As-Constructed Asset Data Capture and Submission Guidelines

January 2024

CITY OF LOGAN

Table of Contents

1. Version History

Version #	Description	Valid From
1.0	ADAC Guideline 5.0.1 approved for use by EPMO	19/03/2024

2. Introduction

With the important responsibility for administering a thriving Southeast Queensland region, Logan City Council (LCC) operates an ever-expanding portfolio of community assets and infrastructure. On behalf of its growing and vibrant community, Council has significant obligations for the efficient management of this substantial asset base.

The great majority of assets are acquired by Council through:

- Compulsory donations by the land development industry in conjunction with private investment in property development (subdivisional) projects.

- Works funded by Council and delivered by third parties under tender and contract arrangements; and

- As a result of works undertaken by the internal Council workforce.

Constructors are required to provide key information about the assets prior to their handover to Council. This "As-Constructed" package of information is designed to both ensure the quality of the assets received and provide a conduit for the initial asset recognition data used to populate Council's asset management information systems. Ultimately, this As-Constructed data provides the vital knowledge to plan for necessary operations and maintenance as well as the timing and budgets for renewal activities.

This Asset Data Specification is seen as the minimum requirement for asset recognition from newly built or refurbished assets, additional data is required at branch level for Council to populate their enterprise asset management systems to assist meeting its obligations in accordance with best practice asset management.

This document applies to all ADAC submissions from 1st July 2024.

3. Purpose

The purpose of this document is to provide guidelines and assistance for the creation and provision of compliant as-constructed data.

On completion of physical works and prior to asset handover, "As-Constructed" (also known as "As-Built") information is used to indicate the locations of infrastructure installed as a part of the physical works. The final "As-Constructed" data should accurately reflect material types, specifications and other asset-specific information. The digital as-constructed file is a complete and detailed digital record of "As-Constructed" information and is used by LCC to populate its asset register.

Specific details regarding the preparation and presentation of any additional required "As-Constructed" drawings and plans accompanying the as-constructed file can be accessed via the *Logan City Council Planning Scheme Schedule 6.2.5 – Planning Scheme Policy 5 - Infrastructure (Part 5.6 - As-constructed information)*.

For capital works that are delivered either by LCC internal delivery mechanisms or external contractors, the as-constructed data accompanies any associated bundle of "As-Constructed" plans, drawings, schedules, operating manuals, certifications, warranty and associated information reflecting newly constructed infrastructure and associated assets handed over to LCC.

For private developer contributed assets, the post construction package is an additional submission required to be approved to allow assets to be accepted by LCC. It will include, but is not limited to latest approved plans, drawings, schedules, operating manuals, certifications, test results, warranty and associated information which demonstrate new infrastructure has been constructed to relevant standards and best practice under RPEQ supervision.

4. The As-Constructed Data Standard

LCC has an *As-Constructed Data Standard* that incorporates the Asset Design As Constructed (ADAC) schema as well as a data standard for asset types not currently included within the ADAC schema. The *As Constructed Data Standard* includes all infrastructure asset types contained within the ADAC schema plus Logan City Council asset types not currently listed in the ADAC schema. The relationship between the different elements of the *As-Constructed Data Standard* is represented below:

ADAC Schema Version 5.0.1	✚	Logan City Council Asset Types and Specifications	═	*Logan City Council (LCC) Asset Data Standard*
ADAC Data Dictionary		LCC Data Dictionary		

Where as-constructed information is to be supplied through an ADAC XML file, the Logan City Council asset types contained within the *As-Constructed Data Standard* are to be captured within the *Supplementary Features* in the XML. Refer to **Section 10.10** of this document for guidance on how the information is to be structured within the XML.

5. As-Constructed Requirements

5.1 General As-Constructed Requirements

As-constructed drawings must:

1. Represent a true and correct record of the constructed works, including a record of all assets constructed, repaired, refurbished, replaced, disposed or decommissioned.

2. Illustrate the asset configuration or construction features and characteristics.

3. Include accurate geometry data, to the minimum accuracy levels defined in this document and in accordance with tolerances specified under *Logan City Council Planning Scheme Schedule 6.2.5 – Planning Scheme Policy 5 - Infrastructure (Part 5.6 - As-constructed information)*.

4. For all assets constructed, refurbished or replaced, include asset characteristic/attribute data that is compliant with the Council's *As-Constructed Data Standard.*

5. Show the asset connectivity or relationship with existing infrastructure.

6. Conform to the LCC's requirements for as-constructed drawings as described in this document and *Logan City Council Planning Scheme Schedule 6.2.5 – Planning Scheme Policy 5 - Infrastructure*.

7. Be provided in an electronic format in accordance with the as-constructed file format requirements specified within this document.

On receipt of the "As-Constructed" bundle of information, data format and conformance checks will be performed on the as-constructed file to confirm the completeness and validity of the details. Should anomalies, errors or missing information be identified during these checks, the as-constructed file(s) may be returned to the provider for correction and resubmission in accordance with applicable conditions, potentially delaying the progress of asset handover.

5.2   As-Constructed Requirements for Water Supply and Sewerage Infrastructure

Unless specifically stated within this document, all as-constructed information supplied for water supply and sewerage infrastructure must comply with the requirements specified in the *South East Queensland Water Supply and Sewerage Design and Construction Code (SEQ D&C Code) Asset Information Specification*. The SEQ D&C Code, section 7.3.1.8 of the Land Development Guidelines and in particular the SEQ D&C Code Asset Information Specification, provide a detailed explanation of the file formats, presentation styles and information required to be supplied for water supply and sewerage asset types.

For further information on the SEQ D&C Code Asset Information Specification, please visit the website: http://www.seqcode.com.au/seq-ais/

5.3   Datum Information & Spatial Accuracy

Data contained in the as-constructed file(s) must reflect the details of the assets as found in the real world and as accurately reflected in the "As-Constructed" drawings. Unless otherwise specified in this document, survey details must be derived from permanent survey marks (PSMs), with Map Grid of Australia (MGA) GDA2020 – UTM Zone 56 co-ordinates and AHD levels to be to fourth order standard or better as defined by the current Intergovernmental Committee on Surveying & Mapping (ICSM) Standard.

The following shall also apply:

- For subdivisions for 10 lots or less, survey details must be tied from at least two (2) relatively well spaced permanent survey marks (PSMs)
- For subdivisions of greater than 10 lots, survey details are to be tied to three (3) or more relatively well spaced permanent survey marks (PSMs)

The positional accuracy standards specified in this document apply for submissions under the *High* format complexity (refer **Section 6.1**). Where a submission falls under the *Low* format complexity, all reasonable efforts should be used to obtain the greatest possible accuracy level, including utilising orthorectified aerial and measured offsets from known reference points.

For certain asset types, the minimum positional accuracy is stated as ± 1m within this document to make allowance for the practicalities of capturing the location of a small number of assets within a non-urban or inaccessible area. For major or critical infrastructure works (such as subdivisional developments, bridges and major projects in the LCC's capital works program), providers should seek to achieve a positional accuracy of ± 10mm at the minimum for these asset types.

For the positional accuracy of Water and Sewer asset types refer to the SEQ D&C Code Asset Information Specification, Section 2 'Survey Conventions'.

6. As-Constructed File Formats

6.1 File Format Requirements for As-Constructed Submissions

For acceptable file formats for Water and Sewer asset types refer to the SEQ D&C Code Asset Information Specification, Section 4 'Detailed Requirements for Information Package'.

With exception of Water and Sewer assets, LCC accepts 3 types of as-constructed file formats, depending on the nature of works undertaken:

1. ADAC XML

2. Electronic Drawing File with ADAC Attributes

3. Mud Map / Sketch with Asset Characteristic List

A more detailed description of each file format has been provided in **Sections 6.1, 6.2, 6.3, 6.4, 6.5 and 6.6**. The below matrix provides guidance on what file formats are accepted by the LCC, based on the nature of the works undertaken.

Format Complexity	Works Undertaken	Accepted As Constructed Formats
High	• Contributed Assets • Capital Works: Internal Delivery - Major (*where design drawings <u>are</u> required*)	ADAC XML
	• Capital Works: External Contract - Major (*where design drawings <u>are</u> required*) • Survey capture	Electronic Drawing Files with ADAC attributes
Low	• Contributed Assets*	ADAC XML
	• Contributed Assets – No OPW	Electronic Drawing Files with ADAC attributes
	• Capital Works: Internal Delivery - Minor (*where design drawings aren't required*) • Capital Works: External Contract – Minor (*where design drawings aren't required*) • Maintenance Works	Mud Map / Sketch with ADAC attributes

*Exemption Rule
Any development that creates equal to or less than fifty (50) meters of water supply, sewerage or stormwater infrastructure or equal to or less than four (4) lots will not be required to submit a compliant ADAC XML file.

6.2   ADAC XML

6.2.1   Introduction to ADAC XML

ADAC XML files are a **compulsory accompaniment** to the "As-Constructed" bundle of asset information required by council as a part of the handover of nominated works and associated civil assets and infrastructure. An ADAC XML file is an exchange information file contains a structured and precise digital record of the assets described in the "As-Constructed" plans and other associated engineering documentation. Details include survey-accurate cadastral and boundary references, geometries and relative levels as well as detailed records of the new assets including accompanying attribute information. ADAC XML files may also be used as a cross-check on accuracy and completeness of other "As-Constructed" information provided.

Depending on the tools being used to create the ADAC XML, compliant files may be initially created during survey capture and then finalised in conjunction with the creation of the "As-Constructed" drawings. Alternatively, the XML files may be generated after the electronic "As-Constructed" drawings have been finalised. It is essential that the "As-Constructed" drawings are created using complete and accurate information to correctly identify the assets and the locations being represented in the ADAC XML file.

6.2.2   General Requirements

The ADAC XML file should be checked for compliance before being submitted to LCC.   Details on the data schema describing the asset classes and sub-classes to be addressed by the ADAC capture process can be found throughout this document. On receiving the "As-Constructed" bundle, LCC will undertake a data format and conformance check on both the clean As-Constructed drawings and ADAC XML file to confirm the completeness and validity of the details.

For further information on ADAC or ADAC XML files, please visit the ADAC website:
https://www.ipweaq.com/adac

6.3   Electronic Drawing File with ADAC Attributes

Additional drawing files, for example Longitudinal Sections must be submitted for water supply and sewerage infrastructure assets identified in the SEQ D&C Code Asset Information Specification.

For further information on drawing file requirements covered under the SEQ D&C Code refer to **Section 5.2** of this document.

As-constructed information may be submitted within an electronic DWG or DXF file. All assets covered under the *As-Constructed Data Standard* (both above and below-ground) must be contained within the electronic drawing file, unless otherwise specified within this document. In addition to all assets and their corresponding geometry being represented within the electronic drawing file, the full ADAC attribution must be supplied. This includes all:

- Project attribution
- Global asset attribution, and
- Specific asset attribution.

Refer to **Section 10** of this document for further information on ADAC attribution. The attribute information can be supplied within the electronic drawing file itself (e.g. included in attribute blocks) or it can be supplied in a separate file, such as an excel spreadsheet.

6.4   Bridge BIM / DE Requirements

While LCC does not stipulate which bridge design software must be used, Council does require transport bridge design to be in accordance with Transport and Main Roads (TMR)'s BIM for Bridges Design Manual.

Further details can be found by visiting TMR's website at: https://www.tmr.qld.gov.au/-/media/busind/techstdpubs/Road-planning-and-design/Building-Information-Modelling/BIM-for-Bridges-Manual.pdf?la=en

LCC requires the submissions of any bridge assets in the following formats:

- Native files in the software package used to develop the model.
- Navisworks File (.NWD)
- Navisworks Cache File (.NWC)
- Industry Foundation Class files (.IFC)

To assist IFC development, TMR have produced an Autodesk Revit schedule that sets forth the User Defined Parameter Set that aligns to bridge element families modelled in the project. Further details can be found by visiting TMR's website at: https://www.tmr.qld.gov.au/business-industry/Road-systems-and-engineering/Software/Transport-and-Main-Roads-Revit-to-IFC-export-pack

6.5   CCTV Requirements

CCTV video and subsequent reports for underground stormwater infrastructure work shall be prepared in accordance with Councils Planning Scheme requirements and the latest version of the WSAA Conduit Inspection Reporting Code of Australia.

6.6   Mud Map / Sketch with Asset Characteristic List

A mud-map /sketch with associated *Asset Characteristic List* is the lowest level of accuracy accepted for as-constructed information and may only be supplied under certain circumstances (refer **Section 6.1** of this document). An allowance for a mud map / sketch with asset characteristic list has been made to cater for scenarios where the supply of an ADAC XML or electronic drawing would be either:

- Cost-impractical (e.g. for small value construction works), and/or
- Where submission of the as-constructed information to a greater accuracy level would be of minimal benefit to Council.

6.6.1 Mud Map / Sketch Requirements

Some of the qualities of acceptable mud maps /sketches are:

- All assets constructed, repaired, refurbished, replaced, disposed or decommissioned are identified on the mud map / sketch and given a unique ID number.
- The geometry or location should be described based on offsets to other known reference points, such as property boundaries, permanent survey marks and/or other existing asset features. Offset distances should be in metres, to one decimal place.
- Must be supplied in an electronic format.
- The background of the sketch should contain either aerial imagery, or cadastral / surveyed boundaries.

Below are some examples of acceptable mud maps / sketches:

Figure 1 - Example Mud Map
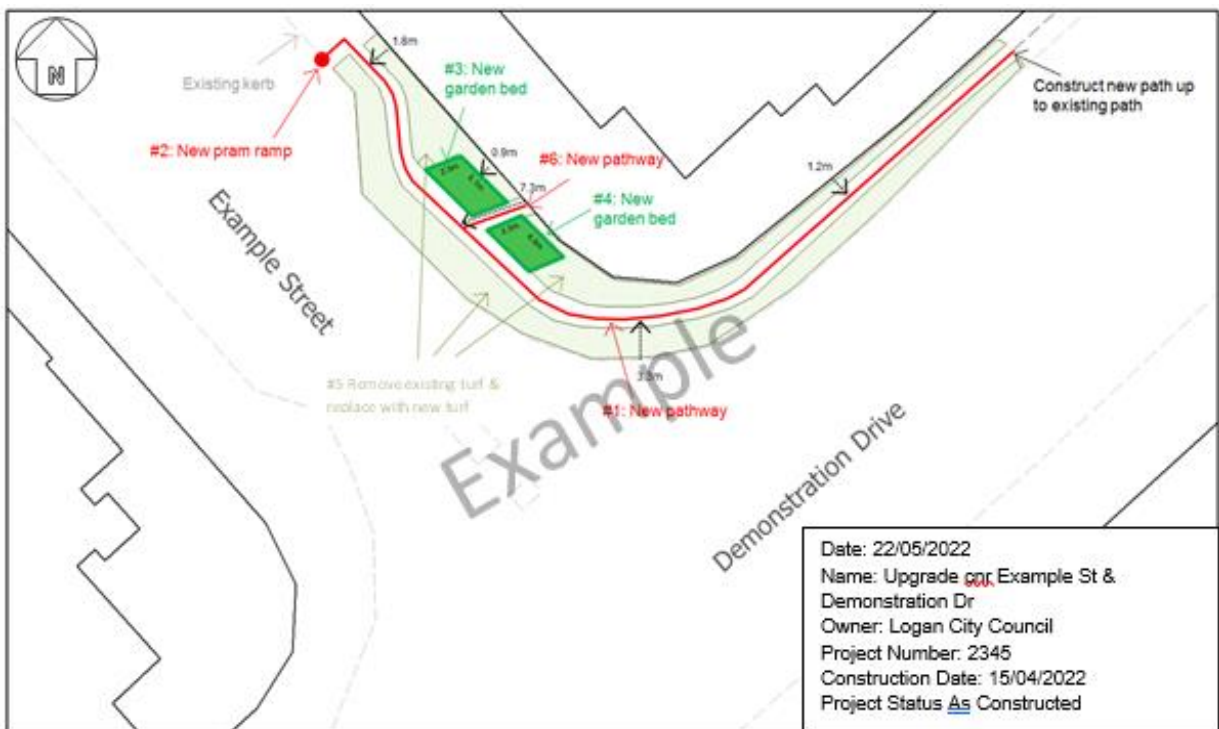
Figure 2 - Example Sketch

6.6.2   Asset Characteristic List Requirements

An asset characteristic list is a table or file which contains the required attribute information associated with a mud map or sketch. The characteristic list may be a table embedded in the mud map / sketch, or it may be included in a separate file, such as a spreadsheet.

An asset characteristic list must:

- Be supplied in electronic format.

- Contain attribute information for each feature, as defined in the *As-Constructed Data Standard* and as documented under **Section 10** of this document for all assets constructed, refurbished or replaced. Attribute information is not required to be provided for assets disposed or decommissioned, unless it would be required to identify / distinguish those assets.

- The attribute information for each feature must be linked, via an ID number, to the mud map / sketch.

7.   Photo Requirements

In some instances, LCC may require photographs to be supplied for certain assets as part of the as-constructed package of information. These photographs may be used for subsequent identification of the asset or may be used as part of asset capture to record information which is not otherwise able to be provided through the *As-Constructed Data Standard*. Appendix A outlines detail photo requirements and specifies where asset photos are required as part of asset handover.

7.1   Information Privacy

Asset photographs should not contain any recognisable persons within them. Where this is not possible, the *Information Privacy Act 2009* requires that a photo consent form is signed by the person within the photo, and the consent form must be supplied with the photo.

7.2   Image Quality and Metadata Requirements

- Where the as-constructed data contains a number of different assets of the same type (e.g. multiple shelters were constructed within a park), each photograph should be matched to the corresponding asset ID (ADACId) in the ADAC XML file and be supplied to LCC on a storage media.

- Photographs must be date-stamped with the date that the photo was captured.

- Photos should be captured in a .jpg format with no less than 3.1 megapixels (resolution of 2048*1536) and no more than 10MB in size per file to sufficiently identify the discrete elements of an asset.

- Photograph EXIF header to contain at minimum:
    - Create Date
    - Create Time
    - GPS Latitude
    - GPS Longitude
    - GPS compass heading

7.3   Photo Capture Guidelines

- Photographs of entire assets are to be taken, where practical, to indicate shape, material and other relevant attributes of each asset. Refer to **Figure 3** for an example of an asset photo for a table.

- Where assets are too large to clearly indicate shape, material and other relevant attributes in one photograph, a photograph of a representative portion is required. Refer **Figure 4** or an example of a photo of a light, displaying the properties of both the light and the pole.

- A photo of a long asset (such as Fencing) should clearly illustrate material and style, and not necessarily the entire object. Refer **Figure 5** for an example.

- Where assets consist of multiple components, a photograph of each component may be required if each cannot be clearly illustrated in a single photo. For example, **Figure 6** illustrates 2 separate photos for a memorial and the plaque on it.

Figure 3 - Asset photo of a table

Figure 4 – Photo displaying light and pole

Figure 5 - Photo illustrates material and style

Figure 6 – Photo of a memorial and the plaque

8. Post-Construction Package

On completion of physical works and prior to asset handover or commissioning, the package of "As-Constructed" (also known "As-Built" or "Works-as-Executed") information is prepared for submission to Council.

Along with evidence and testing relating to quality checks and compliance with approval conditions, the overall package of "As-Constructed" information is intended to provide clear and relevant details of asset types such as materials, levels and alignments (survey).

This includes disclosure of any approved variations in the assets or associated construction methods that may have occurred during the operational works phase as compared to the original approved "*For Construction*" design plan(s).

9. As Constructed Submission to the LCC for Approval

The package of As-Constructed Information would typically contain the following information related to the supply of asset data*:

Statement of Compliance (See Appendix C);

- As-Constructed Drawings. Consisting of:
  - o **Redline** marked-up approved "For Construction" drawings
  - o Clean As-Constructed Plans
- Compliant ADAC XML File(s)
- Relevant design documentation
- Other particular As-Constructed Documentation as may be specified in the detailed Conditions of Approval.

* Note: This list of requirements relates specifically to provision of important asset data. Be sure to check approval documents for any specific or additional obligations that apply.

9.1 Redline Mark-Ups of "For Construction" Drawings

- The Council approved "For Construction" drawings are to be marked-up (redlined) showing any variations in survey, asset materials and other relevant information (e.g. road names).
- Changes and modifications to the "For Construction" drawings are to be denoted by a strikethrough line with the new As-Constructed values (in red) noted adjacent to the original value or description.
- Marked-up "For Construction" drawings are to be provided in digital "A1" size PDF file format and "A3" size hardcopies.
- All individual pages to include "Certification Text Blocks" and signed by the registered engineer (RPEQ qualification). See Appendix "B" for a copy of appropriate Certification Text Blocks.

9.2   Preparation of As-Constructed Plans

- As-Constructed Plans prepared from the final as-constructed survey data are to be provided in <u>both</u> .DWG and PDF file formats.

- Details must represent a true and correct record of the final works, including a description of all assets constructed, installed, refurbished, replaced, disposed or retired-in-situ.

- Illustrate the configuration, construction features and characteristics of all assets.

- Include accurate geometry data to survey industry-accepted accuracy.

- Must show both new and/or upgraded assets as well as any disposed or retired assets. Note: All assets with a status of removed/disposed or retired in-situ are to be <u>clearly shown and titled</u> on the drawing.

- As-Constructed plans must include:
  - Names, addresses and contact details of the relevant engineer/consultant,
  - a "North Arrow"
  - Table of Symbology
  - Scale Bar
  - Level Datum and Permanent Survey Marks
  - Approved Development Name and Stage Number
  - Approved Operational Works Number (OW/###/YYYY).

- Network connectivity or relationships with existing infrastructure must be shown. That is, where new assets connect to an existing network (e.g. stormwater, water, sewer) the locational details of these existing assets must be surveyed, including the invert levels of the connecting assets, with these details marked accordingly on the clean As-Constructed Plan(s).

- All individual pages to include "*Certification Text Blocks*" signed by <u>both</u> the registered engineer and surveyor who have a responsibility for the accuracy of the asset information and geometry data provided in the drawing(s).

- All As-Constructed drawings are to conform to Logan City Council's As-Constructed drawing standards as described in this document and found on Council's website by searching for "Standard Drawings".

9.3   Design Documentation and Reports

Documentation of approved design changes shall be included in the final as-constructed package. This should include any design decisions, reasoning and the approval process.

The design reports should include but not limited to:

- Design calculations
- Asset design life
- Asset design capacity
- Any design / load restrictions
- Residual risk or hazards that may be transferred to Council

The signed documentation shall be supplied digitally in text searchable PDF format.

9.4   Asset Manuals

The as-constructed handover package submitted at the on-maintenance stage shall include asset manuals for all assets such as WSUD's. The operational manual shall be a compilation of design, construction, commissioning, operational and maintenance information provided to facilitate the operation, maintenance, augmentation and modification of the asset.

The Asset Manual consists of several parts and sub-sections:

- Part A
    - o   Design Information
- Part B
    - o   Standard Operating Procedures
    - o   Vendor Manuals
    - o   Operating Manual
    - o   Maintenance Requirements

Unless directed otherwise, each part of the Asset Manual is to be provided both as a single text searchable pdf file and as the editable component files that were used to create the pdf file.

9.4.1   Responsibility for Asset Manual

For projects where the design and the construction were done as separate contracts, Part A shall be developed by the designer during the design phase of a project and Part B by the constructor during the construction phase and finalised upon completion of commissioning.

For projects provided through a combined design-and-construct contract (D&C), Part A shall be developed by the engaged design-and construct-contractor during the design phase of a project and Part B during the construction phase, finalised upon completion of commissioning.

9.4.2   Asset Manual Content

Typical requirements for the information content are detailed below. The asset manual shall contain all the information specified unless previously agreed with Council representatives.

Asset Manual Part A shall contain the following headings and information:

- Title Page, Table of Contents
- General Introduction (asset details, location, strategy, purpose of the project)
- Assets / asset system
- Operating Philosophy
- Functional Description / Specification for Control System
- Relevant Reports and Studies
- Design Operational and Alarm Levels (if required)
- Design Calculations
- Additional requirements stipulated at the design-approval stage

Asset Manual Part B shall contain the following headings and information:

- Title Page, Table of Contents
- Vendor manuals

- Factory Test Certificates

- Completed Inspection & Test Plans/Reports (ITPs)

- Commissioning Information

    o Test records and certificates (asphalt tests, electrical etc.)

    o Calibration certificates for instruments

    o Completed commissioning check sheets

    o Commissioning settings and performance test results (work sheets)

    o Warranties

- Operating Manual

- Maintenance Routines and recommended schedules

- Schedules of emergency spares for unusual or specialist installations

- Additional requirements stipulated at the design-approval stage

9.4.3 Vendor Manuals

Vendor Manuals (Equipment Manuals) shall be provided for all proprietary GPTs, electrical, mechanical, or digital equipment installed in the project.

The information to be supplied in text searchable PDF form includes, but is not limited to, the following (where applicable):

- Name of supplier

- Address and telephone numbers for service calls

- A full description of the equipment with a tabulation of dimensions and performance ratings

- A copy of the Technical Data Sheet supplied by the manufacturer; reliability data (MTBF, MTTR and Reliability Block Diagram) for each equipment type (where applicable)

- Instrument Data Sheets

- Principles of Operation – a basic working description, including novel features and any automatic control

- Installation and Commissioning Instructions – details of standards and procedures for mounting or erecting, wiring and lubricating the equipment

- Maintenance manuals

9.4.4 Operating Manual

The Operating Manual shall be site specific and include sufficient information for the operation of the asset in its entirety.

The information to be supplied in text searchable PDF form shall include, but not be limited to, the following (where applicable):

- Site specific asset operating procedures

- Acceptable ranges for operational control

- Equipment settings – final commissioned settings

9.4.5 Maintenance Requirements and Schedules

Maintenance schedules shall be developed for the routine maintenance of all proprietary equipment for which manufacturer or vendor maintenance recommendations exist. The schedules shall consist of a summarised table of the manufacturer-recommended preventative maintenance activities detailing the tasks, task frequency, and the spares and consumables required.

10. ADAC Asset Capture Guidelines

This section is intended to provide guidance on the capture of assets within the as-constructed file in a manner which is acceptable to Council. This section is intended for assets which are included in the ADAC schema.

The physical nature of assets will determine where/if assets are captured separately within the as-constructed file. For example, a pathway would be captured as individual and separate features to reflect any changes in physical properties, such as width or material type. Where possible, diagrams and images have been supplied in this document to assist in asset capture. The mandatory attribution specified below includes the minimum information Council requires to enter each asset type into the asset register. While attributes marked "Non Mandatory" are not required, it is preferable that this information be included (if known).

10.1 Project Attribution

For ADAC XML files, the following attribution is included as header-level information within the schema.

Attribute	Mandatory (Y/N)	Additional Information
ExportDateTime	Y	Should be auto-populated from the xml generating software.
Name	Y	Should be populated with a description of the project (and stage number for subdivisions)
Owner	N	This is not required to be provided at the project level, as it is a mandatory attribute for each feature
Receiver	Y	Will be **Logan City Council**
WorksApprovalID	Y	For developer contributed project, this will be Council's reference number. For Logan City Council capital works projects, this will be the internal project number(s).
DrawingNumber	Y	None
DrawingRevision	N	None
ConstructionDate	<u>Y</u>	<u>Must be populated for newly constructed assets</u>
HorizontalCoordinateSystem	Y	Must be **MGA56**
HorizontalDatum	Y	Must be **GDA2020**.
VerticalDatum	Y	Must be **AHD**.
IsApproximate	Y	Must be **False**

Attribute	Mandatory (Y/N)	Additional Information
OriginMark	N	Should be the primary Permanent Survey Mark used to tie Asset's coordinates to MGA Zone 56.
Notes	N	None
DrawingExtents - SouthWest	Y	Should never extend beyond: X: 479,000 m Y: 6,908,500 m
DrawingExtents – NorthEast	Y	Should never extend beyond: X: 530,000 m Y: 6,950,000 m
Description	Y	Typically the type of capture e.g. Civil works, Rehab works etc.
ProjectStatus	Y	Should be "**As Constructed**"
Software.Product	Y	Auto-populated from the XML generating software
Software.Version	Y	Auto-populated from the XML generating software
Surveyor.Name	Y	Name and Registration number of the Surveyor certifying the accuracy of the cadastral data
Surveyor.DateFinalSurvey	Y	Date that survey was made
Surveyor.DateApproved	Y	Date the certifying surveyor certified the data as correct
Engineer.Name	Y	Name and RPEQ number of the Engineer certifying the accuracy of the data as a whole
Engineer.DateApproved	Y	Date the certifying engineer certified the data as correct

10.2   Global Asset Attribution

The global asset attribution includes attributes which are common to all feature types in the ADAC schema.

Mandatory Attribution: The following attribution covered under the Global Types section of ADAC is mandatory for all assets:

Element Name	Mandatory (Y/N)	Additional Information
ADACId	**Y**	This will be used as part of Logan's data validation process to identify features which are non-compliant/incomplete. There is no naming/numbering convention defined except that all features within the file should be uniquely identified.
InfrastructureCode	Y	The code or number of an Infrastructure Charges Plan, any asset feature codes; any ETL software codes.
Owner	**Y***	This is a critical element within the XML, as defines the responsibility of the asset. Please note the Owner descriptions below.

Element Name	Mandatory (Y/N)	Additional Information
DrawingNumber	Y	The DrawingNumber field is only required to be populated against individual features where it differs to the information provided at the ADAC project level.
DrawingRevision	N	The DrawingRevision field is only required to be populated against individual features where it differs to the information provided at the ADAC project level.
ConstructionDate	**Y**	Must be populated for newly constructed assets.
Department	**Y** (Water Supply and Sewerage)	Refer to the SEQ Code AIS for details relating to Water Supply and Sewerage capture.
Surveyor	N	The Surveyor field is only required to be populated against individual features where it differs to the information provided at the ADAC project level.
Engineer	N	The Engineer field is only required to be populated against individual features where it differs to the information provided at the ADAC project level.
Status**	**Y**	This is a critical element within the as-constructed information. As it is what LCC uses to load new and dispose existing assets into the asset register. It is very important the removal of redundant assets is included in the XML file.
DataQuality***	**Y** (Water Supply and Sewerage)	Refer to the SEQ Code AIS for details regarding Survey tolerances and Confidence levels.
Notes	N	Should be used to record any additional information regarding the asset, or to record attribute information which isn't available within the defined enumerations in the ADAC schema.
SupportingFiles	N	

*The **Owner** element is an additional mandatory requirement for LCC and will be used to identify the ownership of the asset. Although within the schema the entry is free text, LCC have defined the following acceptable values.

LCC Owner (Road, Drainage and Open Space)	Water Supply and Sewerage Owner (SEQCode AIS defined)	Description
Council	LCC	Asset management is the responsibility of Council.
Private	P	Asset management is the responsibility of Property Owner, Gated Community or other private entity.
State	SEQ	Asset management is the responsibility of a State Government Department.

**At the individual Asset Level, the "Status" field is both critical and mandatory with the following applicable values only to be used. Please note the description for each of the permissible "Status" types.

Status	Description
Newly Constructed	Newly constructed asset being passed to receiving entity
Designed	Future asset described as a design
Existing	Existing asset described as encountered
Planned	Future asset prior to detailed design
Rehabilitated	Existing asset repaired, refitted or refurbished as part of works project.
Removed	Previously existing asset described as it was prior to removal
Retired	Pre-existing asset no longer in use, but left in-situ.

*** DataQuality is mandatory for all subsurface information and must conform to the Australian Standard AS5488 with the inclusion of an APlus rating. Details of each rating are as follows:

AS5488 Quality Level	Information Sources/Survey Requirements	X/Y Tolerance	Z Tolerance
D	Existing Records, cursory site inspection, anecdotal Evidence	N/A	N/A
C	As for D plus Site Survey of visible evidence that may use relative or absolute positioning	±300mm	N/A
B	As for C, but must include a survey of both the surface and buried features. Buried features of existing infrastructure may be carried out by no-dig survey techniques	±300mm	±500mm
A	Positive identification of attributes and the absolute location of subsurface and surface features in three dimensions	±50mm	±50mm
A+	Positive identification of attributes and the absolute location of subsurface features in three dimensions	±50mm	±10mm

The **ADACId** element is mandatory as it will be used as part of the LCC data validation process to identify features which are non-compliant / incomplete. There is no naming/numbering convention defined for the ADACId, except that all features within the file should be uniquely identified.

The LCC validation process only accepts file names with alphanumeric, underscore or dash values. Special characters such as ~ ! @ # $ % ^ & * ( ) ` ; < > ? , [ ] { } ' " | may fail validation and be returned to the lodging entity for correction.

10.3   Cadastre Assets

10.3.1 Cadastre Connection

Asset Capture: Simple linear feature capturing the cadastral boundary connections as determined by survey methods and the acknowledged permanent survey marks.

Spatial Relationship: Must be coincident to the vertices that define the Cadastre Lot boundary features and relevant permanent survey marks.

Mandatory Attribution: The following attribution is mandatory for *Cadastral Connections*:

Element Name	Mandatory (Y/N)
Bearing	Y
Distance_m	Y

10.3.2 Easement

Asset Capture: Multi-patched area feature (polygon) representing a new or existing Easement.

Spatial Relationship: May share boundaries with Water Course Reserve, Lot Parcels or Road Reserve. Node points between shared boundaries must be coincident e.g. no overlaps or "slivers".

Mandatory Attribution: The following attribution is mandatory for *Easements*:

Element Name	Mandatory (Y/N)
LotNo	Y
PlanNo	Y
Type	Y

10.3.3 Lot Parcels

Asset Capture: Multi-patched area feature (polygon) representing the boundary of a titled or proposed Cadastral Lot.

Spatial Relationship: May share boundaries with RoadReserves, WaterCourses or Easements. Node points between shared boundaries must be coincident e.g. no overlaps or "slivers".

Mandatory Attribution: The following attribution is mandatory for *Lot Parcels*:

Element Name	Mandatory (Y/N)
LotNo	Y
PlanNo	Y
CancelledLotPlan	N
TitledArea_sqm	Y

10.3.4 Road Reserve

Asset Capture: Multi-patched area feature (polygon) representing a gazetted or soon to be gazetted Road reserve boundary.

Spatial Relationship: May share boundaries with Water Course Reserve, Lot Parcels, other Road Reserve or Easements. Node points between shared boundaries must be coincident e.g. no overlaps or "slivers".

Mandatory Attribution: The following attribution is mandatory for *Road Reserves*:

Element Name	Mandatory (Y/N)
Name	Y

10.3.5 Survey Mark

Asset Capture: Simple point feature representing a Permanent Survey Mark.

Spatial Relationship: May be used in a Cadastral Connection (as in lot parcels, noted above).

Mandatory Attribution: The following attribution is mandatory for *Survey Marks*:

Element Name	Mandatory (Y/N)
MarkName	Y

10.3.6 Water Course Reserve

Asset Capture: Multi-patched area feature (polygon) representing the boundary of a Water Course reserve.

Spatial Relationship: May share boundaries with Road Reserves, Lot Parcels or Easements. Node points between shared boundaries must be coincident e.g. no overlaps or "slivers".

Mandatory Attribution: The following attribution is mandatory for *Water Course Reserves*:

Element Name	Mandatory (Y/N)
Name	Y

10.3.7 Chainage Line

Asset Capture: Simple linear feature representing a Chainage line for the physical sealed road that may form part of Councils Road Centreline dataset. Polyline shape is only an approximation of a true curve geometry, but the start and end points should coincide exactly with the actual start and end chainage constructed. The Polyline should start at the higher order road and / or continue in the direction of planned project construction and staging. Total chainage is to correspond with the pavement length.

Figure 7 – Example of chainage line polyline

Spatial Relationship: Feature must be totally within the Pavement feature.

Mandatory Attribution: The following attribution is mandatory for *Chainage Line*:

Element Name	Mandatory (Y/N)
ChainageID	Y
StartChainage_m	Y
EndChainage_m	Y

10.4   Open Space Assets

10.4.1 Open Space Functional Area

General information: Examples include public parks, recreational and environmental reserves.

Asset Capture:	Multi-patched area featuring representing the complete "footprint" of the Open Space area which may enclose other associated Open Space Assets. Refer to the Red dashed polyline in **Figure** *8*.

Figure 8 - Typical example of Open Space ADAC data capture

Spatial Relationship:	Not Applicable.
Mandatory Attribution:	The following attribution is mandatory for *Open Space Areas*:

Element Name	Mandatory (Y/N)
Name	Y
Type	Y

Positional Accuracy:	The minimum accepted horizontal accuracy for *Open Space Functional Area* is **± 1m.**

10.4.2 Activity Area

General Information:	Examples include: Sports Fields, Courts, Playgrounds and Animal Agility Areas.
Asset Capture:	Multi-patched area feature (polygon) representing different activity areas. For playgrounds, this will often align with the soft fall boundaries. For animal agility areas, this will often align with the fencing surrounding the area. For sports fields and courts, this will often align with the marked boundaries of the area, or the edge of the material. Please refer to the dashed yellow line in the example shown below in **Figure 9** representing activity areas for dedicated purposes.

For sports fields, line marking <u>does not</u> need to be represented within the as-constructed data.

Figure 9 - Activity Area

Spatial Relationship: Feature must be totally within the Parent Open Space Activity Area feature.

Mandatory Attribution: The following attribution is mandatory for *Activity Areas*:

Element Name	Mandatory (Y/N)
Use	Y
Type	Y
Material	Y
Thickness_mm	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Activity Area* is **± 1m**

10.4.3 Activity Point

General Information: Includes individual pieces of playground, fitness, animal agility or sports equipment.

Asset Capture: Simple point feature representing individual activity assets that typically fall within an Activity Area. Playground modules should be represented as a single feature, located by its approximate centre point. Please refer to the yellow dots in the example shown in **Figure 9** above.

Spatial Relationship: Should typically fall within a defined Activity Area feature.

Mandatory Attribution: The following attribution is mandatory for *Activity Points*:

Element Name	Mandatory (Y/N)
Use	Y
Type	Y
Material	Y
Theme	N

Element Name	Mandatory (Y/N)
Units	Y
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Activity Points* is **± 1m.**

10.4.4 Artwork

General Information: Includes Entry Statements, Memorials, Monuments, Plaques, Sculptures & Statues.

Asset Capture: Simple point feature representing the centre of an asset.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Artwork*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
ArtistName	Y*

* Additional mandatory requirement for LCC

Positional Accuracy: The minimum accepted horizontal accuracy for *Artwork* is **± 1m.**

10.4.5 Barbeque

General Information: Represents an individual public barbeque which may be a single or multi-plate unit. Refer to **Figure 10** and **Figure 11** below.

Asset Capture: Simple point feature representing the centre of the barbeque. The slab the barbeque is installed on is considered part of the asset and does not need to be separately captured. Any hot water units, taps, lighting or shelters associated with the barbeque should be captured as separate features.

Figure 10 - Typical example of a single BBQ

Figure 11 - Typical example of a double BBQ

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Barbeques*:

Element Name	Mandatory (Y/N)
EnergySource	Y
Plates	Y
SurroundingMaterial	Y
TopMaterial	Y
Manufacturer	Y
ModelNumber	Y

Disability Access (recorded as "true" or "false") is to be recorded in the Notes element.

Positional Accuracy: The minimum accepted horizontal accuracy for *Barbeques* is **± 1m**

10.4.6 Barrier Continuous

General Information: Includes fences, bollard runs, pedestrian fall protection and gates.

Asset Capture: Complex linear feature (polylines including curves but not bézier curves) representing a barrier type asset. Please refer to the dashed yellow line in the example shown below in **Figure 12** below.

When capturing gates, please specify the gate configuration in the **Notes** field. Gate configurations include:

- Single
- Double
- Boom Gate
- Sliding / Roller

| Spatial Relationship: | Features must be within or coincident with the boundary of the Open Space Functional Area feature. |

Figure 12 - Complex linear feature (polyline including curves)

Mandatory Attribution: The following attribution is mandatory for *Barrier Continuous*:

Element Name	Mandatory (Y/N)
Type	Y
UprightMaterial	Y
LinkMaterial	Y
TopMaterial	Y
Length_m	Y
Height_m	Y
UprightNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Barrier Continuous* is **± 1m**

10.4.7 Barrier Point

General Information: Includes bollards and locking posts.

Asset Capture: Simple point feature representing the centre of an asset. Road guide posts are not to be captured as Barrier Points (not captured by Logan City Council).

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Barrier Points*:

Element Name	Mandatory (Y/N)
Type	Y
UprightMaterial	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Barrier Points* is of **± 1m**

10.4.8 Bicycle Fitting

General Information: An individual fitting for the use or safety of cyclists.

Asset Capture: Simple point feature representing the centre of a bicycle fitting. Any slab the
                        bicycle fitting is installed on is considered part of the asset and does not need to
                        be captured separately.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Bicycle Fittings*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Bicycle Fitting* is **± 1m**.

10.4.9 Boating Facility

General Information: Refers to assets that have an association with boating.

Asset Capture: Area feature representing an individual boating facility such as a pontoon, ramp
                        or jetty.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Boating Facilities*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Boating Facilities* is **± 1m**.

10.4.10 Building

General Information: Includes arbours, amenities, bandstands, amphitheatres, toilet blocks, sheds,
                        grandstand / open seating etc.

Asset Capture: Area feature (closed polygon) representing the vertical Building footprint for a
                        structure other than a shelter. For amenities, toilet blocks, shed and major

buildings, please refer to building sub-component data in Section **11.4.1** Building Sub-Component – Non Spatial.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Buildings*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Buildings* is **± 1m**

10.4.11 Edging

General Information: Represents the Edging of an Activity Area or Landscape Area (Examples include: Sports Fields, Courts, Playgrounds, Animal Agility Areas, garden beds and hedges).

Asset Capture: Complex linear feature (polylines including curves but not bézier curves) representing the edging material.

Spatial Relationship: Must be coincident with an Activity or Landscaping Area feature.

Mandatory Attribution: The following attribution is mandatory for *Edging*:

Element Name	Mandatory (Y/N)
Material	Y
Length_m	Y
Width_mm	Y

Positional Accuracy: The minimum accepted horizontal accuracy for Edging is ± 1m

10.4.12 Electrical Conduit

General Information: Represents an Electrical / Communication Conduit

Asset Capture: Complex linear feature (polylines including curves but not Bezier curves) representing an electrical / communication conduit.

Spatial Relationship: Conduit to be shown as a polyline starting and finishing at coincident points with terminating fittings.

Mandatory Attribution: The following attribution is mandatory for Electrical Conduits:

Element Name	Mandatory (Y/N)
Type	Y

Element Name	Mandatory (Y/N)
Material	Y
Diameter_mm	Y
Length_m	Y
Protection	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Electrical Conduit* is **± 1m.**

10.4.13 Electrical Fittings

General Information: Includes Pits, Poles, Power Outlets and Switchboards.

Asset Capture: Simple point feature representing the centre of each asset. For light assets, it is to be captured as Light. Refer to Non-ADAC asset types in Section **11.3.1** Light.

Spatial Relationship: Shown coincident to supply conduit runs where applicable.

Mandatory Attribution: The following attribution is mandatory for *Electrical Fitting*:

Element Name	Mandatory (Y/N)
Type	Y
Base	Y
Material	Y
EnergySource	Y
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Electrical Fitting* is **± 1m.**

10.4.14 General Fixture

General Information: Includes Dog Bag Dispensers, Goal Posts, Planter Boxes, Flag Poles and Scoreboards.

Asset Capture: Simple point feature representing the centre of an asset. Dog bag dispensers attached to a pole do not require the pole to be separately captured. Fish Cleaning Stations include any lighting, taps and slabs associated with it and these do not need to be captured separately.

        For the asset capture of Dog Bowls, Drinking Fountains, Water Fountains, Hot Water System, Showers and Taps, refer to Service Fitting located within Asset Element **Water Supply**.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Fixtures*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for General *Fixture* is **± 1m**.

10.4.15 Landscape Area

General Information: None.

Asset Capture: Multi-patched area feature representing the "footprint" of a landscaped area. Individual areas are required where the type of Landscaping changes (e.g. garden beds, enclosed shrubs, physical protection around mature trees).

Spatial Relationship: Must be within the Parent Open Space Area feature.

Mandatory Attribution: The following attribution is mandatory for *Landscape Areas*:

Element Name	Mandatory (Y/N)
Type	Y
Irrigated	Y
RootBarrier	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Landscape Area* is **± 1m**

10.4.16 Retaining Wall

General Information: Includes Retaining Wall.

Asset Capture: Complex linear feature (polylines including curves but not bézier curves) representing a retaining wall. While recognised as a three-dimensional object, the retaining wall is typically captured as a linear course where the wall intersects the ground. **Figure 13** shows the capture location of a new retaining wall (red hatched). Where the retaining wall gradually changes height over its length, the height is to be taken from the highest point of the wall. Changes in the retaining wall material must be represented as a separate feature as per the (blue dashed line).

The following information is to be provided in the **Notes** field:

- Certified – enumeration value Yes or No

Figure 13 - Example of Retaining Wall

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Retaining Walls*:

Element Name	Mandatory (Y/N)
Use	Y
Material	Y
Construction	Y
Length_m	Y
Height_m	Y

Positional Accuracy: For *Retaining Walls* located at or adjacent to road corridors or road reserves, the minimum accepted horizontal accuracy is **± 50mm** the minimum vertical accuracy is **± 10mm.** Otherwise, the minimum accepted horizontal accuracy for *Retaining Walls* is **± 1m.**

10.4.17 Seat

General Information: None.

Asset Capture: Simple point feature representing the centre of a seat. All of the seating associated with a table are not to be captured separately. Any slab the seat is installed on is considered part of the asset and does not need to be captured separately. Refer to **Figure 14 , 15** and **16** below for typical seat types.

Figure 14 - Typical Bench with Back Seat

Figure 15 - Typical Bench Seat

Figure 16 - Typical Platform Seat

<u>Spatial Relationship:</u>   Not applicable.

<u>Mandatory Attribution:</u>   The following attribution is mandatory for *Seats*:

Element Name	Mandatory (Y/N)
SeatType	**Y**
Places	**Y**
Material	**Y**
Manufacturer	**Y**
ModelNumber	**Y**

Positional Accuracy: The minimum accepted horizontal accuracy for *Seats* is **± 1m**.

10.4.18 Shelter

General Information: None.

Asset Capture: Polygon feature representing the footprint of a shelter. Any lighting, tables, seats or barbeques located underneath the shelter are to be captured as separate assets. Shade sails which share a common pole should be treated as the one feature. Poles associated with shade sails / shelters do not need to be captured separately. Any slab the shelter is installed on is considered part of the asset and does not need to be captured separately.

Given the unique design of many shelters, photos should be included in the as-constructed package.

Although the ADAC schema allows for a point feature of a shelter, LCC will only accept polygon feature.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Shelters*:

Element Name	Mandatory (Y/N)
Type	Y
ConstructionType	Y
FloorMaterial	Y
WallMaterial	Y
RoofMaterial	Y
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for Shelters is ± 1m.

10.4.19 Sign

General Information: Open Space related signage only.

Asset Capture: Simple point feature representing the centre of the sign. Poles associated with signs do not need to be captured / recorded separately. Number of signs, supports and poles including the area of signage in square metres, a description of Luminaire and if a Remote connection is present is to be recorded in the Notes element.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Signs*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Manufacturer	Y
ModelNumber	N
Base Type	Y
SignText	N
PostNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Signs* is **± 1m.**

10.4.20 Table

General Information: None.

Asset Capture: Simple point feature representing the centre of a table. Tables with associated seating do not require the seating to be captured separately. Refer to **Figure 17** for typical table with bench seats.

Figure 17 - Typical Table with Bench Seat

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Tables*:

Element Name	Mandatory (Y/N)
Type	Y
Seating.SeatType	Y (if exists)
Seating.Places	Y (if exists)
Material	Y

Element Name	Mandatory (Y/N)
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Tables* is ± 1m.

10.4.21 Tree

General Information: None.

Asset Capture: Simple point feature representing the centre of the tree.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Trees*:

Element Name	Mandatory (Y/N)
Species	Y
Genus	Y
RootBarrier	Y
Grate	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Trees* is **± 1m.**

10.4.22 Waste Collection Point

General Information: Includes any poles, stands or enclosures associated with a bin.

Asset Capture: Simple point feature representing the centre of the asset. Surface and Structure are to be recorded in the Notes element.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Waste Collection Points*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Bin Type	Y*
Capacity	Y*

* Additional mandatory requirement for LCC

Positional Accuracy: The minimum accepted horizontal accuracy for *Waste Collection Points* is ± 1m.

10.5   Stormwater Assets

10.5.1 End Structure

General Information: Represents a stormwater headwall / end wall.

Asset Capture: Simple point feature representing the top of the headwall. Refer to **Figure 18**. Fences surrounding the end structure should be captured separately as *Barrier Continuous*.

LCC will accept default values (e.g. "999" or "0") being input against fields that are mandatory in the ADAC Schema.

Wing Wall - Set to nil if the End Structure does not have an end wall

Although the ADAC schema allows for a complex linear feature (polylines) of an end structure, LCC will only accept point feature.

Figure 18 - End Structure Headwall

Spatial Relationship: Should be coincident to end point of a stormwater pipe.

Mandatory Attribution: The following attribution is mandatory for *End Structures*:

Element Name	Mandatory (Y/N)
StructureID	**Y**
StructureLevel_m	**Y**
EndWall.Type	**Y** *(if Endwall exists)*
EndWall.Size	**Y** *(if Endwall exists)*
EndWall.Length_m	**Y** *(if Endwall exists)*
EndWall.Height_m	**Y** *(if Endwall exists)*
EndWall.Thickness_m	**Y** *(if Endwall exists)*
EndWall.Material	**Y** *(if Endwall exists)*
EndWall.Construction	**Y** *(if Endwall exists)*
WingWall.LWW_Length_m	**Y** *(if Wingwall exists)*
WingWall.LWW_Height_m	**Y** *(if Wingwall exists)*
WingWall.LWW_Thickness_m	**Y** *(if Wingwall exists)*
WingWall.LWW_Material	**Y** *(if Wingwall exists)*
WingWall.LWW_Construction	**Y** *(if Wingwall exists)*

Element Name	Mandatory (Y/N)
WingWall.RWW_Length_m	**Y** *(if Wingwall exists)*
WingWall.RWW_Height_m	**Y** *(if Wingwall exists)*
WingWall.RWW_Thickness_m	**Y** *(if Wingwall exists)*
WingWall.RWW_Material	**Y** *(if Wingwall exists)*
WingWall.RWW_Construction	**Y** *(if Wingwall exists)*
Apron.Apron_Width_m	**Y** *(if Apron exists)*
Apron.Apron_Thickness_m	**Y** *(if Apron exists)*
Apron.Apron_Area_m2	**Y** *(if Apron exists)*
Apron.Apron_Material	**Y** *(if Apron exists)*
Apron.Apron_Construction	**Y** *(if Apron exists)*
GrateType	Y
TideGate	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *End Structures* is **± 50mm** and the minimum vertical accuracy is **± 10mm**.

10.5.2 End Structure Polyline

Note: End Structure Polylines are not to be recorded in ADAC XML submissions for LCC. End Structure (as a point feature detailed above) is to be used instead.

10.5.3 Fitting

General Information: Represents a stormwater end cap or fitting.

Asset Capture: Single point feature representing the centre point of the fitting.

Spatial Relationship: Must be coincident to the end point a Stormwater pipe feature.

Mandatory Attribution: The following attribution is mandatory for *Fittings*:

Element Name	Mandatory (Y/N)
FittingType	Y
Rotation	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Fittings* is ± 50mm and the minimum vertical accuracy is ± 10mm.

10.5.4 Flow Management Device

General Information: Represents a Flow Management Device. This is often called a Stormwater Quality Improvement Device (SQID). Levee, Spillway and Weir are a type of stormwater flow management device.

Asset Capture: Complex linear feature. To be represented as a polyline feature comprising of straight line segments (read: no curves).

Mandatory Attribution: The following attribution is mandatory for *Flow Management Device:*

Element Name	Mandatory (Y/N)
Sqid_Id	Y
Type	Y
Material	Y
Length_m	Y
CrestElevation_m	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Flow Management Device* is ± 50mm and the minimum vertical accuracy is **± 10mm.**

10.5.5 GPT Complex

General Information: Gross Pollutant Trap (GPT) - Complex Commercial or Custom built devices (e.g. Humes Interceptor).

Asset Capture: Single point feature located at the centre of chamber on the top surface. Capturing centre of lid is appropriate only when the lid is centred over the chamber.

Spatial Relationship: GPT Complex assets must be coincident to pipe features as per Pit features.

Mandatory Attribution: The following attribution is mandatory for *GPT Complex*:

Element Name	Mandatory (Y/N)
Sqid_Id	**Y**
Construction.Commerical.Manufacturer	**Y** (*if a commercial item*)
Construction.Commerical.ModelNumber	**Y** (*if a commercial item*)
Construction.Commerical.Size.Rectangular.Length_mm	**Y** (*if commercial and rectangular*)
Construction.Commerical.Size.Rectangular.Width_mm	**Y** (*if commercial and rectangular*)
Construction.Commerical.Size.Circular.Diameter_mm	**Y** (*if commercial and circular*)

Element Name	Mandatory (Y/N)
Construction.Custom.Size.Rectangular.Length_mm	**Y** *(if custom and rectangular)*
Construction.Custom.Size.Rectangular.Width_mm	**Y** *(if custom and rectangular)*
Construction.Custom.Size.Circular.Diameter_mm	**Y** *(if custom and circular)*
Function1	**Y**
Function2	**N**
Function3	**N**
US_PipeDiameter_mm	**N**
DS_PipeDiameter_mm	**N**
SurfaceLevel_m	**Y**
US_InvertLevel_m	**Y**
DS_InvertLevel_m	**Y**
CleanoutLevel_m	**Y**
Depth_m	**N**
SumpDepth_m	**N**
HasFilterMedia	**Y**
HasBasket	**Y**
HasBoards	**Y**
DesignFlow_m3s	**Y**
MaxContaminantVolume_m3	**Y**
MaxInternalVolume_m3	**N**
MaintenanceCycle_mnths	**Y**
Rotation	**N**

Positional Accuracy: The minimum accepted horizontal accuracy for *GPT Complex* is ± 50mm and the minimum vertical accuracy is **± 10mm**.

10.5.6 GPT Simple

General Information: Represents a Water Sensitive Urban Design point feature that is a simple grate, basket or net fitting to existing infrastructure.

Asset Capture: Point feature is to represent the centre of asset which is situated inside of a Pit or End Structure feature.

Spatial Relationship: GPTSimple features must correlate with Pit features as they are housed within those structures and can be removed for maintenance purposes.

Mandatory Attribution: The following attribution is mandatory for *GPT Simple SQIDs*:

Element Name	Mandatory (Y/N)
Sqid_Id	Y
Construction	Y
Manufacturer	Y
ModelNumber	Y
TreatmentMeasure	Y
Function1	Y
Length_mm	Y
Width_mm	**Y** *(if rectangular)*
Material	**N**
MaintenanceCycle_mnths	Y
Rotation	**N**

Positional Accuracy: The minimum accepted horizontal accuracy for *GPT Simple* is ± 50mm and the minimum vertical accuracy of **± 10mm.**

10.5.7 Non GPT Simple

General Information: Represents a WSUD point feature that is not a simple litter trap, such as a small sand filter, sediment pond, aquifer storage, and infiltration measure or energy dissipater.

Asset Capture: Single point feature located at the centre of asset. Non GPT Simple assets represent basic and minor sand filtration storage.

Spatial Relationship: Non GPT Simple assets must be coincident to pipe features as per Pits features.

Mandatory Attribution: The following attribution is mandatory for *Non GPT Simple SQIDs*:

Element Name	Mandatory (Y/N)
Sqid_Id	Y
Construction	Y
Manufacturer	Y
ModelNumber	Y
TreatmentMeasure	Y
Function1	Y
Function2	**N**
Function3	**N**
Length_mm	Y
Width_mm	**Y** *(if Rectangular)*

Element Name	Mandatory (Y/N)
MaintenanceCycle_mnths	Y
Rotation	N

Positional Accuracy: The minimum accepted horizontal accuracy for *Non GPT Simple* is **± 50mm** and the minimum vertical accuracy is **± 10mm**.

10.5.8 Pipe

General Information: Stormwater drainage pipe between pits and pipes (ie culverts) between end structures

Asset Capture: A simple linear feature representing the invert of the pipe or midpoint of a box asset. Multiple-celled culverts & pipes should always be represented individually; therefore the number of cells attribute should always be "1". Line direction should be enforced from gravity flow or gravity direction. Pipe features are captured from the intersection of pipe material and chamber wall.

Figure 19 represents a single-celled pipe asset where vertices one and four represent the maintenance hole capture and vertices two and three are the intersection of the Pipe material and the chamber wall.

Figure 20 represents an irregular shaped pit with multiple multi-celled pipes entering the pit asset and a large single-celled asset exiting the pit with an outlet through an End Structure.

Figure 21 represents a multiple cell pipe/culvert arrangement. In this arrangement each cell is to be captured as a single linear feature from centre of end structure vertices one to centre of end structure vertices two.
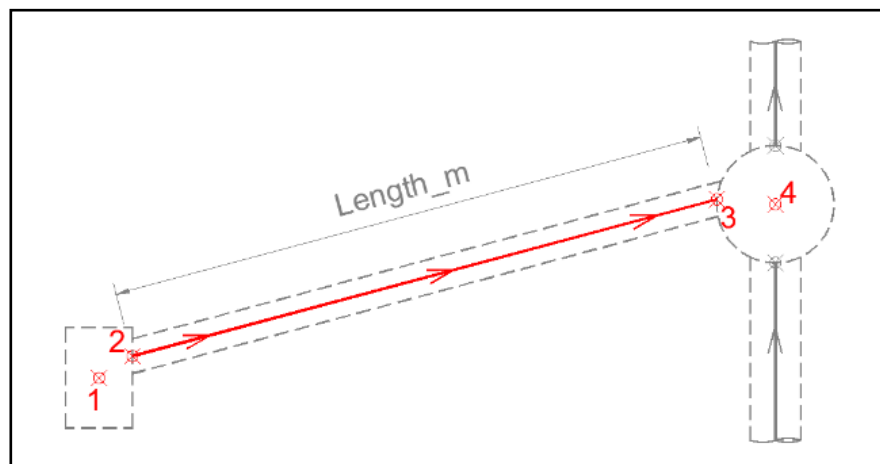
Figure 19 - Stormwater Pipe - Single-celled pipe
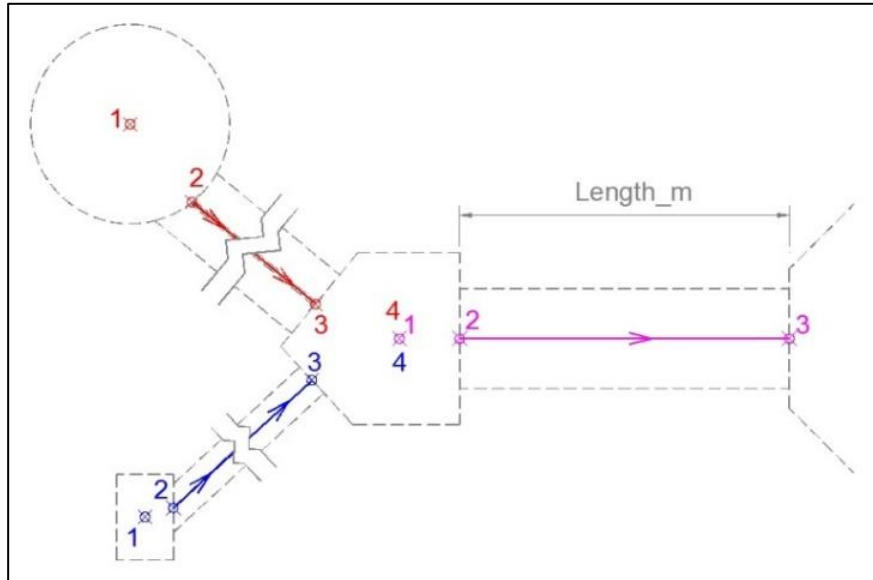
F*igure 20 - Stormwater Pipe - Irregular shaped pit with multi-celled pipes*
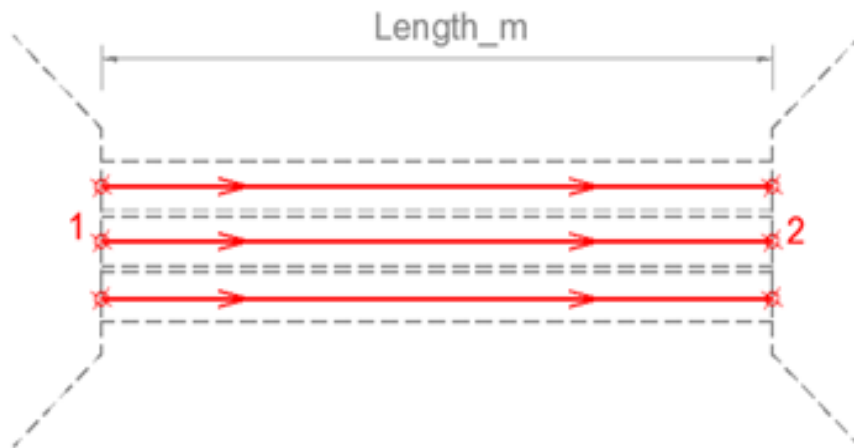
Figure 21 - Stormwater Pipe - Multiple cell pipe/culvert arrangement

Spatial Relationship: May be coincident to Stormwater point features.

Mandatory Attribution: The following attribution is mandatory for *Pipes*:

Element Name	Mandatory (Y/N)
US_InvertLevel_m	Y
DS_InvertLevel_m	Y
US_SurfaceLevel_m	Y
DS_SurfaceLevel_m	Y
PipeStructure.CircPipe.Diameter_mm	Y *(if circular)*
PipeStructure.CircPipe.Material	Y *(if circular)*
PipeStructure.CircPipe.Class	Y *(if circular)*
PipeStructure.CircPipe.JointType	Y *(if circular)*
PipeStructure.BoxPipe.Height_mm	Y *(if box)*

Element Name	Mandatory (Y/N)
PipeStructure.BoxPipe.Width_mm	**Y** *(if box)*
PipeStructure.BoxPipe.Material	**Y** *(if box)*
No of Cells	**Y**
ConcreteCoverType	**Y**
Grade	**N**
Length_m	**Y**

Positional Accuracy: The minimum accepted horizontal accuracy for *Pipes* is ± 50mm and the minimum vertical accuracy is **± 10mm.**

10.5.9 Pit

General Information: None.

Asset Capture: To be captured and represented as a "point" located at the centre of grate/chamber. The StructureID as shown in the design drawing must be provided in the PitNumber element. Refer to **Figure 22** the below matrix and for common pit types & the attribution required.
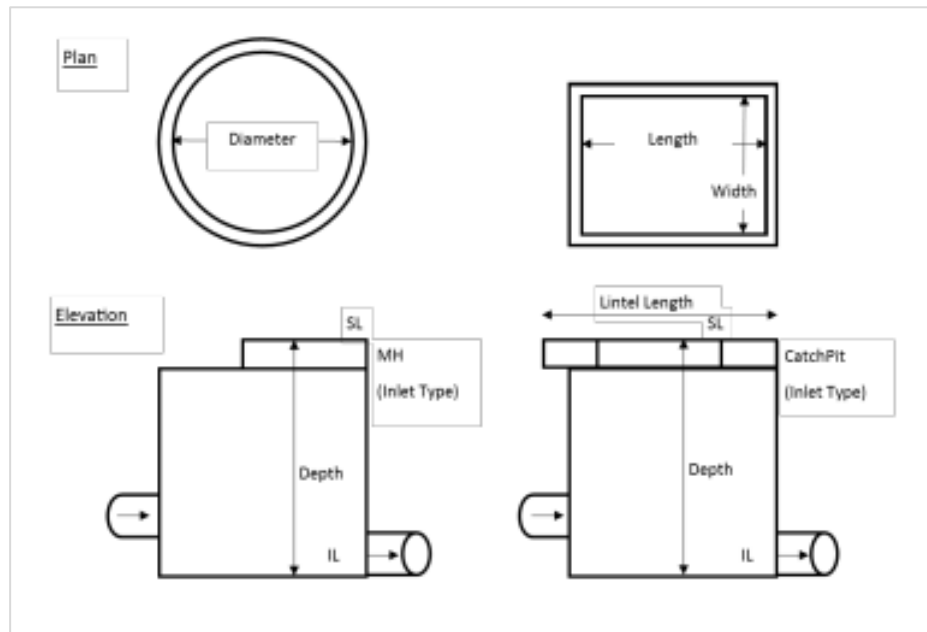
Figure 22 -Example of common pit types

Pit Type	Use	Attribute	Mandatory (Y/N)
Maintenance Hole	Maintenance Hole	LidType	Y
		Inlet	N
		Lintel	N
	Roofwater Inspection Chamber	LidType	Y
		Inlet	N
		Lintel	N
Gully Pits	Pit	LidType	N
		Inlet	Y
		Lintel	Y
Field Inlets	Pit	LidType	N
		Inlet	Y
		Lintel	N
All Others	Pit	LidType	N
		Inlet	N
		Lintel	N
	Roofwater Outlet	LidType	N
		Inlet	N
		Lintel	N

Note: *For Gully Pits – Kerb Inlet is to be recorded in Notes Element. For Field Inlets – Field Inlet is to be recorded in Notes Elements. The Dimensions of Rectangular, Circular or Extended relate to the Chamber size with the Inlet.InletSize populated with the size of the grate when applicable.*

Spatial Relationship: May be coincident with a GPTSimple feature.

Mandatory Attribution: The following attribution is mandatory for *Pits*:

Element Name	Mandatory (Y/N)
PitNumber	Y
Use	Y
ChamberConstruction	Y
ChamberSize.Rectangular.Length_mm	Y *(if rectangular)*
ChamberSize.Rectangular.Width_mm	Y *(if rectangular)*
ChamberSize.Circular.Diameter_mm	Y *(if circular)*
ChamberSize.Extended.Radius_mm	Y *(if extended)*
ChamberSize.Extended.Extension_mm	Y *(if extended)*
LidType	Y *(if Use = Maintenance Hole or Roofwater Inspection Chamber)*
SurfaceLevel_m	Y

Element Name	Mandatory (Y/N)
InvertLevel_m	Y
Depth_m	Y
Inlet.InletConfig	**Y** *(if Use = Kerb Inlet or Field Inlet)*
Inlet.InletType	**Y** *(if Use = Kerb Inlet or Field Inlet)*
Inlet.InletSize	**Y** *(if Use = Kerb Inlet or Field Inlet)*
Lintel.LintelConstruction	**Y** *(if Use = Kerb Inlet)*
Lintel.LintelLength_m	**Y** *(if Use = Kerb Inlet)*
OutletType	Y
FireRetardant	Y
Rotation	N

Positional Accuracy: The minimum accepted horizontal accuracy for *Pits* is **± 50mm** and the minimum vertical accuracy is **± 10mm**.

10.5.10 Surface Drain

General Information: None.

Asset Capture: Simple linear feature (read: polylines with no curves) representing the midpoint between batters/invert of channel and in direction of water flow. Surface Drains are to be captured based on their physical and spatial properties and attributes. For example, if a surface changes size, material, shape etc. then it must be broken and captured separately**.**

Figure 23 indicates the capture of a major surface drain as well as a smaller surface drain feeding into it. The main surface drain has been broken into separate features where the main changes of width occur. The smaller surface drain ends at the intersection of the main surface drain's outer edge.
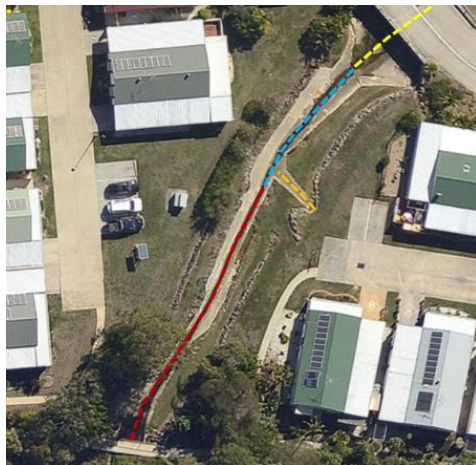
Figure 23 - Major Surface Drain

Figure 24 below indicates where to collect the width of the channel for different channel configurations and materials.
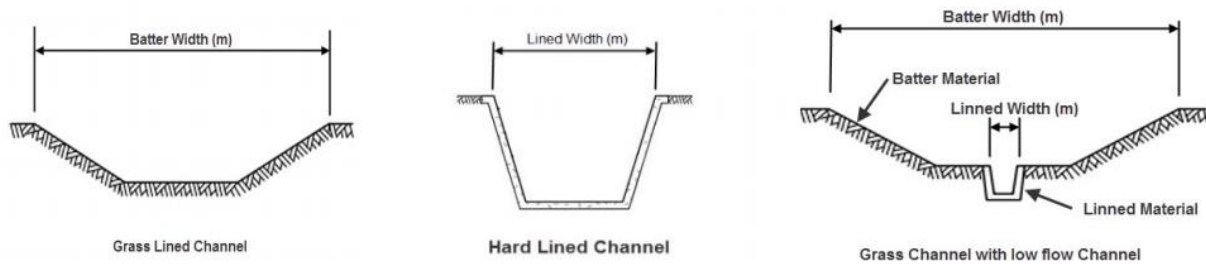
Figure 24 - Width collection for different surface drain types

Spatial Relationship: May be coincident to End Structures and WSUD regions/polygons.

Mandatory Attribution: The following attribution is mandatory for *Surface Drains*:

Element Name	Mandatory (Y/N)
Type	Y
DrainShape	Y
LiningMaterial	Y
LinedWidth_m	Y
BatterMaterial	Y
BatterWidth_m	Y
US_InvertLevel_m	Y
DS_InvertLevel_m	Y
AverageGrade	N
Length_m	Y

Note. *LowFlowChannel (recorded as "true" or "false") as well as CrossSectionalArea_m2, AverageDepth_m is to be recorded in the Notes element.*

Positional Accuracy: The minimum accepted horizontal accuracy for *Surface Drains* is **± 50mm**.

10.5.11 WSUD Areas

General Information: Represents a Water Sensitive Urban Design (WSUD) area feature. Also often called a StormWater Quality Improvement device (SQID). Water Sensitive Urban Design (WSUD) areas also include such assets as kerbside bio-filtration beds or purpose built drainage swales.

Asset Capture: Multi-patch region/polygon feature representing the ponding area of the asset. Individual areas are to be recorded within the ADAC data capture fields defining class type (e.g swale, buffer strip, bio-retention basin). Any associated infrastructure with the WSUD (e.g. vehicle accesses, fences, gates, etc.) should be captured separately. ***Figure 24 below illustrates*** *the capture of a WSUD area (Blue) and Filter Media area (orange).*
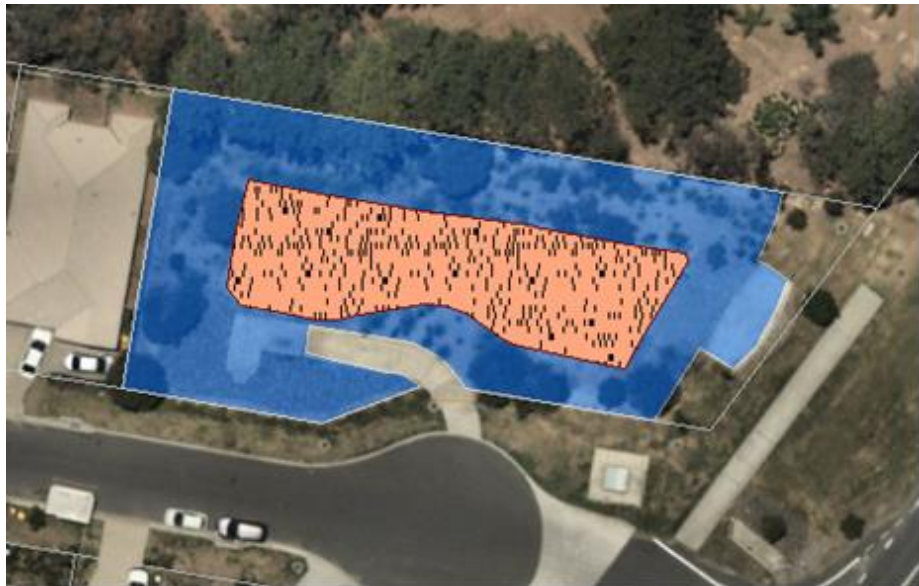
Figure 25 – Spatial representation of a WSUD Complex (blue polygon) and Filter Media area (orange polygon)

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for *WSUD Areas*:

Element Name	Mandatory (Y/N)
Sqid_Id	Y
TreatmentMeasure	Y
Function1	Y
Function2	N
Function3	N
PondingArea_m2	N
PondingDepth_m	N
FilterArea_m2	Y
FilterDepth_m	N
TransitionDepth_m	Y
DrainageDepth_m	Y
MacrophyteZoneArea_m2	Y
MacrophyteZoneDepth_mJ	N
CoarseSedimentArea_m2	N
SedimentVolume_m3	Y
MinSurfaceLevel_m	Y
PermanentPondLevel_m	Y
OutletLevel_m	Y
DesignFlow_m3s	Y

Element Name	Mandatory (Y/N)
HasSpillway	Y
MaintenanceCycle_mnths	N

Positional Accuracy: The minimum accepted horizontal accuracy for *WSUD Areas* is **± 50mm.**

10.6   Surface

For Developer Contributed files, contour and spot height information is required to be supplied within the as-constructed data, for the purposes of assessing the as-constructed submission. For specific information regarding the capture of contours and spot heights, refer to the *Logan City Council Planning Scheme Schedule 6.2.5 – Planning Scheme Policy 5 - Infrastructure (Part2 – Information Requirements).*

10.6.1 Contour

Asset Capture: Linear feature capturing a single contour feature.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Contours*:

Element Name	Mandatory (Y/N)
Status	Y
Elevation_m	Y

10.6.2 Spot Heights

Asset Capture: Simple point feature representing a single elevation point.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Spot Heights*:

Element Name	Mandatory (Y/N)
Status	Y
Elevation_m	Y

10.6.3 Breakline

Not required to be captured.

10.6.4 Profile Line

Not required to be captured.

10.7   Transport

10.7.1 Bridge

General Information: None.

Asset Capture: Bridges can be represented using multiple feature types comprising the single Bridge extent encompassing the Deck, Superstructure, Abutments and Piers. A common identifier links all spatial and non-spatial features.

Pavement, Pathway and Guardrail features are to be captured using the usual Transport features.

10.7.1.1 Bridge Extent

General Information: Bridge Extent describes the envelope or footprint for the whole structure and all of its parts.

Asset Capture: Multi-patch region/polygon feature representing the bridge deck extent from abutment to abutment. For road bridges which include a separated footbridge, the footbridge is considered part of the road bridge if it shares the same load bearing structure. Bridge extent capture envelope is illustrated in **Figure 26** and **27.**

Spatial Relationship: Must be coincident to other regions representing bridge components where there is a common boundary e.g. no slivers and/or overlaps.

Mandatory Attribution: The following attribution is mandatory for *Bridge Extent:*

Element Name	Mandatory (Y/N)
BridgeID	Y
Name	N
Use	Y
Type	Y
CrossingType	Y
Spans	Y
MinimumClearance_m	N
PredominantMaterial	Y
DesignLoad	N

Note: *Width_m and TotalBridgeLength_m is to be recorded in the Notes element.*

Positional Accuracy: The minimum accepted horizontal accuracy for *Bridge Extent* is **± 50mm**.

Figure 26 – Example of a Bridge extent envelope
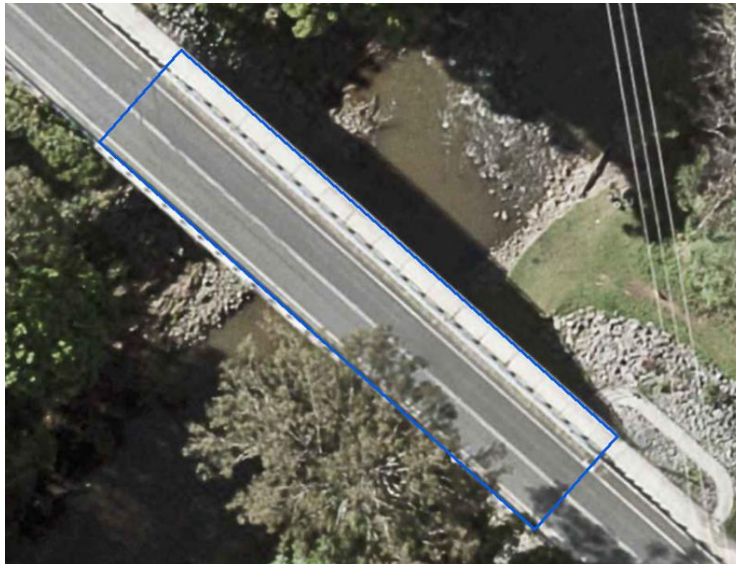
Figure 27 - Example of a Bridge extent envelope

10.7.1.2 Bridge Deck

General Information: A single deck unit between abutments or supports.

Asset Capture: Multi-patch region/polygon feature representing the bridge deck.

Spatial Relationship: Must be coincident to other regions representing bridge components where there is a common boundary e.g. no slivers and/or overlaps.

Mandatory Attribution: The following attribution is mandatory for *Bridge Deck:*

Element Name	Mandatory (Y/N)
BridgeID	Y
Material	Y
NomWidth_m	Y
DeckLength_m	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Bridge Deck* is **± 50mm.**

10.7.1.3 Containment Class

General Information: None.

Asset Capture: Non Spatial.

Spatial Relationship: N/A

Mandatory Attribution: The following attribution is mandatory for *Containment Class*

Element Name	Mandatory (Y/N)
BridgeID	Y
ContainmentClass	Y

Positional Accuracy: N/A

10.7.1.4 Bridge Superstructure

General Information: A single superstructure between abutments or supports.

Asset Capture: Multi-patch region/polygon feature representing the bridge superstructure

Spatial Relationship: Must be coincident to other regions representing bridge components where there is a common boundary e.g. no slivers and/or overlaps.

Mandatory Attribution: The following attribution is mandatory for *Bridge Superstructure:*

Element Name	Mandatory (Y/N)
BridgeID	Y
Material	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Bridge Superstructure* is **± 50mm.**

10.7.1.5 Bridge Abutment

General Information: A bridge abutment should be independently described at each end of the structure

Asset Capture: Multi-patch region/polygon feature representing the extent of one abutment for a bridge assembly.

Spatial Relationship: Must be coincident to other regions representing bridge components where there is a common boundary i.e. no slivers and/or overlaps.

| Mandatory Attribution: | The following attribution is mandatory for *Bridge Abutment*: |

Element Name	Mandatory (Y/N)
BridgeID	Y
Material	Y

| Positional Accuracy: | The minimum accepted horizontal accuracy for *Bridge Abutment* is **± 50mm.** |

10.7.1.6 Bridge Pier

General Information:	A single supporting structure that supports deck spans between abutments.
Asset Capture:	Multi-patch region/polygon feature representing the bridge pier
Spatial Relationship:	Must be coincident to other regions representing bridge components where there is a common boundary e.g. no slivers and/or overlaps.
Mandatory Attribution:	The following attribution is mandatory for *Bridge Pier:*

Element Name	Mandatory (Y/N)
BridgeID	Y
Material	Y

| Positional Accuracy: | The minimum accepted horizontal accuracy for *Bridge Pier* is **± 50mm.** |

10.7.2 Flush Point

General Information:	None.
Asset Capture:	Simple point feature representing the outlet of sub-soil drains into drainage pits/maintenance holes.
Spatial Relationship:	Must be coincident to Sub Soil Drain assets.
Mandatory Attribution:	The following attribution is mandatory for *Flush Points*:

Element Name	Mandatory (Y/N)
Function	Y

| Positional Accuracy: | The minimum accepted horizontal accuracy for *Flush Points* is **± 50mm.** |

10.7.3 Parking

General Information: None.

Asset Capture: Multi-patch region/polygon feature representing the area of Parking. Asset capture is based on physicality therefore separate regions/polygons are required if any part of the pavement profile changes e.g. Surface, Base, Sub-Base, Lower Sub-Base and/or Subgrade. Parking extent capture envelope is illustrated in **Figure 28** and **29.**

Spatial Relationship: Must be coincident to other regions representing pavement / parking where there is a common boundary (e.g. no slivers/overlaps).

Mandatory Attribution: The following attribution is mandatory for *Parking*:

Element Name	Mandatory (Y/N)
Name	Y
NoOfCarparks	N
OnOffStreet	Y
SurfaceType	Y
SurfaceThickness_mm	Y
SurfaceArea_sqm	Y
PavementType	Y
BaseLayerType	Y
BaseLayerDepth_mm	Y
BaseStabilisation	Y *(if Base stabilised)*
SubBaseLayerType	Y *(if SubBase exists)*
SubBaseLayerDepth_mm	Y *(if SubBase exists)*
SubBaseStabilisation	Y *(if SubBase stabilised)*
LowerSubBaseLayerType	Y *(if Lower SubBase exists)*
LowerSubBaseLayerDepth_mm	Y *(if Lower SubBase exists)*
LowerSubBaseStabilisation	Y *(if Lower SubBase stabilised)*
PavementGeoTextile	N
SubgradeCBR	Y
SubgradeStabilisation	N

Note: ParkingAreaType, ParkingArea_sqm, DDACompliantBayQuantity, ChangingBayQuantity and WheelStopsQuantity are to be recorded in the Notes element.

Positional Accuracy: The minimum accepted horizontal accuracy for *Parking* is **± 50mm.**

Figure 28 – Example of a car park extent envelope

Figure 29 - Example of a car park extent envelope

10.7.4 Path Structure

General Information: None.

Asset Capture: Complex linear feature (polylines including curves but not Bezier curves) representing the centre longitudinal axis of a path structure. Path Structures include stairs and ramps. Boardwalks and footbridges to be capture under bridge.

Spatial Relationship: Changes in surface types or widths must be represented as separate features.

Mandatory Attribution: The following attribution is mandatory for *Path Structures*:

Element Name	Mandatory (Y/N)
Use	Y
Structure	Y
SurfaceMaterial	Y

Element Name	Mandatory (Y/N)
SubStructureMaterial	**Y**
Width_m	**Y**

Positional Accuracy: The minimum accepted horizontal accuracy for *Path Structures* is **± 50mm.**

10.7.5 Pathway

General Information: None.

Asset Capture: Complex linear feature (polylines including curves but not Bezier curves) representing the centre longitudinal axis of a pathway. Changes in surface types or widths must be represented as separate features.

Please refer to the dashed cyan lines in **Figure 30** and **31** below as well as the yellow and magenta dashed lines in **Figure 32** below.

Asset capture is based on physicality therefore separate polylines are required if any part of the pavement profile changes e.g. Surface type, finishing type. Routinely a portion of the old/existing asset(s) is captured to provide continuity and context when merging with current Council data.

Figure 30 - Pathway - change in asset type

Figure 31 - Pathway - change in surface width

Figure 32 - Pathway - change in finishing / surface type

Spatial Relationship: May be coincident to a PathwayStructure polyline and PramRamp point features as well as changes in surface types or widths must be coincident points.

Mandatory Attribution: The following attribution is mandatory for *Pathways*:

Element Name	Mandatory (Y/N)
Use	Y
Structure	Y
SurfaceMaterial	Y
Width_m	Y
Depth_mm	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Pathways* is **± 50mm.**

10.7.6 Pavement

General Information: None.

Asset Capture: Multi-patch region/polygon feature representing the area of Pavement. Asset capture is based on physicality therefore separate regions/polygons are required if any part of the pavement profile changes i.e. Surface, Base, Sub-Base, Lower Sub-Base and/or Subgrade. **Figure 33** demonstrates the capture locations of a Pavement. The blue line represents the capture location where kerb exists (front of kerb), the yellow line represents where no kerb exists (edge of seal) and the red line represents where separate pavement areas are recorded for each road.

Figure 33 - Pavement - capture locations

Spatial Relationship: Must be coincident to other regions representing pavement / parking where there is a common boundary- no slivers/overlaps.

Mandatory Attribution: The following attribution is mandatory for *Pavements*:

Element Name	Mandatory (Y/N)
Name	Y
SurfaceType	Y
SurfaceThickness_mm	Y
SurfaceNomWidth_m	Y
PavementType	Y
BaseLayerType	Y
BaseLayerDepth_mm	Y
BaseStabilisation	Y *(if Base stabilised)*
SubBaseLayerType	Y *(if SubBase exists)*
SubBaseLayerDepth_mm	Y *(if SubBase exists)*
SubBaseStabilisation	Y *(if SubBase stabilised)*
LowerSubBaseLayerType	Y *(if Lower SubBase exists)*

Element Name	Mandatory (Y/N)
LowerSubBaseLayerDepth_mm	**Y** (*if Lower SubBase exists*)
LowerSubBaseStabilisation	**Y*** (*if Lower SubBase stabilised*)
PavementGeoTextile	**N**
Subgrade.CBR	**Y**
Subgrade.Stabilisation	**N**

Note: *OverallLength_m, NumberOfWays, NumberOfLanes, TrafficWidth_m, SubGradeType, and SubGradeAverageDepth_mm, EarthworksCutVolume_m3 and EarthworksFillVolume_m3 are to be recorded in the Notes element.*

Positional Accuracy: The minimum accepted horizontal accuracy for *Pavement* is **± 50mm.**

10.7.7 Pram Ramp

General Information: None.

Asset Capture: Simple point feature representing a pram ramp. Typically captured in the centre of Pram Ramp where it transitions to a Kerb/Road. Refer to **Figure 30** and **Figure 31** above for the capture of Pram Ramps. The pram ramp (which is highlighted by the red polygon) is captured based on the red point.

Although the ADAC schema allows for a multi-patch area feature (polygon) of a pram ramp, LCC will only accept point feature.

Spatial Relationship: May be coincident with a Road Edge feature.

Mandatory Attribution: The following attribution is mandatory for *Pram Ramps*:

Element Name	Mandatory (Y/N)
Rotation	**N**

Positional Accuracy: The minimum accepted horizontal accuracy for *Pavement* is **± 50mm.**

10.7.8 Road Edge

General Information: None.

Asset Capture: Complex linear feature (polylines including curves but not bézier curves) representing the front (edge of seal) of kerb. In case of inverts, edge of concrete furthest from road centreline. Refer to the yellow line in **Figure 33** for capture location. Kerb around Road Islands are to be represented as a Road Edge feature. Please note: line features are to continue through Lintel's on Kerb Inlets.

Spatial Relationship: Must be coincident to other polylines representing road edge where there is a common boundary between kerb types / material change e.g. no slivers and/or overlaps.

The following attribution is mandatory for *Road Edges*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Width_mm	Y
Length_m	Y
PavementExtension_mm	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Road Edge* is **± 50mm**

10.7.9 Road Island

General Information: None.

Asset Capture: Multi-patch region/polygon feature representing the area of Island/LATM bounded by the back of Kerb features. Asset capture is based on physicality therefore separate regions/polygons are required if the Type of Island or Infill changes. Refer to **Figure 34** and Figure 35 for an example of asset capture. Kerb around Road Islands are to be represented as a Road Edge feature.

Figure 34 - Road Island

Figure 35 - Road Island - Different infill type capture

| Spatial Relationship: | Must be coincident to other regions representing road islands where there is a common boundary e.g. no slivers and/or overlaps. Must be coincident to any kerb (Road Edge) surrounding the Road Island. |

| Mandatory Attribution: | The following attribution is mandatory for *Road Islands*: |

Element Name	Mandatory (Y/N)
Type	Y
Area_sqm	Y
InfillType	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Road Island* is **± 50mm.**

10.7.10 Road Pathway

General Information: None.

Asset Capture: Complex linear feature (polylines including curves but not Bezier curves) representing the centre longitudinal axis of a road pathway (on-road cycleway). Refer to the white and green dashed lines in **Figure 36** below. The structure and Surface Material are to be recorded for the different type of road pathways as defined below.

Figure 36 - Road Pathway

Spatial Relationship: Not applicable

Mandatory Attribution:	The following attribution is mandatory for *Road Pathway*:

Element Name	Mandatory (Y/N)
Use	Y
Structure	Y
SurfaceMaterial	Y
Width_m	Y

Note. Type is to be recorded in the Notes element. This is mandatory. Refer to Figure 37below.

Figure 37 - Road Pathway Types

Positional Accuracy:	The minimum accepted horizontal accuracy for *Road Pathway* is **± 50mm**

10.7.11 Road Safety Barrier

General Information:	None.
Asset Capture:	Complex linear feature (polylines including curves but not bézier curves) representing a road safety barrier asset (guardrail) as per red solid line in **Figure 33** below.
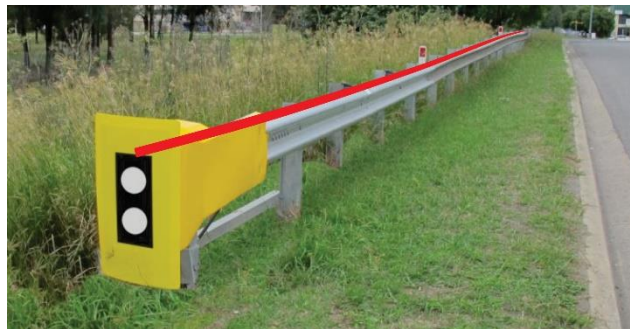
Figure 38 - Road Safety Barrier

Spatial Relationship:	None.
Mandatory Attribution:	The following attribution is mandatory for *Road Safety Barrier*:

Element Name	Mandatory (Y/N)
Type	Y
LeadingEndTreatment	Y

Element Name	Mandatory (Y/N)
TrailingEndTreatmentl	Y
StandardHeight	N
Height_m	N
Length_m	Y
MotorcyclistProtectionType	Y
PedstrianProtectionSheeting	Y
BridgeTransition	Y
StandardPostingSpacing	N
PostSpacing_m	N
PostType	N
RailType	Y
HorizontalAlignment	N
NumberOfBollards	N

Positional Accuracy: The minimum accepted horizontal accuracy for *Road Safety Barrier* is **± 50mm.**

10.7.12 Sub Soil Drain

General Information: None.

Asset Capture: Simple Linear feature (e.g. straight lines) representing the Invert of a circular sub-soil drain pipe asset. Pipes are typically broken where the Use and/or Type of drain changes.

Spatial Relationship: Must be coincident to Flush Points.

Mandatory Attribution: The following attribution is mandatory for *Sub Soil Drain*:

Element Name	Mandatory (Y/N)
Use	Y
Type	Y
Length_m	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Sub Soil Drain* is **± 50mm.**

10.8   Water Supply Assets

10.8.1 Fittings

<u>General Information:</u>   Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

<u>Asset Capture:</u>   Single point feature representing the centre point of the fitting. Please refer to the yellow circles in **Figure 39** below for representations of a Tee and Tapping Band. For a taper, record the larger diameter in the BodySize_mm attribute and the smaller diameter in the BranchSize_mm.

Note: "Unknown", "M_1", "M_2", "P_1" and "P_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.
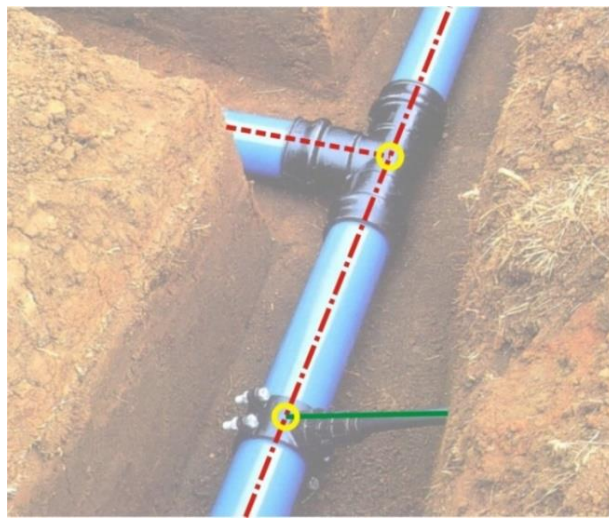
Figure 39 - Water Fitting - tee and tapping band

<u>Spatial Relationship:</u>   Must be coincident to a pipe asset in the water reticulation network.

<u>Mandatory Attribution:</u>   The following attribution is mandatory for *Fittings*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Lining	Y
Protection	Y
BodySize_mm	Y
BranchSize_mm	**Y** *(if different to BodySize_mm)*
Rotation	**N**
WaterQuality	Y

<u>Positional Accuracy:</u>   Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.2 Hydrants

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature representing the centre of the vertical hydrant branch.

Note: "Unknown" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field. Hydrant Diameter refers to the riser pipe diameter in millimetres not the connecting reticulation pipe size.

Spatial Relationship: Must be coincident to a pipe asset.

Mandatory Attribution: The following attribution is mandatory for *Hydrants*:

Element Name	Mandatory (Y/N)
Use	Y
Diameter_mm	Y
Rotation	N
WaterQuality	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.3 Maintenance Holes

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature representing the centre of the chamber. The Structure ID as shown in the design drawings must be recorded in the ADACId attribute.

The invert level of the maintenance structure can be located by holding the target on the floor of the maintenance hole and measuring the level; this is not the same level as invert level of the ingoing and outgoing pipes. Surface level is taken as the top level of the lid or, of the roof where there is no lid, or the wall where there is no roof. Where the diameter/width/length varies over the depth of the structure, take the largest.

Note: "Unknown", "M_1" and "M_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Not applicable. No connectivity is enforced due to the size and shape of the object.

Mandatory Attribution: The following attribution is mandatory for *Maintenance Holes*:

Element Name	Mandatory (Y/N)
Use	Y
Length_mm	**Y** *(if rectangular)*
Width_mm	**Y** *(if rectangular)*
Diameter_mm	**Y** *(if circular)*
SurfaceLevel_m	Y
InvertLevel_m	Y
FloorConstruction	Y
FloorMaterial	Y
WallConstruction	Y
WallMaterial	Y
RoofMaterial	Y
LidMaterial	Y
Rotation	**N**

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.4 Meters

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature located at the centre point of the domestic meter itself. The definition for the Offset Side element is "*the offset from the left or the right side boundary when looking from the road*".

Note: *"Unknown" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.*

Spatial Relationship: Must be coincident to a water service pipe or water pipe with a Use of "Commercial Service", "Fire Service", "Service" or "Fire Service Thru Meter".

Mandatory Attribution: The following attribution is mandatory for *Meters*:

Element Name	Mandatory (Y/N)
SerialNumber	Y
Type	Y
Diameter_mm	Y
Dials	N
Manufacturer	N

Element Name	Mandatory (Y/N)
ModelNumber	N
InitialReading	N
PrivateBooster	Y
OffsetSide	Y
Offset_m	Y
InstallationDate	Y
LotNo	Y
PlanNo	Y
Rotation	N
WaterQuality	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.5 Pipes

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Simple Linear feature (i.e. straight lines) representing the Invert of a circular pipe asset. Pipe segments are to be captured based on the pipe attributes. If any physical element of a pipe changes (e.g. size, material, class etc.) then the pipe asset must be broken and captured separately. Water pipes should not be broken by connections. Please refer to the red and green polylines in **Figure 39** above.

For further information refer to SEQ D&C Code AIS section on Envelopers and Conduits and Pipe Breaking.

Note: "Unknown", "M_1", "M_2", "P_1" ,"P_2" "JT_1", "EB_1" and EB_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Pipes must be coincident to water valves and fittings that participate in a flow network.

Mandatory Attribution: The following attribution is mandatory for *Pipes*:

Element Name	Mandatory (Y/N)
Use	Y
WaterQuality	Y
Alignment_m	N
Diameter_mm	Y
Material	Y

Element Name	Mandatory (Y/N)
Class	Y
Lining	Y
Protection	Y
JointType	Y
Depth_m	N
Embedment	Y
Length_m	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.6 Service Fittings

General Information: Includes Dog Bowls, Drinking Fountain Decorative, Filling Station, Showers, Tap, etc.

Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature representing the centre point of the fitting. Please refer to **Figure 39** above in Water Fittings.

Note: "Unknown" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Must be coincident to a pipe asset in the water reticulation network.

Mandatory Attribution: The following attribution is mandatory for *Service Fittings*:

Element Name	Mandatory (Y/N)
Type	Y
BelowGround	N
WaterSaver	N
AutoShutOff	N
Rotation	N
WaterQuality	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.7 Storage Tanks

General Information: Storage tank feature includes roofwater storage not fed from the mains services. It is mainly used for irrigation systems and private water reticulation not connected to the main water supply network.

Asset Capture: Single point feature located on the centre of the chamber.

Note: "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for *Storage Tanks*:

Element Name	Mandatory (Y/N)
Material	Y
Source	Y
Manufacturer	N
ModelNumber	N
Volume_m3	Y
Rotation	N

Positional Accuracy: The minimum accepted horizontal accuracy for *Storage Tanks* is **± 50mm**

10.8.8 Valves

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature representing the centre of a valve body, typically the spindle. The relationship between uses and types as per table below.

Valve Use	Valve Type
Non-Return	Generic NR Rubber Gate Swing Check Wafer RPZ
Service Stop Scour Diversion Zone Boundary Flow Control	Gate Butterfly Knife Gate Eccentric Plug Globe Ball Valve Vee Ported Ball Control

Valve Use	Valve Type
Pressure Control	Overflow Pressure Relief Pressure Sustaining Altitude Valve Vacuum Release
Gas Release	Air Valve
Other	Special

Note: "Unknown" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records.
"Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Must be coincident to a Water Pipe asset.

Mandatory Attribution: The following attribution is mandatory for *Valves*:

Element Name	Mandatory (Y/N)
Use	Y
Type	Y
Diameter_mm	Y
Manufacturer	Y*
ModelNumber	N
Rotation	N
WaterQuality	Y

*Required for all valves with a use of pressure control, Gas release and other.

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.8.9 Water Services

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Simple Linear feature (e.g. straight lines) representing the Invert of a circular pipe asset as per the solid green line in **Figure 39** above. Only Service pipes less than and equal to 63mm are to be captured here. Larger sized Service pipes are to be captured in Water pipe with a Use of "Service" or "Commercial Service".

Note: "Unknown" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records.
"Other" is to be used only where a material is genuinely something other than the

materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Pipes must be coincident to water valves and fittings that participate in a flow network.

Mandatory Attribution: The following attribution is mandatory for *Water Services*:

Element Name	Mandatory (Y/N)
Diameter_mm	Y
Material	Y
Class	Y
Protection	Y
Termination	Y
Water Quality	Y
Length_m	N

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9   Sewerage Assets

10.9.1 Connections

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Complex linear feature (polylines including curves but not bézier curves) representing the invert of the property connection. Line direction should be enforced from Inspection Opening to the Non Pressure Pipe/Maintenance Hole due to gravitational flow. The Z coordinate of the alignment is recorded as the invert level of the pipe. Refer to **Figure 40** below for further information on property connections. **Figure 41** below defines the Connection dimension attributes.

Note: "Unknown", "M_1" and "M_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Figure 40 - Connection capture points on a property connection
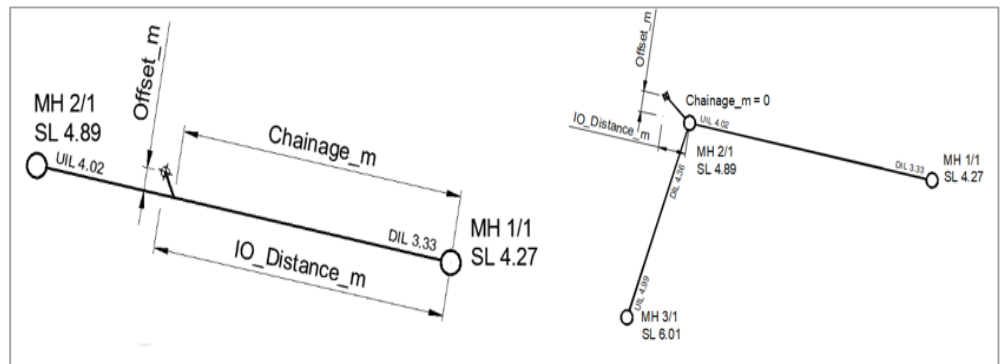
Figure 41 - Connection dimension attributes

Spatial Relationship: Gravity downstream end point of the linear feature must be coincident to anywhere on a Non Pressure pipe linear feature or the point feature of a Maintenance Hole if the asset is a "Stub" connection.

Mandatory Attribution: The following attribution is mandatory for *Connections*:

Element Name	Mandatory (Y/N)
SurfaceLevel_m	Y
InvertLevel_m	Y
Use	Y
Diameter_mm	Y
Material	Y
Class	Y
Length_m	Y
Type	Y
Chainage_m	Y
Offset_m	Y
LineNumber	N
DSMHID	N
IO_Distance_m	Y
SO_Nearest_m	Y

Element Name	Mandatory (Y/N)
SO_Other_m	Y
Sediment_Trap	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9.2 Fittings

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature representing the centre point of the fitting. The Structure ID as shown in the design drawings must be recorded in the ADACId element.

For a wye and taper, record the larger diameter in the BodySize_mm attribute and the small diameter in the BranchSize_mm.

Refer to SEQ D&C Code AIS; Capture convention such as pipe breaking and levels for pipe fittings for further information of asset capture requirements.

Note: "Unknown", "M_1" "M_2", "P_1" and "P_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.
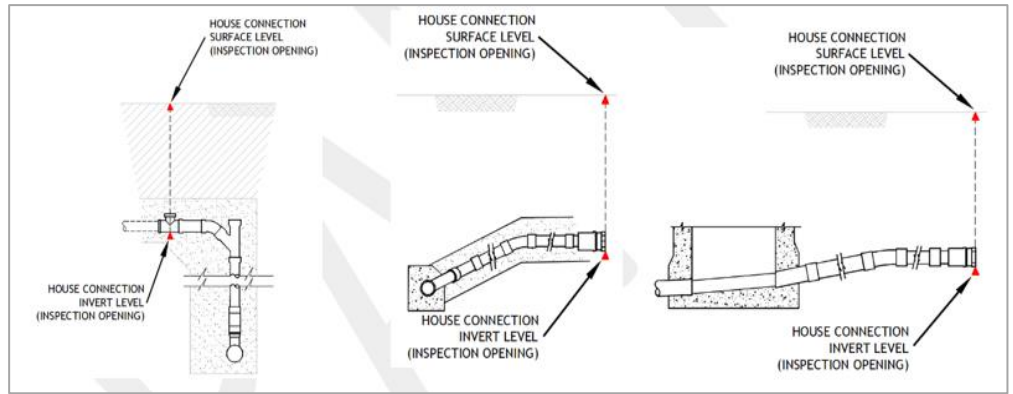
Spatial Relationship: Must be coincident to the pipe asset

Mandatory Attribution: The following attribution is mandatory for *Fittings*:

Element Name	Mandatory (Y/N)
Type	Y
Material	Y
Lining	Y
Protection	Y
BodySize_mm	Y
BranchSize_mm	Y
Rotation	N

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9.3 Maintenance Holes

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature located at the centre of chamber. Note: Capturing centre of lid is appropriate only when the lid is centred over the chamber.

The invert level of the maintenance structure can be located by holding the target on the floor of the maintenance hole and measuring the level; this is not the same level as invert level of the ingoing and outgoing pipes.

Surface level is taken at the top level of the lid or, of the roof where there is no lid, or the wall where there is no roof. Where the diameter/width/length varies over the depth of the structure, take the largest.

Note: "Unknown", "M_1"and "M_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records.

"Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Spatial Relationship: Must be coincident to the end of pipe assets or a pipe asset anywhere along its length.

Mandatory Attribution: The following attribution is mandatory for *Maintenance Holes*:

Element Name	Mandatory (Y/N)
Use	Y
ChamberSize.Rectangular.Length_mm	**Y** *(if rectangular)*
ChamberSize.Rectangular.Width_mm	**Y** *(if rectangular)*
ChamberSize.Circular.Diameter_mm	**Y** *(if circular)*
ChamberSize.Custom.Area_sqm	**Y** *(if custom)*
SurfaceLevel_m	Y
InvertLevel_m	Y
FloorConstruction	Y
FloorMaterial	Y
WallConstruction	Y
WallMaterial	Y
RoofMaterial	Y
Lining	Y
LidMaterial	Y
DropType	Y
CatchmentPS	N
LineNumber	N
MH_Number	Y
Chainage_m	N
TieDistance_m	N

Element Name	Mandatory (Y/N)
OffsetDistance_m	N
Rotation	Y*

* No for symmetrical (round/square) chambers. Yes for non-symmetrical chambers. Angle of the longest axis measured anticlockwise from East.

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9.4 Non Pressure Pipes

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Complex linear feature (polylines with no curves only straight line segments) representing the invert of the pipe asset. Enforced line direction from Gravity Upstream (higher AHD level) to Gravity Downstream (lower AHD level) due to gravitation flow in each individual pipe.

The gravity upstream and downstream ends of an individual pipe are captured at the intersection between the pipe material and the wall of the chamber. Refer to **Figure 42** for a detailed diagram. Points 2 and 3 represent the intersection of pipe material and chamber wall whereas points 1 and 4 represent the Maintenance Holes capture.

Pipes are to be captured based on their physical and spatial properties and attributes. For example, if a pipe changes size, material, class, embedment or direction etc. then it must be broken and captured separately. Sewer pipes should not be broken by connections. For further information refer to SEQ D&C Code AIS ; Section Envelopers and Conduits and Section Pipe Breaking.

Note: "Unknown", "M_1", "M_2", "L_1", "L_2", "P_1" ,"P_2", "JT_1", "EB_1" and "EB_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Figure 42 - Sewer Non-Pressure Pipe - gravity upstream and downstream end

Spatial Relationship: Must be coincident to Maintenance Hole point features in the pumped sewerage network.

Mandatory Attribution: The following attribution is mandatory for *Non Pressure Pipes (gravity mains)*:

Element Name	Mandatory (Y/N)
LineNumber	Y
Use	Y
Diameter_mm	Y
Material	Y
Class	Y
Lining	Y
Protection	Y
JointType	Y
US_InvertLevel_m	Y
DS_InvertLevel_m	Y
US_SurfaceLevel_m	Y
DS_SurfaceLevel_m	Y
Alignment_m	N
Depth_m	Y
Embedment	Y
RockExcavated	Y
PipeGrade	N
Length_m	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9.5 Pressure Pipes

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Complex linear feature (polylines with no curves only straight line segments) representing the invert of the pipe asset. Line direction should be enforced from Pump active asset to Discharge Maintenance Hole due to pumped flow.

Pipes are to be captured based on their physical and spatial properties and attributes. For example, if a pipe changes size, material, class, embedment or direction then it must be broken and captured separately. For further information refer to SEQ D&C Code AIS Section Pipe Breaking.

Note: "Unknown", "M_1", "M_2", "P_1" ,"P_2", "JT_1", "EB_1" and "EB_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic

values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.
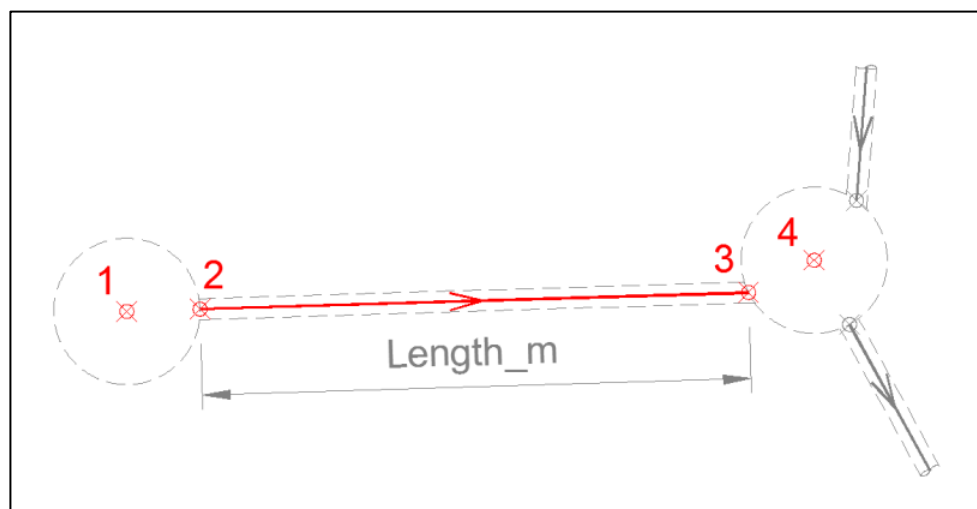
Spatial Relationship: Must be coincident to Pressure pipe point features in the pumped sewerage network.

Mandatory Attribution: The following attribution is mandatory for *Pressure Pipes (rising mains)*:

Element Name	Mandatory (Y/N)
Use	Y
Diameter_mm	Y
Material	Y
Class	Y
Lining	Y
Protection	Y
JointType	Y
Alignment_m	N
Depth_m	Y
Embedment	Y
RockExcavated	Y
Length_m	Y

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9.6 Valves

General Information: Please refer to SEQ D&C Code Asset Information Specification (AIS) for detailed capture conventions. Website link http://www.seqcode.com.au/standards/

Asset Capture: Single point feature representing the centre of a valve body, typically the spindle. The relationship between Use and Type is as per the below table.

Note: "Unknown", "P_1" and "P_2" is not an acceptable value as specified in the SEQ D&C Code (Section use of generic values) for submissions of as-constructed records. "Other" is to be used only where a material is genuinely something other than the materials that the schema currently provides. The material must be recorded in the Notes field.

Valve Use	Valve Type
Non-Return	Generic NR
	Rubber Gate
	Swing Check
Service	Gate
Stop	Butterfly
Scour	Knife Gate

Valve Use	Valve Type
Diversion	Eccentric Plug
Zone Boundary	Globe
Flow Control	Ball
	Generic
	Penstock
Pressure Control	Overflow
	Pressure Release
	Vacuum Release
Gas Release	Air Valve
Other	Special

Spatial Relationship: Must be coincident to the end of pipe assets or a pipe asset anywhere along its length.

Mandatory Attribution: The following attribution is mandatory for *Valves*:

Element Name	Mandatory (Y/N)
Use	Y
Type	Y
Diameter_mm	Y
Lining	Y
Protection	Y
Manufacturer	Y*
ModelNumber	N
Rotation	N

* Required for all valves with a use of pressure control, Gas release and other.

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.9.7 Outfall for Water and Sewerage

General Information: Represents an outfall for water and sewerage which may terminate emergency overflow pipe scours and treated effluent discharge lines.

Asset Capture: Simple point feature representing the top of the headwall. Refer to Figure 43.

To enter an outfall that is part of the water or sewerage infrastructure, use the stormwater feature with the owner and department fields set appropriately to identify the headwall as being part of the water or sewerage infrastructure set rather than the stormwater infrastructure set.

LCC will accept default values (e.g. "999" or "0") being input against fields that are mandatory in the ADAC Schema.

Wing Wall - Set to nil if the End Structure does not have an end wall

Although the ADAC schema allows for a complex linear feature (polylines) of an end structure, LCC will only accept point feature. The location point, shown in red, is at the invert of the pipe through the headwall. The structural_level_m point is shown in yellow and is vertically above the invert at the highest point of the structure.

Figure 43 - Example of an outfall headwall

Spatial Relationship: Should be coincident to end point of a water or sewerage pipe.

Mandatory Attribution: The following attribution is mandatory for *End Structures*:

Element Name	Mandatory (Y/N)
StructureID	Y
StructureLevel_m	Y
EndWall.Type	N
EndWall.Size	N
EndWall.Length_m	N
EndWall.Height_m	N
EndWall.Thickness_m	N
EndWall.Material	N
EndWall.Construction	**Y** *(if Endwall exists)*
WingWall.LWW_Length_m	N
WingWall.LWW_Height_m	N
WingWall.LWW_Thickness_m	N
WingWall.LWW_Material	N
WingWall.LWW_Construction	**Y** *(if Wingwall exists)*
WingWall.RWW_Length_m	N
WingWall.RWW_Height_m	N
WingWall.RWW_Thickness_m	N
WingWall.RWW_Material	N
WingWall.RWW_Construction	**Y** *(if Wingwall exists)*
Apron.Apron_Width_m	N

Element Name	Mandatory (Y/N)
Apron.Apron_Thickness_m	N
Apron.Apron_Area_m2	N
Apron.Apron_Material	N
Apron.Apron_Construction	**Y** *(if Apron exists)*
GrateType	Y
TideGate	N

Positional Accuracy: Please refer to SEQ D&C Code Asset Information Specification (AIS), Section 2 'Survey Conventions' for details.

10.10 Supplementary

Supplementary features are used to record additional asset types or points of reference which isn't otherwise covered under the ADAC schema. For subdivision developments, the *Stage Boundary* should be provided in the supplementary features.

10.10.1 Point / Polyline / Polygon Feature

General Information: Represents a supplementary point, polyline or polygon feature.

Asset Capture: Single Point, Complex linear (polylines including curves but not bezier curves) and Multi-patched area feature (polygon) representing additional asset types or points or reference.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Point/Polyline/Polygon*:

Element Name	Mandatory (Y/N)
Class	Y
Note	N
Attribute()TextValue	N
Attribute()IntegerValue	N
Attribute()DecimalValue	N
Attribute()DateValue	N
Attribute()TimeValue	N
Attribute()DateTimeValue	N

10.10.2 Stage Boundaries

General Information: Represents the stage boundary for a subdivision development submission.

<u>Asset Capture:</u>   Multi-patched area feature (polygon) representing the boundary of the subdivision development. No additional attribute information is required to be supplied.

<u>Spatial Relationship:</u>   None

<u>Mandatory Attribution:</u>   The following attribution is mandatory for Stage Boundaries:

Element Name	Mandatory (Y/N)
Class	Y
Note	N
Attribute()TextValue	N
Attribute()IntegerValue	N
Attribute()DecimalValue	N
Attribute()DateValue	N
Attribute()TimeValue	N
Attribute()DateTimeValue	N

11. Non-ADAC Asset Types

This section is intended to provide guidance on the capture of assets within the as-constructed file in a manner which is acceptable to the Logan City Council (LCC) and for asset types not included in the ADAC schema.

The physical nature of assets will determine where/if assets are captured separately within the as-constructed file. Where possible, diagrams and images have been supplied in this document to assist in asset capture. The mandatory attribution specified below includes the minimum information LCC requires to enter each asset type into the asset register. While attributes marked "Non Mandatory" are not required, it is preferable that this information be included (if known). For more information, please refer to the LCC Data Dictionary. The following file formats are acceptable for asset types that are not included in ADAC schema:

- ADAC XML file – by entering the information provided throughout this section into the supplementary features section

- Microsoft Excel Spreadsheet with an accompanying Mud Map or DWG file showing the asset location

11.1   LCC Transport Assets

11.1.1 Traffic Signal

General Information: The **Class** is to be populated with "Traffic Signal".

Asset Capture: Supplementary Point feature captured at the centroid of the intersection controlled by Traffic Signals. The Class element must be populated with "Traffic Signal".

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory *Traffic Signal*:

Element Name	Mandatory (Y/N)
Class	Y
Note	Y
SiteIntersectionName	Y
Signal_ID	Y
SystemSoftware	Y
VehicleDetectorLoop	Y
STREAMSConnection	Y
SignalType	Y
NumberOfLanterns	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Traffic Signal* is **± 1m.**

11.1.2 Bus Stop Infrastructure

General Information: Represents an area which contains bus stop infrastructure. The **Class** is to be populated with "Bus Stop Infrastructure".

Asset Capture: Supplementary polygon feature representing the bus stop infrastructure extent.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Bus Stop Infrastructure*:

Element Name	Mandatory (Y/N)
Class	Y
Note	Y
BusStopType	Y
BusStopFurniture	Y
DisabilityCompliant	N
HardstandArea_m2	Y
MarkerType	Y
MarkerName	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Bus Stop Infrastructure* is **± 50mm.**

11.2 LCC Stormwater Assets

11.2.1 Detention Basin

General Information: Basins that do not fit the purpose of Stormwater WSUD exactly. The **Class** is to be populated with "Detention Basin".

Asset Capture: Supplementary polygon feature captured using the boundary of the permanent water body.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory *Detention Basin*:

Element Name	Mandatory (Y/N)
Class	Y
SurfaceArea_sqm	Y
Volume_m3	Y
Depth_m	Y
HighFlowOutletSpillwayLevel_m	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Detention Basin* is **± 50mm.**

11.2.2 Monitoring Station

General Information:　　　　Represents a Monitoring Station. The **_Class_** is to be populated with "Monitoring Station. Refer to **Figure 44** below.

Asset Capture:　　　　Simple point feature representing the centre of a monitoring station

Figure 44 - Example of a Monitoring Station

Spatial Relationship:　　　　None

Mandatory Attribution:　　　　The following attribution is mandatory for _Monitoring Station_:

Element Name	Mandatory (Y/N)
Class	Y
Type	Y
Telemetry	Y

Positional Accuracy:　　　　The minimum accepted horizontal accuracy for _Monitoring Station_ is **± 50mm.**

11.3   LCC Open Space Assets

11.3.1 Light

General Information: Represents a Light or lighting feature that is not part of a building. The Class element must be populated with "Light".

Asset Capture: Single Point feature representing the centroid of Pole that Light is affixed to. Refer to **Figure 45** below.
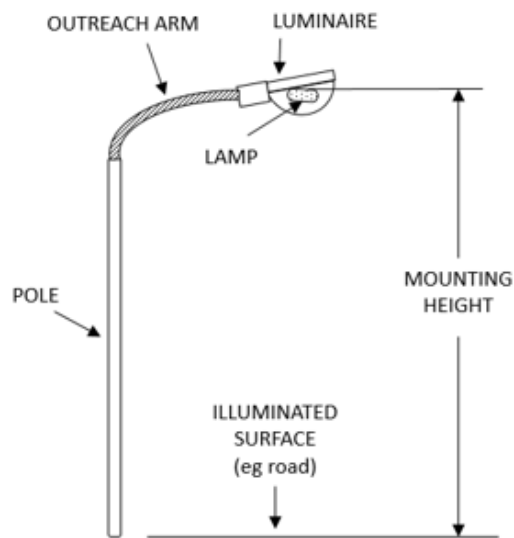
Figure 45 - Typical example of a light

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for *Light:*

Element Name	Mandatory (Y/N)
Class	Y
Rate	Y
Use	Y
Type	Y
PoleNumber	Y
PoleType	Y
MountingHeight_m	Y
PowerSupply	Y
OutreachArmType	Y
LuminaireType	Y
LampType	Y
Quantity	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Light* is **± 50mm.**

11.3.2 Platform

General Information: Represents a Platform. The **Class** is to be populated with "Platform". Refer to **Figure 46** below.

Asset Capture: Multi-patched area feature (polygon) representing the footprint of a platform.

Figure 46 - Example of a Platform

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Platform*:

Element Name	Mandatory (Y/N)
Class	Y
Function	Y
Area_sqm	Y
Height_m	Y
DeckMaterial	Y
ExternalBalustradeMaterial	Y
ExternalHandrailMaterial	Y
SubStructureMaterial	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Platform* is **± 1m.**

11.3.3 Prepared Surface

General Information: Represents a s prepared surface which do not fit the purpose of Activity Area or Parking. The **Class** is to be populated with "Prepared Surface".

Asset Capture: Multi-patched area feature (polygon) capturing the footprint of the prepared surface. Changes in surface types must be represented as separate features.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory *Prepared Surface*:

Element Name	Mandatory (Y/N)
Class	Y
Function	Y
Material	Y
Length_m	N
Width_m	N
Area_m2	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Prepared Surface* is **± 1m.**

11.3.4 Septic Tank

General Information: Represents a self-contained septic tank feature (council owned) which is not a storage tank and not connect to the main wastewater network. Not to be used for bulk storage features that are part of the main water supply and wastewater distribution network.

Asset Capture: Single point feature located on the centre of the chamber

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory *Septic Tank*:

Element Name	Mandatory (Y/N)
Class	Y
Material	Y
Source	Y
Volume_m3	Y
Manufacturer	Y
ModelNumber	Y
Rotation	Y

11.3.5 Vehicle Access

General Information: Represents a Vehicle Access leading to LCC asset (e.g. Park, Facilities). The ***Class*** is to be populated with "Vehicle Access". Refer to **Figure 47** below.

Asset Capture:	Multi-patched area feature (polygon) representing the footprint of a vehicle access.

Figure 47 - Example of a Vehicle Access

Spatial Relationship:	None
Mandatory Attribution:	The following attribution is mandatory:

Element Name	Mandatory (Y/N)
Class	Y
Type	Y
Material	Y
Area	Y

Positional Accuracy:	The minimum accepted horizontal accuracy for Vehicle Access is **± 1m.**

11.3.6 Water Body

General Information:	Represents a body of water that does not have a detention or bio-detention purpose and do not fit the purpose of Stormwater WSUD exactly. The **Class** is to be populated with "Water Body".
Asset Capture:	Multi-patched area feature (polygon) representing the boundary of water body.
Spatial Relationship:	None
Mandatory Attribution:	The following attribution is mandatory:

Element Name	Mandatory (Y/N)
Class	Y
MaximumDepth_m	Y
Volume_m3	Y
HighWaterMarkArea_sqm	Y
WaterBodyArea_sqm	Y

Positional Accuracy:	The minimum accepted horizontal accuracy for *Water Body* is **± 1m.**

11.4   LCC Facility Assets

11.4.1 Building Sub-Component – Non Spatial

General Information: Please refer to the LCC Data Dictionary for data collection.

11.4.2 Swimming Pool

General Information: Represents a Swimming Pool.

Asset Capture: Multi-patched area feature (polygon) capturing the footprint of the swimming pool.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Swimming Pool*:

Element Name	Mandatory (Y/N)
Swimming Pool.Pool Properties.Type	Y
Swimming Pool.Pool Properties.Shell Type	Y
Swimming Pool.Pool Properties.Finish	Y
Swimming Pool.Pool Properties.Use	Y
Swimming Pool.Pool Properties.Disability Access Ramp	Y
Swimming Pool.Pool Properties.Length	Y
Swimming Pool.Pool Properties.Width	Y
Swimming Pool.Pool Properties.Lane Width	N
Swimming Pool.Pool Properties.Minimum Depth	Y
Swimming Pool.Pool Properties.Number of Lanes	N
Swimming Pool.Pool Properties.Volume	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Swimming Pool* is **± 50mm.**

11.4.3 Pool Fixture

General Information: Represents a Pool Fixture.

Asset Capture: Simple point feature representing the centre of pool fixture such as access ladders, diving structures and lifeguard tower / chair. Refer to below sections for asset capture.

11.4.3.1 Access Ladder

General Information: Represents an Access Ladder.

Asset Capture: Simple point feature representing the centre of access ladder.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Access Ladder*:

Element Name	Mandatory (Y/N)
Type	Y
Quantity	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Access Ladder* is **± 50mm.**

11.4.3.2 Diving Structure

General Information: Represents a Diving Structure. Refer to **Figure 48** and **Figure 49** below.

Asset Capture: Simple point feature representing the centre of diving structure.

Figure 48 - Example of a Starting Block

Figure 49 - Example of a Springboard

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Diving Structure*:

Element Name	Mandatory (Y/N)
Type	Y
Height	*N
Quantity	Y

*Note. It will be mandatory if diving type is a diving tower / platform.

Positional Accuracy: The minimum accepted horizontal accuracy for *Diving Structure* is **± 50mm.**

11.4.3.3 Lifeguard Tower / Chair

General Information: Represents a Lifeguard Tower / Chair.

Asset Capture: Simple point feature representing the centre of a lifeguard tower or chair.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Lifeguard Tower / Chair*:

Element Name	Mandatory (Y/N)
Quantity	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Lifeguard Tower / Chair* is **± 1m.**

11.5   LCC Waste Management Assets

11.5.1 Weighbridge

General Information: Represents a Weighbridge.

Asset Capture: Multi-patched area feature (polygon) capturing the footprint of the weighbridge.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Weighbridge*:

Element Name	Mandatory (Y/N)
Weighbridge ID	Y
Deck Material	Y
Maximum Weight	Y
Length	Y
Width	Y
Weight Cell Quantity	N
Manned	N
Public Weighbridge Licence	N
Installation Date	N
Date last calibrated	N

Positional Accuracy: The minimum accepted horizontal accuracy for *Weighbridge* is **± 1m.**

11.5.2 Monitoring Well

General Information: Represents an underground landfill Monitoring Well.

Asset Capture: Simple point feature representing the centre of a landfill monitoring well.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Monitoring Well*:

Element Name	Mandatory (Y/N)
Name	Y
Type	Y
Installation Date	Y
Decommission Date	Y
Quantity	Y

Positional Accuracy: The minimum accepted horizontal accuracy for *Monitoring Well* is **± 1m.**

11.6   LCC Plant and Fleet Assets

11.6.1 Camera

General Information: Represents a monitoring camera.

Asset Capture: Simple point feature representing the monitoring camera.

Spatial Relationship: None

Mandatory Attribution: The following attribution is mandatory for *Camera*:

Element Name	Mandatory (Y/N)
Camera ID	Y
Camera Use	Y
Make	Y
Model	N
Monitoring Type	Y
Installation Date	Y
Warranty End Date	N
Operating Software	N
Location Description	Y
Wireless Equipment Connection Type	N

Positional Accuracy: The minimum accepted horizontal accuracy for *Monitoring Well* is **± 1m.**

12. Appendix A – Photo Requirements

12.1   Definitions

Mandatory: A photograph of the asset must be supplied as part of asset handover.

Desirable: If a photograph was taken of the asset during construction, then it should be included as part of asset handover, however there is no requirement to take a photo specifically for the purposes of asset handover.

Not Required: A photograph of the asset is not required as part of asset handover.

Stock Photos: Stock photos are those where a commonly used fitting such as a light fitting, water valve, maintenance hole, etc. is installed within a location or network such as a park, sewer or water network, and location surrounds are difficult to capture across the asset type.

12.2   Photo Requirement Matrix

Asset Group	Asset Category	Asset Type	Photo Requirement	Stock Photo Allowed?
Parks and Open Space Assets	Activity Area		Mandatory	No
	Activity Point	Animal Agility Equipment	Mandatory	Yes
		Fitness Equipment	Mandatory	Yes
		Play Equipment	Mandatory	No
		Sports Equipment	Mandatory	No
	Artwork		Mandatory	No
	Barbecues		Mandatory	No
	Barrier Continuous		Mandatory	No
	Barrier Point		Mandatory	No
	Bicycle Fitting		Mandatory	No
	Boating Facility		Mandatory	No
	Building		Mandatory	No
	Edging		Mandatory	No
	Electrical Conduits		Not Required	N/A
	Electrical Fittings	Light	Mandatory	Yes
		Pit	Mandatory	No
		Pole	Mandatory	No
		Power Outlet	Mandatory	Yes
		Switch Board / Meter Box	Mandatory	No
	General Fixture	Dog Bag Dispenser	Mandatory	Yes
		Flag Poles	Mandatory	No
		Goal Poles	Mandatory	No

Asset Group	Asset Category	Asset Type	Photo Requirement	Stock Photo Allowed?
		Planter Box	Mandatory	No
		Scoreboard	Mandatory	No
	Landscape Area		Desirable	No
	Retaining Wall		Mandatory	No
	Seat		Mandatory	No
	Shelter		Mandatory	No
	Sign		Mandatory	Yes
	Table		Mandatory	No
	Tree		Desirable	No
	Waste Collection Point		Mandatory	No
Stormwater Assets	End Structure		Desirable	No
	Fitting		Not Required	N/A
	Pipe		Not Required	N/A
	Pit		Not Required	N/A
	Surface Drain		Desirable	No
	WSUD Points	GPT Complex	Mandatory	No
		GPT Simple	Mandatory	No
	WSUD Polylines	Flow Management Device	Not Required	N/A
		Other	Desirable	No
	WSUD Areas		Mandatory	No
Transport Assets	Bridges		Mandatory	No
	Flush Points		Desirable	No
	Parking		Desirable	No
	Pathways	Pathway	Desirable	No
		Path Structure	Desirable	No
	Pavement		Not Required	N/A
	Pram Ramps		Desirable	No
	Road Edge		Desirable	No
	Road Island		Not Required	N/A
	Road Pathway		Not Required	N/A
	Road Safety Barrier		Desirable	No
	Subsoil Drain		Not Required	N/A
Water Supply Assets	Fittings		Desirable	Yes
	Hydrants		Desirable	Yes
	Maintenance Holes		Desirable	Yes
	Meters		Desirable	Yes
	Pipes		Desirable	Yes

Asset Group	Asset Category	Asset Type	Photo Requirement	Stock Photo Allowed?
	Service Fittings		Desirable	No
	Storage Tanks		Desirable	No
	Valves		Desirable	Yes
	Water Services		Desirable	No
Sewerage Assets	Connections		Desirable	Yes
	Fittings		Desirable	Yes
	Maintenance Holes		Desirable	Yes
	Non Pressure Pipes		Desirable	Yes
	Pressure Pipes		Desirable	Yes
	Valves		Desirable	Yes
Non-ADAC Asset Types	Access Ladder		Desirable	No
	Bus Stop Infrastructure		Mandatory	No
	Detention Basin		Mandatory	No
	Diving Structure		Desirable	No
	Lifeguard Tower / Chair		Desirable	No
	Light		Desirable	No
	Monitoring Station		Mandatory	No
	Monitoring Well		Mandatory	No
	Platform		Mandatory	No
	Prepared Surface		Not Required	N/A
	Septic Tank		Desirable	No
	Swimming Pool		Mandatory	No
	Traffic Signal		Mandatory	No
	Vehicle Access		Desirable	No
	Water Body		Desirable	No
	Weighbridge		Mandatory	No
Supplementary	Stage Boundaries		Not Required	N/A
Cadastre	Cadastral Connection		Not Required	N/A
	Chainage Line		Not Required	N/A
	Easement		Not Required	N/A
	Lot Parcels		Not Required	N/A
	Road Reserve		Not Required	N/A
	Survey Mark		Not Required	N/A
	Water Course Reserve		Not Required	N/A
Surface	Contour		Not Required	N/A
	Spot Heights		Not Required	N/A

13. Appendix B – As-constructed certification block

Consulting Engineer's Certification:

I, …………………………..………………(print) hereby certify that the As Constructed information shown on this plan/contained on this electronic device (delete whichever is not applicable) is a true and correct record of the sizes, types, materials, classes etc., and it corresponds with the relevant
approved Engineering Drawings.

Signed…………………………..……...   RPEQ No…………………   Dated…………………………..

Registered Surveyor's Certification:

I, ……………………………..……………(print) hereby certify that the horizontal and vertical locations, and dimensions shown on this plan/contained on this electronic device (delete whichever is not applicable) are a true and correct record of the As Constructed survey information.

Signed …………..………………………   Reg. No. …………………   Dated ………/………/………

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14. Appendix C – Statement of Compliance

Statement of Compliance

Drawing No / Page #	Compliance*	Short Description of Non-Compliance
	Yes / No*	
	Yes / No*	
	Yes / No*	
	Yes / No*	
	Yes / No*	
	Yes / No*	

Development application number: _____

Consultant:_____

I certify that the following design/ as constructed drawings* submitted herewith have been prepared, checked/ amended* in accordance with the requirements *of Planning Scheme Policy No. 5 (Infrastructure)*. Those aspects of the design/ as constructed drawings* which do not comply with the requirements of *Planning Scheme Policy No. 5 (Infrastructure)* are listed above.

Consultant: _____

RPEQ No./ CP Eng Membership No*: _____

Signature: _____   Date: _____

*Delete whichever does not apply