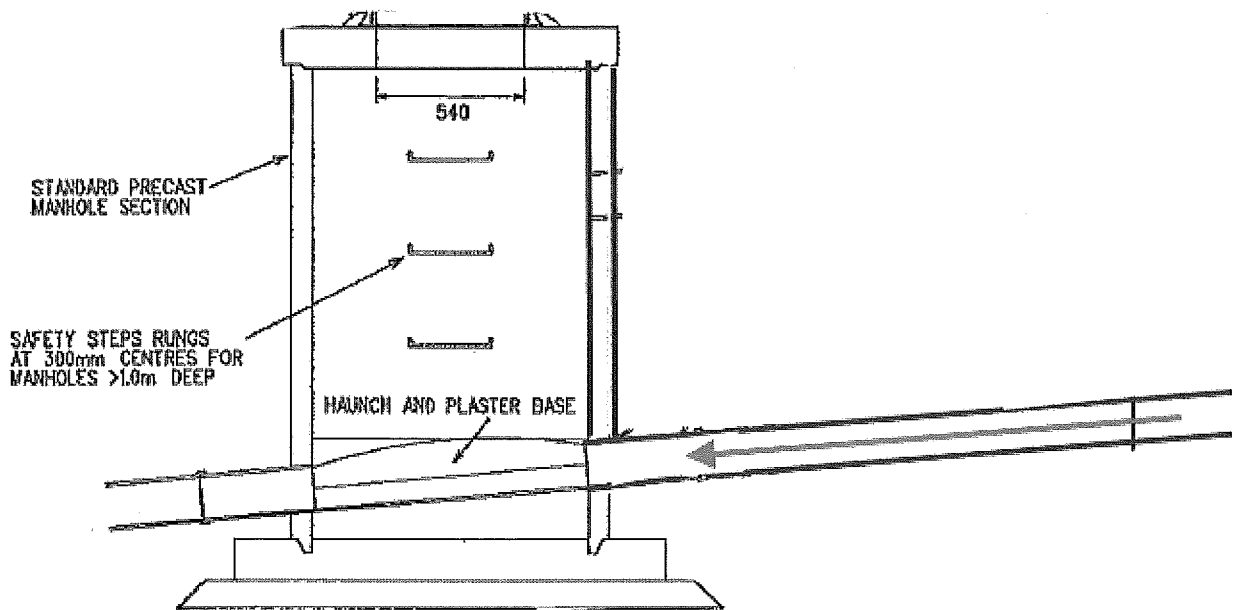
	<b>TO</b>	Submitters of Vested Asset Data.	<input checked="" type="checkbox"/> For Information <input type="checkbox"/> For Approval <input type="checkbox"/> For Action <input type="checkbox"/> For Recommendation
	<b>FROM</b>	Craig Goodwin	
	<b>DATE</b>	30/01/2013	
	<b>Version #</b>	1	
	<b>SUBJECT</b>	As-Built Drawing Submission Standards	

Council Issues	Policy	Operational	Business	Management Issues	Policy	Business
		☺		✓		

## TCDC Asset Data

### As-Built Drawing Specification



SEWER MANHOLE DETAIL

30/01/2013  
 Prepared by Craig Goodwin  
 Asset Database Manager  
 Thames-Coromandel District Council

## 1 Introduction

Opus Consultants were engaged to provide Council with a short report detailing how Contractors & Consultants are to deliver As-Built information.

CAD drawing files are a backup to spreadsheet & survey point file asbuilts.

## 2 AS-Built Drawings

### 2.1 Templates

A formatted spread sheet will be supplied & all columns are to be populated with As-Built information. The spread sheet can also be linked to drawings to act as an Item list for pipework components.

All drawing work & annotation to be completed in "Model Space" and units of measure should be metres.

Drawing title blocks are to be completed in "Paper Space". The title block and/or an associated note in "Paper Space" shall include the following information:

- - Contract/Sub division Number
- - Date Drawn
- - Street or Area Location
- - Contractors Name
- - Scale
- - Surveyors Name
- - Construction date
- - Drawing amendment/issue number
- - The words "As-Built Plans"
- - Drawing sheet size
- - Cadastral boundaries source note.

### 2.2 CAD Layers

Standard Layer Naming for **As-Built Complex Drawings** is required with layers in the Plan views required to have **\_P** used at the end of the layer name. This will allow easy identification of layers required for loading into GIS. Text in "Plan View" & other views like sections & details will not have the **\_P** at the end of the layer name.

LAYER	DESCRIPTION	VIEW
BUILDING_P	Structures	Plan
PIPEWORK_P	Pipework	Plan
CENTRELINE_P	Centreline of pipework	Plan

MECHANICAL EQUIPMENT_P	Cabinets, Switchboards	Plan
PUMPS_P	Pump Outlines	Plan
WATER_P	Buried Water Pipes	Plan
POWER_P	Buried Power Cables,Ducts	Plan
GAS_P	Buried Gas Pipes	Plan
SEWER_P	Buried Sewer Pipes	Plan
STEELWORK_P	Structural steelwork	Plan
POND_P	Outline of Pond	Plan
TEXT_P	Annotation	Plan
DIMENSIONS_P	Dimensions	Plan
CONCRETE	Structures	Sections & Details
PIPEWORK	Pipework	Sections & Details
CENTRELINE	Centreline of pipework	Sections & Details
MECHANICAL EQUIPMENT	Cabinets, Switchboards	Sections & Details
PUMPS	Pump Outlines	Sections & Details
WATER	Buried Water Pipes	Sections & Details
POWER	Buried Power Cables,Ducts	Sections & Details
GAS	Buried Gas Pipes	Sections & Details
SEWER	Buried Sewer Pipes	Sections & Details
STEELWORK	Structural steelwork	Sections & Details
TEXT	Annotation	Sections & Details
DIMENSIONS	Dimension Lines	Sections & Details

Additional meaningful layer names may be added by users if not shown above.

### 2.3 Pipeline & Node Networks

Standard Layer Naming for **Pipeline Drawings** is required with all layers in the Plan views required to have \_P used at the end of the layer name. This will allow easy identification of layers required for loading into GIS. Views like sections & details will not have the \_P at the end of the layer name.

The centreline of the pipeline to be indicated on the drawing as a continuous 3D polyline with Invert levels at pipeline change points. Change points are defined as Manholes, Valves, change of pipeline class, change of pipeline material & bends. Manholes to indicate lid levels . Pipes connecting with manholes to capture entry & exit Invert levels.

LAYER	DESCRIPTION	OBJECT/DATA TYPE	LINE/POINT COLOUR	VIEW
WW_LINE_P	Wastewater Centreline of Pipework	Line/Polyline	Red (10)	Plan

WW_POINT_P	Wastewater Manholes, Valves, Bends etc	Point	Red (10)	Plan
WW_TEXT	Pipe & Node Network Annotation	Text	Dark Red (242)	Plan, Sections & Details
WW_DIMENSIONS	Pipe & Node Dimension Lines	Line/Polyline	Black (7)	Plan, Sections & Details
WW_CONN_P	Wastewater Lateral Connection Property to Main	Line/Polyline	Red (10)	Plan
WW_CONN_TEXT	Annotation	Text	Dark Red (242)	Plan, Sections & Details
WW_CONN_DIMENSIONS	Dimension Lines	Line/Polyline	Black (7)	Plan, Sections & Details
WS_LINE_P	Water supply Centreline of pipework	Line/Polyline	Blue (131)	Plan
WS_POINT_P	Water supply Valves, Bends etc	Point	Blue (131)	Plan
WS_TEXT	Pipe & Node Network Annotation	Text	Dark Blue (160)	Plan, Sections & Details
WS_DIMENSIONS	Pipe & Node Dimension Lines	Line/Polyline	Black (7)	Plan, Sections & Details
WS_CONN_P	Water supply Lateral Connecting Property to Main	Line/Polyline	Blue (131)	Plan
WS_CONN_TEXT	Annotation	Text	Dark Blue (160)	Plan, Sections & Details
WS_CONN_DIMENSIONS	Dimension Lines	Line/Polyline	Black (7)	Plan, Sections & Details
SW_LINE_P	Stormwater Centreline of Pipework	Line/Polyline	Green (70)	Plan
SW_POINT_P	Stormwater Manholes, Valves, Bends etc	Point	Green (70)	Plan

SW_TEXT	Pipe & Node Network Annotation	Text	Dark Green (89)	Plan, Sections & Details
SW_DIMENSIONS	Pipe & Node Dimension Lines	Line/Polyline	Black (7)	Plan, Sections & Details
SW_CONN_P	Stormwater Connecting Pipe to Main		Green (70)	Plan
SW_CONN_TEXT	Annotation	Text	Dark Green (89)	Plan, Sections & Details
SW_CONN_DIMENSIONS	Dimension Lines	Line/Polyline	Black (7)	Plan, Sections & Details

Additional meaningful layer names may be added by users if not shown above.

## 2.4 Spatial Data

1. Electronic deliverables to be supplied in NZTM 2000 projection OR Mt Eden Circuit 2000.
2. The vertical Datum to use is Auckland 1946 Level datum.
3. Accuracy of the data supplied is to be +/- 0.01m (10mm) for X,Y and +/- 0.02m (20mm) for Z co-ordinates. This is especially important in areas where there is little variance in topography.

## 2.5 Contour Models & Survey Data

Contours of finished surface are to be extracted to polylines with elevation & supplied to the council in ESRI shape file format.

Survey data captured during design & As-Built phases to be provided as a .csv file format PENZD as well as being shown on the drawings.

## 3 Drawing Detail

- a) All drawings that have required the use of x-references shall be supplied with no path names saved with the x-ref files.
- b) All drawing files shall be purged of unused data.
- c) All "Plan Views" of structures, ponds, reservoirs etc to be drawn in the NZTM co-ordinate system. Plans to show the North direction.
- d) An Asset ID on the drawing for each asset matching the asset as identified on the relevant supplied attribute spread sheet.

- e) Roothing Features: Kerb line, edge of seal, medians strips etc
- f) Also included on all drawing sheets will be a clear and legible Legend of all symbols and line types used.
- g) The "Status" of every asset does not need to be labelled along the length of the network, so long as the point at which the status of the asset changes say from "Existing" to "New" is clearly defined.
- h) Any underground services not previously marked on services plans. The Contractor shall note where it was encountered that the existing utility services differed from the council's utility services plans
- i) Pipelines and manholes that are made redundant or removed as part of the works must be labelled on the plans as such.
- j) The co-ordinates of at least three points (Triangular Spacing's) on each plan in terms of the approved projection and datum that can be used to spatially register the drawing as a Raster Image if required. Please use existing cadastral – (LINZ property boundaries) showing more than 3 intersecting boundaries that can provide sufficient triangulation **OR** an correctly positioned and labelled grid can be shown.
- k) Co-ordinates, lid levels and all invert levels to the approved Datum (*Auckland 1946 Datum*), for all manholes, outfall structures, tees, bends, valves and hydrants etc. Populate the supplied spread sheet.
- l) For Water Supply and Wastewater Valve assemblies in chambers. The arrangement of multiple fittings must be clearly legible. The contractor must draw on a separate sheet to show the detail of the fitting configuration. Populate the supplied spread sheet.
- m) Show all easements over installed infrastructure.

## **4 Drawing Deliverables**

### **4.1 Hard Copy**

- To be supplied on Minimum A3 Size Paper
- 2 sets of clear legible scale line drawings

### **4.2 Electronic Copy**

- Drawings to be supplied in .pdf & .dwg format
- Contour data to be supplied in .shp format with other associated files
- Pipeline Routes to be supplied in .shp format with other associated files
- Survey Data to be supplied in .csv format
- Populated Spread sheets in the supplied template
- A plot file TCDC(Project number).ctb for use with the As-Built drawings

All electronic files to be supplied on a data disc.

#### **4.3 Means of Compliance**

The information supplied on the As-Built plans is to be Certified Accurate by a Chartered Professional Engineer or Licenced cadastral Surveyer unless alternative arrangements have been signed off by the overseeing Activity Manager.

Provision of the certification acknowledges and accepts the terms below which form part of standard consent or construction contract with TCDC.

As-Builts submitted to TCDC will be checked by the Project Manager and then by the Councils Asset Data Team, against this specification. Should the submitted data not measure up to the required specification and additional input is needed from Council and their Asset Data Team, TCDC reserve the right to retain any bond monies or invoice the relevant contractor/developer with additional charges to recover any costs incurred.

Hard copies & electronic data to be delivered to the:

Project Engineer or Development Engineers Representative

A request for a dated signed receipt on delivery of As-Builts will be granted.