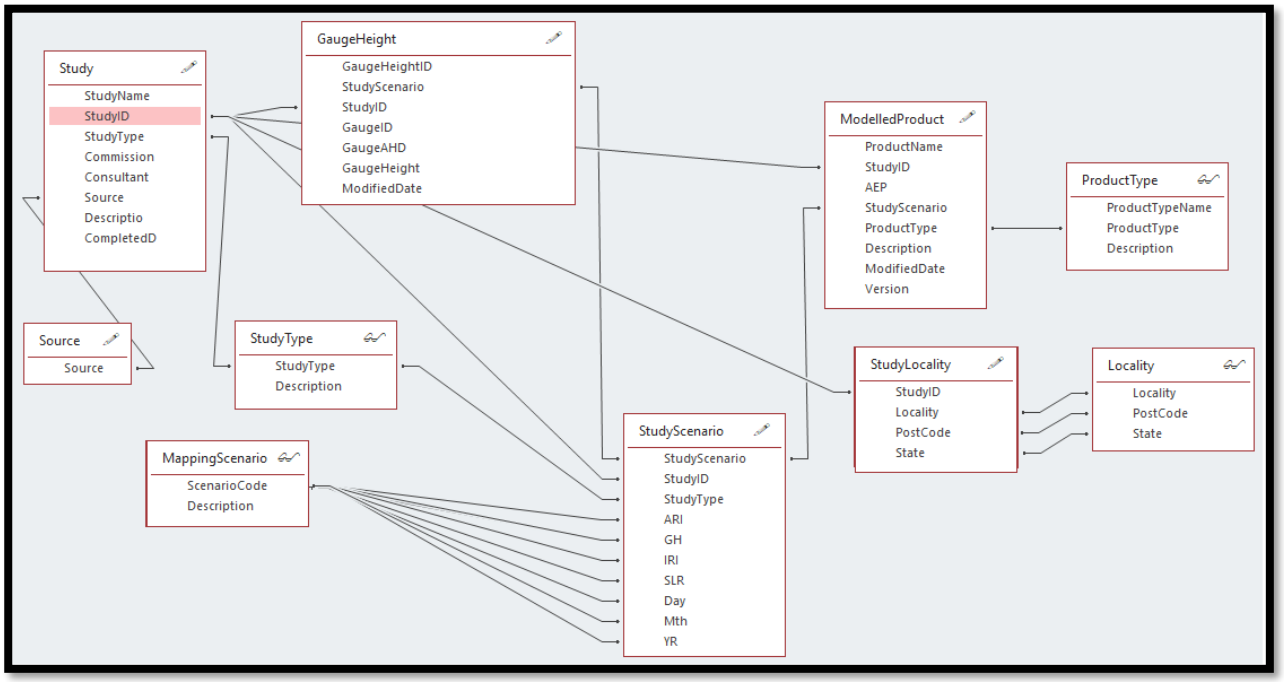
Annually, at the start of the calendar year.

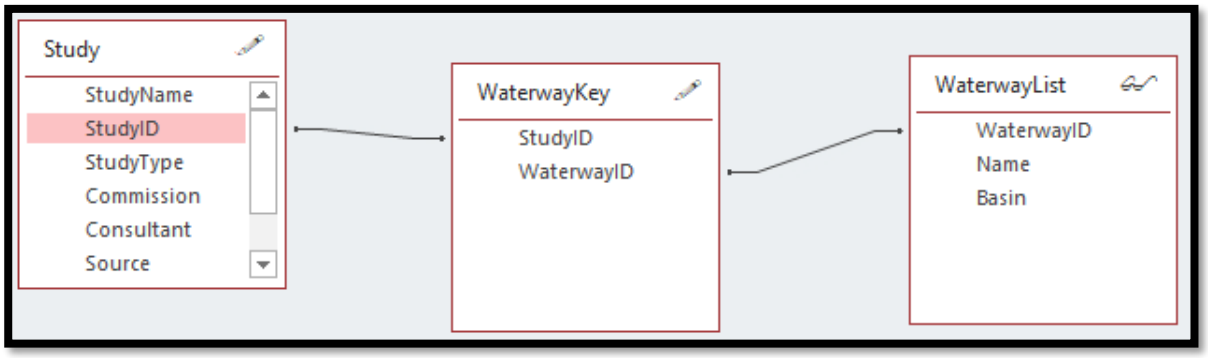
9.3.10 What is the latest version number of the template geodatabase and where can I find the latest version of the template geodatabase?

Latest version of the template geodatabase is the same as the published major version number of this document. For simplicity sake, the minor published versions of this document will not be reflected on the Template geodatabase. As of 25/06/2021 version 2 is the latest for template geodatabase.
Latest version of the Template geodatabase can be download from www.floodzoom.vic.gov.au.

9.3.11 How are the reference tables and user tables in the template geodatabase linked to each other?

Below diagram depicts how key reference and user populated tables in the template geodatabase are linked interact. This is also known as an Entity Relationship diagram (ER diagram) or a data model





9.3.12 Why the geodatabase approach?

Geodatabase provides the fastest means of accessing spatial data on a web-based platform. Technically, geodatabases logically separate data per map service. A map service is a logical group of layers depicting a map. For example, maps in NCCMA come under one service ("NCCMA") that displays data from multiple studies. The layers of each flood study are stored within a unique geodatabase. It would be extremely inconvenient to manage these as flat files (i.e. individual layers) for every flood study across the state. If layers are updated a new geodatabase with the new layers is deployed and can live side by side with the existing one.

9.3.13 What is a mosaic of 1% extent?

This is a stitched version or a mosaic of latest 1% extents available at a CMA. Where this data is not available Flood Overlay and or LSIO layer can be used When ready this layer will be made available in FloodZoom. This SDS does not apply to the 1% mosaic extent.

9.3.14 Who is responsible for creating and the ongoing maintenance of the 1% extent mosaic?

Individual CMAs are responsible

9.3.15 How is this 1% extent mosaic provided to FloodZoom?

As agreed by the spatial focus group of the FIP, the 1% mosaic will be provided in a GDB. This GDB will have 1 layer which meets the agreed guidelines listed below. The GDB will be uploaded to the central location discussed in section 9.3.4

Agreed guidelines for the 1% mosaic extent:

- Naming convention for the GDB: <CMA>_stitched_data example: *NCCMA_ stitched _data.gdb*
- Naming convention of this 1% mosaic layer:
    - <CMA>_<Scenario>_<Product Type>
    - example: *NCCMA_1%orARI100_Extent.*
    - Max length 50 characters
- Mandatory attributes of this 1% extent mosaic are:

Attribute name	Allow Null Value	Type	Length	Description
StudyID	Yes	Text	10	Study ID of the extent
Study description	No	Text	100	Relevant description for the extent
Reliability	No	Text	10	See section 9.2.10 for permitted values
Study name	No	Text	50	Name of the study relevant to the layer being included in this mosaic
Mapping method	No	Text	100	Mapping method applied to generate the layer being included in this mosaic

- Layer description in FIP will follow the format: <Scenario>[space]<product type>[space]for the[space]<CMA> and can include additional information.
    - Example: *ARI100 or 1%AEP Extent for the North Central catchment*. Or *ARI100 or 1%AEP Extent for the Wimmera catchment. 2015 and 2017 extents overlapping for Concongella locality, only 2015 extent listed here*.
    - Max length 250 characters.

  This layer description can be updated by the CMAs via *Layer Administration* capability.

9.3.16 How do I verify layers imported in FloodZoom?

Please see section 7 for details

9.3.17 How do I request spatial data to be deleted from FloodZoom?

You can use the Layer Administration capability within FloodZoom to mark the layers for deletion and save your changes. Please exercise caution when marking layers to be deleted. When a layer or layers are marked for deletion and saved, this action automatically does 2 things 1. Excludes the selected layer or

layers immediately from being searched by the users and 2. generates a notification for the FIP support team to delete the selected layers.

See section 7 for more details on Layer Administration capability.

9.3.18 How do I provide revised spatial data to FloodZoom?

Please see section 6 for details on providing spatial data to FloodZoom. If you wish to replace existing data then you must first provide a validate gdb with that will be replacing existing data and then mark layer or layers for deletion in FloodZoom, please see FAQ 9.3.17 How do I request spatial data to be deleted from FloodZoom?

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