Work as Executed Data Submission Standards

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Document revision

This document has been produced by the Assets branch of Wingecarribee Shire Council and is reviewed on an annual basis. Changes come into effect from the date of Review and are posed on the Council Website at the time of review.

Document Name	Document Version	Revision Date	Revised By
Work as Executed: Data Submission Standards	4	21/12/2020	M. Khan; L. Young

Table 1: Document Revision Table

1 Overview

This document, Work as Executed Data Submission Standards, compiled by the Assets Branch of Wingecarribee Shire Council defines the required files, file formats and minimum information needed for a successful Work as Executed submission and handover of assets.

Data Submission Standards have been in place and on the website since January 2017. This Version replaces version v3.1, which came into effect in February 2018. Changes in this version aim to provide a clearer set of Work as Executed requirements as well as to encompass all constructed assets from both Developments and Capital Works Sources.

2 Purpose

The purpose of this document is to define the requirements for newly constructed asset data provided to council through developments or capital works. Council receives a high volume of data from multiple sources during a year. To maintain a sufficient and accurate standard of data that informs the Dial Before You Dig maps, Section 149 Certificate Maps, future capital works scoping and day to day maintenance and operation of council assets the data is required in a specific format as outlined in this document. The format requested is required to work with Council Systems and manage the input of large and frequent volumes of data.

Failure to submit any of this data in the required format will result in delays to the sign off the Subdivision Certificate for developments and the successful handover of other assets to Council including the potential delay in the payment of the final invoice of capital works (where the WAE documentation forms part of the schedule of works).

This document provides a guidance to internal and external stakeholders who contribute to the construction of Council Assets. These individuals may include contractors, planners, certifiers, developers, development engineers, asset officers, project managers, and operations personnel among others.

Feedback and on this document or requirements can be provided to Asset.Officers@wsc.nsw.gov.au.

3 When is WAE information required?

Work as Executed (WAE) information is required when any asset is created, disposed of, renewed or upgraded on Council Land. Any infrastructure occurring on Council Owned or Managed Land requires Work as Executed handover Documentation and the Assets is considered Council Infrastructure (including those built by lessees/licensees or Council).

3.1 New assets

Newly constructed assets need to be identified and Work as Executed data submitted to Council. The component level for new assets is identified in the Work as Executed Excel Sheets.

A cost of installation must be marked up against each asset (donated or capital) to provide an initial value of donated works for input in the Asset register. This includes all costs associated with installing the asset (eg. Excavation, materials, construction, etc).

3.2 Disposed assets

Where an existing Asset is removed, in part or in full, the changes must be marked up on the Work as Executed Excel Sheet as amendments will be made to the Asset Register and the Asbestos Register as needed.

Asbestos removal/treatment method must be indicated – Asbestos clearance certificates should be provided as part of the Work as Executed documentation to ensure treatment/removal was done correctly.

3.3 Renewed assets

A renewed asset is one where the asset was removed/part removed and replaced like for like in available material options. There is no change to the function, level of service or capacity of the renewed asset. Eg. 150mm Asbestos Cement sewer main being replaced by 150mm HDPE Sewer Main.

3.4 Upgraded asset

An upgraded asset is one where the asset was removed/part removed and replaced but the asset was improved in function, capacity or level of service. Eg. 150mm Asbestos Cement sewer main being replaced by 250mm HDPE Sewer Main.

4 Accepted file types

All Work as Executed Documents for constructed assets must include the files specified in this section. Where these file types cannot be produced in the required format an alternative acceptable to the Assets Branch must be negotiated prior to file submission.

4.1 Softcopy plans

The Work as Executed Plans must be supplied in PDF format.

Work as Executed Plans must show the original design in black with Work as Executed marked up in red for all long sections and plan pages. The Work as Executed mark-up must not be obscured by too many infrastructure types on the one plan page (If necessary separate the mark-up into different pages showing separate infrastructure types – ie. water, sewer, parks, buildings, roads, drainage). Work as Executed plans that are not clear will be requested again.

All Work as Executed plans must be stamped, signed and dated as they are official records verifying what assets have been surveyed and constructed as at the date of surveying.

4.2 Hardcopy plans

Hardcopy Work as Executed Plans must be submitted if required as part of the Development Process. The preference for Work as Executed plan submission for Assets is pdf soft copy files. If a hardcopy file is submitted, the plan must also be submitted in PDF format and the plans need to be identical. If updates are made to the PDF plan then the hardcopy plans must be re-submitted.

4.3 Shapefiles or CAD files

A shapefile or cad file (.dxf or .dwg) of the Work as Executed mark-up is required. The requirements of these files are:

4.3.1 Coordinate systems

All shapefiles, geodatabases and CAD files must use the following coordinate system:

- Projected Coordinate System: GDA2020 MGA Zone 56

4.3.2 Minimum required layers

The shapefiles and cad files provided must show:

- All data submitted in GDA2020.
- The Work as Executed mark-up lines, points and polygons. Mark-up lines/points/polygons must contain a field with a unique ID to identify the infrastructure type on the plan or relevant to the lot (e.g. Junctions or service lines should be labelled per lot and manholes will have a unique code per plan like MH2-3 depending on the main line it is on).
- Reference Layers as required to align the Work as Executed mark up with Cadastre (Lot and road boundaries with necessary Lot and DP numbers, street number and street name).
- A **separate cad file** for each asset class category: Roads, Drainage, Water, Sewer, Parks, Buildings.

4.3.3 Feature type

Shapefiles and cad files submitted should be shown by points, lines and polygons. The required feature types of infrastructure can be summarised in Tables 1 to 7 below.

Parks Assets	Feature Type (in Cad file and Shapefile)
Fences	Line
Gates	Point
Bollards	Point
Irrigation Systems	Line
Sports Field/ Court Lighting	Point
BBQs	Point
Bubblers/Drinking Fountains	Point
Bins	Point
Flag Pole	Point
Goal Posts	Point
Park Seats/Picnic Table Chair Sets	Point
Playground Eq	Point
Sports Surface	Polygon
Water Tanks	Point
Hardstand/Pathways/Access Roads	Polygon

Table 2: Park Asset layer feature type.

Building Assets	Feature Type (in Cad file and Shapefile)
Building Structure	Polygon showing building footprint
Building Sub-structure	(Component of Building) Show on PDF plans
Roof	(Component of Building) Show on PDF plans
Kitchen Fit-out	(Component of Building) Show on PDF plans
Bathroom Fit-out	(Component of Building) Show on PDF plans
Floor Covering	(Component of Building) Show on PDF plans
Internal Walls	(Component of Building) Show on PDF plans
HVAC Service (Heating/Air-conditioning)	(Component of Building) Show on PDF plans
Electrical Service	(Component of Building) Show on PDF plans
Hydraulic Service	(Component of Building) Show on PDF plans
Fire Service	(Component of Building) Show on PDF plans
Access Control	(Component of Building) Show on PDF plans
Transportation Service (Lifts)	(Component of Building) Show on PDF plans

Table 3: Building Asset layer feature type.

Sewer Asset	Dxf/Shapefile feature type
Service Line	Line
Sewer Junction	Point
Sewer Manhole/Lamphole/Maintenance Shaft	Point
Sewer Main	Line
Sewer Valve	Point
Sewer Node	Point
Sewer Vents	Point
Sewer Rising Mains	Line
Sewer Pump Station	Polygon
Sewer Pump Station Vents	Point
Sewer Pump Station Valves	Point
Sewer Pump Station Storage Tanks	Polygon
Sewer Pump Station Electrical Control Equipment	Polygon or Point
Sewer Pump Station Light Poles	Point
Sewer Pump Station Structure – Wet Well	Polygon
Sewer Pump Station Telemetry Unit	Polygon or Point
Sewer Pump Station Level Control Unit	Polygon or Point
Sewer Pump Station ~~Compound Fence~~ Security Fence	Line
Water Pump Station Security Gate	Line
Sewer Pump Station Compound Areas (Other than Access Road/turning circle)	Polygons
Sewer Pump Station Access Road/ Turning Circle	Polygon
Sewer Pump Station Pipework/Rising Main	Line
Sewer Pump Station Pumps	Point
Water Asset	**Dxf/Shapefile feature type**
Water Main	Line
Water Valve	Point
Water Node	Point
Water Hydrant	Point
Water Meter	Point
Water Service Line	Line
Water Reservoir Structure/Buildings/Tanks	Polygon
Water Reservoir Pipeworks	Line
Water Reservoir Valve	Point
Water Reservoir Other	Polygon
Water Pump Station Vents	Point
Water Reservoir Pump	Point

Water back flow prevention	Point
Water Reservoir Electrical Control Equipment	Polygon or Point
Water Reservoir Light Poles	Point
Water Reservoir Compound Fence	Line
Water Reservoir Compound Areas (Other than Access Road/turning circle)	Polygon
Water Reservoir Access Road/ Turning Circle	Polygon
Water Pump Station Structure/Buildings	Polygon
Water Pump Station Pipework	Line
Water Pump Station Valves	Point
Water Pump Station Pump	Point
Water Pump Station Structure – Wet Well	Polygon
Water Pump Station Telemetry Unit	Polygon or Point
Water Pump Station Level Control Unit	Polygon or Point
Water Pump Station Chemical Dosing Unit	Polygon or Point
Water Pump Station Storage Tanks	Polygon
Water Pump Station Electrical Control Equipment	Polygon or Point
Water Pump Station Light Poles	Point
Water Pump Station Security Fence	Line
Water Pump Station Security Gate	Line
Water Pump Station Compound Areas (Other than Access Road/turning circle)	Polygon
Water Pump Station Access Road/ Turning Circle	Polygon
Water Pump Station Pipework/Main	Line
Water Pump Station Pumps	Point

Table 4: Sewer and Water Asset layer feature type.

Drainage Assets	**Dxf/Shapefile feature type**
Drainage Pits	Point
Drainage Pipes	Line
Drainage Box Culverts	Point
Drainage Headwalls	Point
Drainage Swales	Polygon
Drainage Nodes	Point
Drainage GPTs	Point
Drainage Basins	Polygon
Road Assets	**Dxf/Shapefile feature type**
Road Subgrade	Point/Polygon/Line
Road Sub Base	Point/Polygon/Line
Road Base	Point/Polygon/Line
Road surface	Point/Polygon/Line
Road Kerb and Gutter	Point/Polygon/Line
Road Footpath	Point/Polygon/Line
Road Bridges	Point/Polygon/Line
Road Traffic Facilities	Point/Polygon/Line
Roads Street Furniture	Point
Road Signs	Point

Table 5: Drainage and Road Asset layer feature type.

4.3.4 Cad file/shapefile snapping

The line and point features within the cad file or shapefile must be snapped together so the correct feature connectivity is maintained. For example, service lines must snap to the main where they intersect and the main must snap to hydrants and valves (Figure 1).

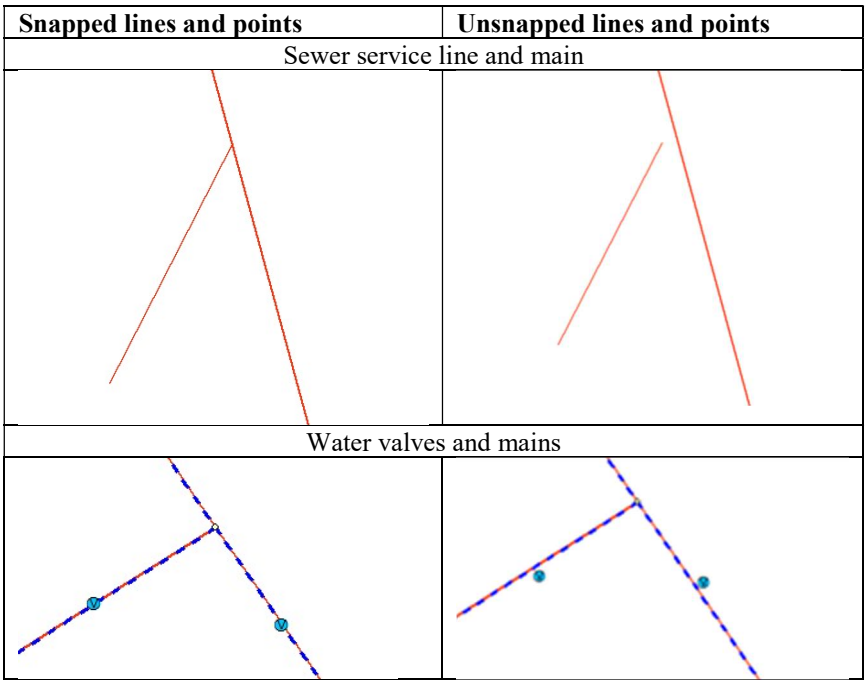

Figure 1: Snapping examples for CAD and Shapefile layers.

4.3.5 Cad file/shapefile attributes

Within the cad file or shapefile, each feature (point/line/polygon) needs to be assigned a Unique ID (relating to the hardcopy plan or lot) and have its assets recorded in the excel attribute table provided by Council. **You may choose to attribute the DXF or shapefile directly but all fields listed in the excel table must be shown in the DXF or Shapefile.**

- **DXF Unique ID** — The Unique ID column in the excel attribute table must be populated with a unique id number from the CAD file/shapefile. There must be one record per-feature being donated/constructed. The Unique ID *must be unique* or not repeated within the same layer. For example this unique ID can be the lot number in the case of services, or a manhole number coded the same as on the paper plan.

- **Shapefile Unique ID** — If a shapefile is provided, attributes of each asset must be included in the attribute table of the corresponding asset according to its unique ID. Alternatively the attribute table of the Shapefile may be populated with the columns and records directly to match the Excel table.

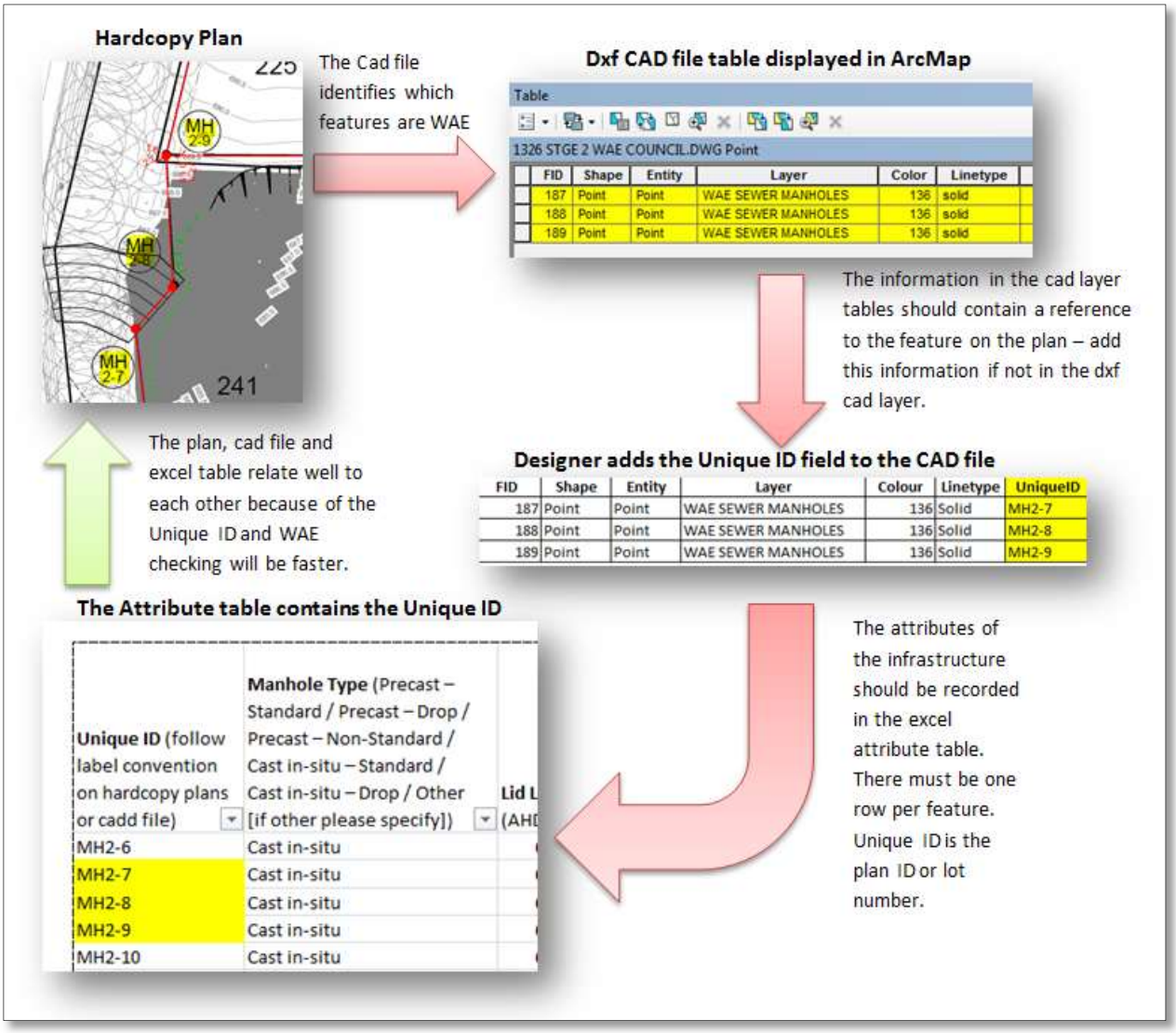

Figure 1: Importance of the Unique ID field in WAE files returned.

4.4 Excel attribute tables

The excel attribute tables for constructed assets must be completed and returned (without modification of the field structure). Excel templates of these attribute tables can be obtained from the Assets Branch by emailing a request to Asset.Officers@wsc.nsw.gov.au.

The required excel attribute tables are determined by the infrastructure types being donated within the development or covered by the project. The appendices are a series of excel workbooks separate to this document:

- Appendix 1 – Buildings WAEx 2020
- Appendix 2 – Parks WAEx 2020
- Appendix 3 – Roads WAEx 2020
- Appendix 4 – Drainage WAEx 2020
- Appendix 5 – Water WAEx 2020
- Appendix 6 – Sewer WAEx 2020
- Appendix 7 – Pumping Stations (Water and Sewer) WAEx 2020

4.5 Certificates, warranties and operation and maintenance manuals

Documents that relate to the installed infrastructure should be provided to Council with the Work as Executed Plans. These Documents are:

- Operation and Maintenance Manuals
- Warranties
- Specifications
- Certifications
- Compliance certificates

A copy of these files must be made available to Assets for storage in the Technical Library or incorporation into the Asset Register. Within Council this information will be passed on to Assets from the Planners, Certifiers, Development Engineers and Project Managers.

Examples of these documents include but are not limited to:

- Pump Station Operations and Maintenance Manuals,
- CCTV Inspection Reports and Footage,
- Building Air Conditioning Warranties,
- Specifications for Electrical Control Equipment or Telemetry,
- Building Fire Safety Certificates,
- Softfall drop tests.

5. File submission

5.1 File format

Electronic files must be submitted on a CD or USB (USB is preferred by Council).

Cloud based file sharing sites are not to be used unless prior consent has been sought from the Project Manager or Development Engineer overseeing the Project/Development. All file sharing sites must be cleared with the IT Department before a website or file link will be unblocked for internal use.

5.2 File submission contact

Work as Executed Files should be submitted to the relevant council contact within Development Control, Planning, Certification or Projects and not directly to the Assets Branch. For an official receipt of files emails also copy mail@wsc.nsw.gov.au .

Asset Officers will receive the submitted Work as Executed files from the Council Officer responsible for overseeing the project/development application.

5.3 Assessing submitted files

Once received by Assets the Work as Executed Files are pre-checked within a two-week turnaround timeframe and issues are raised with the Development Engineer/Project Manager/Planner/Certifier to follow up and resolve with the contractor or developer.

Subsequent files (including final WAE) submitted may require an additional two weeks checking period for each data submission to Council.

Once Assets is satisfied that the content of the constructed asset data is accounted for, the relevant project/development application contact will be notified that the files are acceptable to Assets.

Note that each asset type is checked manually by the Asset Officer responsible for that infrastructure type eg. An approval for drainage in a subdivision may not necessarily mean an approval for sewer or water if included in the same subdivision.

5.4 Development/project sign off

Failure to provide the requested asset information and address identified issues within the Work as Executed documents may cause a delay in the issue of:

- The Subdivision Certificate
- The Interim Occupation Certificate for buildings
- The signoff of completed projects and payment of final invoices
- The release of bonds held

6 Staged developments or projects

If the development or project is staged, then a separate set of Work as Executed files is required for each stage. e.g. Stage 1 infrastructure should not appear as a mark-up in red on the Stage 2 plan and should not be included in the cad or shapefiles without being clearly defined as Stage 1 in the attributes of the file.

Additionally, in staged developments or projects a clear site stage plan should show a plan of the location of each stage.

7 Type of project

Council receives assets from many sources during the year. These include developer donated, community projects, capital works projects by a contractor (from Tender), internal run projects. When submitting a tender request or defining the parameters of the project it is important to outline the data submission requirements to the contractor. In the absence of the contractor completing the WAEx appendices the project manager must arrange for these to be completed as they form a required part of Project Completion.

8 Data submission dates

The date that the Work as Executed Data is due to be returned to council is the date specified within the relevant Tender or Contract. If no date is specified within the contract or tender, then the Work as Executed data relating to installed infrastructure must be returned to Council within one month of installation or construction of the infrastructure.

For work involving Council Buildings the Work as Executed files and documents are due before the issue of the Interim Occupancy Certificate.

9 Digital data requests

When requested, the Asset Officers may provide spatial data to Contractors for the purpose of assisting in the production of a Work as Executed Plan for specific projects.

The decision to provide data is assessed on a project by project basis at the discretion of the Project Manager and/or Asset's Manager.

A copy of the data will not be provided without the signing of a current data confidentiality agreement. Appendix 8 provides an example agreement. If cadastre is required, then an additional agreement is required (Appendix 9).

Data can be provided in Geodatabase, Shapefile or CAD format. Please note that CAD outputs are limited to those available in ESRI ArcMap software and may not be compatible with the user's CAD program. Note that support for cad files sent cannot be provided by Assets as CAD based software's are not used within the branch.

10 Reporting of disposed asbestos containing material

The spatial location of disposed assets containing asbestos is required to be marked up on the plan, excel sheet and CAD file to maintain an accurate Asbestos Register and Asset Register.

Plans must show the location where asbestos was removed, the date of removal and the treatment method. Where the asbestos containing material (ACM) forms part of the component of the building and it is not practical to show these spatially on a plan, a copy of the asbestos register for the building may be provided and the mark up made on a copy of the register for submission with the WAEX document package.

Please note that the Asbestos Register for a building should already be requested and on hand prior to any work taking place.

11 Assistance with WAE submissions

If you require further assistance with the Work as Executed information you are required to submit please, in the first instance, discuss this with the Project Manager or Development Engineer who you have been in contact with. If you require technical information about correct file types for submission or you would like to make a data request, please contact Council on (02) 4868 0888 and ask to speak to an Asset Officer for the relevant asset you are dealing with. Emails can also be sent to the Asset Officers at Asset.Officers@wsc.nsw.gov.au