



**WAIMAKARIRI**  
DISTRICT COUNCIL

**ENGINEERING CODE OF PRACTICE**

# **PART TWELVE**

**AS-BUILTS**

**April 2009**



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## Part 12: As-Builts

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## Part 12: As-Builts

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## Part 12: As-Builts

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### 12.1 INTRODUCTION

The As-Built plans shall be made available by the developer at the time of the Condition Certificate inspection, in compliance with this part of the CoP. The relevant certificates are shown below in Table 12.1. These certificates shall not be issued until the as-built plans and data has been supplied to the Council.

**Table 12.1 Condition Certificates**

Type	Certificate
Subdivision / Resource Consent	224(c) Compliance Certificate
Design or Construction Contract	Practical Completion Certificate

The plans shall detail all actual/legal information regarding the location of all property boundaries, pipe locations, diameters and materials used, depths and date of completion, pumps, valves and control equipment (including manufacturers and date of manufacture), and other structures including manholes (giving levels of invert and lid), kerbs, sumps, culverts and discharge points.

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## Part 12: As-Builts

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### 12.2 AS-BUILT ACCURACY

Provide all as-built locations and levels in the X, Y, Z plane detailed in Table 12.2.

**Table 12.2 Level Accuracy**

Feature	Tolerance
Pipe Invert (wastewater and stormwater only)	±20mm
Manhole Lid (wastewater and stormwater only)	±20mm
Reservoir RL	±20mm
Fire Hydrant Orifice	±20mm

Measure the position of all stormwater or wastewater pipe eyes and junctions from the centre of the downstream structure. Alternatively, fix the position using GPS equipment.

GPS coordinates to be provided to at 100m intervals, including changes of grade and direction for all road centrelines, pipelines, kerb-lines and supporting plant. Where permanent and or semi permanent features are used for offset dimensions GPS coordinates of these features shall also be provided. Where applicable, all Lid Level GPS coordinates and all Pipeline Invert Levels shall also be provided.

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## Part 12: As-Builts

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### 12.3 AS-BUILT RECORDS

Provide as-built plans, in the same form (e.g. scale, size) as the accepted engineering or landscape plans and to at least the same level of detail. They must show all built assets to be taken over by the Council. Provide details of the datum used, in accordance with CoP Part 2 clause 2.5.1 – *Investigation and Design*.

#### 12.3.1 General

Where providing paper copies, mark as-built details in red on as-built plans. Clearly mark plans as “As-built” by stamping or changing the title block. Date and sign the as-built plans. Council will retain a copy of all “As-Built” drawings and Certification statements. Drawings shall be based on coordinated data from permanent control points or measurement from coordinated property boundaries.

All locations will be dimensioned and shown on the plans, including changes of grade and direction for all road centrelines, pipelines, kerb-lines and supporting plant. Where applicable, all lid level coordinates and all pipeline invert levels shall also be provided.

The consultants shall record the position and depth of the pipeline with offset dimensions to recognizable and permanent / semi-permanent site features at a distance no greater than 100m, in both horizontal directions, as per Figure 12.1. The GPS coordinates of these features shall be provided. Dimensions provided with only one horizontal direction, as shown in Figure 12.2, are not acceptable.

A1 paper “As built” copies and electronic format (CAD) data will be supplied in all cases. Hardcopy mark-ups of construction drawings are not acceptable.

Only metric units are to be used in as-built data. Principally these are millimetres (mm), meters (m), litres/sec (L/s), and cubic meters/day ( $m^3/day$ ).

Original as-built plans shall be completed to the appropriate scales. Standard scales are 1:50, 1:100, 1:200, 1:250, 1:500, 1:750, 1:1000 and 1:1500. Map symbols to be those required by AS/NZS 1100. All text and symbols must be legible at A3 size.

Each Part of the CoP may have additional requirements or documentation e.g. calculations, planting lists, for that type of work, which must be supplied with the as-built plans. Check with each Part for further information.

#### 12.3.2 Electronic Files

Electronic plan files are to be submitted in one of the following formats: DWG, DXF or DGN (V8). Format dates as day/month/year.

The co-ordinate system may be New Zealand Transverse Mercator Projection (NZTMP) or New Zealand Map Grid (NZMG). All levels are to be in terms of Lyttelton MSL 1937 and to 2 decimal places.

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Part 12: As-Builts

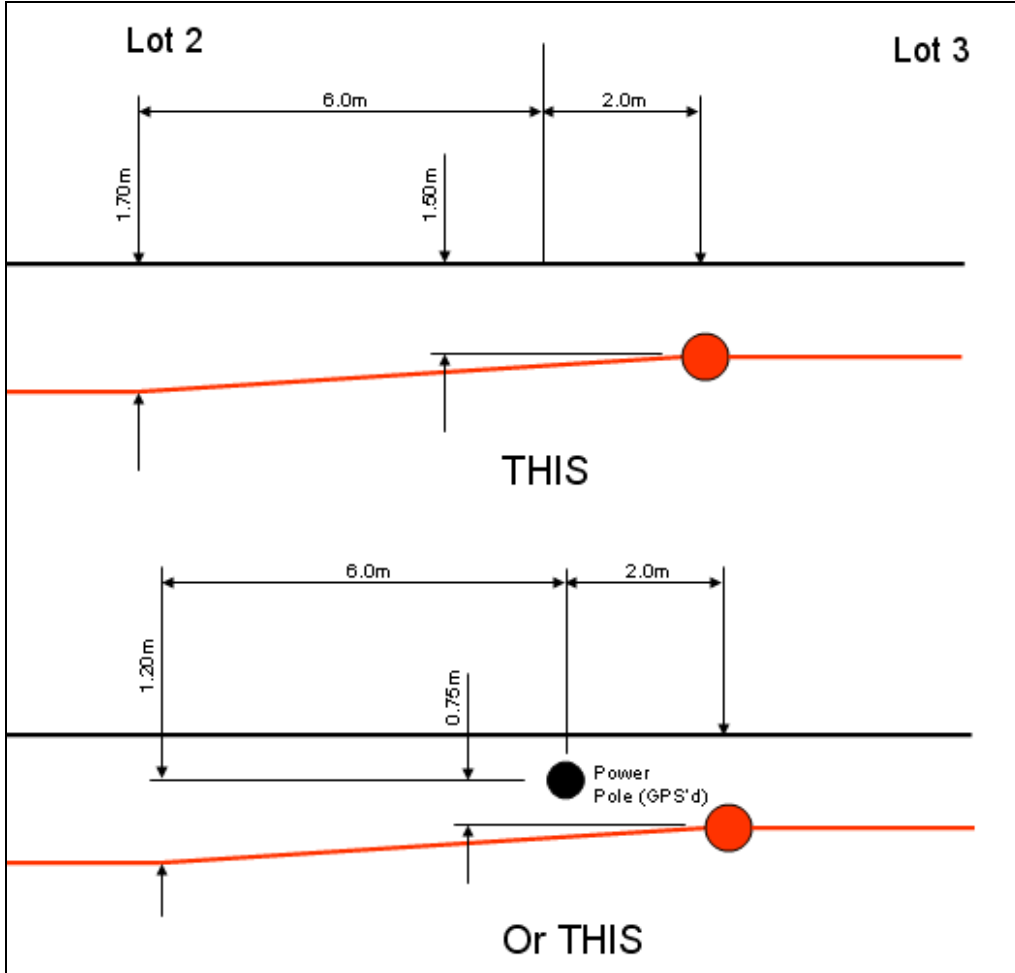


Figure 12.1 Examples of acceptable as-built drawings

## Part 12: As-Builts

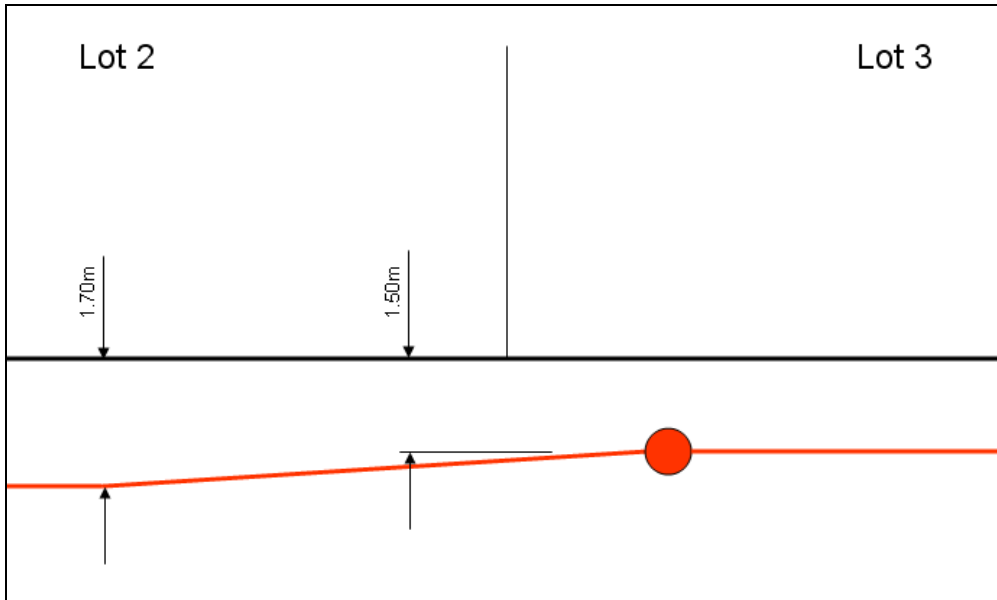


Figure 12.2 Example of unacceptable as-built drawing

### 12.3.3 Part 4: Geotechnical Requirements

Provide the geotechnical completion report and tabulated results, where required.

The geotechnical completion report will be used by the Council to update the Information Register, or property files for LIM or PIM data. To aid in transferring this information into the LIM system, provide the data in a tabulated form, related to lot numbers where possible. Consent Notices under Section 221 of the Resource Management Act (1991) may be required for such sites as a condition of subdivision consent such as:

- The need for an appropriately qualified specialist to carry out further geotechnical investigations as part of a building consent application.
- The specific requirements or recommendations that need to be considered.

If NZS 4431 was applicable to the development, prepare an as-built plan in accordance with that standard.

If NZS 4431 was not applicable, prepare an as-built plan as follows. It must show the extent and depth of fill in the form of lines that join all points of equal depth of fill at vertical intervals, which adequately define the fill. Alternative methods of representing the fill depths may also be acceptable. It must show areas of filling of low density, any fill areas that the geotechnical engineer considers as not complying with the CoP, and areas where the standards have been varied from the original construction specification.

The as-built plan must record the position, type and size of all subsoil drains and their outlets. It must also provide information about any underrunners and springs located.





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## Part 12: As-Builts

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### 12.3.4 Part 5: Stormwater and Land Drainage

Provide as-built plans and information for all pipes and structures to be vested in Council ownership, including the construction cost. The as-built information must conform to the asset features, materials and types listed in QP-C821-AA (attached as Appendix A) (which generally covers pipes and pipe-related assets) and QP-C821-AB (attached as Appendix B) (which generally covers open waterway-related assets). Itemise the construction cost into at least the major asset types from Appendix A and Appendix B, and to separate assets (e.g. costs of each of two basins) within the asset types.

Use the checklists provided in the appendices when compiling field pickup sheets or plans. Only one invert level is required where the inlet and outlet inverts are the same. Backfilling of service trenches must not start until as-built information has been taken.

Provide the following additional as-built information for non-pipe stormwater assets (e.g. pump station):

- Three copies of the product manual (electronically);
- Two copies of the master drawings;
- Engineering drawings, set out as stated in section 12.3.2;
- Electronic file (or hardcopy) for Building, Reticulation, Pumps, Reservoirs, Cables and Wells;
- Operations & Maintenance Manuals: Electrical, Mechanical;
- Pickup sheets;
- Diesel generator capacity details;
- Power connection ICP number;
- Digital photos of new assets;
- Grounds maintenance plans (in pdf).

### 12.3.5 Part 6: Wastewater Drainage

Provide as-built information conforming to the asset features, materials and types listed in QP-C821-AC (attached as Appendix C).

Use the checklists provided in the appendices when compiling field pickup sheets or plans. Only one invert level is required where the inlet and outlet inverts are the same. Backfilling of service trenches must not start until as-built information has been taken.

Provide the following additional as-built information for non-pipe wastewater assets (e.g. pump station, biofilter):

- Three copies of the product manual (electronically);
  - Two copies of the master drawings;
  - Engineering drawings, set out as stated in section 12.3.2;
  - Electronic file (or hardcopy) for Building, Reticulation, Pumps, Reservoirs, Cables and Wells;
  - Operations & Maintenance Manuals: Electrical, Mechanical;
  - Pickup sheets;
  - Diesel generator capacity details;
  - Power connection ICP number;
  - Digital photos of new assets;
  - Grounds maintenance plans (in pdf).
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## Part 12: As-Builts

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### 12.3.6 Part 7: Water Supply

When the installation of the mains is complete, give 24 hours notice to the Council, who will arrange the necessary measurements for the as-built plans. Backfilling of service trenches must not start until as-built information has been taken.

Provide as-built information conforming to the asset features, materials and types listed in QP-C821-AD (attached as Appendix D). Specify details of the commercial restrained joint systems on the as-built plans, including the location of restrained portions of pipelines, including joints.

Use the checklists provided in the appendices when compiling field pickup sheets or plans.

Provide the following additional as-built information for non-pipe water supply assets e.g. pump station, reservoir, new well):

- Three copies of the product manual (electronically);
- Two copies of the master drawings;
- Engineering drawing, set out as stated in section 12.3.2;
- Electronic file (or hardcopy) for Building, Reticulation, Pumps, Reservoirs, Cables and Wells;
- Operations & Maintenance Manuals: Electrical, Mechanical;
- Pickup sheets;
- Well information: well consent details, well log, water quality results (in hard copy and electronic template, available from project manager);
- Diesel generator capacity details
- Power connection ICP number;
- Digital photos of new assets;
- Grounds maintenance plans (in pdf).

### 12.3.7 Part 8: Roading

The Council maintains a RAMM database. To provide updated information for all new road construction and as part of the As-Builts, the subdivider shall provide the daily site records from the Sealing Contractor to the Council.

Load as-built records for the tabulated asset types, using pocket RAMM, in the Council's RAMM database.

Details of approved contractors, currently able to carry out this work, can be obtained from [www.ccc.govt.nz/doingbusiness/approvedcontractors/](http://www.ccc.govt.nz/doingbusiness/approvedcontractors/).

Before compiling any as-built RAMM data, obtain the following information from the Council:

- Road ID;
- Road name;
- Start Displacement.

The tables below are not intended to be a complete list but provide an indication of the information required. Depending on the assets installed, additional information may be required to provide a complete description of the asset. RAMM provides existing fields to achieve this.

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## Part 12: As-Builts

**Table 12.3 Footpath and berm RAMM data fields**

Type	Inventory Data	Location incl. GPS	Property Address	Other Fields
Footpaths	Surfacing, Layer details, Materials	No	No	Position, Purpose, Side, Length, Width, Depth, Date constructed
Berms	Layer details	No	No	Type, Plant cover, Area, Side, Width, Date constructed
Structures	Construction materials, Type, Components	Yes	Yes	Digital photographs, Date constructed

**Table 12.4 Carriageway RAMM data fields**

Type	Inventory Data	Other Fields
Pavement and surface treatment	Length, Width, Actual layer thicknesses, Materials, Construction types, Sealed area	Sub-grade CBR values and locations, Benkelman Beam results and locations, Road roughness, Deviations from design e.g. areas of extra depth construction, Date completed, Contractor, Design life, Binder details
Kerbs and channels	Length, Type	Stormwater details e.g. underchannel pipes and pipe connections, Date completed
Sumps	Sump type, Materials	Date completed
Bridges	Length, Overall width, Area of deck	Construction type, Materials, Date completed, Number of spans
Retaining walls	Length, Overall width, Height, Face area	Construction type, Materials, Date completed
Culverts	Length, Overall width, Diameter	Construction type, Materials, Date completed
Other structures	Length, Overall width, Height, Face area	Construction type, Materials, Date completed

Note:

- Bridges are defined as having a waterway cross-sectional area of 3.4m<sup>2</sup> or greater.
- Culverts are defined as having a waterway cross-sectional area smaller than 3.4m<sup>2</sup>, regardless of culvert shape.
- Pipes are 600mm diameter and smaller.

**Table 12.5 Sign RAMM data fields**

Type	Inventory Data	Location incl. GPS	Property Address	Other Fields
Signs	Class, Type, Legend (including colour, material), Framed Y/N, Substrate, Background colour/material	Yes	Yes	Dimensions, Direction, Offset from kerb, Date completed, Support type, Number of posts
Posts	Type, Shape, Material, Mount			

### 12.3.8 Part 10: Reserves, Streetscapes and Open Spaces

Provide plans setting out the location, size and design details of all reserves, street trees and street gardens.

Provide updated planting plans, with planting schedules amended to record actual plants installed, including source of supply. Include any amendments to structures and furniture.



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## Part 12: As-Builts

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Provide an electronic spreadsheet giving details of all assets on reserves to be vested in Council and the associated GIS layers of these assets (where electronic drawings are provided). A data dictionary will be available on request from the Council, giving particular details required for different asset types.

The information required includes:

- Consent Number associated with asset;
- Name of adjoining main street;
- Ward name in which the park/reserve is located;
- A sequential unique ID for each new asset collected (e.g. N1, N2, N3 etc);
- Location description on-site or GPS co-ordinates (latter required only if the former is too difficult);
- Measurements (length, area, height etc – see data dictionary for details);
- Construction materials (see data dictionary for details);
- Manufacturers name;
- Date of construction/installation in park/reserve;
- Maintenance/warranty period;
- Asset Type (see data dictionary for details).

The list below gives an indication of the types of reserves assets currently owned and managed by the Council:

- Play & Sports Facilities;
- Buildings;
- Bridges & Structures (including walls & fences);
- Plantings (including grass areas);
- Trees;
- Car Parks & Drives;
- Paths & Tracks;
- Artworks & Monuments;
- Furniture;
- Park Utilities (e.g. paddling pool pumps, storage tanks, irrigation systems etc).

Collect each of the above assets recorded within the spreadsheet in GIS. Collect different asset types in different GIS layers. In GIS attribute tables, enter **only** the sequential unique ID and Consent Number captured above for each asset, to identify which GIS feature matches which entry in the spreadsheet.

Data rules around the capture of GIS data will be available on request from the Council. GIS layers must be in Geomedia format and registered to the NZMG co-ordinate system.

Where development or landscaping occurs on an existing Council park or reserve, the Council will provide where necessary a spreadsheet and accompanying GIS layers (if available) of the existing assets to update. Capture all new assets constructed or installed as part of the development as above.

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## Part 12: As-Builts

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### 12.3.9 Part 11: Lighting

Load as-built records for the streetlighting assets, using pocket RAMM, in the Council's RAMM database.

**Table 12.6 Streetlight RAMM data fields**

Type	Inventory Data	Location incl. GPS	Property Address	Other Fields
Streetlight	Wattage, material, surface treatment, supply, type, bulk circuit, type (bracket, light, lamp)	Yes	Yes	Height, owner, offset from kerb, date tested, date completed
Pole	Type, mount			Owner, purpose

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## Part 12: As-Builts

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### **12.4 ASSOCIATED DOCUMENTS**

Appendix A As-Built Data Checksheet – Stormwater (QP-C821-AA)

Appendix B As-Built Data Checksheet – Land Drainage (QP-C821-AB)

Appendix C As-Built Data Checksheet – Wastewater (QP-C821-AC)

Appendix D As-Built Data Checksheet – Water Supply (QP-C821-AD)

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## As-Built Data Checksheet – Stormwater

### Stormwater features

Tick	Stormwater Pipe	Notes and Explanations
	Nominal Diameter	
	Material	Refer Stormwater Pipe Material list
	Pipe Type	Refer Stormwater Pipe Type list
	Installation Date	
	Upstream Invert Level	
	Downstream Invert Level	
	Eye Position	
	Junction Position	
	<b>Stormwater Manhole</b>	
	Position X,Y	Centre of manhole
	Installation Date	
	Lid Level	Northeast frame corner
	Manhole Type	Refer Stormwater Manhole Type list
	<b>Stormwater Inspection Chamber</b>	
	Position X,Y	
	Installation Date	
	Lid Level	Northeast frame corner
	<b>Stormwater Inspection Chamber</b>	
	Position X, Y	
	Installation Date	
	<b>Stormwater Pipe Bend</b>	
	Position X, Y	
	Angle	E.g. 11.25, 22.5, 45, 60, 90
	<b>Stormwater Inlet Sump</b>	
	Position X,Y	Centre of sump
	Installation Date	
	Sump Type	Refer Stormwater Sump Type list
	<b>Stormwater Outlet Sump</b>	
	Position X,Y	Centre of sump
	Installation Date	
	Sump Type	Refer Stormwater Sump Type list
	<b>Stormwater Lateral</b>	
	Nominal Diameter	
	Material	Refer Stormwater Pipe Material list
	Installation Date	
	Position X,Y	
	<b>Stormwater Pumping Station</b>	
	Position X,Y	
	Installation Date	



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## As-Built Data Checksheet – Stormwater

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	Pump Station name	
	Pump Make(s) and Model(s)	
	Duty heads/capacities	
	<b>Stormwater Structure</b>	
	Position X,Y and extent	
	Installation Date	
	Structure Type	Refer Stormwater Structure Type list
	<b>Stormwater Valve</b>	
	Position X,Y	
	Installation Date	
	Valve Type	Refer Stormwater Valve Type list
	<b>Stormwater Pipe Protection</b>	
	Protection Type	Refer Stormwater Pipe Protection Type list
	Position X,Y	At each end of protection

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## As-Built Data Checksheet – Stormwater

### Stormwater material and type lists

<b>Stormwater Pipe Material</b>	
ABS	Acrylonitrile Butadiene Styrene
AC	Asbestos Cement
CI	Cast Iron
CLDI	Concrete Lined Ductile Iron
CLS	Concrete Lined Steel
CONC	Concrete
EW	Earthenware
GALV	Galvanised Iron
HDPE	High Density Polyethylene
MDPE80	Medium Density Polyethylene 80
MDPE100	Medium Density Polyethylene 100
Novaflo	Novaflo
PVC	Polyvinyl Chloride
PVC-M	Modified Polyvinyl Chloride
PVC-U	Unplasticised Polyvinyl Chloride
RCRR	Reinforced Concrete Rubber Ringed
STEEL	Steel
VCP	Vertically Cast Concrete Pipe
WI	Wrought Iron
<b>Stormwater Pipe Type</b>	
Box Culvert	
Culvert	
Field Tile	
Gravity	
Pressure	
<b>Stormwater Manhole Type</b>	
Non-Standard Manhole	
Standard Manhole	
Standard Manhole-Circular	
<b>Stormwater Sump Type</b>	
Double	
Hillside	
Single	
Triple	
<b>Stormwater Structure Type</b>	
Bridge	
Energy Dissipator	
Gauging Weir Chamber	
Head Wall	



## As-Built Data Checksheet – Stormwater

Inlet	
Outlet	
Pump Chamber	
Settling Tank	
Silt Trap	
Non Standard Manhole	
Valve Chamber	
Weir	
<b>Stormwater Valve Type</b>	
Flap Valve	
Automatic Restrictor Valve	Specify type and/or function
Automatic Shutoff Valve	Specify type and/or function
Manual Restrictor Valve	Specify type and/or function
Manual Shutoff Valve	Specify type and/or function
<b>Stormwater Pipe Protection Type</b>	
Concrete Beam	
Concrete Cover	
Concrete Haunch	
Concrete Surround	
PVC Sleeve	
Reinforced Concrete Surround	
Steel Cover	
Steel Surround	

NOTE: Only use this list. Brand names are not acceptable e.g. Everite. If materials are used that do not appear on this list, contact the Council



## As-Built Data Checksheet – Land Drainage

### Watercourse Features

Tick	Watercourse	Notes and Explanations
	Position X,Y	
	Installation Date	
	<b>Watercourse Lining</b>	
	Position X,Y	
	Installation Date	
	Lining Type	Refer Watercourse Lining Type list
	Top Width	
	Bottom Width	
	Depth	
	<b>Watercourse Basin</b>	
	Position X,Y and extent	Include contour plan
	Installation Date	
	Basin Type	Refer Watercourse Basin Type list
	Invert levels on inlet(s)	Lip of sump or pipe invert
	Invert levels on outlet(s)	Lip of sump or pipe invert
	Design volume	Design return period
	<b>Watercourse Structure</b>	
	Position X,Y	Position of a point marked on the as-built plan if the structure is a point feature, or start and end points if it is a linear feature e.g. retaining wall
	Installation date	
	Reference level	Level of a point marked on the as-built plan
	<b>Watercourse Valve</b>	
	Position X,Y	
	Installation Date	
	Valve Type	Refer Watercourse Valve Type list

NOTE: This table includes all open channels, rivers, creeks, swales, ponds, etc

### Enhancement Features

Tick	Enhancement	Notes and Explanations
	Start Position X,Y	Upstream
	Finish Position X, Y	Downstream
	Installation Date	

NOTE: This includes all plantings, stabilisation of banks, etc



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## As-Built Data Checksheet – Land Drainage

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### Watercourse type lists

Watercourse Lining Type	
CON-C	Concrete Slab with Concrete Frame
CON-I	Concrete Cast In-situ
CON-P	Concrete Precast
CON-T	Concrete with Timber Posts
INVT	Concrete Invert
INVT-R	Concrete Invert with Retaining Wall
LTIMB	Low Timber Lined
ROCK	Rock Lining
ROKMTR	Mortared Rock Lining
SPRAY	Sprayed Concrete
TIMB	Timber Lined
TIMB-T	Timber Lined with Top Struts
Watercourse Basin Type	
Detention	
Infiltration	
Lake	
Pond	
Retention	
Silt Trap	
Soak Pit	
Swale	
Watercourse Valve Type	
Gate	
Flap Gate	
Tidal Gate	

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## As-Built Data Checksheet – Wastewater

### Wastewater Features

Tick	Wastewater Pipe	Notes and Explanations
	Nominal Diameter	
	Material	Refer Wastewater Pipe Material list
	Pipe Type	Refer Wastewater Pipe Type list
	Installation Date	
	Pressure Class	
	Upstream Invert Level	
	Downstream Invert Level	
	Grade	
	Eye Position	
	Eye Type	Refer Wastewater Eye Type list
	Junction Position	
	Junction Type	Refer Wastewater Junction Type list
	Treatment Diameter	Internal diameter after reduced by treatment (lining etc.)
	Pipe shape	Circular/oval
	<b>Wastewater Manhole</b>	
	Position X,Y	Centre of manhole
	Installation Date	
	Material	Brick, concrete
	Lid Level	Northeast frame corner
	Manhole Type	Refer Wastewater Manhole Type list
	<b>Wastewater Inspection Chamber</b>	
	Position X,Y	Centre of chamber
	Installation Date	
	Lid Level	Northeast frame corner
	<b>Wastewater Inspection Point</b>	
	Position X,Y	
	Installation Date	
	<b>Wastewater Pipe Bend</b>	
	Position X,Y	
	Angle	E.g. 11.25, 22.5, 45, 60, 90
	Upstream Invert Level	
	Downstream Invert Level	
	<b>Wastewater Flush Tank</b>	
	Position X,Y	Of the four corners
	Position X,Y	Centre of the access lid
	Installation Date	
	Material	Brick, concrete
	Capacity	Volume of flush tank in litres



## As-Built Data Checksheet – Wastewater

	<b>Wastewater Flush Tank Water Supply Pipe</b>	
	Position X,Y	Of pipe
	Position X,Y	Of pipe entry to flush tank
	Installation Date	
	Material	Refer Wastewater Pipe Material list
	<b>Wastewater Air Gap Separator</b>	
	Position X,Y	
	Installation Date	
	Diameter	
	<b>Wastewater Lateral</b>	
	Nominal Diameter	
	Material	Refer Wastewater Pipe Material list
	Lateral Type	Refer Wastewater Lateral Type list
	Installation Date	
	Position X,Y	
	Joint Connection	Are multiple dwellings connected to lateral: Yes/No
	Height above main	Measured in metres (e.g. 0.6m) Table 10 (cont.)
	<b>Wastewater End Cap</b>	
	Position X,Y	
	<b>Wastewater Pump</b>	
	Position X,Y	
	Pump Station Name	
	Pump Number	
	Installation Date	
	<b>Wastewater Structure</b>	
	Position X,Y and outline	
	Installation Date	
	Structure Type	Refer Wastewater Structure Type list
	<b>Wastewater Valve</b>	
	Position X,Y	
	Installation Date	
	Valve Type	Refer Wastewater Valve Type list
	Nominal Diameter	
	<b>Wastewater Pipe Protection</b>	
	Protection Type	Refer Wastewater Pipe Protection Type list
	Position X,Y	At each end of protection
	<b>Wastewater Repair</b>	
	Nominal Diameter	
	Position X,Y	At each end of repair
	Installation Date	
	Material	Refer Wastewater Repair Material list
	Repair Method	Refer Wastewater Repair Method list



## As-Built Data Checksheet – Wastewater

### Wastewater Material and Type Lists

<b>Wastewater Pipe Material</b>	
ABS	Acrylonitrile Butadiene Styrene
AC	Asbestos Cement
CERAMIC	Ceramic
CI	Cast Iron
CLDI	Concrete Lined Ductile Iron
CLS	Concrete Lined Steel
CONC	Concrete
EW	Earthenware
GALV	Galvanised Iron
HDPE	High Density Polyethylene
MDPE80	Medium Density Polyethylene 80
MDPE100	Medium Density Polyethylene 100
PVC	Polyvinyl Chloride
PVC-M	Modified Polyvinyl Chloride
PVC-U	Unplasticised Polyvinyl Chloride
RCRR	Reinforced Concrete Rubber Ringed
STEEL	Steel
VCP	Vertically Cast Concrete Pipe
WI	Wrought Iron
<b>Wastewater Pipe Type</b>	
Gravity	
Overflow	
Pressure	
Siphon	
Trunk	
Vent	
AGS Supply	
<b>Wastewater Eye Type</b>	
Dual	
Ramped	
Vertical	
<b>Wastewater Junction Type</b>	
Cross	
Tee	
Y	
<b>Wastewater Manhole Type</b>	
Flush Manhole	
Flush Manhole-Circular	
Non - Standard Manhole	



## As-Built Data Checksheet – Wastewater

Standard Manhole	
Standard Manhole-Circular	
Vented Manhole	
<b>Wastewater Lateral Type</b>	
Gravity	
Siphon	
Pressure	
<b>Wastewater Structure Type</b>	
Anchor Block	
Biofilter	
Biofilter Fan Chamber	
Flume	
Gauging Weir Chamber	
Pump Chamber	
Settling Tank	
Pump House	
Non Standard Manhole	
Valve Chamber	
Truck Wash	
<b>Wastewater Valve Type</b>	
Air Release – one way	
Air Valve – two way	
Butterfly	
Flap	
Non-return	
Sluice	
<b>Wastewater Pipe Protection Type</b>	
Concrete Beam	
Concrete Cover	
Concrete Haunch	
Concrete Surround	
PVC Sleeve	
Reinforced Concrete Surround	
Steel Cover	
Steel Surround	
<b>Wastewater Repair Material</b>	
ABS	Acrylonitrile Butadiene Styrene
AC	Asbestos Cement
CI	Cast Iron
CONC	Concrete
DI	Ductile Iron
EW	Earthenware





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## As-Built Data Checksheet – Wastewater

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GRP	Glass Reinforced Plastic
Polymer	
PVC	Polyvinyl Chloride
PVC-M	Modified Polyvinyl Chloride
PVC-U	Unplasticised Polyvinyl Chloride
RCRR	Reinforced Concrete Rubber Ringed
Spiral PVC	Steel
<b>Wastewater Repair Method</b>	
New Pipe	
Cast In-situ	
Grouted	
Patch Lining	
Lining	
Slip Liner	
RibLoc	

NOTE: Only use this list. Brand names are not acceptable e.g. Everite. If materials are used that do not appear on this list, contact the Council.

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## As-Built Data Checksheet – Water Supply

### Water Supply Features

Tick	Water Supply Pipe	Notes and Explanations
	Nominal Diameter	
	Material	Refer Water Supply Pipe Material list
	Installation Date	
	Pressure Class	
	Position X,Y	At each end of pipe, and at all tangent points on curved sections of pipe
	<b>Water Supply Valve</b>	
	Position X,Y	
	Installation Date	
	Valve Type	Refer Water Supply Valve Type list
	Activation Pressure	
	Nominal Diameter	
	Special Function	Refer Water Supply Valve Special
	<b>Function list</b>	
	Motorised	
	Clockwise Close	Yes/No
	<b>Water Supply Hydrant</b>	
	Position X,Y	
	Installation Date	
	Orifice Level	
	<b>Water Supply Pipe Fitting</b>	
	Position X,Y	
	Bend Angle	E.g. 11.25, 22.5, 45, 60, 90
	Fitting Type	Refer Water Supply Fitting Type list
	<b>Water Supply Meter</b>	
	Position X,Y	
	Installation Date	
	Meter Serial Number	E.g. 05A123874
	Diameter	
	<b>Water Supply Rural Restrictor</b>	
	Position X,Y	
	Installation Date	
	Capacity	E.g. 1 unit, 2 units, 3 units
	<b>Water Supply End Cap</b>	
	Position X,Y	
	<b>Water Supply Lateral</b>	
	Nominal Diameter	
	Material	Refer Water Supply Pipe Material list
	Pressure Class	
	Installation Date	
	Position X,Y	



## As-Built Data Checksheet – Water Supply

<b>Water Supply Pump</b>	
Diesel Backup	Yes/No
Pump Station Name	
Pump Function	Refer Water Supply Pump Function list
Pump Capacity	m <sup>3</sup> /hour
Position X,Y	
Pump Number	
Installation Date	
<b>Water Supply Reservoir</b>	
Position X,Y and extent	
Installation Date	
Reservoir Name	
Reservoir Number	
Capacity	m <sup>3</sup>
RL	
<b>Water Supply Structure</b>	
Position X,Y and extent	
Installation Date	
Structure Type	Refer Water Supply Structure Type list
<b>Water Supply Pipe Protection</b>	
Protection Type	Refer Water Supply Pipe Protection Type list
Position X,Y	At each end of protection



## As-Built Data Checksheet – Water Supply

### Water supply material and type lists

<b>Water Supply Pipe Material</b>	
ABS	Acrylonitrile Butadiene Styrene
AC	Asbestos Cement
CI	Cast Iron
CLDI	Concrete Lined Ductile Iron
CLS	Concrete Lined Steel
CONC	Concrete
EW	Earthenware
GALV	Galvanised Iron
HDPE	High Density Polyethylene
MDPE80	Medium Density Polyethylene 80
MDPE100	Medium Density Polyethylene 100
PVC-M	Modified Polyvinyl Chloride
PVC-U	Unplasticised Polyvinyl Chloride
PVC	Polyvinyl Chloride
RCRR	Reinforced Concrete Rubber Ringed
STEEL	Steel
VCP	Vertically Cast Concrete Pipe
WI	Wrought Iron
<b>Water Supply Valve Type</b>	
Air Release	
Backflow Prevention	
Butterfly	
Gate	
Motorised	
Non-return	
Pressure Reducing	
Pressure Relief	
Pressure Sustaining	
Sluice	
<b>Water Supply Valve Special Function Type</b>	
Bypass	
Fire Service	
Flushing Point	
Irrigation	
Scour	
Tap	
<b>Water Supply Fitting Type</b>	
Cross	
Joiner	
Reducer	



## As-Built Data Checksheet – Water Supply

Tee	
Bend	
<b>Water Supply Pump Type</b>	
Booster	
Primary	
Standby	
<b>Water Supply Structure Type</b>	
Non-Standard Anchor Block (large size)	
Break Pressure Tank	
Pump House	
Manhole	
Pump Chamber	
Settling Tank	
Valve Chamber	
Well	
<b>Water Supply Pipe Protection Type</b>	
Concrete Beam	
Concrete Cover	
Concrete Haunch	
Concrete Surround	
PVC Sleeve	
Reinforced Concrete Surround	
Steel Cover	
Steel Surround	

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