Autodesk® Topobase™ Wastewater User Guide

Autodesk®

© **2009 Autodesk, Inc. All Rights Reserved.** Except as otherwise permitted by Autodesk, Inc., this publication, or parts thereof, may not be reproduced in any form, by any method, for any purpose.

Certain materials included in this publication are reprinted with the permission of the copyright holder.

Trademarks
The following are registered trademarks or trademarks of Autodesk, Inc., in the USA and other countries: 3DEC (design/logo), 3December, 3December.com, 3ds Max, ADI, Alias, Alias (swirl design/logo), AliasStudio, Alias|Wavefront (design/logo), ATC, AUGI, AutoCAD, AutoCAD Learning Assistance, AutoCAD LT, AutoCAD Simulator, AutoCAD SQL Extension, AutoCAD SQL Interface, Autodesk, Autodesk Envision, Autodesk Insight, Autodesk Intent, Autodesk Inventor, Autodesk Map, Autodesk MapGuide, Autodesk Streamline, AutoLISP, AutoSnap, AutoSketch, AutoTrack, Backdraft, Built with ObjectARX (logo), Burn, Buzzsaw, CAiCE, Can You Imagine, Character Studio, Cinestream, Civil 3D, Cleaner, Cleaner Central, ClearScale, Colour Warper, Combustion, Communication Specification, Constructware, Content Explorer, Create>what's>Next> (design/logo), Dancing Baby (image), DesignCenter, Design Doctor, Designer's Toolkit, DesignKids, DesignProf, DesignServer, DesignStudio, Design|Studio (design/logo), Design Web Format, Discreet, DWF, DWG, DWG (logo), DWG Extreme, DWG TrueConvert, DWG TrueView, DXF, Ecotect, Exposure, Extending the Design Team, Face Robot, FBX, Filmbox, Fire, Flame, Flint, FMDesktop, Freewheel, Frost, GDX Driver, Gmax, Green Building Studio, Heads-up Design, Heidi, HumanIK, IDEA Server, i-drop, ImageModeler, iMOUT, Incinerator, Inferno, Inventor, Inventor LT, Kaydara, Kaydara (design/logo), Kynapse, Kynogon, LandXplorer, LocationLogic, Lustre, Matchmover, Maya, Mechanical Desktop, Moonbox, MotionBuilder, Movimento, Mudbox, NavisWorks, ObjectARX, ObjectDBX, Open Reality, Opticore, Opticore Opus, PolarSnap, PortfolioWall, Powered with Autodesk Technology, Productstream, ProjectPoint, ProMaterials, RasterDWG, Reactor, RealDWG, Real-time Roto, REALVIZ, Recognize, Render Queue, Retimer,Reveal, Revit, Showcase, ShowMotion, SketchBook, Smoke, Softimage, Softimage|XSI (design/logo), SteeringWheels, Stitcher, Stone, StudioTools, Topobase, Toxik, TrustedDWG, ViewCube, Visual, Visual Construction, Visual Drainage, Visual Landscape, Visual Survey, Visual Toolbox, Visual LISP, Voice Reality, Volo, Vtour, Wire, Wiretap, WiretapCentral, XSI, and XSI (design/logo).

The following are registered trademarks or trademarks of Autodesk Canada Co. in the USA and/or Canada and other countries: Backburner,Multi-Master Editing, River, and Sparks.

The following are registered trademarks or trademarks of MoldflowCorp. in the USA and/or other countries: Moldflow, MPA, MPA (design/logo),Moldflow Plastics Advisers, MPI, MPI (design/logo), Moldflow Plastics Insight,MPX, MPX (design/logo), Moldflow Plastics Xpert.

All other brand names, product names or trademarks belong to their respective holders.

Disclaimer
THIS PUBLICATION AND THE INFORMATION CONTAINED HEREIN IS MADE AVAILABLE BY AUTODESK, INC. "AS IS." AUTODESK, INC. DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING THESE MATERIALS.

Published by:
Autodesk, Inc.
111 Mclnnis Parkway
San Rafael, CA 94903, USA

Contents

Chapter 1 **Autodesk Topobase Wastewater User Guide** 1

Introduction 1
Using Wastewater Workflows 2
Initiate a Wastewater Workflow 2
Acquisition Workflows 3
Manhole Creation 3
Network Point Creation 4
Section Creation 5
Section Remove 6
House Connector Remove 6
Sub Drain Area Creation 7
Site Creation 8
Administrative Information Creation 8
Protection Creation 9
Analysis Workflows 10
Find Connected 10
Find Connected with Stop Conditions 11
Find Non Split Point on Section 13
Report Workflows 15
Report Generation 15
Classification Workflows 16
Classify Import 16
Managing Wastewater Network Topologies 17
Check Topologies 18

Manage Inspection Data 19
Prepare to Import Inspection Data 20
Import Inspection Data 21
Use Wastewater Feature Functions 26
Maintenance Record Creation 27
Marker Creation 27
Connect a Point to a Cover 28
Cover Creation 29
Show Input and Output Sections 29
Show Connected Sections 30
Point Detail Creation 30
Section Height Interpolation 32
Connect Points to Site 32
Remove Connections from a Site 33
Classification 33
Network Tracer 33
Use a Reference Record 34
Split Lines 35
Soft Split and Hard Split 37
Extract Points from Lines 38
Understand and Work with the Wastewater Data Model 39
Wastewater Feature Classes and Types 41
Administration 45
Dimension 59
Drain Area 60
Hydraulic 67
Import 102
Inspection 110
Miscellaneous 137
Operation 149
Point 152
Profile 230
Protection 230
Section 238
Site 254
Utility 261
Wastewater Feature Rules 261
Feature Rules: Manhole 262
Feature Rules: Sub Drain Area 263
Feature Rules: Washing Area 264
Explore Stop Conditions 264
Explore Wastewater Topologies 265
Set Wastewater Document Options 267
Wastewater Elevation, Slope, and Height 268
Define Labels 273

Glossary 275

Index 281

Autodesk Topobase Wastewater User Guide

1

Introduction

Autodesk®Topobase™ Wastewater allows wastewater utilities to use CAD tools to document, maintain, and present wastewater networks and infrastructure. In the process, wastewater utilities create information that contains attribute data associated with their assets — such as pumps, drains, and septic tanks. Engineering design information is then GIS-ready, incorporating a dynamic utility model that enables on-the-fly topology and analysis abilities, such as network traces. Wastewater utilities can then maintain their infrastructure data in the Topobase enterprise solution built on an Oracle database, which can be accessed across the organization and used by business teams in ongoing network and asset management.

Topobase Wastewater comes with a wastewater-specific data model comprised of the most commonly requested and used data schemas, object relationships and associations, business rules, and workflows. Each area is customizable to fit specific needs.

Topobase Wastewater workflows are designed to streamline common activities related to creating and maintaining wastewater treatment networks. Designers can rely on the extensive library of workflows to perform their daily tasks — without needing to understand the entire data model. If customization is necessary, designers can add new attributes, relationships, and feature classes to support the management of specific wastewater treatment networks and assets.

Elevation management ensures consistent values for the heights of related covers, manholes, and sections. Feature rules check elevation consistency to ensure that pipe slopes are correct.

Using Wastewater Workflows

An important feature of Topobase Wastewater is that designers have the ability to establish a comprehensive set of workflows. Workflows streamline business processes based on the wastewater utility's current way of doing business. Workflows help guide you through common tasks and govern the way information is entered into the database. Workflows — and related business rules that are working behind the scenes — also prevent designers from leaving out required elements, choosing incorrect materials, or including incorrect material sizes, thus reducing errors during design and data updates.

Topobase Wastewater provides four types of predefined workflows:

Workflow Type	Definition
Acquisition Workflow	Create network points, pipes, house connections, fire hydrants, structures, facilities, and so on.
Analysis Workflow	Trace the network from a designated start point to an optionally specified end point.
Report Workflow	Generate and print predefined or customized reports. Export reports as HTML, ASCII, or PFDF files.
Classification Workflow	Classify imported wastewater content.

You can also create your own workflows.

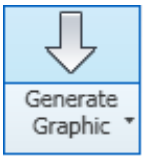
For more information about defining and managing workflows, refer to Workflow Introduction in the Topobase Administrator Guide.

Initiate a Wastewater Workflow

Before starting a workflow, you must make sure you've set a display model and generate graphics. Report workflows can be used without a drawing.

You can also start workflows from the shortcut menu of the related feature class.

To generate graphics and start a workflow

1. On the ribbon, click Home tab ➤ Display panel ➤ Display Model and do one of the following:
   - Click the arrow button and select a previously opened display model.
   - Click Open Display Model and select a display model (*.tbdm* file).
   - Select Open Default Display Model.
2. Click Generate Graphic. 

3. In the Topobase Task Pane, click the Workflow explorer icon to display the workflows.
4. In the Workflows group, select a workflow and click Execute.

   Optionally, you can right-click a workflow and click Execute or simply double-click a workflow.

Acquisition Workflows

Acquisition workflows and rules help designers create features like manholes, network points, pipes, hydrants, house connections, and so on. Acquisition workflows are also used to remove features like house connections and sections of a wastewater network.

Manhole Creation

Use the Manhole Creation workflow to create standard and complex manholes. You can associate the manhole with a cover.

To create a manhole

1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Right-click the Manhole Creation workflow. Click Execute.

3 Specify a reference record, if any.

4 In the Cover area, click one of the following options:

- None: Specifies that no cover is associated with the manhole.
- Digitize: Prompts you to create a cover.
- Connect To: Prompts you to select an existing cover.

5 In the Details area, specify additional details to add to the manhole.

NOTE You can add one polygon detail to a manhole and any number of line and point details. For more information, see Point Detail Creation (page 30).

6 Click OK.

7 Follow the prompts to create the manhole.

8 Press ESC to complete the workflow.

The manhole form is displayed so you can add attribute data.

For more information, see Cover and Wastewater Elevation, Slope, and Height (page 268).

Network Point Creation

Use the Network Point Creation workflow to create a wastewater point.

NOTE Manholes can also be created using the Manhole Creation workflow; Intermediate points can also be created automatically in the Section Creation workflow.

To create a network point

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click the Network Point Creation workflow. Click Execute.

3 In the feature class list, click the type of network point feature to create.

You can also double-click a point type to start digitizing with the current options.

4 Specify a reference record if any.

5 In the Details area, specify additional details to add to the point.
For more information, see Point Detail Creation (page 30).

6 In the Site area, click one of the following options:
- None: Specifies no site is associated with the point.
- Digitize: Prompts you to create a site.
If you create a new site, specify the geometry type for the site.
- Connect To: Prompts you to select an existing site.

7 Click OK.

8 Follow the prompts to create the point.

9 Press ESC to complete the workflow.

NOTE If you place the network point on a section, you are prompted to create a soft split or a hard split. For more information, see Split Lines (page 35).

The feature class form is displayed so you can add attribute data.

Section Creation

Use the Section Creation workflow to create sections of a wastewater network.

To create a section

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click the Section Creation workflow. Click Execute.

3 Specify whether to create intermediate points.

4 Click OK.

5 Follow the prompts to create the section.

6 Press ESC to complete the workflow.

Digitize sections in the flow direction. Intermediate points are created at the entries of the manholes with a soft split at the section line.

NOTE You can reverse the flow direction with the Reverse Direction command.

If a vertex of the new pipe lies exactly on an existing network point feature, the pipe is soft split.

Section Remove

Use the Section Remove workflow to delete a section from the database including all related network points.

To remove a section

1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Right-click the Section Remove workflow. Click Execute.
3. Specify the sections to remove.
4. Press ESC.

The workflow pane displays the selected sections and related features.

For more information, see Section (page 239).

House Connector Remove

Use the House Connector Remove workflow to remove a house connector.

To remove a house connector

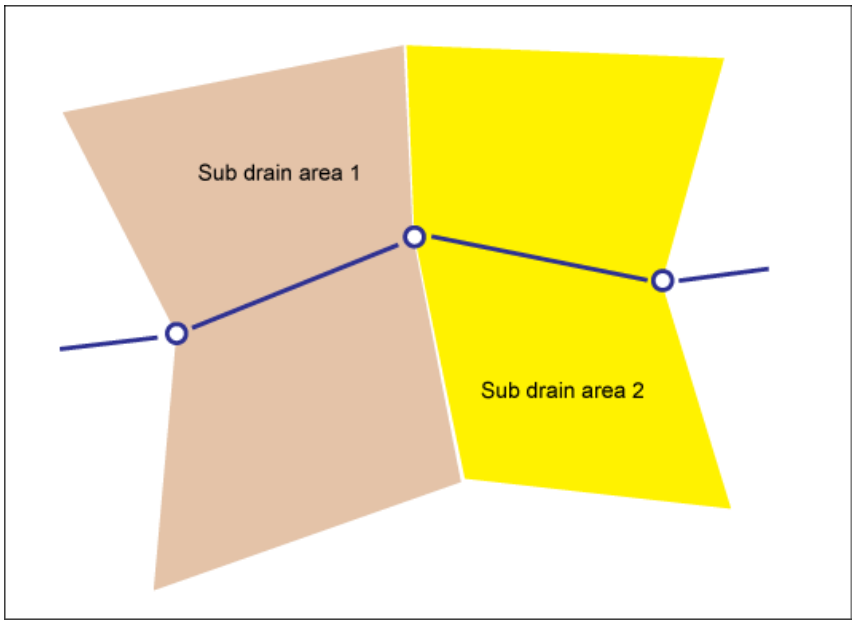
1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Right-click the House Connector Remove workflow. Click Execute.
3. Specify the house connectors to remove.
4. Press ESC.

The workflow pane displays the selected house connectors and related features.

For more information, see House Connector (page 185).

Sub Drain Area Creation

Use the Sub Drain Area Creation workflow to create a sub drain area. You can add a higher level drain area.



Sections can be assigned to sub drain areas.

To create a sub drain area

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click the Sub Drain Area Creation workflow. Click Execute.

3 In the Drain Area section, click one of the following options:
- None: Specifies no drain area is associated with the sub drain.
- Digitize: Prompts you to create a drain.
- Connect To: Prompts you to select an existing drain.

4 Click OK.

5 Follow the prompts to create the new sub drain area.

6 Press ESC to finish the workflow.

The feature class form is displayed so you can add attribute data.

For more information, see Drain Area (page 60).

Site Creation

Use the Site Creation workflow to create a site. You can relate the site to a network point.

To create a site

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click the Site Creation workflow. Click Execute.

3 In the Site area, specify the type of geometry to create: point, line, or polygon.

4 Click OK.

5 Follow the prompts to create the site.

6 Press ESC to complete the workflow.

The feature class form is displayed so you can add attribute data.

Administrative Information Creation

Use the Administrative Information Creation workflow to create administration areas, washing areas with contacts, locations, and manufacturers.

To create administrative information

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click the Create Administrative Information workflow. Click Execute.

3 Specify the feature class to create.

4 Click OK.

5 Follow the prompts.

6 Press ESC to finish the workflow.

If you create an area you can optionally relate all features contained in this area with the area. The relation is made if the corresponding feature rule is activated.

For more information, see Administration (page 45).

Protection Creation

Use the Create Protection workflow to add casings and/or anodes to a section.

To create a protection casing or anode

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click the Create Protection workflow. Click Execute.

3 In the Choose Type Of Protection area, click Casing or Anode.

4 Click OK.

5 Follow the prompts.

6 In the Next Action area, click one of the following:
- Open Dialog.
- Create New Protection.
- Create New Protection On Same Section.

7 Click OK.

8 Press ESC to finish the workflow.

The feature class form is displayed so you can add attribute data.

For more information, see Protection (page 230).

Analysis Workflows

Analysis workflows and rules allow designers to trace a wastewater network from one or more designated start features to an optional end feature. Network tracing begins from the start location and ends when all end features have been reached. You can also set attribute-dependent stop conditions, locate point objects on a pipe, locate point objects that are not connected to the network, or pinpoint error in a network topology.

Find Connected

Trace a wastewater network from a start feature to one or more optional end features. The network is traced from the start feature to the end features, if end features are specified.

TIP Network tracing is much more efficient when start and end features are selected. Tracing a network without selecting an end feature can take a very long time.

To find connected features

1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Right-click Find Connected.
3. Click Execute.
4. In the Workflow group, under Choose a Start Feature, do the following:
   - Click Choose.
   - Click one or more features at the start of the network trace.
   - Press ENTER to complete the selection.
5. If you do not want to trace the whole network, do the following:
   - Under Optionally Choose Stop Features, click Choose.
   - Click one or more end features.
   - Press ENTER to complete the selection.

6 Under Options, select Show Closing Elements to list all connected features including the end features. If this check box is cleared, end features are not included.

   Start features are always included in the list of connected features.

7 To specify the trace direction, select Forward, Backward or Both.

8 Click OK.

9 When network tracing has finished, all connected features are displayed in a tree view in the workflow pane. Use the tools at the top of the Workflows pane to open the feature class form, highlight selected features, and zoom to selected features.

Find Connected with Stop Conditions

The Find Connected with Stop Condition workflow provides the same functionality as the Find Connected workflow with the added benefit of defining advanced stop features based on their attributes.

All advanced stop conditions that have been defined in the data model administrator are also available.

For more information about stop conditions using SQL statements, see Network Tracer in the Topobase Administrator Guide.

To trace connected features using stop conditions

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click Find Connected With Stop Conditions.

3 Click Execute.

4 In the Workflow group, under Choose a Start Feature, do the following:
   - Click Choose.
   - Click one or more features at the start of the network trace.
   - Press ENTER to complete selection.

5 If you do not want to trace the whole network, do the following:
   - Under Optionally Choose Stop Features, click Choose.

- Click one or more end features.
- Press ENTER to complete selection.

6 Under Options, select Show Closing Elements to list all connected features including the end features. If this check box is cleared, end features are not included.

   Start features are always included in the list of connected features.

7 To specify the trace direction, select Forward, Backward or Both.

8 Under Stop Conditions, click Add.

9 In the Stop Condition Editor dialog box, do one of the following:
   - Select an existing stop condition.
   - Click New and define a new stop condition.
     To learn about creating a new stop condition, see Create a Stop Condition (page 12).

10 Click OK to save the stop condition.

11 Click OK to start network tracing.

   When network tracing has finished, all connected features are displayed in a tree view in the workflow pane. Use the tools at the top of the Workflows pane to open the feature class form, highlight selected features, and zoom to selected features.

In the Stop Condition Editor dialog box, the list displays only the stop conditions that are not assigned to any tracing template.

Create a Stop Condition

Use the Stop Condition Editor to define stop conditions.

To create a stop condition

1 In the Topobase Task Pane, click the Workflow explorer icon.

2 Right-click Find Connected With Stop Conditions.

3 Click Execute.

4 In the Stop Conditions section of the Workflow pane, click Add.

5 In the Stop Condition Editor dialog box, click New and enter a name for the stop condition.

NOTE If you do not enter a name, the stop condition is used for the current process but is not stored for later use.

6 Select a feature class.

7 Select an attribute in that feature class.

8 Enter a condition value for the attribute, such as =100. Note that there is no blank space between the value and the operator.

If the network trace finds a feature of the selected feature class with the specified attribute, the network trace stops at that feature.

9 Click OK to save the stop condition.

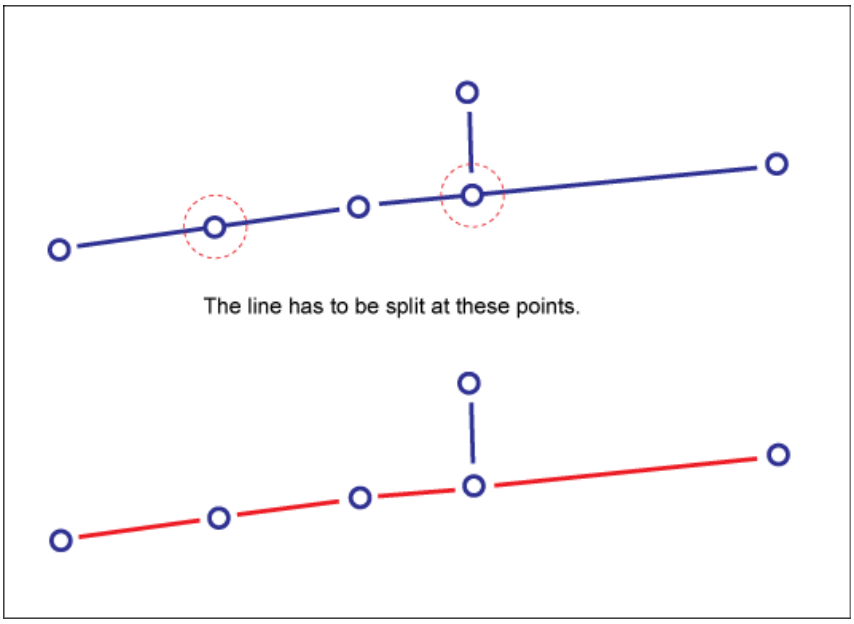
To edit a stop condition in the Stop Condition Editor

Note that the Stop Condition Editor list box displays only the stop conditions that are not assigned to any tracing template.

- You can only edit the stop conditions that you have created while executing a workflow.
- You cannot edit stop conditions that other users have created while executing a workflow.
- You cannot edit stop conditions that have been created using Topobase Administrator, or that have been created by the system.

Find Non Split Point on Section

Use Find Non Split Point On Section to find points on a section that are not split.



To find non split points on a section

1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Right-click Find Non Split Point on Section.
3. Click Execute.
4. Select the point feature classes to locate.

   Select All to search for non split points of any feature class.
5. To perform the search on a specific set of features, click Choose and click the features.
6. Click OK.

   The result is shown in the workflow window in an explorer view.

You can use the icons to split points, for example, select a point and click either Soft Split on Section, or Hard Split on Section.

Report Workflows

Report workflows are used to generate predefined or user-defined reports. Designers can quickly and easily generate reports from a list of predefined report templates. These reports include:

Predefined report	Description
Data Model Description	Displays a complete list of all topics and features in the wastewater database. It also shows the number of features for each feature class and how they are linked to other tables (according to the meta-table TB_RELATIONS).
Date Creation Statistics	Displays creation dates and lengths of lines.
Error Statistics	Displays errors in the network.
Network Statistics	Displays line and point information, lists other features, and provides a count.
Manhole Statistics	Displays manhole information.
Section	Displays a wastewater section.
Section statistic	Displays section information.
COGO reports	Only if the COGO extension is available. For example, ARC Intersection, or Center. See Construction Reports.

The report templates have been created with the Topobase Report Designer. For more information, refer to Report Designer Introduction in the Topobase Administrator Guide.

Report Generation

Use the Report Generation workflow to generate predefined and user-defined reports.

To generate reports

1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Open the Report workflow, if necessary.
3. Right-click Report Generation. Click Execute.
4. In the Workflows group, select a report name and click OK.
   The report is displayed in a secondary window. You can print the report or change its format to HTML, ASCII, or PDF.

To create an Error Statistics report

1. In the Topobase Task Pane, click the Workflow explorer icon.
2. Open the Report workflow, if necessary.
3. Right-click Report Generation. Click Execute.
4. Select WW Error Statistics. Click OK.
   The report is displayed in a secondary window. You can print the report or change its format to HTML, ASCII, or PDF.

Classification Workflows

Classification workflows are used to determine the quality of sections and manholes based on inspection data. Damaged features are coded and quantified based on a chosen wastewater standard.

Before you can use the classification workflow, you need to import inspection data. See Import Inspection Data (page 21).

Classify Import

Use the Classify Import workflow to classify all sections and manholes in a selected set of imported information.

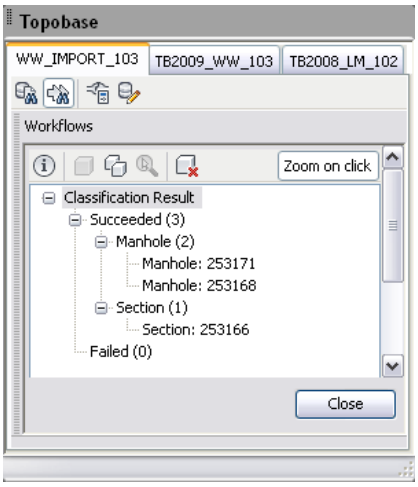
To classify imported information

1. In the Topobase Task Pane, select the import document tab.

2 Click the Workflow explorer icon.

3 Expand the Classification workflow and right-click Classify Import. Click Execute.

4 In the Workflows group, open the list and select the import you want to classify. Click OK.



The classification results are shown in the feature explorer.

Managing Wastewater Network Topologies

Autodesk Topobase uses topologies to model objects and phenomena of the real world. Typically, a GIS user needs information about relationships between objects with topological characteristics. Modeling of land and other flat surfaces is a perfect application for area topology. Logical topology is appropriate wherever real world objects are connected to each other in networks.

Topobase Wastewater is based on a logical topology that represents the utility networks.

For more information about defining and managing workflows, refer to Topology Introduction in the Topobase Administrator Guide.

Check Topologies

Use the Topology Checker to locate errors in a network topology. For more information about the Topology Checker, refer to Topology Checker in the Topobase Administrator Guide.

To check a topology for errors

1. Click the Document explorer icon.
2. Expand the Topologies listing and right-click the topology. Click Topology Checker.

   Topology errors are displayed in the Logical Topology Checker Desktop dialog box.
3. Navigate the tree view to select specific features.
4. Use the Topology Checker tools to perform the following operations on selected features:
   - Refresh the topology check after you have addressed problems.
   - Open the feature class form.
   - Highlight a feature or clear all highlighted features.
   - Zoom to a selected feature in the map.
   - Delete a selected feature.

See also:

- Explore Wastewater Topologies (page 265)

Manage Inspection Data

In order to avoid sanitation problems or flooding damage, a wastewater network needs to be regularly inspected and, when necessary, renovated. To gauge the severity of necessary repairs and closely estimate renovation costs of damaged features, it is important to have accurate inspection data. This is done by means of importing inspection data.

Once you import inspection information into Topobase, you can perform any of the following tasks:

- Verification of wastewater inspection data.
- Classify any damage and wastewater network features.
- Import hydraulic computation results.

Process for Importing Inspection Data

When you import inspection data, several processes take place before the imported content is fully integrated with your main document.

Process	Description
Import	Inspection data is imported to a temporary data cache in the form of an *import document*. The validity of the inspection file is also checked for inconsistencies.
Data Matching	Data matching occurs between the inspection data and GIS features of the wastewater network. If certain parameters coincide between an inspected object and a GIS feature (for example, section: NAME_NUMBER) a match is found. If no match is automatically found, you can select a matching feature.
Data Validation	Data validation checks the imported inspection data against the specified classification standard. For example, section damage is checked if all necessary data is provided and only if section main codes are used.

Process	Description
Geometry Creation	During the geometry creation process, geometry for each damage observation in the inspection data is created.
Conflict Resolution	When a conflict between an inspection feature and its GIS feature is detected, the inspection feature is considered a conflict feature. For example, a difference in section diameters between the inspection data and its comparable GIS feature. Conflicts must be resolved before the inspection data can be committed to the main document.
Commit Data	All revised data is copied from the import document to the main document. This process also copies any video and photo files to the server.

Prepare to Import Inspection Data

Before you can import any inspection data, you must have a wastewater workspace that contains two wastewater documents; the main document and an import document.

The main document is created using the *Wastewater Data Model* module. The import document is created using the *Wastewater Data Model (for Import Document)* module.

To prepare a wastewater workspace for import capability

1. Start Topobase Administrator.

2. In the Administrator window, click Workspace menu ➤ Create.
3. Enter a name for the workspace, such as WS_Wastewater.
4. In the Documents group of the Workspace Manager pane, click Import.
5. In the Import dialog box, select Import From Oracle Dump File. Click OK.

6 In the File Selection dialog box, select the wastewater (*.dmp) file you created that contains your wastewater data. Click Open.

   To learn more about creating an Oracle DMP file, see Adding and Removing Documents in the Topobase Administrator Guide.

7 In the Oracle User group of the Dump Import dialog box, specify a unique user name for the main document, such as MD_WASTEWATER.

8 Enter the password and click Import.

   The document is added to the wastewater workspace. By default, the document includes the *Wastewater Data Model* and *Profile Data Model* modules.

9 In the Documents group of the Workspace Manager pane, click Import again.

10 In the File Selection dialog box, select the wastewater (*.dmp) file you selected in step 6. Click Open.

11 In the Dump Import dialog box, specify a unique user name for the import document, such as WW_IMPORT.

12 Enter the password and click Import.

   The import document is added to the wastewater workspace.

13 In the Document Explorer, select the import document. For example, Document - WW_IMPORT.

14 In the Document Settings pane, click Modules and do the following:

   - Activate the *Wastewater Data Model (for Import Document)* module.
   - Clear the *Wastewater Data Model* and *Profile Data Model* modules.

15 Click Save.

After all structure updates are complete, you can start Topobase Client or Topobase Standalone and import inspection data. See Import Inspection Data (page 21).

Import Inspection Data

To import any inspection data, you must have a wastewater workspace that contains two wastewater documents; the main document and an import document.

The main document contains the Wastewater Data Model module. The import document contains the Wastewater Data Model (for Import Document) module.

To import inspection data using Topobase Client

1 Start Topobase Client.

2 In the Open Workspace dialog box, select a workspace that includes both an import document and a main wastewater document. Click Open.

3 In the Topobase Task Pane, select the import document tab. For example, WW_IMPORT.

4 Click the Document explorer icon.

5 Right-click the import document in the tree view and select Import ➤ Wastewater Import.
Optionally, you can initialize the import process by:

- Entering TBWWIMPORT at the command line.
- Clicking Menu Browser ➤ File ➤ Import ➤ Import Wastewater.

6 In the Create Import pane of the Wastewater Import dialog box, do one of the following:

- Click Create to create a new import.
- Open the list of imports, if any are present, and select an import.

Click Next.

7 In the Select Files pane, do the following:

- Specify the file format; ISYBAU XML, ISYBAU 96/01, or EN13508-2.
- Click the Add button to choose the inspection file you want to import.

TIP If there is a video file that accompanies the import file, placing them in the same folder ensures that both will import together. Storing the files on a network server gives accessibility to all who need to import the data.

Click Next to begin importing data.

NOTE This can take awhile depending upon the size the inspection file and the number of features involved.

8 When the file is imported, click Next.

Features in the import file are matched against the main document.

9 In the Data Matching pane, wait for the features to be matched against the main document and then do the following:

- If there are feature mismatches, resolve them by excluding the features from the import, manually matching the features, or by ignoring the mismatches.
- Once all mismatched features are resolved, click Save and then Next.

10 In the Data Validation pane, wait for the validation process to finish and then do the following:

- For any features that fail validation, fix the problems or delete the invalid features.
- Click Save and then Next.

11 In the Geometry Creation pane, wait for the geometry to be created. Click Next.

12 In the Conflict Resolving pane, do the following:

- Fix all data conflicts.
  Conflicts can be fixed individually by selecting a feature and choosing whethet the conflicting attributes should use the old or new feature values. You can also fix multiple conflicts by selecting the Attribute Values Conflicting heading and choosing whether to keep the old feature values or replace with the new feature values.
- Click Save and then Next.

13 In the Commit Import pane, click Next to begin committing the inspection data to the main document.

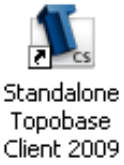
Click Next to copy media files and to update the main document. Click Finish.

NOTE If you did not specify any media files, click Next to update the main document with imported features.

Optionally, if Jobs are enabled for the main wastewater document, the Import Settings pane is accessible where you can do the following:

- Select an existing job.
- Create a new job based on a predefined job template.

To import inspection data using Topobase Client Standalone



1. Start Topobase Standalone Client.
2. Click Workspace menu ➤ Open.
3. In the Open Workspace dialog box, select a workspace that includes both an import document and a main wastewater document. Click Open.
4. Select the import document tab. For example, WW_IMPORT.
5. Click the Document explorer icon.
6. Right-click the import document in the tree view and select Import ➤ Wastewater Import.

   Optionally, you can select Document menu ➤ Import.
7. In the Create Import pane of the Wastewater Import dialog box, do one of the following:
   - Click Create to create a new import.
   - Open the list of imports, if any are present, and select an import.

   Click Next.
8. In the Select Files pane, do the following:
   - Specify the file format; ISYBAU XML, ISYBAU 96/01, or EN13508-2.
   - Click the Add button to choose the inspection file you want to import.

TIP If there is a video file that accompanies the import file, placing them in the same folder ensures that both will import together. Storing the files on a network server gives accessibility to all who need to import the data.

Click Next to begin importing data.

NOTE This can take awhile depending upon the size the inspection file and the number of features involved.

9 When the file is imported, click Next.

Features in the import file are matched against the main document.

10 In the Data Matching pane, wait for the features to be matched against the main document and then do the following:

- If there are feature mismatches, resolve them by excluding the features from the import, manually matching the features, or by ignoring the mismatches.
- Once all mismatched features are resolved, click Save and then Next.

11 In the Data Validation pane, wait for the validation process to finish and then do the following:

- For any features that fail validation, fix the problems or delete the invalid features.
- Click Save and then Next.

12 In the Geometry Creation pane, wait for the geometry to be created. Click Next.

13 In the Conflict Resolving pane, do the following:

- Fix all data conflicts.
  Conflicts can be fixed individually by selecting a feature and choosing whethet the conflicting attributes should use the old or new feature values. You can also fix multiple conflicts by selecting the Attribute Values Conflicting heading and choosing whether to keep the old feature values or replace with the new feature values.
- Click Save and then Next.

14 In the Commit Import pane, click Next to begin committing the inspection data to the main document.

Click Next to copy media files and to update the main document. Click Finish.

NOTE If you did not specify any media files, click Next to update the main document with imported features.

Optionally, if Jobs are enabled for the main wastewater document, the Import Settings pane is accessible where you can do the following:

- Select an existing job.
- Create a new job based on a predefined job template.

Use Wastewater Feature Functions

Feature functions are available in the Function menu, Classification menu, and the Network Tracer menu of the feature classes to which they apply.

To view available functions

1. Click the Document explorer icon.
2. Under Topics, expand a feature. For example, Point.
3. Right-click a feature class. For example, Basin.
4. Click Show Form.
5. On the Basin feature class form, do one of the following:
   - Click Function menu ➤ *function_name*.
     Where *function_name* is the name of any function available to the selected feature.
   - Click Classification menu ➤ *function_name*.
     Where *function_name* is the name of any function available to the selected feature.
   - Click Network Tracer menu ➤ *menufunction_name*.

If you start a function from the feature class form, consider the current filter. You can apply the function to all features in the filter or to the current feature.

See also:

- Point Feature Class Form
- Section Feature Class Form (page 238)

Maintenance Record Creation

You can create maintenance records for several feature classes. Use this function to add maintenance information to a feature. Maintenance information is stored in the Maintenance feature class (WW_MAINTENANCE).

To create a maintenance record

1. Select a feature in your map. For example, a Cover.
2. Right-click the Cover feature and select Attributes.
   The Cover feature class form is displayed.
3. On the Cover feature class form, do one of the following:
4. Click Function ➤ Create Maintenance.
   The Maintenance feature class form is displayed with a new record.
5. Click the Details tab and enter a maintenance date and maintenance period.
   The Next Maintenance Date is automatically calculated based on the entries you make for the maintenance date and maintenance period.
6. Do one of the following:
   - Click Update to accept the entries you made and keep the maintenance form open for further changes. If no further changes are necessary, close the window.
   - Click Update & Close to accept the entries you made and close the maintenance form.

See also:

- Maintenance
- Understand and Work with the Wastewater Data Model (page 39)

Marker Creation

You can create markers that are assigned to the current feature.

To create a marker

1. Select a feature in your map. For example, a Point.
2. Right-click the Point feature and select Attributes.
   The Point feature class form is displayed.
3. Select the features to which you want assign a marker.
4. Click Function menu ➤ Create Marker.
5. Follow the prompts to create the marker.
   The Marker feature class form is displayed with a new record.

See also:

- Marker

Connect a Point to a Cover

You can assign existing covers to any network points that have a relation to the cover feature class, for example: manhole, neutralizer, grit chamber. Use this function. If the covers have been measured separately from the wastewater network.

To connect a point to a site

1. Select a Manhole feature in your map.
2. Right-click the Manhole feature and select Attributes.
   The Manhole feature class form is displayed.
3. Click Function menu ➤ Connect Point to Cover.
   All points that lie inside the site detail polygon are connected.
4. Specify whether to apply the function to the current feature or to all features in the filter. Click OK.

   The Cover form is displayed where you can add attributes.

   The resulting covers are highlighted in the drawing. If both fields are filled, a message is displayed. Each cover can be assigned to one or two network points.

When you connect an existing cover to a manhole that has a DEPTH and a BOTTOM_ELEVATION entry, the cover Z is not automatically calculated. Use the Wastewater Error Statistics report to find inconsistencies.

5 Click Update (F5).

See also:

- Cover
- Report Generation (page 15)

Cover Creation

For network points, you can create a cover that is related to a network point. The cover is stored with the same coordinate as the related point.

Use this function if you have not measured the cover coordinates and want to create them later.

To create a cover

1 Select a feature in your map. For example, a Manhole.

2 Open the feature class form.

3 Click Function ➤ Create Cover.

4 Specify whether to apply the function to the current feature or to all features in the filter. Click OK.

When you are finished, the Cover form is displayed so you can add attributes.

See also:

- Cover

Show Input and Output Sections

Display the input sections or output sections for points.

To display input or output sections

1. Select a feature in your map. For example, a Manhole.
2. Right-click the Manhole feature and select Attributes.
   The Manhole feature class form is displayed.
3. In the Manhole feature class form, do one of the following:
   - Click Function menu ➤ Show Input Sections.
   - Click Function menu ➤ Show Output Sections.

   The related feature class forms are displayed and the input and output sections are highlighted in the drawing.

Show Connected Sections

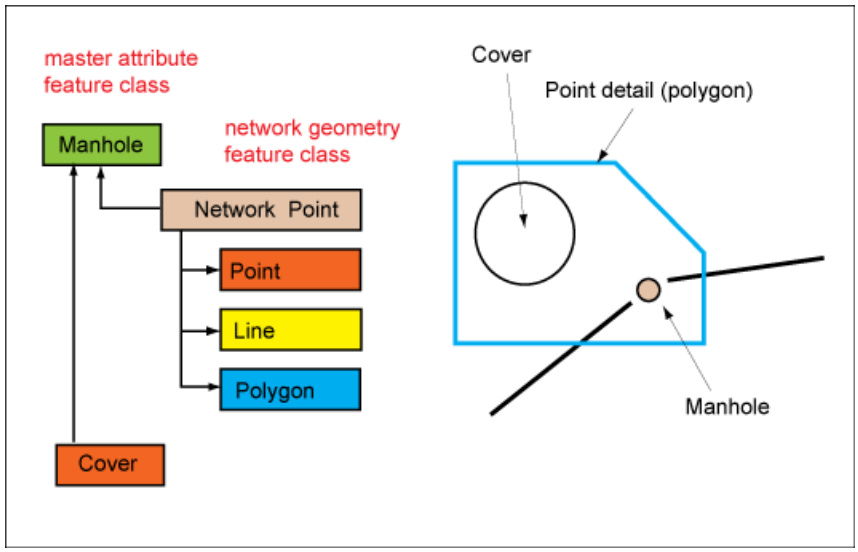
You can display the input and output sections for points.

To show connected sections

1. Select a feature in your map. For example, a Manhole.
2. Right-click the Manhole feature and select Attributes.
   The Manhole feature class form is displayed.
3. Click Function ➤ Show Connected Sections.
   The related feature class forms are displayed and the sections are highlighted in the drawing.

Point Detail Creation

For network points, you can create geometry details, for example to illustrate complex manholes in the drawing. These are geometry feature classes that normally contain only attributes for representation, for example, line type. All other attribute data is stored with the master attribute feature class.



A network point can have related geometry in the drawing. Only the manhole is part of the network topology.

To create a point detail

1. Select a feature in your map. For example, a Disposal Tank.
2. Right-click the Disposal Tank feature and select Attributes.
   The Disposal Tank feature class form is displayed.
3. In the Disposal Tank feature class form, do one of the following:
   - Click Function menu ➤ Create Point Detail.
   - Click Function menu ➤ Create Line Detail.
   - Click Function menu ➤ Create Polygon Detail.

   Follow the prompts to create the point, line or polygon detail.

NOTE You can create one polygon detail for each network point. You can add any number of point and line details.

See also:

- Manhole Creation (page 3)
- Point (page 152)

Section Height Interpolation

You can interpolate the height of a section and store these values in the network point feature class.

To interpolate section height

1. Select a Section feature in your map.
2. Right-click the Section feature and select Attributes.
   The Section feature class form is displayed.
3. Click Function menu ➤ Interpolate Section Height.
   This function populates the BOTTOM_ELEVATION attribute for the network points that lie on the section. If a BOTTOM_ELEVATION value exists, the form is displayed so you can replace the value.

See also:

- Section (page 239)
- Wastewater Elevation, Slope, and Height (page 268)

Connect Points to Site

Use this function if you have created sites separately from the wastewater network and want to associate them.

To connect points to a site

1. Select a Site feature in your map.
2. Right-click the Site feature and select Attributes.
   The Site feature class form is displayed.
3. Click Function menu ➤ Connect Point to Site.
   All points that lie inside the site detail polygon are connected.

See also:

- Site (page 254)

Remove Connections from a Site

You can remove all connections that are related to a site.

To remove connections from a site

1. Select a Site feature in your map.
2. Right-click the Site feature and select Attributes.
   The Site feature class form is displayed.
3. Click Function menu ➤ Remove Site.
   Confirm the removal of the site and the record is removed.

See also:

- Site (page 254)

Classification

Classification can also be achieved through function forms. Individual classification can be performed on specific sections and manholes. Furthermore, manual classification is supported when done through function forms.

To classify through function forms

1. Select one or more sections or manholes of the wastewater network. For example, a section.
2. In the Section form, click Classification ➤ Classify.
   Results are displayed in the Classification dialog box.

Network Tracer

Use the Network Tracer functions to specify start and stop features for network analysis.

To specify start and end features for network tracing

1. Select a feature in your map. For example, a Pipe.
2. Right-click the Pipe feature and select Attributes.

The Pipe form is displayed.

3 Open the Network Tracer menu do one of the following:
   - Click Set as Start Feature.
   - Click Set as End Feature.

   The Network Tracer dialog box is displayed.

4 In the Network Tracer dialog box, open the Tracing Template list and select a template.

5 Follow the on-screen instructions in the Features section. Depending on the tracing template, there are various workflows. When you are finished, click Trace.

   The resulting features are highlighted in the map and listed in the Tracing Result dialog box.

The Tracing Result dialog box displays the features in an explorer tree, from which you can process the features. Expand the items, select a feature and use the buttons on the toolbar.

To learn more about attributive network topologies, see Creating Topologies in the Topobase Administrator Guide.

Use a Reference Record

Reference records are used to create data more quickly. Define one or more reference records for each feature class. These can be used in a workflow. You can:

- Use no reference record.
- Use the last used reference record.
- Select an available reference record.

NOTE To explore available reference records, open the related feature class form in edit mode.

To create a reference record

1 Click the Document explorer icon.

2 Expand the Point topic.

3 Right-click the feature class for the reference record you want to create. For example, House Connector.

4 Right-click and click Show Form.

5 In the form, right-click in the background and click Reference Record ➤ Add.

The New Reference Record dialog box is displayed.

6 In the Name field, enter a name, such as Digitized House Connector, and click OK.

7 In Reference Record mode, enter the reference values to be used, such as Accuracy = Digitized.

8 Click Save.

For more information about reference records, see Reference Records in the Topobase Client User Guide.

Split Lines

If you digitize a point feature on a line or polyline feature, the line or polyline is split to preserve a correct network topology.

To digitize a point and split a line

1 Click the Document explorer icon.

2 Expand the topic for the line you want to split. For example, Pipe or Section.

3 Right-click the Pipe or Section feature class and do one of the following:

- Click Soft Split (Only Geometry)
- Click Hard Split (Also Attributes)

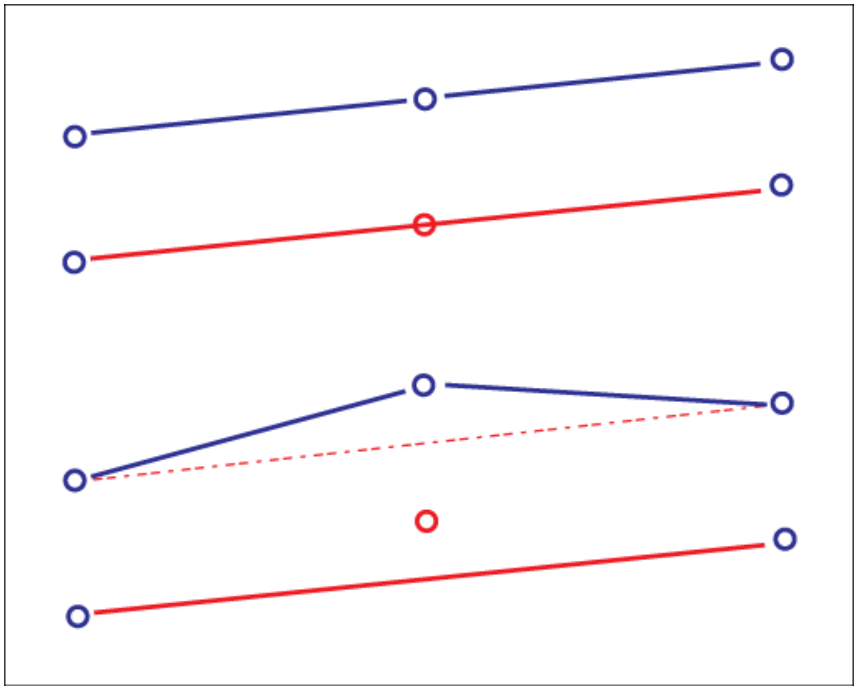
4 In the drawing, select the line representing the pipe or section.

5 In the Select dialog box, select the point feature class you want to digitize. For example, select Manhole.

6 Digitize the point.

The new point needs not to lie exactly on the selected line. If the point lies next to the line, the line is split and the new lines move to the point. However, if the point lies on a line that is not the selected one, no splitting is performed.

NOTE Enable Object Snap and Object Snap Tracking to ensure that the point is placed on the line. For more information, see the AutoCAD Map Help.

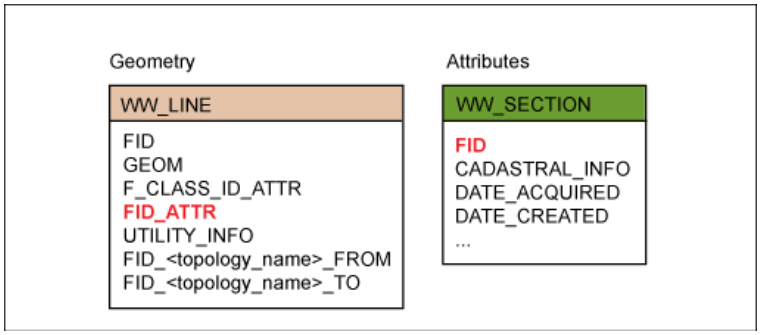


Splitting lines: When you digitize a point on a utility line or next to a utility line, the new lines move to the point.

When a section is digitized, normally only the start and the endpoint coordinates are known, and connected using a straight line. Then, when a new point is measured, such as a house connector, this point normally does not lie exactly on the pipe, and the pipe must be adjusted to this new point.

Soft Split and Hard Split

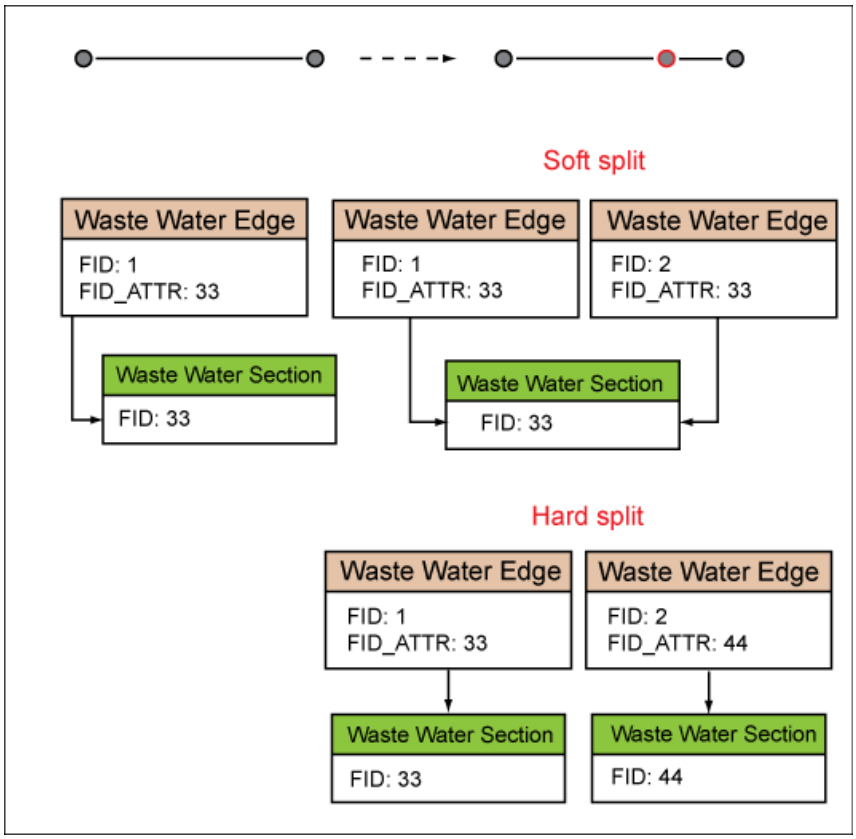
Because geometry and attributes are stored separately, one geometry features class, such a point, can reference various attribute feature classes, such as manhole, cover, fitting. For line features this allows for two different line splitting methods: soft split and hard split.



Wastewater data model: Relation between section and line feature class

Using a workflow you can decide whether the line is soft split or hard split, thus determining how the system handles the attribute data of the two resulting features.

Split	Description
Soft Split	A soft split breaks the line into two separate features, each with its own geometry (WW_LINE) but sharing the same attribute data (WW_SECTION). Use soft split for point features of minor importance and when the attributes of the section do not change.
Hard Split	A hard split breaks the line into two separate features, each with its own geometry (WW_LINE) and attribute data (WW_SECTION). In a hard split the attribute data is not shared. Use hard split for point features of major importance or if the attributes of the section change, for example diameter, material, model.



Wastewater data model: Soft and hard split

For more information, see Explore Wastewater Topologies (page 265).

Extract Points from Lines

If you delete a point, be sure to maintain a valid network topology. For example, when you delete the point you must merge the two connected lines. If more than two lines connect at the point, you cannot delete the point.

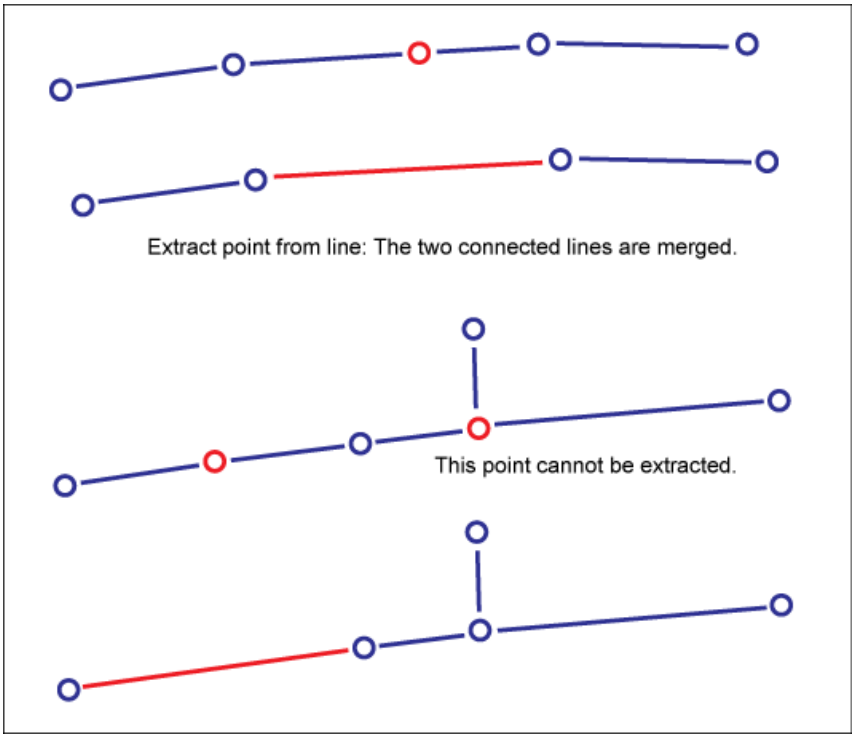
To extract a point

1 Click the Document explorer icon.

2 Right-click the point feature class and click Extract From Line.

3 When prompted, click the feature to delete.

The point is deleted from the database and the connected lines are merged.



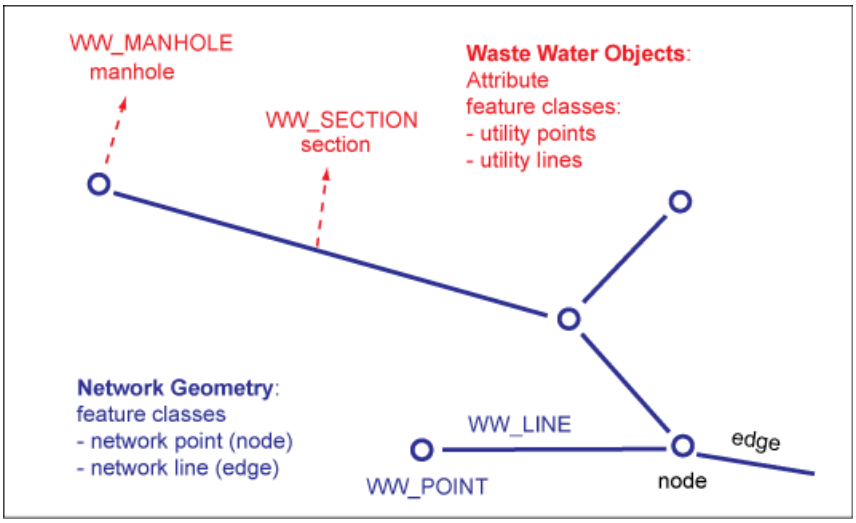
Network topology: Extracting points from a network line

Understand and Work with the Wastewater Data Model

Topobase Wastewater is based on the Utility data model which stores geometry and attribute data separately. The data model contains topics, representations, domains, utilities, topologies, and intersections.

The Data Model Administrator lets you explore wastewater topics, representations, domains, utilities, topologies, and intersections in the data model.

Data Model Elements	Description
Topics	Topics are containers used to organize groups of feature classes and collections of feature class tables.
Representations	A representation is a template you can use to visualize a feature in different locations, and store the geometries in the database. For more information about representations (schematics), see Data Model: Schematics in the Topobase Administrator Guide.
Domains	Domains are stored in domain tables (*_TBD) and define the attribute values that are used in forms. For more information about domains, see Data Model: Domain Tables in the Topobase Administrator Guide.
Utilities	A utility model provides basic utility network components, which are used in the wastewater application. For more information about utilities, see Utility Model Introduction in the Topobase Administrator Guide.
Topologies	Topologies are used to model objects and phenomena found in the real world. For more information about topologies, see Topology Introduction in the Topobase Administrator Guide.
Intersections	Intersections are routines used to calculate intersections between two feature classes. For more information about intersections, see Data Model: Intersections in the Topobase Administrator Guide.



Wastewater data model

With the Data Model Administrator you can explore the data model with its topics, feature classes, topologies, and utility models.

To explore the Wastewater data model

1. Start Topobase Administrator and open the Wastewater workspace.
2. Select the document and click Document menu ➤ Data Model.
3. Use the data model explorer to view feature classes, attributes, label definitions, and topologies.

To view the Wastewater document structure version

1. In the data model explorer, right-click the document root node, and click Document Info.
2. Click the Wastewater Data Model row.

The document structure is shown in the lower information pane.

Wastewater Feature Classes and Types

The wastewater data model is comprised of feature classes that are specific to the design, implementation, and maintenance of wastewater networks.

Feature classes are the basic class for objects. For example, a section or manhole is a feature class. In a database, each feature class corresponds to one Oracle table. A feature class can have any number of attributes (Oracle columns), one of which can be of type "geometry".

The WW_POINT and WW_LINE feature classes represent the points and lines that make up the wastewater network. WW_POINT features are wastewater features such as manholes, house connectors, valves, meters and other wastewater devices. WW_LINE features are the linestring geometries that represent sections. These features carry the wastewater and control its flow.

WW_CONN is the table that stores connectivity and flow information. We strongly recommend that you do not modify this table.

Feature Class Types

Each topic in the wastewater data model contains multiple types of feature classes.

Feature Class Type	Description
Attribute	An attribute is a feature class that has no geometry. For more information, see Feature Class Type: Attribute in the Topobase Adminstrator Guide.
Line String	The line string feature class is normally comprised of geometry and has one attribute that can be used for stylization by means of the Display Manager. For more information, see Feature Class Type: Line String in the Topobase Adminstrator Guide.
Collection	A collection is a feature class for objects that can be either points, lines, or polygons. For more information, see Feature Class Type: Collection in the Topobase Adminstrator Guide.
Point	The point feature class is made up of points that indicate the location of feetures, such as manholes, fittings, valves, etc. For more information, see Feature Class Type: Point in the Topobase Adminstrator Guide.
Polygon	The polygon feature class is made up of line segments that form a closed region. The line segments that form the polygon have the same line attributes. Examples of

Feature Class Type	Description
	the polygon feature class include the Drain Area and Sub-Drain Area. For more information, see Feature Class Type: Polygon in the Topobase Adminstrator Guide.
Dimension	A dimension feature class (parent attribute feature class) is related to several child feature classes that store the geometry components, such as points (symbols) and lines, and labels. Dimensioning is stored in feature classes with the suffixes, _L (lines), _P (points), and _HL (help lines). For more information, see Feature Class Type: Dimension in the Topobase Adminstrator Guide.

For a number of feature classes, Topobase Wastewater provides model driven attributes. You use specific model tables (*_MODEL) to fill the model driven attributes:

- Cover, manhole, meter, valve, pump
- Section
- Sub drain area, marker, casing

See also the Topobase Administrator Guide, section Data Model: Model Tables.

They are used to collect several types (models) of a particular network item and can be grouped by manufacturer.

For example, in a wastewater network with several kinds of covers, you would fill the model driven attributes using a predifined record from the WW_COVER_MODEL table. In the Cover feature class form, you use the Model Selector control to fill in the model driven attributes more quickly.

NOTE In the Model input field, the value Choose Model indicates that you can apply a model. It does not store the model that has been applied, because at any time you can modify the model driven attributes. The attributes are stored in the main feature class, and you use the model feature class to insert a set of attributes. You can use the model table to store reference values.

BEST PRACTICE In the feature class form, use the Model table, to search for an appropriate model. Use the model list, if you are sure which model to use. In the Form Designer, modify the model table form to hide or show model attributes, or to modify the order in the grid. Modify the main feature class form to move the Model selector to another location.

The following tables show sample cover and section models.

Table name	WW_COVER_MODEL
FID_MANUFACTURER	-> WW_MANUFACTURER
DIMENSION_1 and DIMENSION_2	First and second dimension
ID_AERATION	-> WW_COVER_AER_TBD To define the aeration type of the cover.
ID_COVER_SHAPE	-> WW_COVER_SHAPE_TBD
ID_LOAD_CLASS	-> WW_COVER_LOAD_TBD
ID_MATERIAL	-> WW_COVER_MAT_TBD
LOAD_LIMIT	Maximum load accepted by the cover.
NAME_NUMBER	Name or number.
NARRATIVE	A description or other unique information concerning the item.
USER_FLAG	An operator-defined work area. This attribute can be used by the operator for user-defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Topic	Administration
Table name	WW_SECTION_MODEL
DIAMETER_INSIDE	Inside diameter of the pipe.

DIAMETER_OUTSIDE	Outside diameter of the pipe.
DIMENSION_1	First dimension.
DIMENSION_2	Second dimension.
FID_MANUFACTURER	WW_MANUFACTURER Manufacturer of this item.
HYDRAULIC_FRICTION	Hydraulic friction or kind of roughness inside the pipe; what causes a decrease in pressure relative to the pipeline length.
ID_MATERIAL	-> WW_MATERIAL_TBD
ID_PROFILE	-> WW_PROFILE_TBD
NAME_NUMBER	Model name or number.
NARRATIVE	A description or other unique information concerning the item.
THICKNESS	Thickness of the pipe wall.
USER_FLAG	An operator-defined work area. This attribute can be used by the operator for user-defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Administration

The Administration topic contains attribute feature classes for managing contacts, customers, locations, manufacturers, and model tables.

Model tables store several types of a particular network item and can be grouped by manufacturer. Model tables have the suffix *_MODEL.

Also, there are polygon feature classes for creating washing, administration, and protection areas.

Admin Area

An Admin Area is an area approved by a federal, state, or local utility regulatory authority.

- Feature class — WW_ADMIN_AREA
- Feature type — Polygon
- Related table — WW_ADMIN_AREA_TBL

Name	Data Type	Description
AREA	Number	The area size, measured in square meters.
CO_CONNECT	Number	The commercial networking number.
DATE_CREATION	Date	The date when the item was created.
DESIGN_TREAT_CAP	Number	The designed wastewater treatment capacity, measured in cubic meters.
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
ID_OWNERSHIP	Number	The owner of this item.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
POPULATION_SERVED	Number	The population served by this area.
RE_CONNECT	Number	The residential connection number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.

Contact

The Contact feature class manages contact information, for example; company name, contact person, address, and email address.

The contact form provides access to several wastewater network features using the link buttons in the Related Tables tab.

- Feature class — WW_CONTACT
- Feature type — Attribute

Name	Data Type	Description
ACTIVE	Number	Is this contact active? (Yes/No)
BANK	Varchar2	The bank associated with this record.
BANK_ACCOUNT_ID	Varchar2	The bank account ID associated with this record.
BANK_CODE	Varchar2	The bank code associated with this record.
BIRTH_DATE	Date	The date of birth associated with this record.
BIRTH_NAME	Varchar2	The name at birth of this record.
BIRTH_PLACE	Varchar2	The place of birth associated with this record.
CITY	Varchar2	The city associated with this record.
COMPANY	Varchar2	The company associated with this record.
COMPANY_2	Varchar2	Additional company information for this record.
DATE_CHANGED	Date	The date of the last time this record was changed.
DATE_CREATED	Date	The date when this record was created.
DIRECT_DIALING	Varchar2	The direct dialing number for this record.
EMAIL	Varchar2	The email address associated with this record.
FAX	Varchar2	The fax number associated with this record.

Name	Data Type	Description
FIRST_NAME	Varchar2	The first name associated with this record.
HOUSE	Varchar2	The house number associated with this record.
INTERNET	Varchar2	The homepage URL associated with this record.
JOB_DESCRIPTION	Varchar2	The job description for this record.
NAME	Varchar2	The name associated with this record.
NARRATIVE	Varchar2	A description or other unique information concerning this record.
PERSONAL_ID	Varchar2	The ID of the person associated with this record.
PHONE_MOBILE	Varchar2	The mobile phone number.
PHONE_OFFICE	Varchar2	The office phone number.
PHONE_PRIVATE	Varchar2	The private phone number.
POSTAL_CODE	Varchar2	The postal code associated with this record.
STREET	Varchar2	The street associated with this record.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.

Location

The Location feature class groups wastewater utility features by geographical relation.

- Feature class — WW_LOCATION

■ Feature type — Attribute

Name	Data Type	Description
CITY	Varchar2	The city associated with this record.
DESIGNATION	Varchar2	The designation related to this record.
DISTRICTCODE	Number	The district code associated with this record.
DISTRICTNAME	Varchar2	The district name associated with this record.
ID_POSITION_TYPE	Number	The position type ID for this record. Related to: ■ WW_POSITION_TYPE_TBD
IS_FLOOD_AREA	Number	Is this a flood zone? (Yes/No)
NAME	Varchar2	The name of the location.
NAME_NUMBER	Varchar2	The name or number of the record.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
POSTALCODE	Varchar2	The postal code of this location.
PROPERTY_NUMBER	Varchar2	The property number of this location.
STREET	Varchar2	The street associated with this location.
STREETCODE	Number	The street code related to this location.
STREETNAME	Varchar2	The street name related to this location.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.
UTILIZATION	Varchar2	The utilization of this location.

Manufacturer

The Manufacturer feature class manages the manufacturer data for all materials and assemblies.

You can also create models for wastewater network items to simplify the data acquisition.

- Feature class — WW_MANUFACTURER
- Feature type — Attribute

Name	Data Type	Description
COMPANY	Varchar2	The manufacturer's company name.
COMPANY_2	Varchar2	Additional company information for this manufacturer.
DATE_CREATION	Date	The date when this item was created.
NARRATIVE	Varchar2	A description or other unique information concerning this manufacturer.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.

The Manfacturer feature class provides several model tables that store various network items.

Casing Model

The manufacturer's detail information for casings.

- Model table — WW_CASING_MODEL
- Feature type — Attribute

■ Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
CERTIFICATE	Varchar2	A description of item's DIN/ISO/DVGW/TUEV value.
DIAMETER_INSIDE	Number	The inside diameter of the section, measured in meters.
DIAMETER_NOMINAL	Varchar2	The manufacturer's designated size, or nominal diameter, rounded to the nearest unit, for the subject item. for example, 1" gas hydrant, 2" meter, 6" pipe.
DIAMETER_OUTSIDE	Number	The outside diameter of the section, measured in meters.
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
HYDRAULIC_FRICTION	Number	Hydraulic friction or the roughness inside a section which decreases the pressure relative to the length.
ID_COATING_INSIDE	Number	The type of coating used on the inside of the section. Related to: ■ WW_COATING_TBD
ID_COATING_OUTSIDE	Number	The type of coating used on the outside of the section. Related to: ■ WW_COATING_TBD
ID_MATERIAL	Number	The material used to manufacture this item.
MODEL_NUMBER	Varchar2	The model name or number of this item.

Name	Data Type	Description
PRESSURE_MAX	Varchar2	The manufacturer's or industry standard's maximum pressure rating for this item.
THICKNESS	Varchar2	The thickness of the section wall.
VALUE	Varchar2	A short description of the model. This value is used for the domain table representation of the model.

Cover Model

The manufacturer's detail information for covers.

- Model table — WW_COVER_MODEL
- Feature type — Attribute
- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
DIMENSION_1	Number	The first dimension, measured in meters.
DIMENSION_2	Number	The second dimension, measured in meters.
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
ID_AERATION	Number	Defines the aeration type of the cover. Related to: ■ WW_COVER_AER_TBD
ID_COVER_SHAPE	Number	The shape of the cover. Related to: ■ WW_COVER_SHAPE_TBD
ID_COVER_TYPE	Number	The type of cover. Related to: ■ WW_COVER_TYPE_TBD

Name	Data Type	Description
ID_LOAD_CLASS	Number	The load class of the cover. Related to: ■ WW_COVER_LOAD_TBD
ID_MATERIAL	Number	The material used to manfacture this item. Related to: ■ WW_COVER_MAT_TBD
LOAD_LIMIT	Number	The maximum load, measured in kilograms, accepted by the cover.
MODEL_NAME	Varchar2	The name or number of the model.

Manhole Model

The manufacturer's detail information for manholes.

- Model table — WW_MANHOLE_MODEL
- Feature type — Attribute
- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
DEPTH	Number	The depth of the manhole.
DIMENSION_1	Number	The first dimension, measured in meters.
DIMENSION_2	Number	The second dimension, measured in meters.
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
ID_MANHOLE_SHAPE	Number	The shape of the manhole. Related to: ■ WW_MHOLE_SHAPE_TBD

Name	Data Type	Description
ID_MANHOLE_TYPE	Number	The type of manhole. Related to: ■ WW_MHOLE_TYPE_TBD
ID_MATERIAL	Number	The material used to manfacture this item. Related to: ■ WW_MATERIAL_TBD
MODEL_NAME	Varchar2	The name or number of the model.

Marker Model

The manufacturer's detail information for manholes.

- Model table — WW_MARKER_MODEL
- Feature type — Attribute
- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
FID_MANUFAC-TURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
ID_MATERIAL	Number	The material used to manfacture this item. Related to: ■ WW_MATERIAL_TBD
MODEL_NAME	Varchar2	The name or number of the model.
SIGN_HEIGHT	Number	The height dimension of the sign, measured in meters.
SIGN_WIDTH	Number	The width dimension of the sign, measured in meters.

Name	Data Type	Description
VALUE	Varchar2	Short description of the model. This value is used for the domain table representation of the model.

Meter Model

The manufacturer's detail information for meters.

- Model table — WW_METER_MODEL
- Feature type — Attribute
- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
DIMENSION_1	Number	The first dimension, measured in meters.
DIMENSION_2	Number	The second dimension, measured in meters.
FID_MANUFAC-TURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
ID_METER_TYPE	Number	The type of meter. Related to: ■ WW_METER_TYPE_TBD
MODEL_NAME	Varchar2	The name or number of the model.

Pump Model

The manufacturer's detail information for pumps.

- Model table — WW_PUMP_MODEL
- Feature type — Attribute

- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
ID_COOLING_METHOD	Number	The method used to cool this pump. Related to: ■ WW_COOLING_METHOD_TBD
ID_PUMP_TYPE	Number	The type of pump. Related to: ■ WW_PUMP_TYPE_TBD
MODEL_NAME	Varchar2	The name or number of the model.
POWER	Number	The amount of power provided by this pump.

Section Model

The manufacturer's detail information for sections.

- Model table — WW_SECTION_MODEL
- Feature type — Attribute
- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
DIAMETER_INSIDE	Number	The inside diameter of the section, measured in meters.
DIAMETER_OUTSIDE	Number	The outside diameter of the section, measured in meters.
DIMENSION_1	Number	The first dimension, measured in meters.
DIMENSION_2	Number	The second dimension, measured in meters.

Name	Data Type	Description
EXIST_SPECIAL_PROFILE	Number	The existing special profile.
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
HYDRAULIC_FRICTION	Number	Hydraulic friction or the roughness inside a section which decreases the pressure relative to the length.
ID_MATERIAL	Number	The material used to manufacture this item.
ID_PROFILE	Number	The profile of the section.
MODEL_NAME	Varchar2	The name or number of the model.
THICKNESS	Varchar2	The thickness of the section wall.
VALUE	Varchar2	A short description of the model. This value is used for the domain table representation of the model.

Valve Model

The manufacturer's detail information for valves.

- Model table — WW_VALVE_MODEL
- Feature type — Attribute
- Parent feature class — WW_MANUFACTURER

Name	Data Type	Description
DIMENSION_1	Number	The first dimension, measured in meters.
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER

Name	Data Type	Description
ID_SERVICE_TYPE	Number	The service type for the valve. Related to: ■ WW_SERVICE_TYPE_TBD
ID_VALVE_TYPE	Number	The type of valve. Related to: ■ WW_VALVE_TYPE_TBD
MODEL_NAME	Varchar2	The name or number of the model.

Protection Area

Protection areas are used for visual grouping only.

- Feature class — WW_PROTECTION_AREA
- Feature type — Polygon
- Related table — WW_PROTECTION_AREA_TBL

Name	Data Type	Description
AREA	Number	The area size, measured in square meters.
DATE_CREATION	Date	The date when the item was created.
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.

Washing Area

Defines an area used for washing sections.

Feature rules can be enabled to allow the connection of a washing area with a section and vice-versa. See Feature Rules: Washing Area (page 264).

- Feature class — WW_WASHING_AREA
- Feature type — Polygon
- Related table — WW_WASHING_AREA_TBL

Name	Data Type	Description
AREA	Number	The area size, measured in square meters.
DATE_CREATION	Date	The date when the item was created.
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.

Dimension

The Dimension topic contains feature classes that store dimensioning in the data base.

For more information about saving dimensioning, see Data Model: Dimensioning.

Drain Area

The Drain Area topic contains polygon and attribute feature classes for creating drain and sub-drain areas in a wastewater network.

Model tables store several types of a particular network item and can be grouped by sub-drain area. Model tables have the suffix *_MODEL.

You use the Sub Drain Area Creation (page 7) workflow to digitize a drain area.

Drain Area

A drain area is a region of land where water flows into a specified body of water, such as a river, lake, sea, ocean, or sewer pipe.

A drain area is directly connected to a section and a network point. It is used for flow computations such as how much wastewater flows in the section. Its properties are collected in a model table.

Each section can be assigned to one sub drain area.

- Feature class — WW_DRAIN_AREA
- Feature type — Polygon
- Related table — WW_DRAIN_AREA_TBL

Name	Data Type	Description
AREA	Number	The area size, measured in square meters.
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.

Sub Drain Area

A sub-drain area is directly connected to a section and a network point. It is used for flow computations such as how much water flows in the section. Its properties are collected in a model table.

Each section can be assigned to one sub-drain area.

- Feature class — WW_SUB_DRAIN_AREA
- Feature type — Polygon
- Related table — WW_SUB_DRAIN_AREA_TBL

Name	Data Type	Description
AREA	Number	The area size, measured in square meters.
AREA_NUMBER	Number	The number of the area.
COMMERCIAL_IN-FLOW	Number	The inflow of commercial water, measured in liters / second [l/s].
COVERED_AREA	Number	The area of the covered area, measured in square meters.
DATE_CREATION	Date	The date when the item was created.
DISCHARGE_COEFFI-CIENT	Number	The discharge coefficient (psi value) of the sub drain area.
DRY_WEATHER_IN-FLOW	Number	The amount of inflow water during dry weather, measured in liters / second [l/s].
FACTOR_COV_AREA	Number	The factor of the covered area.
FACTOR_FLAT_ROOF_AREA	Number	The factor of the flat roof area.
FACTOR_NOT_COV_AREA	Number	The factor of the non-covered area.
FACTOR_ROOF_AREA	Number	The factor of the roof area.
FID_DRAIN_AREA	Number	The relation with the drain area. Related to:

Name	Data Type	Description
		■ WW_DRAIN_AREA
FID_DRY_WEATHER	Number	The relation to the dry weather feature. Related to: ■ WW_DRY_WEATHER
FID_END_POINT_ATTR	Number	The relation with one point. Related to: ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_GREASE_TRAP ■ WW_GRIT_CHAMBER ■ WW_MANHOLE ■ WW_NEUTRALIZER ■ WW_OIL_WATER_SEP ■ WW_OUTFALL ■ WW_SEPTIC_TANK
FID_HYD_FEATURE	Number	The relation to the hydraulic feature. Related to: ■ WW_HYD_DISCHARGE ■ WW_HYD_FREE_OUTFALL ■ WW_HYD_MANHOLE ■ WW_HYD_OUTFALL ■ WW_HYD_PUMP ■ WW_HYD_RESTR_CHAR_LINE ■ WW_HYD_RESTR_DISCHARGE ■ WW_HYD_SECTION ■ WW_HYD_STORAGE_SITE ■ WW_HYD_VALVE
FID_HYDRAULIC_COLLECTION	Number	The relation to a hydraulic collection. Related to:

Name	Data Type	Description
		■ WW_HYDRAULIC_COLLECTION
FID_SECTION	Number	The relation with one section. Related to: ■ WW_SECTION
FLAT_ROOF_AREA	Number	The area of a flat roof, measured in square meters.
FOUL_WATER_IN-FLOW	Number	The inflow of foul water, measured in liters / seocnd [l/s].
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
HOUSE_INFLOW	Number	The amount of house water inflow, measured in liters / second [l/s].
ID_ADDED_MATERI-AL	Number	The added material ID. Related to: ■ WW_ADDEDMATERIAL_TYPE_TBD
ID_DISPOSI-TION_STATE	Number	The disposition state of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_HYD_AREA_CHAR	Number	The hydraulic area character ID. Related to: ■ WW_HYD_AREA_CHAR_TBD
ID_HYD_AREA_FUNC-TION	Number	The hydraulic area function ID. Related to: ■ WW_HYD_AREA_FUNCTION_TBD
ID_HYD_AREA_TYPE	Number	The hydraulic area type ID. Related to: ■ WW_HYD_AREA_TYPE_TBD

Name	Data Type	Description
ID_HYD_FOULING_CLASS	Number	The hydraulic fouling class ID. Related to: ■ WW_HYD_FOULING_CLASS_TBD
ID_INCLINATION_CLASS	Number	The inclination class ID. Related to: ■ WW_INCLINATION_TBD
ID_SOIL_TYPE	Number	The type of soil. Related to: ■ WW_SOIL_TYPE_TBD
ID_SUB_DRAIN_UTILISATION	Number	The utilisation of the sub-drain area. Related to: ■ WW_UTILISATION_TBD
IDENTIFIER	Varchar2	The identifier.
INDUSTRIAL_INFLOW	Number	The amount of industrial water inflow, measured in liters / second [l/s].
INFILTRATION_INFLOW	Number	The amount of infiltration water inflow, measured in liters / second [l/s].
INFILTRATION_WATER_COEFFICIENT	Number	The infiltration water coefficient.
INHABITANT	Number	The number of inhabitants in the sub-drain area.
INHABITANT_DENSITY	Number	The inhabitant density, measured in inhabitants / hectare [inhabitants/ha].
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Name	Data Type	Description
NOT_COVERED_AREA	Number	The area that is not covered, measured in square meters.
RAIN_INFLOW	Number	The amount of rain water inflow, measured in liters / second [l/s].
ROOF_AREA	Number	The area that is covered by a roof, measured in square meters.
SLOPE	Number	The average slope of the sub-drain area.
SLOPE_CLASS	Number	The class of slope of the sub-drain area.
SURFACE_AREA	Number	The area of covered area, measured in square meters.
US-AGE_TIME_PER_DAY	Number	The average usage of water per day, measured in hours / day.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect this item's data integrity and should not be used to store this item's data.
WATER_USAGE	Number	The usage of water by inhabitants measured in liters / inhabitant / day [l/inhabitant/day].

Sub Drain Area Model

In the Sub Drain Area Model feature class, the validation checks whether the sub area factors add to 1.0. `FACTOR_COV_AREA + FACTOR_NOT_COV_AREA + FACTOR_ROOF_AREA + FACTOR_FLAT_ROOF_AREA`. In the feature class form, attributes that do not match are highlighted, and a tooltip explains the inconsistency.

NOTE In the wastewater document options, you can enable sub-drain area model validation. See Set Wastewater Document Options (page 267).

- Model table — WW_SUB_DRAIN_AREA_MODEL

- Feature type — Attribute
- Parent feature class — WW_SUB_DRAIN_AREA

Name	Data Type	Description
DISCHARGE_COEFFICIENT	Number	The discharge coefficient of the sub-drain area. This is part of the input flow which goes into the wastewater network.
FACTOR_COV_AREA	Number	The covered area factor.
FACTOR_FLAT_ROOF_AREA	Number	The flat roof area factor.
FACTOR_NOT_COV_AREA	Number	The uncovered area factor.
FACTOR_ROOF_AREA	Number	The roof area factor.
FOUL_WATER_INFLOW	Number	The inflow of foul water, measured in liters / second [l/s].
INFILTRATION_INFLOW	Number	The inflow of infiltration water, measured in liters / second [l/s].
INFILTRATION_WATER_COEFFICIENT	Number	The infiltration coefficient.
INHABITANT_DENSITY	Number	The density of inhabitants, measured in inhabitants / hectares [Inhabitant/ha].
MODEL_NAME	Varchar2	The name or number of the model.
SLOPE_CLASS	Number	The class of slope of the sub-drain area.
USAGE_TIME_PER_DAY	Number	The average usage of water per day measured in hours / day.
WATER_USAGE	Number	The usage of water by inhabitants, measured in liters / inhabitant / day [l/inhabitant/day].

See also:

- Sub Drain Area Creation (page 7)

- Feature Rule: Sub Drain Area

Hydraulic

The Hydraulic topic contains attribute feature classes pertaining to the hydraulic capacity of a wastewater network.

Calculation

The Calculation feature class contain the information related to the capacity of the network and of the specific sections.

- Feature class — WW_CALCULATION
- Feature type — Attribute

Name	Data Type	Description
CALCULA-TION_MODEL	Varchar2	The calculation model.
DATE_CALCULATION	Date	The date when the calculation was made.
FID_DISCHAR-GER_COLLECTIVE	Number	The relation to the discharger collective. Related to: ■ WW_DISCHARGER_COLLECTIVE
FID_HYDRAUL-IC_COLLECTION	Number	The relation to the hydraulic collection. Related to: ■ WW_HYDRAULIC_COLLECTION
FID_PROCEDURE	Number	The relation to the procedure. Related to: ■ WW_PROCEDURE
ID_CALCULA-TION_PROCEDURE	Number	The calculation procedure. Related to: ■ WW_CALCULATION_PROCEDURE_TBD

Name	Data Type	Description
ID_CALCULATION_PROCEDURE_GEN	Number	The general calculation procedure. Related to: ■ WW_CALCULATION_PROCEDURE_GEN_TBD
ID_FREQUENCY_TYPE	Number	The frequency type. Related to: ■ WW_FREQUENCY_TYPE_TBD
ID_RESULTS_TYPE	Number	The results type. Related to: ■ WW_RESULTS_TYPE_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_RESPONSIBLE	Varchar2	The name responsible for this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
SIMULATION_DAYS	Number	The simulation days.
SIMULATION_HOURS	Number	The simulation hours.
SIMULATION_MINUTES	Number	The simulation minutes.
SIMULATION_YEARS	Number	The simulation years.

Discharge Computation

The discharge computation is used to link the discharge feature with the hydraulic computation.

- Computation table — WW_DISCHARGE_COMPUTATION
- Feature type — Attribute

- Parent feature class — WW_CALCULATION

Name	Data Type	Description
CAPACITY	Number	The discharge capacity, measured in cubic meters.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_DISCHARGE	Number	The relation to discharge. Related to: ■ WW_DISCHARGE
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
ID_HYD_OB-JECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
MAX_OVERFALL	Number	The maximum overfall.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Free Outfall Computation

The free outfall computation is used to link the free outfall feature with the hydraulic computation.

- Computation table — WW_F_OUTFALL_COMPUTATION
- Feature type — Attribute

- Parent feature class — WW_CALCULATION

Name	Data Type	Description
CAPACITY	Number	The free outfall capacity, measured in cubic meters.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_OUTFALL	Number	The relation to the outfall. Related to: ■ WW_OUTFALL
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
MAX_FLOW	Number	The maximum flow.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OUTFALL_FREQUENCY	Number	The outfall frequency.

Manhole Computation

The manhole computation is used to link the manhole feature with the hydraulic computation.

- Computation table — WW_MANHOLE_COMPUTATION

- Feature type — Attribute
- Parent feature class — WW_CALCULATION

Name	Data Type	Description
ACCUMULATION_AMOUNT	Number	The accumulation amount, measured in cubic meters.
ACCUMULATION_DURATION	Number	The accumulation duration.
ACCUMULATION_FREQUENCY	Number	The accumulation frequency.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_MANHOLE	Number	The relation to the manhole feature. Related to: ■ WW_MANHOLE
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_UTIL_PARAMETERS	Number	The utility parameters ID. Related to: ■ WW_UTIL_PARAMETERS_TBD
MANHOLE_CLASS_AUTO	Number	The manhole class - automatic.

Name	Data Type	Description
MAN-HOLE_CLASS_MANU-AL	Number	The manhole class - manual.
MAX_WATER_LEVEL	Number	The maximum water level.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OVER-FLOW_AMOUNT	Number	The overflow amount.
OVERFLOW_FRE-QUENCY	Number	The overflow frequency.

Outfall Computation

The outfall computation is used to link the outfall feature with the hydraulic computation.

- Computation table — WW_OUTFALL_COMPUTATION
- Feature type — Attribute
- Parent feature class — WW_CALCULATION

Name	Data Type	Description
CAPACITY	Number	The outfall capacity, measured in cubic meters.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_OUTFALL	Number	The relation to the outfall feature. Related to: ■ WW_OUTFALL

Name	Data Type	Description
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
MAX_FLOW	Number	The maximum flow.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Pump Computation

The pump computation is used to link the pump feature with the hydraulic computation.

- Computation table — WW_PUMP_COMPUTATION
- Feature type — Attribute
- Parent feature class — WW_CALCULATION

Name	Data Type	Description
CAPACITY	Number	The pump capacity, measured in cubic meters.
DRY_FLOW	Number	The dry flow.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_PUMP	Number	The relation to the pump feature. Related to: ■ WW_PUMP

Name	Data Type	Description
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
MAX_FLOW	Number	The maximum flow.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
WORK_DURATION	Number	The work duration.

Section Computation

The section computation is used to link the section feature with the hydraulic computation.

- Computation table — WW_SECTION_COMPUTATION
- Feature type — Attribute
- Parent feature class — WW_CALCULATION

Name	Data Type	Description
COMPLETE_FULL_FLOW	Number	The complete full flow value.
COMPLETE_FULL_SPEED	Number	The complete full speed value.
DRYWEATHER_DISCHARGE	Number	The dry weather discharge value.
DRYWEATHER_SPEED	Number	The dry weather speed value.

Name	Data Type	Description
DW_WATER_LEVEL_INPUT	Number	The dry weather input water level, measured in meters.
DW_WATER_LEVEL_OUTPUT	Number	The dry weather output water level, measured in meters.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_SECTION	Number	The relation to the section feature. Related to: ■ WW_SECTION
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_UTIL_PARAMETERS	Number	The utility parameters ID. Related to: ■ WW_UTIL_PARAMETERS_TBD
MAX_OUTFLOW	Number	The maximum outflow.
MAX_SPEEED	Number	The maximum speed.
MAX_WATER_LEVEL_INPUT	Number	The maximum input water level, measured in meters.
MAX_WATER_LEVEL_OUTPUT	Number	The maximum output water level, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning this item.
SECTION_CLASS_AUTO	Number	The section class - automatic.
SECTION_CLASS_MANUAL	Number	The section class - manual.
UTILIZATION_DEGREE	Number	The utilization degree.

Storage Site Computation

The storage site computation is used to link the site feature with the hydraulic computation.

- Computation table — WW_STOR_SITE_COMPUTATION
- Feature type — Attribute
- Parent feature class — WW_CALCULATION

Name	Data Type	Description
CAPACITY_OVERFALL	Number	The capacity overfall value.
DAYS_OVERFALL	Number	The days overfall value.
DEGREE_HYD_EFFICIENCY	Number	The degree of hydraulic efficiency.
DURATION_OVERFALL	Number	The duration overfall value.
DURATION_WATER_SPEED	Number	The duration water speed value.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION

Name	Data Type	Description
FID_FEATURE	Number	The relation to the feature. Related to: ■ WW_ACC_BASIN ■ WW_BASIN ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_EMULSION_SPLIT ■ WW_FRENCH_DRAINS ■ WW_MISC_PLANT ■ WW_OUTFALL ■ WW_PUMP ■ WW_RESTRICTOR ■ WW_SCREEN ■ WW_SITE ■ WW_STARCH ■ WW_STRAINER ■ WW_TREATMENT_PLANT ■ WW_VALVE
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
FREQUENCY_OVER-FALL	Number	The frequency overfall value.
HEIGHT_STACK	Number	The duration overfall value.
ID_HYD_OB-JECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_HYD_STOR-AGE_SITE	Number	The hydraulic storage site ID. Related to:

Name	Data Type	Description
		■ WW_HYD_STORAGE_SITE_TBD
MAX_OVERFALL	Number	The maximum overfall.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
NUMBER_OVERFALL	Number	The number overfall value.
RATE_DISCHARGE	Number	The discharge rate.

Valve Computation

The valve computation is used to link the valve feature with the hydraulic computation.

- Computation table — WW_VALVE_COMPUTATION
- Feature type — Attribute
- Parent feature class — WW_CALCULATION

Name	Data Type	Description
CAPACITY	Number	The valve capacity, measured in cubic meters.
FID_CALCULATION	Number	The relation to calculation. Related to: ■ WW_CALCULATION
FID_TARGET_VALUES	Number	The relation to target values. Related to: ■ WW_TARGET_VALUES
FID_VALVE	Number	The relation to the valve feature. Related to: ■ WW_VALVE

Name	Data Type	Description
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
MAX_FLOW	Number	The maximum flow.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Computed Net

The Computed Net feature class is the computed network related to a calculation.

- Feature class — WW_COMPUTED_NET
- Feature type — Attribute

Name	Data Type	Description
FID_HYDRAULIC_COLLECTION	Number	The relation to the hydraulic collection. Related to: ■ WW_HYDRAULIC_COLLECTION
FID_MASTERDATA_COLLECTION	Number	Relation to masterdata collection. Related to: ■ WW_MASTERDATA_COLLECTION

Hydraulic Discharge

The hydraulic discharge is used to store information for the hydraulic computation.

- Computation table — WW_HYD_DISCHARGE
- Feature type — Attribute

■ Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
CHAMBER_HEIGHT	Number	The chamber height, measured in meters.
CONSTANT_WATER_LEVEL	Number	The constant water level, measured in meters.
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET
FID_DISCHARGE	Number	The relation to discharge. Related to: ■ WW_DISCHARGE
FID_INPUT_MANHOLE	Number	The relation to the input manhole feature. Related to: ■ WW_MANHOLE
FID_OUTPUT_MANHOLE	Number	The relation to the output manhole feature. Related to: ■ WW_MANHOLE
ID_BOUNDARY_CONDITION	Number	The boundary condition ID. Related to: ■ WW_BOUNDARY_CONDITION_TBD
ID_HYD_DISCHARGE_TYPE	Number	The hydraulic discharge type ID. Related to: ■ WW_HYD_DISCHARGE_TYPE_TBD
ID_HYD_MODELING	Number	The hydraulic model ID. Related to: ■ WW_HYD_MODELING_TBD

Name	Data Type	Description
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
INPUT_MANHOLE	Varchar2	The input manhole.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OUTPUT_MANHOLE	Varchar2	The output manhole.
OVERALL_COEFFICIENT	Number	The overall coefficient value.
THRESHOLD_HEIGHT	Number	The threshold height, measured in meters.
THRESHOLD_LENGTH	Number	The threshold length, measured in meters.

Hydraulic Free Outfall

The hydraulic free outfall is used to store information for the hydraulic computation.

- Computation table — WW_HYD_FREE_OUTFALL
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
CONSTANT_WATER_LEVEL	Number	The constant water level, measured in meters.
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET

Name	Data Type	Description
FID_FEATURE	Number	The relation to the feature. Related to: ■ WW_ACC_BASIN ■ WW_BASIN ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_EMULSION_SPLIT ■ WW_FRENCH_DRAINS ■ WW_MISC_PLANT ■ WW_OUTFALL ■ WW_PUMP ■ WW_RESTRICTOR ■ WW_SCREEN ■ WW_SITE ■ WW_STARCH ■ WW_STRAINER ■ WW_TREATMENT_PLANT ■ WW_VALVE
ID_BOUNDARY_CONDITION	Number	The boundary condition ID. Related to: ■ WW_BOUNDARY_CONDITION_TBD
ID_HYD_FREE_OUTFALL_TYPE	Number	The hydraulic free outfall type ID. Related to: ■ WW_HYD_FREE_OUTFALL_TYPE_TBD
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Hydraulic Manhole

The hydraulic manhole is used to store information for the hydraulic computation.

- Computation table — WW_HYD_MANHOLE
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET
FID_MANHOLE	Number	The relation to the manhole feature. Related to: ■ WW_MANHOLE
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
IS_COVER_PRESSURE_TIGHT	Number	Is cover pressure tight? (Yes/No)
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Hydraulic Outfall

The hydraulic outfall is used to store information for the hydraulic computation.

- Computation table — WW_HYD_OUTFALL
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
CROSS_SECTION_SURFACE	Number	The outfall cross section surface, measured in square meters.
DEPTH	Number	The outfall depth, measured in meters.
DISCHARGE_COEFFICIENT	Number	The discharge coefficient value.
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET
FID_INPUT_MANHOLE	Number	The relation to the input manhole feature. Related to: ■ WW_MANHOLE
FID_OUTFALL	Number	The relation with the outfall. Related to: ■ WW_OUTFALL
FID_OUTPUT_MANHOLE	Number	The relation to the output manhole feature. Related to: ■ WW_MANHOLE
ID_HYD_MODELING	Number	The hydraulic modeling ID. Related to: ■ WW_HYD_MODELING_TBD

Name	Data Type	Description
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_HYD_OUTFALL_TYPE	Number	The hydraulic outfall type ID. Related to: ■ WW_HYD_OUTFALL_TYPE_TBD
INPUT_MANHOLE	Varchar2	The input manhole.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OUTPUT_MANHOLE	Varchar2	The output manhole.

Hydraulic Pump

The hydraulic pump is used to store information for the hydraulic computation.

- Computation table — WW_HYD_PUMP
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
CAPACITY	Number	The pump capacity, measured in cubic meters.
CONTROL_MANHOLE_DESC	Varchar2	The description of the control manhole.
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET

Name	Data Type	Description
FID_INPUT_MANHOLE	Number	The relation to the input manhole feature. Related to: ■ WW_MANHOLE
FID_OUTPUT_MANHOLE	Number	The relation to the output manhole feature. Related to: ■ WW_MANHOLE
FID_PUMP	Number	The relation to the pump feature. Related to: ■ WW_PUMP
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_HYD_PUMP_TYPE	Number	The hydraulic pump type ID. Related to: ■ WW_HYD_PUMP_TYPE_TBD
ID_MODELING	Number	The modeling ID. Related to: ■ WW_HYD_MODELING_TBD
INITIAL_CAPACITY	Number	The initial pump capacity, measured in cubic meters.
INPUT_MANHOLE	Varchar2	The input manhole.
LEVEL_1	Number	The level 1 value, measured in meters.
LEVEL_2	Number	The level 2 value, measured in meters.
LEVEL_3	Number	The level 3 value, measured in meters.
LEVEL_4	Number	The level 4 value, measured in meters.

Name	Data Type	Description
LEVEL_5	Number	The level 5 value, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OUTPUT_MANHOLE	Varchar2	The output manhole.
POWER_LEVEL	Number	The pump power level.
REGULATING_STEP	Number	The regulating step value.
SOIL_Z	Number	The soil elevation, measured in meters.
SWITCHPOINT1_2	Number	Switchpoint1_2.
SWITCHPOINT2_1	Number	Switchpoint2_1.
SWITCHPOINT2_3	Number	Switchpoint2_3.
SWITCHPOINT3_2	Number	Switchpoint3_2.
SWITCHPOINT3_4	Number	Switchpoint3_4.
SWITCHPOINT4_3	Number	Switchpoint4_3.
SWITCHPOINT4_5	Number	Switchpoint4_5.
SWITCHPOINT5_4	Number	Switchpoint5_4.

Hydraulic Pump Line

The hydraulic pump line is used to store information for the hydraulic computation.

- Computation table — WW_HYD_PUMP_LINE
- Feature type — Attribute

- Parent feature class — WW_HYD_PUMP

Name	Data Type	Description
FID_HYD_PUMP	Number	The relation to hydraulic pump. Related to: ■ WW_HYD_PUMP
POWER_LEVEL	Number	The pump line power level.
REGULATING_STEP	Number	The regulating step value.

Hydraulic Restrictor Characteristic Line

The hydraulic restrictor charactistic line is used to store information for the hydraulic computation.

- Computation table — WW_HYD_RESTR_CHAR_LINE
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
RESTRICTOR_DIS-CHARGE	Number	The restrictor discharge value.
FID_HYD_STOR-AGE_SITE	Number	The relation to hydraulic storage site. Related to: ■ WW_HYD_STORAGE_SITE
WATER_LEVEL	Number	The water level, measured in meters.

Hydraulic Restrictor Discharge

The hydraulic restrictor discharge is used to store information for the hydraulic computation.

- Computation table — WW_HYD_RESTR_DISCHARGE
- Feature type — Attribute

- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
CONSTANT_OUTFLOW	Number	The constant outflow value.
FID_HYD_STORAGE_SITE	Number	The relation to hydraulic storage site. Related to: ■ WW_HYD_STORAGE_SITE
HEIGHT_PIPE_BED	Number	The pipe bed height, measured in meters.
RESTRICTOR_COEFFICIENT	Number	The restrictor coefficient value.
RESTRICTOR_DIAMETER	Number	The restrictor diameter, measured in meters.

Hydraulic Section

The hydraulic section is used to store information for the hydraulic computation.

- Computation table — WW_HYD_SECTION
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
CALCULATION_LENGTH	Number	The calculation length, measured in meters.
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET
FID_SECTION	Number	The relation to the section feature. Related to: ■ WW_SECTION

Name	Data Type	Description
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_LEAKAGE_A110	Number	The leakage A110 ID. Related to: ■ WW_LEAKAGE_A110_TBD
ID_ROUGHNESS_METHOD	Number	The roughness method ID. Related to: ■ WW_ROUGHNESS_METHOD_TBD
IS_A110_METHOD	Number	IS A110 Method. Related to: ■ WW_LEAKAGE_A110_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
ROUGHNESS_1	Number	Roughness 1.
ROUGHNESS_2	Number	Roughness 2.

Hydraulic Storage Site

The hydraulic storage site is used to store information for the hydraulic computation.

- Computation table — WW_HYD_STORAGE_SITE
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
BED_KF_VALUE	Number	Bed KF Value.

Name	Data Type	Description
CAPACITY	Number	The storage site capacity, measured in cubic meters.
FID_COMPUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET
FID_FEATURE	Number	The relation to the feature. Related to: ■ WW_ACC_BASIN ■ WW_BASIN ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_EMULSION_SPLIT ■ WW_FRENCH_DRAINS ■ WW_MISC_PLANT ■ WW_OUTFALL ■ WW_PUMP ■ WW_RESTRICTOR ■ WW_SCREEN ■ WW_SITE ■ WW_STARCH ■ WW_STRAINER ■ WW_TREATMENT_PLANT ■ WW_VALVE
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_HYD_STORAGE_SITE	Number	The hydraulic storage site ID. Related to: ■ WW_HYD_STORAGE_SITE_TBD

Name	Data Type	Description
INF_SURFACE	Number	The infiltration surface, measured in square meters.
INF_WATER_LEVEL	Number	The infiltration water level, measured in meters.
INITIAL_CAPACITY	Number	The initial pump capacity, measured in cubic meters.
IS_RESTRICTOR_DISCHARGE	Number	IS Restrictor Discharge.
IS_RESTRICTOR_LINE	Number	IS Restrictor Line.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
SLOPE_KF_VALUE	Number	The slope KF value.
WATER_LEVEL	Number	The water level, measured in meters.

Hydraulic Capacity Line

The hydraulic capacity line is used to store information for the hydraulic computation.

- Computation table — WW_HYD_CAPACITY_LINE
- Feature type — Attribute
- Parent feature class — WW_HYD_STORAGE_SITE

Name	Data Type	Description
CAPACITY	Number	The capacity, measured in cubic meters.
FID_HYD_STORAGE_SITE	Number	The relation to storage site. Related to: ■ WW_HYD_STORAGE_SITE

Name	Data Type	Description
WATER_LEVEL	Number	The capacity line water level, measured in meters.

Hydraulic Infiltration Line

The hydraulic infiltration line is used to store information for the hydraulic computation.

- Computation table — WW_HYD_INFILTRATION_LINE
- Feature type — Attribute
- Parent feature class — WW_HYD_STORAGE_SITE

Name	Data Type	Description
FID_HYD_STOR-AGE_SITE	Number	The relation to storage site. Related to: ■ WW_HYD_STORAGE_SITE
SURFACE	Number	The infiltration line surface, measured in square meters.
WATER_LEVEL	Number	The infiltration line water level, measured in meters.

Hydraulic Valve

The hydraulic valve is used to store information for the hydraulic computation.

- Computation table — WW_HYD_VALVE
- Feature type — Attribute
- Parent feature class — WW_COMPUTED_NET

Name	Data Type	Description
DIMENSION_1	Number	The first valve dimension, measured in meters.
FID_COM-PUTED_NET	Number	The relation to the computed network. Related to: ■ WW_COMPUTED_NET

Name	Data Type	Description
FID_INPUT_MANHOLE	Number	The relation to the input manhole feature. Related to: ■ WW_MANHOLE
FID_OUTPUT_MANHOLE	Number	The relation to the input manhole feature. Related to: ■ WW_MANHOLE
FID_VALVE	Number	The relation to the valve feature. Related to: ■ WW_VALVE
ID_HYD_MODELING	Number	The hydraulic modeling ID. Related to: ■ WW_HYD_MODELING_TBD
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_HYD_VALVE_TYPE	Number	The hydraulic valve type ID. Related to: ■ WW_HYD_VALVE_TYPE_TBD
INPUT_MANHOLE	Varchar2	The input manhole.
LEAKAGE_COEFFICIENT	Number	The leakage coefficient value.
MAX_STROKE_HEIGHT	Number	The maximum stroke height value.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Name	Data Type	Description
OUTPUT_MANHOLE	Varchar2	The output manhole.
START_VALVE	Number	The start valve value.
START_VALVE_SPEED	Number	The start valve speed value.
ZERO_POSITION	Number	The zero position of the valve.

Load

The Load feature class contains the rain quantities used for the calculation.

- Feature class — WW_LOAD
- Feature type — Attribute

Name	Data Type	Description
FID_HYDRAUL-IC_COLLECTION	Number	The relation to hydraulic collection. Related to: ■ WW_HYDRAULIC_COLLECTION

Discharger Collective

The discharger collective load is used to group one or more single discharger.

- Computation table — WW_DISCHARGER_COLLECTIVE
- Feature type — Attribute
- Parent feature class — WW_LOAD

Name	Data Type	Description
FID_LOAD	Number	The relation to the load. Related to: ■ WW_LOAD
NAME_NUMBER	Varchar2	The name or number of this item.

Single Discharger

The single discharger is used to store discharge attributes for load tests and hydraulic computation.

- Computation table — WW_SINGLE_DISCHARGER
- Feature type — Attribute
- Parent feature class — WW_DISCHARGER_COLLECTIVE

Name	Data Type	Description
COMMERCIAL_INFLOW	Number	The commercial inflow value.
COMMERCIAL_INHABITANT	Number	The commercial inhabitant value.
DRYWEATHER_INFLOW	Number	The dryweather inflow value.
DRYWEATHER_INHABITANT	Number	The dryweather inhabitant value.
FID_DISCHARGER_COLLECTIVE	Number	The relation to the discharger collective feature. Related to: ■ WW_DISCHARGER_COLLECTIVE
FID_HYD_FEATURE	Number	The relation to the hydraulic feature. Related to: ■ WW_HYD_DISCHARGE ■ WW_HYD_FREE_OUTFALL ■ WW_HYD_MANHOLE ■ WW_HYD_OUTFALL ■ WW_HYD_PUMP ■ WW_HYD_RESTR_CHAR_LINE ■ WW_HYD_RESTR_DISCHARGE ■ WW_HYD_SECTION ■ WW_HYD_STORAGE_SITE ■ WW_HYD_VALVE

Name	Data Type	Description
FOULWATER_INFLOW	Number	The foul water inflow value.
FOULWATER_INHABITANT	Number	The foul water inhabitant value.
HOUSE_INFLOW	Number	The house inflow value.
HOUSE_INHABITANT	Number	The house inhabitant value.
INDUSTRIAL_INFLOW	Number	The industrial inflow value.
INDUSTRIAL_INHABITANT	Number	The industrial inhabitant value.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
QTR24_INFILTRATION_INFLOW	Number	The Qrt24 Infiltration inflow value.
RAINWATER_INFLOW	Number	The rainwater inflow value.

Dry Weather

The dry weather load is used to store attributes like water consumption for load tests and hydraulic computation.

- Computation table — WW_DRY_WEATHER
- Feature type — Attribute
- Parent feature class — WW_LOAD

Name	Data Type	Description
DAILY_PEAK	Number	The daily peak value.
FID_LOAD	Number	The relation to the load. Related to:

Name	Data Type	Description
		■ WW_LOAD
GROUND_INFILTRATION	Number	The ground infiltration value.
GROUND_INFILTRATION_PERCENT	Number	The ground infiltration percent value.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
QTR24	Number	The quantity in 24 hours.
WATER_CONSUMPTION	Number	The water consumption value.

Precipitation

The precipitation load is used to store statistical data for modelling rain events.

- Computation table — WW_PRECIPITATION
- Feature type — Attribute
- Parent feature class — WW_LOAD

Name	Data Type	Description
BLOCKRAIN_DURATION	Number	The blockrain duration value.
BLOCKRAIN_FREQUENCY	Number	The blockrain frequency.
BLOCKRAIN_TOTAL	Number	The blockrain total.
CONTINUUMRAIN_TOTAL	Number	The continuumrain total.

Name	Data Type	Description
DATE_END_CONTINUUMRAIN	Date	The continuumrain end date.
DATE_END_NATURALRAIN	Date	The naturalrain end date.
DATE_START_CONTINUUMRAIN	Date	The continuumrain start date.
DATE_START_NATURALRAIN	Date	The naturalrain start date.
FID_LOAD	Number	The relation to the load. Related to: ■ WW_LOAD
ID_CONTINUUM_TYPE	Number	The continuum type ID. Related to: ■ WW_CONTINUUM_TYPE_TBD
ID_LOAD_TYPE	Number	The load type ID. Related to: ■ WW_LOAD_TYPE_TBD
ID_MODELRAIN_TYPE	Number	The modelrain type ID. Related to: ■ WW_MODELRAIN_TYPE_TBD
MODELRAIN_DURATION	Number	The modelrain duration.
MODELRAIN_FREQUENCY	Number	The modelrain frequency.
MODELRAIN_TOTAL	Number	The modelrain total.
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning this item.
NATURALRAIN_TOTAL	Number	The naturalrain total.
STATION_DESIGNATION_CONT	Varchar2	The station designation continuumrain value.
STATION_DESIGNATION_NAT	Varchar2	The station designation naturalrain value.
STATION_NAME_NUMBER_CONT	Number	The station name number continuumrain value.
STATION_NAME_NUMBER_NAT	Number	The station name number naturalrain value.

Procedure

The Procedure feature class describes the calculation method.

- Feature class — WW_PROCEDURE
- Feature type — Attribute

Name	Data Type	Description
ID_PROCDURE_DESIGNATION	Number	The procedure designation ID. Related to: ■ WW_PROCEDURE_DESIGNATION_TBD
FID_HYDRAULIC_COLLECTION	Number	The relation to hydraulic collection. Related to: ■ WW_HYDRAULIC_COLLECTION
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Target Values

The target values are permissible values like rain frequency allowed for a hydraulic procedure.

- Computation table — WW_TARGET_VALUES
- Feature type — Attribute
- Parent feature class — WW_PROCEDURE

Name	Data Type	Description
FID_PROCEDURE	Number	The relation to procedure. Related to: ■ WW_PROCEDURE
ID_HYD_OBJECT_TYPE	Number	The type of hydraulic object. Related to: ■ WW_HYD_OBJECT_TYPE_TBD
ID_TARGET_TYPE	Number	The target type ID. Related to: ■ WW_TARGET_TYPE_TBD
ID_TARGET_UNIT	Number	The target unit ID. Related to: ■ WW_TARGET_UNIT_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
VALUE	Number	The value.

Import

The Import topic contains feature classes that store information about imports you have made.

Import

The Import feature class stores information related specifically to the import. For example, it is possible to import data from a file in ISYBAU format.

- Feature class — WW_IMPORT
- Feature type — Attribute

Name	Data Type	Description
ADMINISTRATIVEOFFICE	Varchar2	The administrative office.
AREAOFRESPONSIBILTY	Varchar2	The area of responsibility.
BUILDINGIMPLEMENTATIONOFFICE	Varchar2	The building implementation office.
COMMENTS	Varchar2	Comments pertaining to the import.
DATE_CREATION	Date	The date when the import was made.
FID_LOCATION	Number	The location (street) where the import data was collected. Related to: ■ WW_LOCATION
FILENAME	Varchar2	The import filename.
FILEREFERENCENO	Varchar2	The file reference number for the import data.
ID_DATA_STATUS	Number	The data status ID. Related to: ■ WW_DATA_STATUS_TBD

Name	Data Type	Description
ID_RESPONSIBILITY_TYPE	Number	The responsibility type ID. Related to: ■ WW_RESPONSIBILITY_TYPE_TBD
ID_WW_ELIM_REQUIREMENTS	Number	The wastewater elimination requirements ID. Related to: ■ WW_ELIM_REQUIREMENTS_TBD
NAME	Varchar2	The name of this import.
NUMBEROFBUILDINGIMPLEMENTATION	Varchar2	The number of the building implementation.
OUTLET_DISCHARGEPERMIT	Date	The date when the outlet discharge permit was issued.
PROPERTYMANAGEMENTOFFICE	Varchar2	The property management office.
SITESUPERVISIONOFFICE	Varchar2	The site supervision office.
STEPS_COMPLETED	Number	The steps completed.
VERSION	Varchar2	The import version.
WATERAUTHORITIES	Varchar2	The water authorities.

Hydraulic Collection

The hydraulic collection is used to store hydraulic information for the related data import.

- Computation table — WW_HYDRAULIC_COLLECTION
- Feature type — Attribute

- Parent feature class — WW_IMPORT

Name	Data Type	Description
DESCRIPTION	Varchar2	The description of the item.
FID_IMPORT	Number	The relation to import. Related to: ■ WW_IMPORT
FID_DISCHARGE	Number	The relation to discharge. Related to: ■ WW_DISCHARGE
IS_CALCULATION	Number	The calculation entry.
IS_COMPUTERNET-WORK	Number	The computer network entry.
IS_DISCTRICT	Number	The disctrict entry.
IS_LOAD	Number	The load entry.
IS_PROCEDURE	Number	The procedure entry.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Import Media File

The import media file is used to store the media information for the related data import.

- Computation table — WW_IMPORT_MEDIA
- Feature type — Attribute

- Parent feature class — WW_IMPORT

Name	Data Type	Description
FID_IMPORT	Number	The relation to import. Related to: ■ WW_IMPORT
FILENAME	Varchar2	The import filename.
ORIGINAL_PATH	Number	The original path to the import file.
SERVER_PATH	Number	The server path to the import file.

Inspection Collection

The inspection collection is used to store the inspection information for the related data import.

- Computation table — WW_INSPECTION_COLLECTION
- Feature type — Attribute
- Parent feature class — WW_IMPORT

Name	Data Type	Description
DESCRIPTION	Varchar2	The description of the import.
FID_IMPORT	Number	The relation to import. Related to: ■ WW_IMPORT
ID_REGULATIONS	Number	The regulations ID. Related to: ■ WW_REGULATIONS_TBD
IS_FILM	Number	The film entry.
IS_INSPECTION	Number	The inspection entry.

Name	Data Type	Description
IS_LEAK_TIGHTNESS	Number	The leak tightness entry.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

MasterData Collection

The masterdata collection is used to store the masterdata information for the related data import.

- Computation table — WW_MASTERDATA_COLLECTION
- Feature type — Attribute
- Parent feature class — WW_IMPORT

Name	Data Type	Description
DESCRIPTION	Varchar2	The description of the import.
FID_IMPORT	Number	The relation to import. Related to: ■ WW_IMPORT
ID_MASTERDATA	Number	The masterdata ID. Related to: ■ WW_MASTERDATA_TBD
IS_CONSTRUCTION-TECHNIQUE	Number	The construction technique entry.
IS_GEOMETRY	Number	The geometry entry.
IS_OUTERFIELD	Number	The outerfield entry.
IS_REHABILITATION	Number	The rehabilitation entry.
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Operation Collection

The operation collection is used to store the operation information for the related data import.

- Computation table — WW_OPERATING_COLLECTION
- Feature type — Attribute
- Parent feature class — WW_IMPORT

Name	Data Type	Description
DESCRIPTION	Varchar2	The description of the import.
FID_IMPORT	Number	The relation to import. Related to: ■ WW_IMPORT
IS_OPERATION	Number	The operation entry.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Imported Feature

This feature class stores all of the imported features.

- Feature class — WW_IMPORT

■ Feature type — Attribute

Name	Data Type	Description
DATA_MATCH-ING_STATE	Number	The data matching state.
F_CLASS_ID	Number	The feature class ID.
F_CLASS_ID_PARENT	Number	The parent feature class ID.
FID_FEATURE	Number	The feature ID. Related to: ■ WW_ACC_BASIN ■ WW_BASIN ■ WW_COALESCENCE_SEP ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_EMULSION_SPLIT ■ WW_FITTING ■ WW_FRENCH_DRAINS ■ WW_GREASE_TRAP ■ WW_GRIT_CHAMBER ■ WW_HYD_SECTION ■ WW_HYD_STORAGE_SITE ■ WW_HYD_PUMP ■ WW_HYD_DISCHARGE ■ WW_HYD_VALVE ■ WW_HYD_MANHOLE ■ WW_HYD_OUTFALL ■ WW_HYD_FREE_OUTFALL ■ WW_LINE ■ WW_MANHOLE ■ WW_MEASURING_STATION ■ WW_MISC_PLANT ■ WW_NEUTRALIZER

Name	Data Type	Description
		■ WW_OIL_WATER_SEP ■ WW_OUTERFIELD ■ WW_OUTFALL ■ WW_POINT ■ WW_PUMP ■ WW_RESTRICTOR ■ WW_SCREEN ■ WW_SECTION ■ WW_SITE ■ WW_SOIL_CHARACTERISTIC ■ WW_STARCH ■ WW_STRAINER ■ WW_SUB_DRAIN_AREA ■ WW_TREATMENT_PLANT ■ WW_VALVE
FID_HYDRAUL-IC_COLLECTION	Number	The relation to the hydraulic collection. Related to: ■ WW_HYDRAULIC_COLLECTION
FID_IMPORT	Number	The relation to import. Related to: ■ WW_IMPORT
FID_INSPECTION	Number	The relation to inspection. Related to: ■ WW_INSPECTION
FID_MASTER-DATA_COLLECTION	Number	The relation to the masterdata collection. Related to: ■ WW_MASTERDATA_COLLECTION
FID_MATCHED	Number	The matched ID.

Name	Data Type	Description
FID_MATCHED_PARENT	Number	The matched parent ID.
FID_OPERATING_COLLECTION	Number	The relation to the operating collection. Related to: ■ WW_OPERATING_COLLECTION
FID_PARENT	Number	The parent ID.
FROM_MANHOLE	Varchar2	The 'from' manhole.
MATCHING_ATTRIBUTE	Varchar2	The matching attribute.
RESOLVED_CONFLICTS	Varchar2	The attribute used during conflict resolution.
TO_MANHOLE	Varchar2	The 'to' manhole.

Inspection

The Inspection topic contains feature classes which are related to the inspection of a wastewater network.

Contract

The Contract feature class contains data that describes an inspection session and general information related to who performed the inspection, when the inspection occurred, etc.

- Feature class — WW_CONTRACT
- Feature type — Attribute

Name	Data Type	Description
CONTRACT_NUMBER	Varchar2	The contract number of the inspection.

Name	Data Type	Description
CONTRACTOR	Varchar2	The contractor who will perform the inspection.
DATE_CONTRACT	Date	The date when the contract was made.
DATE_END_INSPEC-TION	Date	The date when the inspection is completed.
DESCRIPTION	Varchar2	A description of what the inspection will cover.
FID_INSPEC-TION_COLLECTION	Number	The relation to inspection collection. Related to: ■ WW_INSPECTION_COLLECTION
FID_MASTER-DATA_COLLECTION	Number	The relation to the masterdata collection. Related to: ■ WW_MASTERDATA_COLLECTION
ID_CODING_SYS-TEM	Number	The coding system ID. Related to: ■ WW_CODING_SYSTEM_TBD
ID_CONTRACT_RE-HAB	Number	The rehabilitation contract ID. Related to: ■ WW_CONTRACT_REHAB_TBD
ID_CONTRACT_TYPE	Number	The contract typeID. Related to: ■ WW_CONTRACT_TYPE_TBD
ID_INSPECTION_PUR-POSE	Number	The inspection purpose ID. Related to: ■ WW_INSPECTION_PURPOSE_TBD
IDCONTRACT	Number	The identifier of the inspection contract.
INSPECTION_SITE	Varchar2	The inspection site.

Name	Data Type	Description
OBJECTSUPPORT	Varchar2	The object support value.
QUALITYCONTROL	Varchar2	The quality control value.
SITESUPERVISION	Varchar2	The site supervision value.
SYSTEMNAME	Varchar2	The name of the system.
VERSION	Varchar2	The import version.

Film

The Film feature class contains information pertaining to the inspection video associated with the inspection. A film documents the inspection and allow the inspector to see the section and the manhole during the inspection.

- Feature class — WW_FILM
- Feature type — Attribute

Name	Data Type	Description
FID_INSPECTION_COLLECTION	Number	The relation to inspection collection. Related to: ■ WW_INSPECTION_COLLECTION
FILMPATH	Varchar2	The film path.
FILMPATHACTUALABSOLUTE	Number	The film path actual (absolute).
IDCONTRACT	Number	The identifier of the inspection contract.
VIDEOARCHIVEREFERENCE	Varchar2	The video archive reference.

Film Feature

The film feature is a film that corresponds to an inspected section.

- Computation table — WW_FILM_FEATURE
- Feature type — Attribute
- Parent feature class — WW_FILM

Name	Data Type	Description
FID_FEATURE	Number	The feature ID. Related to: ■ WW_SECTION
FID_FILM	Number	The film ID. Related to: ■ WW_FILM
ID_INSPECTION_DIR-ECTION	Number	The inspection direction ID. Related to: ■ WW_INSPECTION_DIRECTION_TBD
NAME_NUMBER	Varchar2	The name or number of this item.

Film Frame

The film frame is a single, still frame of a film.

- Computation table — WW_FILM_FRAME
- Feature type — Attribute
- Parent feature class — WW_FILM

Name	Data Type	Description
END_FRAME	Number	The last frame of the inspection film.
FID_FILM	Number	The film ID. Related to: ■ WW_FILM

Name	Data Type	Description
FPS	Number	The frame rate at which the inspection video was created, measured in frames per second (fps).
START_FRAME	Number	The first frame of the inspection film.

Film Offset

The film offset is used to synchronize the MPEG frame number with a video time counter.

- Computation table — WW_FILM_OFFSET
- Feature type — Attribute
- Parent feature class — WW_FILM

Name	Data Type	Description
FID_FILM	Number	The film ID. Related to: ■ WW_FILM
MPEGFRAMENO	Number	The MPEG frame number.
TCFRAMENO	Number	The TC frame number.

Inspection

The Inspection feature class is the control for the wastewater network components (such as sections and manholes) which checks their operating capabilities.

- Feature class — WW_INSPECTION
- Feature type — Attribute

Name	Data Type	Description
DATE_INSPECTION	Date	The date when the inspection was made.

Name	Data Type	Description
FID_INSPEC-TION_COLLECTION	Number	The relation to inspection collection. Related to: ■ WW_INSPECTION_COLLECTION
FID_LOCATION	Number	The location to inspection (street). Related to: ■ WW_LOCATION
ID_INSPECTION_DIR-ECTION	Number	The inspection direction ID. Related to: ■ WW_INSPECTION_DIRECTION_TBD
ID_INSPEC-TION_PROCEDURE	Number	The inspection procedure ID. Related to: ■ WW_INSPECTION_PROCEDURE_TBD
ID_INSPEC-TION_TYPE	Number	The inspection type ID. Related to: ■ WW_INSPECTION_TYPE_TBD
ID_PIPING_TYPE	Number	The piping type ID. Related to: ■ WW_PIPING_TYPE_TBD
ID_REF_POINT_POSI-TION	Number	The reference point position ID. Related to: ■ WW_REF_POINT_POSITION_TBD
ID_VIDEO_REFER-ENCE	Number	The video reference ID. Related to: ■ WW_VIDEO_REFERENCE_TBD
ID_VIDEOSTOR-AGEMEDIUM	Number	The video storage medium ID. Related to: ■ WW_VIDEOSTORAGEMEDIUM_TBD

Name	Data Type	Description
ID_WATERDRAINAGE	Number	The water drainage ID. Related to: ■ WW_WATERDRAINAGE_TBD
ID_WEATHER_TYPE	Number	The weather typeID. Related to: ■ WW_WEATHER_TYPE_TBD
IDCONTRACT	Number	The identifier of the contract.
INSPECTION_GROUP	Number	The inspection group.
INSPECTORNAME	Varchar2	The identifier of the contract.
IS_CLEANED	Number	The cleaned entry.
LENGTHOFINSPEC-TION	Number	The length of the inspection, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
REMARKS	Varchar2	Remarks pertaining to the inspection.
TEMPERATURE	Number	The temperature during the inspection.
TIME	Date	The time when the inspection was performed.
VIDEOARCHIVEREFER-ENCE	Varchar2	The video archive reference.

Inspection Leakage Test

The inspection leakage test is used to store leakage test information of an inspected section. For example, the information may include detected corrosion or pitting of the section.

- Computation table — WW_LEAKAGE_TEST
- Feature type — Attribute

- Parent feature class — WW_INSPECTION

Name	Data Type	Description
DATE_TEST	Date	The date when the leakage test was performed.
DEVICEOPERATOR	Varchar2	The device operator.
FID_INSPECTION	Number	The inspection ID. Related to: ■ WW_INSPECTION
ID_TEST_PROCED-URE	Number	The test procedure ID. Related to: ■ WW_TEST_PROCEDURE_TBD
ID_TEST_REASON	Number	The test reason ID. Related to: ■ WW_TEST_REASON_TBD
ID_TEST_REGULA-TION	Number	The test regulation ID. Related to: ■ WW_TEST_REGULATION_TBD
ID_TEST_SCOPE	Number	The test scope ID. Related to: ■ WW_TEST_SCOPE_TBD
IDCONTRACT	Number	The identifier of the contract.
IS_SUCCESFUL	Number	The successful entry.

Manhole Classification

Manhole classification is used to store all classification information related to the inspection of a manhole.

- Computation table — WW_MANHOLE_CLASSIFICATION
- Feature type — Attribute

■ Parent feature class — WW_INSPECTION

Name	Data Type	Description
ADDITIONALPOINTS	Number	Additional points.
AUTHORITATIVEDAMAGE	Varchar2	The authoritative damage value.
AUTHORITATIVEQUANTIFICATION	Number	The authoritative quantification value.
CLASSAUTOMATIC	Number	The automatic class value.
CLASSMANUAL	Number	The manual class value.
DATE_EVALUATION	Date	The date when the evaluation was performed.
FID_INSPECTION	Number	The inspection ID. Related to: ■ WW_INSPECTION
FID_MANHOLE	Number	The manhole ID. Related to: ■ WW_MANHOLE ■ WW_FITTING
ID_EVAL_PROCEDURE	Number	The evaluation procedure ID. Related to: ■ WW_EVAL_PROCEDURE_TBD
NUMBERFINAL	Number	The final number.
NUMBERPRELIMINARY	Number	The preliminary number.

Manhole Observation

Manhole observation is used to store all observed information related to the inspection of a manhole.

- Computation table — WW_MANHOLE_OBSERVE
- Feature type — Collection
- Parent feature class — WW_INSPECTION

Name	Data Type	Description
CHARACTERIZATION1	Varchar2	The characterization 1 value.
CHARACTERIZATION2	Varchar2	The characterization 2 value.
DAMAGE_NUMBER	Number	The damage number.
FID_INSPECTION	Number	The inspection ID. Related to: ■ WW_INSPECTION
FID_MANHOLE	Number	The manhole ID. Related to: ■ WW_MANHOLE ■ WW_FITTING
FID_MANHOLE_REHABILITATION	Number	The manhole rehabilitation ID. Related to: ■ WW_MANHOLE_REHABILITATION
FRAME	Varchar2	The frame value.
ID_DAK_CLEAN_UP	Number	The DAK clean up ID. Related to: ■ WW_DAK_CLEAN_UP_TBD
ID_DAL_CLEAN_UP	Number	The DAL clean up ID.

Name	Data Type	Description
		Related to: ■ WW_DAL_CLEAN_UP_TBD
ID_MANHOLE_AREA	Number	The manhole area ID. Related to: ■ WW_MANHOLE_AREA_TBD
ID_PHOTO_MEDIUM	Number	The photo medium ID. Related to: ■ WW_PHOTO_MEDIUM_TBD
ID_PROC_RESTRUC-TURING_N	Number	The process restructuring N ID. Related to: ■ WW_PROC_RESTRUCTURING_N_TBD
ID_SECTION_DAM-AGE	Number	The section damage ID. Related to: ■ WW_SECTION_DAMAGE_TBD
MAXSKEAUTO	Number	The MAXSKEAUTO entry.
MAXSZEAUTO	Number	The MAXSZEAUTO entry.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OBSERVA-TION_CODE	Varchar2	The observation code.
POSITIONFROM	Number	The from position entry.
POSITIONTO	Number	The to position entry.
QUANTIFICA-TION_1_NUMERIC	Number	The quantification 1 numeric value.
QUANTIFICA-TION_1_TEXT	Varchar2	The quantification 1 text entry.

Name	Data Type	Description
QUANTIFICATION_2_NUMERIC	Number	The quantification 2 numeric value.
QUANTIFICATION_2_TEXT	Varchar2	The quantification 2 text entry.
REHABILITATION_DESIGNATION	Varchar2	The rehabilitation designation.
SKBEAUTO	Number	The SKBE auto entry.
SKBVAUTO	Number	The SKBV auto entry.
SKBVMANU	Number	The SKBV manual entry.
SKDEAUTO	Number	The SKDE auto entry.
SKDVAUTO	Number	The AKDV auto entry.
SKDVMANU	Number	The SKDV manual entry.
SKSEAUTO	Number	The SKSE auto entry.
SKSVAUTO	Number	The SKSV auto entry.
SKSVMANU	Number	The SKSV manual entry.
STANDARD_ANNOTATION_DWA	Varchar2	Standard annotation used only for DWA classification.
STATUS_RESTRUCTURING	Number	The restructuring status.
SZBEAUTO	Number	The SZBE auto entry.
SZBVAUTO	Number	The SZBV auto entry.
SZDEAUTO	Number	The SZDE auto entry.
SZDVAUTO	Number	The SZDV auto entry.

Name	Data Type	Description
SZSEAUTO	Number	The SZSE auto entry.
SZSVAUTO	Number	The SZSV auto entry.
TIMECODE	Varchar2	The time code.
VERTICALPOSITION	Number	The vertical position value.
VIDEO_COUNTER	Varchar2	The video counter.

Manhole Rehabilitation

Manhole rehabilitation is used to indicate when a damaged, deteriorated, or worn item needs rehabilitation.

- Computation table — WW_MANHOLE_REHABILITATION
- Feature type — Attribute
- Parent feature class — WW_INSPECTION

Name	Data Type	Description
CHEMICALRESIST-ANCE	Varchar2	The chemical resistance value.
CLEAR_WIDTH_1	Number	The first clear width, measured in square meters.
CLEAR_WIDTH_2	Number	The second clear width, measured in square meters.
DATE_ACCEPTANCE	Date	The acceptance date for the manhole rehabilitation.
DATE_COMPLETION	Date	The completion date for the manhole rehabilitation.
DATE_STARTUP	Date	The date when the manhole rehabilitation begins.
END_STATIONNING	Number	The end stationing entry.
FID_CONTRACT	Number	The relation with contract.

Name	Data Type	Description
		Related to: ■ WW_CONTRACT
FID_MANHOLE	Number	The manhole ID. Related to: ■ WW_MANHOLE
FLEXIBLEE_MODULE	Number	The flexible module.
FLEXUR-AL_STRENGTH	Number	The flexural strength.
ID_DOC_DIRECTION	Number	The doc direction ID. Related to: ■ WW_DOC_DIRECTION_TBD
ID_LOAD	Number	The load ID. Related to: ■ WW_LOAD_TBD
ID_MATERIAL	Number	The material ID. Related to: ■ WW_MATERIAL_TBD
ID_MATERI-AL_BOND_1	Number	The material bond 1 ID. Related to: ■ WW_MATERIAL_BOND_TBD
ID_MATERI-AL_BOND_2	Number	The material bond 2 ID. Related to: ■ WW_MATERIAL_BOND_TBD
ID_PROFILE	Number	The profile ID. Related to: ■ WW_PROFILE_TBD

Name	Data Type	Description
ID_REHABILITATION_SCOPE	Number	The rehabilitation scope ID. Related to: ■ WW_REHABILITATION_SCOPE_TBD
ID_REHABILITATION_TYPE	Number	The rehabilitation type ID. Related to: ■ WW_REHABILITATION_TYPE_TBD
ID_SITE_PART	Number	The site part ID. Related to: ■ WW_SITE_PART_TBD
ID_WATER_PERMEABILITY	Number	The water permeability ID. Related to: ■ WW_WATER_PERMEABILITY_TBD
IS_LEAKAGE_TEST	Number	The leakage test entry.
MATERIAL_STRENGTH	Number	The material strength value.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
NARRATIVE_POSITION	Varchar2	The narrative position value.
POSITIONFROM	Number	The from position entry.
POSITIONTO	Number	The to position entry.
REHABILITATION_PERIOD	Number	The rehabiliation period.
RING_RIGIDITY	Number	The ring rigidity value.

Name	Data Type	Description
START_STATIONING	Number	The start stationing entry.
WALL_THICKNESS	Number	The wall thickness value.
WARRANTY_END	Date	The date when the warranty ends.

Section Classification

Section classification is used to store all classification information related to an inspection for the section.

- Computation table — WW_SECTION_CLASSIFICATION
- Feature type — Attribute
- Parent feature class — WW_INSPECTION

Name	Data Type	Description
ADDITIONALPOINTS	Number	The additional points value.
AUTHORITATIVEDAM-AGE	Varchar2	The authoritative damage entry.
AUTHORITAT-IVEQUANTIFICATION	Number	The authoritative quantification entry.
CLASSAUTOMATIC	Number	The automatic class value.
CLASSMANUAL	Number	The manual class value.
DATE_EVALUATION	Date	The evaluation date for the section classification.
FID_INSPECTION	Number	The relation with inspection. Related to: ■ WW_INSPECTION
FID_SECTION	Number	The relation with section. Related to: ■ WW_SECTION

Name	Data Type	Description
ID_EVAL_PROCED-URE	Number	The evaluation procedure ID. Related to: ■ WW_EVAL_PROCEDURE_TBD
NUMBERFINAL	Number	The final number value.
NUMBERPRELIMIN-ARY	Number	The preliminary number value.

Section Observation

Section obversation is used to store all observation information related to an inspection for the section including observation code, etc.

- Computation table — WW_SECTION_OBSERVE
- Feature type — Collection
- Parent feature class — WW_INSPECTION

Name	Data Type	Description
AREA	Number	The area of the polygon, measured in square meters.
CHARACTERIZA-TION1	Varchar2	The characterization 1 value.
CHARACTERIZA-TION2	Varchar2	The characterization 2 value.
DAMAGE_NUMBER	Number	The damage number entry.
FID_END_OBSERVE	Number	The relation with section observation. Related to: ■ WW_SECTION_OBSERVE
FID_INSPECTION	Number	The relation with inspection. Related to: ■ WW_INSPECTION

Name	Data Type	Description
FID_SECTION	Number	The relation with section. Related to: ■ WW_SECTION
FID_SECTION_REHAB-ILITATION	Number	The relation with section rehabilitation. Related to: ■ WW_SECTION_REHABILITATION
FRAME	Varchar2	The frame entry.
ID_BAK_CLEAN_UP	Number	The BAK clean up ID. Related to: ■ WW_BAK_CLEAN_UP_TBD
ID_BAL_CLEAN_UP	Number	The BAL clean up ID. Related to: ■ WW_BAL_CLEAN_UP_TBD
ID_CANCELLA-TION_REASON	Number	The cancellation reason ID. Related to: ■ WW_CANCELLATION_REASON_TBD
ID_PHOTO_MEDIUM	Number	The photo medium ID. Related to: ■ WW_PHOTO_MEDIUM_TBD
ID_PROC_RESTRUC-TURING	Number	The process restructuring ID. Related to: ■ WW_PROC_RESTRUCTURING_TBD
ID_SECTION_DAM-AGE	Number	The section damage ID. Related to: ■ WW_SECTION_DAMAGE_TBD
IS_CONNECTION	Number	The connection entry.

Name	Data Type	Description
MAXSKEAUTO	Number	The MAXSKEAUTO entry.
MAXSZEAUTO	Number	The MAXSZEAUTO entry.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
OBSERVATION_CODE	Varchar2	The observation code.
POSITION	Number	The position value.
POSITIONFROM	Number	The from position entry.
POSITIONTO	Number	The to position entry.
QUANTIFICATION_1_NUMERIC	Number	The first numeric quantification value.
QUANTIFICATION_1_TEXT	Varchar2	The first text quantification value.
QUANTIFICATION_2_NUMERIC	Number	The second numeric quantification value.
QUANTIFICATION_2_TEXT	Varchar2	The second text quantification value.
REHABILITATION_DESIGNATION	Varchar2	The rehabiliation designation.
SKBEAUTO	Number	The SKBE auto entry.
SKBVAUTO	Number	The SKBV auto entry.
SKBVMANU	Number	The SKBV manual entry.
SKDEAUTO	Number	The SKDE auto entry.
SKDVAUTO	Number	The AKDV auto entry.

Name	Data Type	Description
SKDVMANU	Number	The SKDV manual entry.
SKSEAUTO	Number	The SKSE auto entry.
SKSVAUTO	Number	The SKSV auto entry.
SKSVMANU	Number	The SKSV manual entry.
STANDARD_ANNOTATION_DWA	Varchar2	Standard annotation used only for DWA classification.
STATUS_RESTRUCTURING	Number	The restructuring status.
SZBEAUTO	Number	The SZBE auto entry.
SZBVAUTO	Number	The SZBV auto entry.
SZDEAUTO	Number	The SZDE auto entry.
SZDVAUTO	Number	The SZDV auto entry.
SZSEAUTO	Number	The SZSE auto entry.
SZSVAUTO	Number	The SZSV auto entry.
TIMECODE	Varchar2	The time code.
VIDEO_COUNTER	Varchar2	The video counter.

Section Rehabilitation

Section rehabilitation is used to indicate when a damaged, deteriorated, or worn item needs rehabilitation.

- Computation table — WW_SECTION_REHABILITATION
- Feature type — Attribute

■ Parent feature class — WW_INSPECTION

Name	Data Type	Description
CHEMICALRESIST-ANCE	Varchar2	The chemical resistance value.
CLEAR_WIDTH_1	Number	The first clear width, measured in square meters.
CLEAR_WIDTH_2	Number	The second clear width, measured in square meters.
DATE_ACCEPTANCE	Date	The acceptance date for the manhole rehabilitation.
DATE_COMPLETION	Date	The completion date for the manhole rehabilitation.
DATE_STARTUP	Date	The date when the manhole rehabilitation begins.
END_STATIONNING	Number	The end stationing value.
FID_CONTRACT	Number	The relation with contract. Related to: ■ WW_CONTRACT
FID_SECTION	Number	The manhole ID. Related to: ■ WW_SECTION
FLEXIBLEE_MODULE	Number	The flexible module.
FLEXUR-AL_STRENGTH	Number	The flexural strength.
ID_DOC_DIRECTION	Number	The doc direction ID. Related to: ■ WW_DOC_DIRECTION_TBD
ID_LOAD	Number	The load ID.

Name	Data Type	Description
		Related to: ■ WW_LOAD_TBD
ID_MATERIAL	Number	The material ID. Related to: ■ WW_MATERIAL_TBD
ID_MATERI-AL_BOND_1	Number	The material bond 1 ID. Related to: ■ WW_MATERIAL_BOND_TBD
ID_MATERI-AL_BOND_2	Number	The material bond 2 ID. Related to: ■ WW_MATERIAL_BOND_TBD
ID_PROFILE	Number	The profile ID. Related to: ■ WW_PROFILE_TBD
ID_REHABILITA-TION_SCOPE	Number	The rehabilitation scope ID. Related to: ■ WW_REHABILITATION_SCOPE_TBD
ID_REHABILITA-TION_TYPE	Number	The rehabilitation type ID. Related to: ■ WW_REHABILITATION_TYPE_TBD
ID_SITE_PART	Number	The site part ID. Related to: ■ WW_SITE_PART_TBD
ID_WATER_PERMEAB-ILITY	Number	The water permeability ID. Related to: ■ WW_WATER_PERMEABILITY_TBD

Name	Data Type	Description
IS_LEAKAGE_TEST	Number	The leakage test entry.
MATERI-AL_STRENGTH	Number	The material strength value.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
NARRATIVE_POSI-TION	Varchar2	The narrative position entry.
POSITIONFROM	Number	The from position entry.
POSITIONTO	Number	The to position entry.
REHABILITA-TION_PERIOD	Number	The rehabiliation period.
RING_RIGIDITY	Number	The ring rigidity value.
START_STATIONING	Number	The start stationing value.
WALL_THICKNESS	Number	The wall thickness value.
WARRANTY_END	Date	The date when the warranty ends.

Site Observation

Site obversation is used to store all observation information related to an inspection for the site.

- Computation table — WW_SITE_OBSERVE
- Feature type — Collection

■ Parent feature class — WW_INSPECTION

Name	Data Type	Description
AREA	Number	The area of the polygon, measured in square meters.
FID_FEATURE	Number	The feature ID. Related to: ■ WW_ACC_BASIN ■ WW_BASIN ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_EMULSION_SPLIT ■ WW_FITTING ■ WW_FRENCH_DRAINS ■ WW_MISC_PLANT ■ WW_OUTFALL ■ WW_PUMP ■ WW_RESTRICTOR ■ WW_SCREEN ■ WW_SITE ■ WW_STARCH ■ WW_STRAINER ■ WW_TREATMENT_PLANT ■ WW_VALVE
FID_INSPECTION	Number	The relation with inspection. Related to: ■ WW_INSPECTION
FID_SITE_REHABILIT-ATION	Number	The relation with section rehabilitation. Related to: ■ WW_SITE_REHABILITATION

Name	Data Type	Description
ID_PHOTO_MEDIUM	Number	The photo medium ID. Related to: ■ WW_PHOTO_MEDIUM_TBD
NARRATIVE	Varchar2	A description or other unique information concerning this item.
REHABILITATION_DESIGNATION	Varchar2	The rehabiliation designation.

Site Rehabilitation

Site rehabilitation is used to indicate when a damaged, deteriorated, or worn item needs rehabilitation.

- Computation table — WW_SITE_REHABILITATION
- Feature type — Attribute
- Parent feature class — WW_INSPECTION

Name	Data Type	Description
CHEMICALRESISTANCE	Varchar2	The chemical resistance value.
CLEAR_WIDTH_1	Number	The first clear width, measured in square meters.
CLEAR_WIDTH_2	Number	The second clear width, measured in square meters.
DATE_ACCEPTANCE	Date	The acceptance date for the manhole rehabilitation.
DATE_COMPLETION	Date	The completion date for the manhole rehabilitation.
DATE_STARTUP	Date	The date when the manhole rehabilitation begins.
END_STATIONNING	Number	The end stationing entry.

Name	Data Type	Description
FID_CONTRACT	Number	The relation with contract. Related to: ■ WW_CONTRACT
FID_SITE	Number	The manhole ID. Related to: ■ WW_SITE
FLEXIBLEE_MODULE	Number	The flexible module.
FLEXUR-AL_STRENGTH	Number	The flexural strength.
ID_DOC_DIRECTION	Number	The doc direction ID. Related to: ■ WW_DOC_DIRECTION_TBD
ID_LOAD	Number	The load ID. Related to: ■ WW_LOAD_TBD
ID_MATERIAL	Number	The material ID. Related to: ■ WW_MATERIAL_TBD
ID_MATERI-AL_BOND_1	Number	The material bond 1 ID. Related to: ■ WW_MATERIAL_BOND_TBD
ID_MATERI-AL_BOND_2	Number	The material bond 2 ID. Related to: ■ WW_MATERIAL_BOND_TBD
ID_PROFILE	Number	The profile ID. Related to: ■ WW_PROFILE_TBD

Name	Data Type	Description
ID_REHABILITATION_SCOPE	Number	The rehabilitation scope ID. Related to: ■ WW_REHABILITATION_SCOPE_TBD
ID_REHABILITATION_TYPE	Number	The rehabilitation type ID. Related to: ■ WW_REHABILITATION_TYPE_TBD
ID_SITE_PART	Number	The site part ID. Related to: ■ WW_SITE_PART_TBD
ID_WATER_PERMEABILITY	Number	The water permeability ID. Related to: ■ WW_WATER_PERMEABILITY_TBD
IS_LEAKAGE_TEST	Number	The leakage test entry.
MATERIAL_STRENGTH	Number	The material strength value.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
NARRATIVE_POSITION	Varchar2	The narrative position value.
POSITIONFROM	Number	The from position entry.
POSITIONTO	Number	The to position entry.
REHABILITATION_PERIOD	Number	The rehabiliation period.
RING_RIGIDITY	Number	The ring rigidity value.

Name	Data Type	Description
START_STATIONING	Number	The start stationing entry.
WALL_THICKNESS	Number	The wall thickness value.
WARRANTY_END	Date	The date when the warranty ends.

Miscellaneous

The Miscellaneous topic contains feature classes which are related to environmental parameter, maintenance, markers, outerfields, and filtration and sludge beds.

Env Parameter

Env parameters are pieces of information that include the wastewater type, the soil type, ground water distribution, or water protection area.

- Computation table — WW_ENV_PARAMETERS
- Feature type — Attribute

Name	Data Type	Description
ID_GROUND_WATER_DIST	Number	The ground water distribution ID. Related to: ■ WW_GROUND_WATER_DIST_TBD
ID_SOIL_TYPE	Number	The soil type ID. Related to: ■ WW_SOIL_TYPE_TBD
ID_WASTEWATER_SOL_TYPE	Number	The wastewater soil type ID. Related to: ■ WW_WASTEWATER_SOL_TYPE_TBD
ID_WASTEWATER_TYPE	Number	The wastewater type ID. Related to:

Name	Data Type	Description
		■ WW_WASTEWATER_TYPE_TBD
ID_WA-TER_PROT_AREA	Number	The water protection area ID. Related to: ■ WW_WATER_PROT_AREA_TBD

Filtration Bed

A below-grade system consisting of perforated piping installed in sand, gravel beds, or trenches designed to permit the uniform distribution and absorption or effluent from a septic tank or aerobic unit into the soil.

- Computation table — WW_FILTRATION_BED
- Feature type — Polygon

Name	Data Type	Description
AREA	Number	The area of the filtration bed, measured in square meters.
DATE_CREATION	Date	The date when the item was created.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item

Name	Data Type	Description
		Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
USER_FLAG	Varchar2	An operator defined work area. This attribute is used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Maintenance

You can administer maintenance work for all wastewater network features, except the intermediate points. The Maintenance feature class stores information about completed maintenance work. The feature class uses the maintenance type domain table. In the basic wastewater application, this domain table only contains general maintenance types. It can easily be enhanced to meet the requirements of the customized wastewater application.

- Computation table — WW_MAINTENANCE
- Feature type — Attribute

Name	Data Type	Description
FID_FEATURE	Number	The relation with network points and lines. Related to: ■ WW_ANODE ■ WW_ANODE_TEST_STATION ■ WW_CASING

Name	Data Type	Description
		■ WW_COVER ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_FILTRATION_BED ■ WW_FITTING ■ WW_GREASE_TRAP ■ WW_GRIT_CHAMBER ■ WW_HOUSE_CONNECTOR ■ WW_INTERMEDIATE_POINT ■ WW_LAGOON ■ WW_MANHOLE ■ WW_MARKER ■ WW_METER ■ WW_NEUTRALIZER ■ WW_OIL_WATER_SEP ■ WW_OUTFALL ■ WW_PUMP ■ WW_SECTION ■ WW_SEPTIC_TANK ■ WW_SITE ■ WW_SLUDGE_BED ■ WW_TREATMENT_PLANT ■ WW_VALVE
ID_MAINTEN-ANCE_TYPE	Number	The type of maintenance for this item. Related to: ■ WW_MAINTENANCE_TYPE_TBD
MAINTEN-ANCE_DATE	Date	The date when the maintenance occurred.
MAINTEN-ANCE_NEXT_DATE	Date	The date when the next maintenance is sched-uled.

Name	Data Type	Description
MAINTENANCE_PERIOD	Number	The maintenance period [day].
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
USER_FLAG	Varchar2	An operator defined work area. This attribute is used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Marker

A sign, or concrete monument installed either directly above or immediately adjacent to undergroud lines, bends, or fittings to indicate the presence of waste water.

- Computation table — WW_MARKER
- Feature type — Point

Name	Data Type	Description
DATE_ACQUIRED	Date	The date when the data was acquired.
DATE_CREATION	Date	The date when the item was created.
DATE_STARTUP	Date	The date when responsibility of the item was taken.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_FEATURE	Number	The relation with network points and lines. Related to:

Name	Data Type	Description
		■ WW_ANODE ■ WW_ANODE_TEST_STATION ■ WW_COVER ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_FILTRATION_BED ■ WW_FITTING ■ WW_GREASE_TRAP ■ WW_GRIT_CHAMBER ■ WW_HOUSE_CONNECTOR ■ WW_INTERMEDIATE_POINT ■ WW_LAGOON ■ WW_MANHOLE ■ WW_MARKER ■ WW_METER ■ WW_NEUTRALIZER ■ WW_OIL_WATER_SEP ■ WW_OUTFALL ■ WW_PROTECTION_AREA ■ WW_PUMP ■ WW_SEPTIC_TANK ■ WW_SITE ■ WW_SLUDGE_BED ■ WW_TREATMENT_PLANT ■ WW_VALVE
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The location of the item (street). Related to:

Name	Data Type	Description
		■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
GROUND_ELEVATION	Number	The date when the maintenance occurred.
HOUSE	Varchar2	The house number.
HOUSE_SUPPLEMENT	Varchar2	The house number supplement.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_CONDITION	Number	The condition of the item. For example, broken, leaking, etc. Related to: ■ WW_CONDITION_TBD

Name	Data Type	Description
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FOUNDATION	Number	The type of foundation for this item. Related to: ■ WW_FOUNDATION_TBD
ID_FUNCTION	Number	How the item is used. Related to: ■ WW_MARKER_FUNCTION_TBD
ID_MATERIAL	Number	The type of material composition of the anode or anode packet. Related to: ■ WW_MATERIAL_TBD
ID_POLE_MATERIAL	Number	The material composition of the pole. For examplel wood, steel, concrete, etc. Related to: ■ WW_MARKER_POLE_MAT_TBD
ID_ROCK_CONDITION	Number	The condition of the rock relative to the rocks strength and integrity. For example, high, low, or medium. Related to: ■ WW_MARKER_ROCK_COND_TBD
ID_SIGN_MATERIAL	Number	The material composition of the sign. For example, concrete, wood, etc. Related to: ■ WW_MATERIAL_TBD

Name	Data Type	Description
ID_SOIL_CONDITION	Number	The soil condition indicating the soil's strength and integrity. Related to: ■ WW_SOIL_CONDITION_TBD
LOCATION	Varchar2	A brief description of where the item is located. For example, 1m from the wall.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
POLE_DEPTH	Number	The depth, in meters, that the pole is buried into the foundation; usually the ground surface.
POLE_HEIGHT	Number	The distance, in meters, that the pole extends above the foundation; usually the ground surface.
QUALITY	Number	The quality of the sign.
SIGN_HEIGHT	Number	The height dimension of the sign.
SIGN_TEXT	Number	The text on the sign.
SIGN_WIDTH	Number	The width dimension of the sign.
USER_FLAG	Varchar2	An operator defined work area. This attribute is used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.
VALUE	Varchar2	A short description of the model. This value is used for the domain table representation of the model.

OuterField

- Computation table — WW_OUTERFIELD
- Feature type — Point

Name	Data Type	Description
DATE_HIGHWASSER	Date	The date when water reached its highest mark.
EXPLANATION	Varchar2	The explanation of this item.
FID_MASTER-DATA_COLLECTION	Number	The relation to masterdata collection. Related to: ■ WW_MASTERDATA_COLLECTION
ID_INCLINATION	Number	The inclination ID. Related to: ■ WW_INCLINATION_TBD
ID_POINT_ATTRIB-UTE	Number	The point attribute ID. Related to: ■ WW_POINT_ATTRIBUTE_TBD
ID_UTILIZATION	Number	The utilization ID. Related to: ■ WW_UTILIZATION_TBD
ID_WA-TER_PROT_AREA	Number	The water protection area ID. Related to: ■ WW_WATER_PROT_AREA_TBD
MAX_HIGHWASSER	Number	The maximum high water level.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Name	Data Type	Description
QTYGKFVALUE	Number	Qtygkfvalue.
QTYSOILTYPE	Varchar2	The soil type quality.
QUALITY	Number	The quality of the point.

Sludge Bed

An area used for spreading and drying waste sludge.

- Computation table — WW_SLUDGE_BED
- Feature type — Polygon

Name	Data Type	Description
AREA	Number	The area of the sludge bed, measured in square meters.
CAPACITY	Number	The capacity of the slludge bed, measured in cubic meters.
DATE_ACQUIRED	Date	The date when the data was acquired.
DATE_CREATION	Date	The date when the item was created.
DATE_STARTUP	Date	The date when responsibility of the item was taken.
DIMENSION_1	Number	The first dimension, measured in meters.
DIMENSION_2	Number	The second dimension, measured in meters.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to:

Name	Data Type	Description
		■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
ID_DISPOSITION_STATE	Number	The disposition state of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
USER_FLAG	Varchar2	An operator defined work area. This attribute is used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Operation

Measuring Station

A measuring station is used to store statistical information at one specific location.

- Computation table — WW_MEASURING_STATION
- Feature type — Point

Name	Data Type	Description
DATE_CREATION	Date	The date when the item was created.
DEPTH_FILTER	Number	The depth of the filter, measured in meters.
DIAMETER	Number	The diameter, measured in meters.
ELEVATION_EDGE	Number	The edge elevation, measured in meters.
END_FILTER	Number	The end of the filter.
FID_OPERAT-ING_COLLECTION	Number	The relation to the operating collection Related to: ■ WW_OPERATING_COLLECTION
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_CYCLE	Number	The cycle ID. Related to: ■ WW_CYCLE_TBD
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning this item.
ORIENTATION	Number	The orientation of the measuring station.
OUTERFIELD_DESCRIPTION	Varchar2	The description of the outerfield .
SOIL_CHARACTERISTIC	Varchar2	The characteristics of the soil.
START_FILTER	Number	The start of the filter.

Measuring

The measuring feature class is used for storing the measured values of the measuring station.

- Computation table — WW_MEASURING
- Feature type — Attribute
- Parent feature class — WW_MEASURING_STATION

Name	Data Type	Description
DATE_ACQUIRED	Date	The date when the data was acquired.
FID_MEASURING_STATION	Number	The relation to the measuring station Related to: ■ WW_MEASURING_STATION
MEASURED_VALUE	Number	The measured value.
NARRATIVE	Varchar2	A description or other unique information concerning this item.

Soil Characteristic

The soil characteristic feature class is used for storing statistical information about the soil at one specific location.

- Computation table — WW_SOIL_CHARACTERISTIC
- Feature type — Point

Name	Data Type	Description
FID_OPERAT-ING_COLLECTION	Number	The relation to the operating collection. Related to: ■ WW_OPERATING_COLLECTION
GW_DISTANCE	Number	The ground distance, measured in meters.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_ANALYSIS_TYPE	Number	The analysis type ID. Related to: ■ WW_ANALYSIS_TYPE_TBD
KFVALUE	Number	The KF value.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
ORIENTATION	Number	The orientation of the measuring station.
OUTERFIELD	Varchar2	The description of the outerfield .
QUALITY	Number	The quality of the point.
SOIL_TYPE	Varchar2	The type of the soil.

Soil Layer

The soil layer is used to store each characteristic value of a soil.

- Computation table — WW_SOIL_LAYER
- Feature type — Attribute
- Parent feature class — WW_SOIL_CHARACTERISTIC

Name	Data Type	Description
FID_SOIL_CHARAC-TERISTIC	Number	The relation to the soil characteristic. Related to: ■ WW_SOIL_CHARACTERISTIC
ID_METHOD_KF	Number	The method KF ID. Related to: ■ WW_METHOD_KF_TBD
KFVALUE	Number	The KF value.
LOWER_LIMIT	Number	The lower limit of the soil layer.
NARRATIVE	Varchar2	A description or other unique information concerning this item.
SOIL_TYPE	Varchar2	The type of the soil.
UPPER_LIMIT	Number	The upper limit of the soil layer.

Point

Point feature classes store geometry only; not attributes. They are related to the wastewater feature, WW_POINT.FID_ATTR. Network geometry is stored separately in the WW_POINT feature class.

NOTE The records of the geometry feature classes are maintained by Topobase. Do not enhance geometry feature classes by adding customer attributes. The geometry feature classes build the network topology.

Utility points of the wastewater data model are stored in attribute feature classes; one for each point type.

Each point feature class has a label feature class and many of the point feature classes have an associated model table. Model tables can be found in the Administration topic of the data model, under Manufacturer (page 50).

Point Feature Class Form

Use the basic feature class forms of the wastewater point features to view and edit the feature attributes and to view related data.

All point feature class forms contain the following elements:

- **General tab** — Displays general feature information.
- **Details tab** — Displays detailed feature attributes and link buttons that provide links to all line features (sections) the points are connected to.
- **Related Tables tab** — Allows direct access to the following related tables:

Related Table	Table Name and Description
Maintenance	WW_MAINTENANCE. Contains information about network maintenance. See Maintenance (page 139).
Marker	WW_MARKER. Contains marker information. The marker is placed above ground to indicate the position of a network part. See Marker (page 141).
Cover	WW_COVER. Contains related cover information. See Cover.

- **Table tab** — Displays all attributes in table form.

Each point feature class form provides functions for further processing of the selected records. For more information, see Use Wastewater Feature Functions (page 26).

Connecting Point Features to Sites

Each network point can be connected to a site. The easiest way to connect a network point to a site is to use the Network Point Creation workflow. For more information, see Network Point Creation (page 4).

If you have an existing point without a site connection, you can assign it to a site.

To connect a point to a site

1. Click the Document explorer icon.
2. Right-click the feature class, such as Manhole, and click Show Form.
3. Select the manhole to connect to the site.
4. Click the Related Tables tab.
5. Click the Point (WW_POINT)

reference button to display the related geometry feature.
6. In the Point feature class form, click the Details tab.
7. Under Site, select the FID of the related site.
8. Click Update (F5).

For more information about sites, see Site (page 254).

Accumulation Basin

An accumulation basin is a low region where water flows. Its main purpose is to decelerate the water flow.

- Computation table — WW_ACC_BASIN
- Feature type — Attribute

Name	Data Type	Description
CAPACITY	Number	The capacity of the accumulation basin, measured in cubic meters.
DEPTH	Number	The depth of the accumulation basin, measured in meters.
DIMENSION_1	Number	The first dimension of the accumulation basin, measured in meters.
DIMENSION_2	Number	The second dimension of the accumulation basin, measured in meters.

Name	Data Type	Description
FID_ENV_PARAMET-ERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_SITE	Number	Relation with the site. Related to: ■ WW_SITE
ID_INSTALLA-TION_TYPE	Number	Type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The type of material composition used for the accumulation basin. Related to: ■ WW_MATERIAL_TBD
INPUT_ELEVATION	Number	The input elevation, measured in meters.
IS_PUMP	Number	Is a pump present?
NAME_NUMBER	Varchar2	The name or number of this item.
OUTFLOW	Number	The outflow value.
OUTPUT_ELEVATION	Number	The output elevation, measured in meters.
SEP_VOLUME	Number	The separation volume, measured in cubic meters.

Basin

A basin is a region of land or a receptacle into which waste water flows.

- Computation table — WW_BASIN
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The basin manufacturer's address.
CAPACITY	Number	The capacity of the basin, measured in cubic meters.
DATE_CREATION	Date	The date when the item was created.
FID_ENV_PARAMET-ERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FILTERLAYER	Number	The basin filter layer.
FOOTPRINT	Number	The basin foot print.
ID_ARRANGEMENT	Number	The arrangement of the basin. Related to: ■ WW_ARRANGEMENT_TBD
ID_BASIN_DESIGN	Number	The basin design ID. Related to: ■ WW_BASIN_DESIGN_TBD
ID_BASIN_FUNC-TION	Number	The basin function ID. Related to:

Name	Data Type	Description
		■ WW_BASIN_FUNCTION_TBD
ID_BASIN_SHAPE	Number	The basin shape ID. Related to: ■ WW_BASIN_SHAPE_TBD
ID_BASIN_TYPE	Number	The basin type ID. Related to: ■ WW_BASIN_TYPE_TBD
ID_BASIN_VERSION	Number	The basin version ID. Related to: ■ WW_BASIN_VERSION_TBD
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FILTER_MATERIAL	Number	The filter material ID. Related to: ■ WW_FILTER_MATERIAL_TBD
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_PLANTING	Number	The planting ID. Related to: ■ WW_PLANTING_TBD
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.

Name	Data Type	Description
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	Additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NUMBEROFCHAM-BERS	Number	The number of chambers.
NUMBEROFINLETS	Number	The number of inlets.
NUMBEROFOUTLETS	Number	The number of outlets.
SEQUENCEID	Number	The unique sequence identifier.
SITE_DEPTH	Number	The site depth, measured in meters.
SITE_LENGTH	Number	The site length, measured in meters.
SITE_WIDTH	Number	The site width, measured in meters.
SLOPEINCLINATION	Number	The slope inclination.
SPACE_ABOVE_GROUND	Number	The space above ground, measured in meters.
SPACE_BE-LOW_GROUND	Number	The space below ground, measured in meters.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.

Coalescence Separator

A coalescence separator is the part of a site where large wastewater particules, like oil and water, get separated.

- Computation table — WW_COALESCENCE_SEP
- Feature type — Attribute

Name	Data Type	Description
DEPTH	Number	The depth of the coalescence separator, measured in meters.
DIMENSION_1	Number	The first dimension of the coalescence separator, measured in meters.
DIMENSION_2	Number	The second dimension of the coalescence separator, measured in meters.
FID_ENV_PARAMETERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_SITE	Number	Relation with the site. Related to: ■ WW_SITE
ID_INSTALLATION_TYPE	Number	Type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The type of material composition used for the coalescence separator. Related to: ■ WW_MATERIAL_TBD

Name	Data Type	Description
INPUT_ELEVATION	Number	The input elevation, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
OUTPUT_ELEVATION	Number	The output elevation, measured in meters.

Cover

The cover feature clases stores cover information for network points, such as a manhole.

Covers are stored in a separate point feature class that is not part of the network topology.

- Computation table — WW_COVER
- Feature type — Point

Name	Data Type	Description
DIMENSION_1	Number	The first dimension of the cover, measured in meters.
DIMENSION_2	Number	The second dimension of the cover, measured in meters.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_FEATURE_1	Number	The connection with the first manhole. Related to: ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_GREASE_TRAP ■ WW_GRIT_CHAMBER ■ WW_MANHOLE ■ WW_NEUTRALIZER

Name	Data Type	Description
		■ WW_OIL_WATER_SEP ■ WW_OUTFALL ■ WW_SEPTIC_TANK ■ WW_FRENCH_DRAINS ■ WW_SITE
FID_FEATURE_2	Number	The connection with the first manhole. Related to: ■ WW_DISCHARGE ■ WW_DISPOSAL_TANK ■ WW_GREASE_TRAP ■ WW_GRIT_CHAMBER ■ WW_MANHOLE ■ WW_NEUTRALIZER ■ WW_OIL_WATER_SEP ■ WW_OUTFALL ■ WW_SEPTIC_TANK ■ WW_FRENCH_DRAINS ■ WW_SITE
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
HEIGHT_SUP-PORT_RINGS	Number	The height of the support rings, measured in meters.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_AERATION	Number	Defines the aeration type of the cover. Related to: ■ WW_COVER_AER_TBD
ID_COVER_SHAPE	Number	The cover shape. Related to: ■ WW_COVER_SHAPE_TBD
ID_COVER_TYPE	Number	The cover type. Related to: ■ WW_COVER_TYPE_TBD
ID_HEIGHT_ACCUR-ACY	Number	The accuracy of the elevation. Related to: ■ WW_HEIGHT_ACCURACY_TBD
ID_LOAD_CLASS	Number	The load class. Related to: ■ WW_COVER_LOAD_TBD

Name	Data Type	Description
ID_LOCK	Number	Defines if a lock exists on the cover. Related to: ■ WW_COVER_LOCK_TBD
ID_MATERIAL	Number	The material of this item. Related to: ■ WW_COVER_MAT_TBD
IS_DIRTTRAP	Number	Is there a dirt trap?
LOAD_LIMIT	Number	The maximum load accepted by the cover.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NUMBER_SUPPORT_RINGS	Number	The number of support rings.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.
Z	Number	The cover height value.

NOTE You must enable the automatic update of the cover Z in the wastewater document options. See Set Wastewater Document Options (page 267).

When you create a cover that is related to a manhole, or when you connect a cover to a manhole, the cover height Z will not be calculated automatically. Existing values of Z, DEPTH, or BOTTOM_ELEVATION are not changed. Only when you update either Z, DEPTH, or BOTTOM_ELEVATION, the values are updated.

Use the Manhole Creation workflow to create a related cover. For more information, see the following topics:

- Manhole Creation (page 3)
- Connect a Point to a Cover (page 28)
- Cover Creation (page 29)
- Wastewater Elevation, Slope, and Height (page 268)

Discharge

A discharge is the location where wastewater pipes directly discharge effluent.

- Computation table — WW_DISCHARGE
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANUFACTURER	Varchar2	The discharge manufacturer's address.
BOTTOM_ELEVATION	Number	The elevation of the bottom part of the item relative to the section.
DATE_CREATION	Date	The date when the item was created.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMETERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
ID_DISCHARGE_CREST	Number	The discharge crest. Related to: ■ WW_DISCHARGE_CREST_TBD
ID_DISCHARGE_FUNCTION	Number	Defines the discharge function. Related to: ■ WW_DISCHARGE_FUNCTION_TBD
ID_DISCHARGE_TYPE	Number	Defines the type of discharge. Related to: ■ WW_DISCHARGE_TYPE_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD

Name	Data Type	Description
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_OWNERSHIP	Number	The owner of this item. Related to: ■ WW_OWNERSHIP_TBD
IS_HANDOVER	Number	Is there a handover?
LENGTH_THRESHOLD	Number	The length of the threshold.
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFAC-TURER_TYPE	Varchar2	The description of the manufacturer type.
MAX_THRESHOLD_EL-EVATION	Number	The maximum threshold elevation.
MIN_THRESHOLD_EL-EVATION	Number	The minimum threshold elevation.
MOVING_SPEED	Number	The moving speed of the discharge.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Name	Data Type	Description
WIDTH_OPENING	Number	The width of the discharge opening.

For more information, see Network Point Creation (page 4).

Disposal Tank

A disposal tank is an above- or below-grade receptacle or chamber for holding wastewater on a temporary basis prior to transfer or use.

- Computation table — WW_DISPOSAL_TANK
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The disposal tank manufacturer's address.
AREA	Number	The area of the disposal tank, measured in square meters.
BOTTOM_ELEVA-TION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
CAPACITY	Number	The capacity of the disposal tank, measured in cubic meters.
CONNECTED_AREA	Number	The connected area of the disposal tank.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the disposal tank, measured in meters.
DETENTION_CAPA-CITY	Number	The detention capacity of the disposal tank, measured in cubic meters.
DIAMETER	Number	The diameter of the disposal tank, measured in meters.

Name	Data Type	Description
DIMENSION_1	Number	The first dimension of the disposal tank, measured in meters.
DIMENSION_2	Number	The second dimension of the disposal tank, measured in meters.
ELEVATION	Number	The elevation of the disposal tank, measured in meters.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to:

Name	Data Type	Description
		■ WW_CONTACT
ID_DISPOSAL_FUNCTION	Number	Defines the disposal function. Related to: ■ WW_DISPOSAL_FUNCTION_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FILTER_TYPE	Number	Defines the filter type. Related to: ■ WW_FILTER_TYPE_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_INSTALLATION_TYPE	Number	Defines the type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_SURFACE_CONNECTION	Number	The surface connection for this item. Related to: ■ WW_SURFACE_CONNECTION_TBD
ID_TYPE	Number	The type of disposal tank. Related to: ■ WW_DISPOSAL_TANK_TYPE_TBD

Name	Data Type	Description
ID_USAGE	Number	The usage of this item. Related to: ■ WW_DISPOSAL_TANK_USAGE_TBD
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFACTURER_TYPE	Varchar2	The description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	An additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NORMAL_HEAD_DIMENSION	Number	The normal head dimension, measured in meters.
NORMAL_PRESSURE	Number	The normal operating pressure rate.
OVERFLOW_ELEVATION	Number	The overflow elevation, measured in meters.
RESTRICTOR_DISCHARGE	Number	The restrictor discharge.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUCTIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Emulsion Split

- Computation table — WW_EMULSION_SPLIT
- Feature type — Attribute

Name	Data Type	Description
DEPTH	Number	The depth of the emulsion split, measured in meters.
DIMENSION_1	Number	The first dimension of the emulsion split, measured in meters.
DIMENSION_2	Number	The second dimension of the emulsion split, measured in meters.
FID_ENV_PARAMETERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_SITE	Number	Relation with the site. Related to: ■ WW_SITE
FLOCCULANT	Varchar2	The chemical used to produce flocculation of suspended particles.
ID_INSTALLATION_TYPE	Number	Type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD

Name	Data Type	Description
ID_MATERIAL	Number	The type of material composition used for the coalescence separator. Related to: ■ WW_MATERIAL_TBD
INPUT_ELEVATION	Number	The input elevation, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
OUTFLOW	Number	Defines the outflow.
OUTPUT_ELEVATION	Number	The output elevation, measured in meters.
POPULATIONEQUI-VALENTS	Number	The population equivalents.

Fitting

A fitting is used to connect, cap, plug, or otherwise alter a pipe carrying wastewater.

- Computation table — WW_FITTING
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVA-TION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the fitting, measured in meters.
DIMENSION_2	Number	The second dimension of the fitting, measured in meters.

Name	Data Type	Description
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD

Name	Data Type	Description
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FUNCTION	Number	How the item is used. Related to: ■ WW_FITTING_FUNCTION_TBD
ID_HEIGHT_ACCURACY	Number	The elevation accuracy. Related to: ■ WW_HEIGHT_ACCURACY_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_MATERIAL	Number	The type of material composition used for the fitting. Related to: ■ WW_MATERIAL_TBD
LISA_GUID	Varchar2	The LISA unique identifier.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	An additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence identifier.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's

Name	Data Type	Description
		data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

French Drains

A drainage trench filled to ground level with gravel, rock, fragments of brick, etc.

- Computation table — WW_FRENCH_DRAINS
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The french drain manufacturer's address.
BASIN_AREA	Number	The basin area of the french drain, measured in square meters.
BASIN_AREA_PER-MANENT	Number	The permanent basin area of the french drain, measured in square meters.
BASIN_CAPACITY	Number	The basin capacity of the french drain, measured in cubic meters.
BASIN_DEPTH	Number	The basin depth of the french drain, measured in meters.
BASIN_DIMEN-SION_1	Number	The first basin dimension of the french drain, measured in meters.
BASIN_DIMEN-SION_2	Number	The second basin dimension of the french drain, measured in meters.
BASIN_HEIGHT_PER-MANENT	Number	The permanent basin height of the french drain, measured in meters.

Name	Data Type	Description
BASIN_MAX_HEIGHT	Number	The maximum basin height of the french drain, measured in meters.
BASIN_SLOPE	Number	The basin slope of the french drain.
BASIN_SPILLOVER	Number	The basin spillover of the french drain.
BASIN_THICK-NESS_BASELAYER	Number	The basin baselayer thickness of the french drain.
CADASTRAL_INFO	Varchar2	Description of cadastral information, such as land boundaries, structure locations, boundary dimensions, etc.
DATE_COMMISION-ING	Date	The date when the item was commissioned.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the item, measured in meters.
DIMENSION_2	Number	The second dimension of the item, measured in meters.
DITCH_CAPACITY	Number	The capacity of the ditch, measured in cubic meters.
DITCH_CAPA-CITY_COEFFICIENT	Number	The ditch capacity coefficient.
DITCH_DEPTH	Number	The depth of the ditch, measured in meters.
DITCH_DIMEN-SION_1	Number	The first dimension of the ditch, measured in meters.
DITCH_NUM-BER_PIPES	Number	The number of pipes laid in the ditch.
DITCH_PIPE_DIAMET-ER	Number	The pipe diameter, measured in meters.

Name	Data Type	Description
DITCH_RESTRICT-OR_DISCHARGE	Number	The restrictor discharge of the ditch.
DITCH_RESTRICT-OR_MANHOLE	Varchar2	The restrictor manhole of the ditch.
DITCH_SPILLOVER	Varchar2	The ditch spillover amount.
FID_ENV_PARAMET-ERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_DITCH_FILLING_MA-TERIAL	Number	The ditch fill material ID. Related to: ■ WW_FILLING_MATERIAL_TBD
ID_DITCH_RE-STR_MANHOLE	Number	The ditch restr manhole ID. Related to: ■ WW_DITCH_RESTR_MANHOLE_TBD
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_INFILTRA-TION_SYSTEM	Number	The infiltration system ID. Related to: ■ WW_INFILTRATION_SYSTEM_TBD

Name	Data Type	Description
ID_MHOLE_FILLING_MATERIAL	Number	The manhole fill material ID. Related to: ■ WW_FILLING_MATERIAL_TBD
ID_MHOLE_INF_TYPE	Number	The manhole infiltration type ID. Related to: ■ WW_MHOLE_INF_TBD
ID_PIPE_MATERIAL	Number	The pipe material ID. Related to: ■ WW_MATERIAL_TBD
ID_SURFACE_CONNECTION	Number	The surface connection ID. Related to: ■ WW_SURFACE_CONNECTION_TBD
IS_BASIN_SPILLOVER	Number	Is there a basin spillover?
IS_DITCH_SPILLOVER	Number	Is there a ditch spillover?
IS_HANDOVER	Number	Is there a handover?
IS_MHOLE_FILTER	Number	Is there a manhole filter?
IS_MHOLE_SPILLOVER	Number	Is there a manhole spillover?
IS_SURF_SPILLOVER	Number	Is there a surface spillover?
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFACTURER_TYPE	Varchar2	A description of the manufacturer type.
MAX_INFILTRATION	Number	The maximum infiltration of the item.
MEASUREMENT_FREQUENCY	Number	How frequently are measurements taken?

Name	Data Type	Description
MHOLE_AREA	Number	The manhole area, measured in square meters.
MHOLE_DEPTH	Number	The manhole depth, measured in meters.
MHOLE_DIMEN-SION_2	Number	The second manhole dimension, measured in meters.
MHOLE_MAX_HEIGHT	Number	The manhole height, measured in meters.
MHOLE_RESTRICT-OR_DISCHARGE	Number	The restrictor discharge of the manhole.
MHOLE_SPILLOVER	Varchar2	The manhole spillover amount.
MHOLE_STORAGE	Number	The manhole storage capcity, measured in cubic meters.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	Additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence identifier.
SURF_DIMENSION_1	Number	The first surface dimension, measured in meters.
SURF_DIMENSION_2	Number	The second surface dimension, measured in meters.
SURF_SPILLOVER	Varchar2	The surface spillover amount.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.

Grease Trap

A grease trap is a tank that separates grease from water, collects the grease for removal, and allows the water to exit.

- Computation table — WW_GREASE_TRAP
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVATION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
CAPACITY	Number	The capacity of the grease trap, measured in cubic meters.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the grease trap, measured in meters.
DIMENSION_2	Number	The second dimension of the grease trap, measured in meters.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
FID_SITE	Number	The relation of the item with the site. Related to: ■ WW_SITE
FLOW_RATE	Number	The flow rate.
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_INSTALLATION_TYPE	Number	Defines the type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_STRUCT_CONDITION	Number	The structural condition of this item. Related to: ■ WW_STRUCT_CONDITION_TBD
INPUT_ELEVATION	Number	The input elevation, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.

Name	Data Type	Description
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NOMINAL_SIZE	Number	The nominal size of the grease trap.
OUTPUT_ELEVATION	Number	The output elevation.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Grit Chamber

A grit chamber is a chamber designed to remove sand, gravel, or other heavy solids that have subsiding velocities or specific gravities substantially greater than those of the organic solids in the wastewater system.

- Computation table — WW_GRIT_CHAMBER
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVATION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
CAPACITY	Number	The capacity of the grit chamber, measured in cubic meters.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the grit chamber, measured in meters.
DIMENSION_1	Number	The first dimension of the grit chamber, measured in meters.

Name	Data Type	Description
DIMENSION_2	Number	The second dimension of the grit chamber, measured in meters.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
FID_SITE	Number	The relation of the item with the site. Related to: ■ WW_SITE
FLOW_CAPACITY	Number	The flow capacity.
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc.

Name	Data Type	Description
		Related to: ■ WW_DISPOSITION_STATE_TBD
ID_INSTALLA-TION_TYPE	Number	Defines the type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
INPUT_ELEVATION	Number	The input elevation, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NOMINAL_SIZE	Number	The nominal size.
OUTPUT_ELEVATION	Number	The output elevation.
SEPARATE_OIL	Number	Will the grit chamber also separates oil?
STORAGE_CAPACITY	Number	The storage capacity, measured in cubic meters.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

House Connector

A house connector is the point at which a service connects to a house.

- Computation table — WW_HOUSE_CONNECTOR
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVATION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
CADASTRAL_INFO	Varchar2	Description of cadastral information, such as land boundaries, structure locations, boundary dimensions, etc.
CONNECTION_FEE	Number	The connection fee for the house connection.
DATE_ACQUIRED	Date	The acquisition date of the data.
DATE_CREATION	Date	The date when the item was created.
DATE_STARTUP	Date	The date when responsibility for the item was taken.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to:

Name	Data Type	Description
		■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
HOUSE	Varchar2	The house number.
HOUSE_SUPPLEMENT	Varchar2	The house number supplement.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, inexactly, etc. Related to: ■ WW_ACCURACY_TBD
ID_CONDITION	Number	The condition of the item. For example, broken, leaking, etc. Related to: ■ WW_CONDITION_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_OWNERSHIP	Number	The owner of this item. Related to: ■ WW_OWNERSHIP_TBD

Name	Data Type	Description
ID_PRE_TREATMENT	Number	The type of pre-treatment made before the house connection. Related to: ■ WW_PRE_TREATMENT_TBD
JURISTIC_NAME_NUMBER	Varchar2	The juristic name or number (construction number).
LOCATION	Varchar2	A brief description of where the item is located. For example, 1m of the wall.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
PUMP_POWER	Number	The power of the pump used at the house connection.
RETENSION_CAPACITY	Number	The retention capacity for the house connection measured in cubic meters.
ROUTE_NUMBER	Varchar2	The meter-reading route/area for the house connection meter.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Manage Customer Information

The WW_HOUSE_CONNECTOR table has a Customer Number attribute. However, there is no table for managing customer information because customers often use external software (for example, SAP) for this purpose.

To manage customer information in Topobase, use the Data Model Administrator to create the appropriate feature classes.

To manage customer information

1. Create a new Customer feature class in the Administration topic.
2. Add attributes as needed, for example Name, Address, Telephone, and Email.
3. Customize the feature class form using the Form Designer.
4. In the House Connector form, add a Basic ComboBox control for Customer Number and create the relation to the newly created table containing the customers.

For more information, see the Form Designer Introductionin the Topobase Administrator Guide.

Generate Customer Notifications

Topobase Wastewater helps you generate notification letters regarding planned work or problems in the wastewater network. For example, you might do a network trace to find all house connectors in an affected area so you can notify customers.

There are three ways to generate customer notification letters.

- Use the Topobase Report Designer.
  For more information about the Topobase report designer, see the Report Designer Introduction in the Topobase Administrator Guide.
- Use Topobase Client to export to Microsoft® Word.
- Export the data to any format and use external software to generate letters. For example, export a customer list to Microsoft® Excel®.

Intermediate Point

Intermediate points of a section are the points where pipes meet the structure of a manhole.

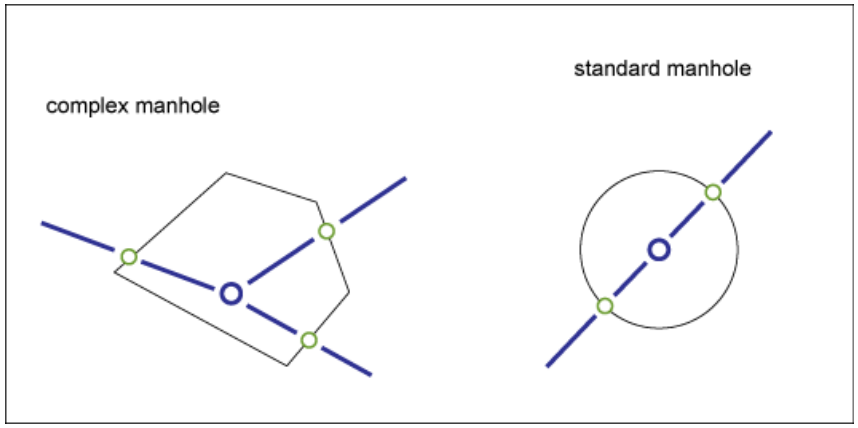
- Computation table — WW_INTERMEDIATE_POINT

■ Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVATION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
DATE_CREATION	Date	The date when the item was created.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Intermediate points can be created automatically in the Section Creation workflow.



For complex manholes, the intermediate point is the intersection between the section and the polygon detail. For standard manholes the intermediate point is calculated from the diameter (stored in the WW_MANHOLE_MODEL.diameter1).

For more information, see Section Creation (page 5) and Wastewater Elevation, Slope, and Height (page 268).

Lagoon

A shallow, man-made pool or pond for the purpose of providing treatment of domestic wastewater.

- Computation table — WW_LAGOON
- Feature type — Attribute

Name	Data Type	Description
AERATOR	Number	Will the lagoon also have an aerator?
AERATOR_POWER	Number	The power of the aerator.
AREA	Number	The area of the lagoon, measured in square meters.
BOTTOM_ELEVATION	Number	The elevation of the bottom part of the item relative to the section, measured in meters.
DATE_ANALYSIS	Date	The analysis date.
DATE_CONSTRUCTION	Date	The date when construction on the item begins.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the lagoon, measured in meters.
DIMENSION_2	Number	The second dimension of the lagoon, measured in meters.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item.

Name	Data Type	Description
		Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
ID_LAGOON_TYPE	Number	Describes the type of lagoon. Related to: ■ WW_LAGOON_TYPE_TBD
ID_SEWAGE_TEST	Number	The sewage test ID. Related to: ■ WW_SEWAGE_TEST_TBD
ID_SOIL_CONDITION	Number	The soil condition ID. Related to: ■ WW_SOIL_CONDITION_TBD
ID_SOIL_EROSION_COEFFICIENT	Number	The soil erosion ID. Related to: ■ WW_SOIL_EROSION_COEFF_TBD
ID_SOIL_FAMILY	Number	The soil family ID. Related to: ■ WW_SOIL_FAMILY_TBD

Name	Data Type	Description
ID_SOIL_TEXTURE	Number	The soil texture ID. Related to: ■ WW_SOIL_TEXTURE_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NR_PUMPS	Number	The number of pumps.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Manhole

Allows physical access to the wastewater network. A section intersects in a manhole.

- Computation table — WW_MANHOLE
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVATION	Number	The elevation of the bottom of the item, measured in meters.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the manhole, measured in meters.
DIMENSION_1	Number	The first dimension of the manhole.
DIMENSION_2	Number	The second dimension of the manhole.

Name	Data Type	Description
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFAC-TURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
FID_OPERATOR	Number	The operator of this item Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item Related to: ■ WW_CONTACT
FID_TREAT-MENT_PLANT	Number	The treament plant related to this item Related to:

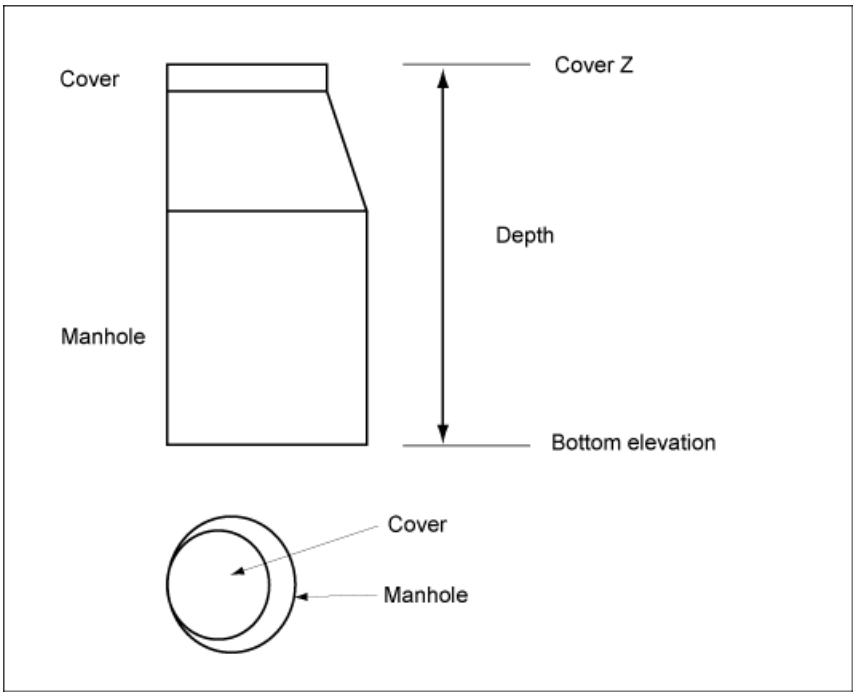
Name	Data Type	Description
		■ WW_TREATMENT_PLANT
ID_ACCESS_AID	Number	The access aid ID. Related to: ■ WW_MHOLE_ACCESS_AID_TBD
ID_ACCESSIBILITY	Number	The accessibilty ID. Related to: ■ WW_MHOLE_ACCESSIBILITY_TBD
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, inexactly, etc. Related to: ■ WW_ACCURACY_TBD
ID_BOTTOM_ACCURACY	Number	The accuracy of the bottom elevation. Related to: ■ WW_ACCURACY_TBD
ID_CHANNEL_SHAPE	Number	The channel shape ID. Related to: ■ WW_CHANNEL_SHAPE_TBD
ID_COATING_INSIDE	Number	The inside coating used for the manhole. Related to: ■ WW_COATING_TBD
ID_COATING_MATERIAL	Number	The type of material used to coat the manhole. Related to: ■ WW_MATERIAL_TBD
ID_COATING_OUTSIDE	Number	The outside coating used for the manhole. Related to: ■ WW_COATING_TBD

Name	Data Type	Description
ID_DATA_ORIGIN	Number	The data origination ID. Related to: ■ WW_DATA_ORIGIN_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FLOODPLAIN	Number	Defines whether the section is in a floodplain. Related to: ■ WW_FLOODPLAIN_TBD
ID_FUNCTION	Number	The function ID. Related to: ■ WW_MHOLE_FUNCTION_TBD
ID_GROUNDWATER	Number	Define whether ground water is present around the section. Related to: ■ WW_GROUNDWATER_TBD
ID_HEIGHT_ACCURACY	Number	The accuracy of the manhole height. Related to: ■ WW_HEIGHT_ACCURACY_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_LAYING_TYPE	Number	Describes how the item is placed at its location. Related to: ■ WW_MHOLE_LAYING_TYPE_TBD
ID_LINING	Number	The lining ID.

Name	Data Type	Description
		Related to: ■ WW_LINING_TBD
ID_LOWER_MATERIAL	Number	The lower material ID. Related to: ■ WW_MATERIAL_TBD
ID_MANHOLE_SHAPE	Number	The shape of the manhole. Related to: ■ WW_MHOLE_SHAPE_TBD
ID_MANHOLE_TYPE	Number	The manhole type. Related to: ■ WW_MHOLE_TYPE_TBD
ID_MATERIAL	Number	The material used for constructing this item. Related to: ■ WW_MATERIAL_TBD
ID_MATERIAL_CHANNEL	Number	The material channel ID. Related to: ■ WW_MATERIAL_TBD
ID_MATERIAL_ENTRYAID	Number	The material entry aid ID. Related to: ■ WW_MHOLE_ACCESS_AID_TBD
ID_MATERIAL_LOWER_PART	Number	The material lower part ID. Related to: ■ WW_MATERIAL_TBD
ID_MHOLE_LOWER_PART_SHAPE	Number	The manhole lower part shape ID. Related to: ■ WW_MHOLE_LOWER_SHAPE_TBD

Name	Data Type	Description
ID_MHOLE_LOWER_SHAPE	Number	The manhole lower shape ID. Related to: ■ WW_MHOLE_LOWER_SHAPE_TBD
ID_OWNERSHIP	Number	The owner of this item. Related to: ■ WW_OWNERSHIP_TBD
ID_TRAFFIC_STATE	Number	The state of the traffic on the manhole. Related to: ■ WW_MHOLE_TRAFFIC_STATE_TBD
ID_UTILISATION	Number	The utilization of the manhole. Related to: ■ WW_MHOLE_UTILISATION_TBD
ID_WATER_PROTEC-TION	Number	The water protection ID. Related to: ■ WW_WATER_PROTECTION_TBD
IS_CONE	Number	Is there a cone?
IS_COVERPLATE	Number	Is there a cover plate?
IS_ENTRYAID	Number	Is there an entry aid?
IS_LOWER_PART_CONE	Number	Is there a lower part of the cone?
IS_MEASUREMENT	Number	Is there a measurement?
IS_PEDESTAL	Number	Is there a pedestal?
IS_TRANSFER_MAN-HOLE	Number	Is there a transfer manhole?
IS_TRANS-ITION_PLATE	Number	Is there a transition plate?

Name	Data Type	Description
LISA_GUID	Varchar2	The LISA unique identifier.
LOWERHEIGHT	Varchar2	The lower height of the item, measured in meters.
LOWERLENGTH	Number	The lower length of the item, measured in meters.
LOWERPARTHEIGHT	Number	The height of the lower part, measured in meters.
LOWERPARTLENGTH	Number	The length of the lower part, measured in meters.
LOWERPARTWIDTH	Number	The width of the lower part, measured in meters.
LOWERWIDTH	Number	The width of the item, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NR_INPUT_SECTION	Number	The number of inputs to the manhole.
NR_OUTPUT_SECTION	Number	The number of outputs from the manhole.
NR_STEP_IRON	Number	The number of step irons in the manhole.
SEQUENCEID	Number	The unique sequence identifier.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.



The cover height is stored in the attribute WW_COVER.Z, the terrain elevation of the manhole is stored in WW_POINT.Z. The soil elevation of the manhole is stored in BOTTOM_ELEVATION. The difference between soil elevation and terrain elevation is the depth.

See also:

- Manhole Creation (page 3)
- Network Point Creation (page 4)
- Wastewater Elevation, Slope, and Height (page 268)
- Extract Points from Lines (page 38)
- Feature Rule: Manhole

Meter

A device installed in a line for measuring the quantity and/or rate of water through a section of line.

- Computation table — WW_METER
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVATION	Number	The elevation of the bottom of the item, measured in meters.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the meter.
DIMENSION_2	Number	The second dimension of the meter.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
ID_METER_TYPE	Number	The type of meter. Related to: ■ WW_METER_TYPE_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Miscellaneous Plant

- Computation table — WW_MISC_PLANT
- Feature type — Attribute

Name	Data Type	Description
DEPTH	Number	The depth of the item, measured in meters.
DIMENSION_1	Number	The first dimension of the item.
DIMENSION_2	Number	The second dimension of the item.
FID_ENV_PARAMETERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS

Name	Data Type	Description
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_SITE	Number	The relation to the site. Related to: ■ WW_SITE
ID_INSTALLA-TION_TYPE	Number	The type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
INPUT_ELEVATION	Number	The elevation of the input, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
OUTPUT_ELEVATION	Number	The elevation of the output, measured in meters.

For more information, see Network Point Creation (page 4).

Neutralizer

A receptacle or chamber where chemicals react with reactant materials. The chemically neutralized liquid waste then passes through the wastewater system.

- Computation table — WW_NEUTRALIZER
- Feature type — Attribute

Name	Data Type	Description
BOTTOM_ELEVA-TION	Number	The elevation of the bottom of the neutralizer, measured in meters.

Name	Data Type	Description
CAPACITY	Number	The capacity of the neutralizer, measured in cubic meters.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the neutralizer, measured in meters.
DIMENSION_1	Number	The first dimension of the neutralizer, measured in meters.
DIMENSION_2	Number	The second dimension of the neutralizer, measured in meters.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMETERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FID_SITE	Number	The relation with the site. Related to: ■ WW_SITE
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_INSTALLATION_TYPE	Number	The type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used for constructing this item. Related to: ■ WW_MATERIAL_TBD
ID_NEUTRALIZATION_AGENT	Number	The neutralization agent ID. Related to: ■ WW_NEUTRALIZATION_AGENT_TBD
ID_TYPE_NEUTRALIZER	Number	The type of neutralizer. Related to: ■ WW_NEUTRALIZER_TYPE_TBD
INPUT_ELEVATION	Number	The elevation of the input, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.

Name	Data Type	Description
NEUTRAL-IZER_AGENT	Varchar2	The name of the neutralizing agent.
NR_PIPES	Number	The number of pipes.
OUTFLOW	Number	The neutralizer outflow.
OUTPOUT_ELEVA-TION	Number	The elevation of the output, measured in meters.
PHVALUE	Number	The Ph value.
REACTANT_QUANT-ITY	Number	The amount of reactant, measured in cubic meters.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Oil Water Separator

A device or structure placed in the wastewater stream to separate water from oil products.

- Computation table — WW_OIL_WATER_SEP
- Feature type — Attribute

Name	Data Type	Description
ALARMSYSTEMCOM-MENTS	Varchar2	Comments about alaram system.
AREA	Number	The area of the item, measured in square meters.
BOTTOM_ELEVA-TION	Number	The elevation of the bottom of the section, measured in meters.

Name	Data Type	Description
CAPACITY	Number	The capacity of the item, measured in cubic meters.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the item, measured in meters.
DIMENSION_1	Number	The first dimension of the separator, measured in meters.
DIMENSION_2	Number	The second dimension of the separator, measured in meters.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FID_SITE	Number	The relation with the site. Related to: ■ WW_SITE
ID_ALARM_SYSTEM	Number	The alarm system ID. Related to: ■ WW_ALARM_SYSTEM_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_INSTALLATION_TYPE	Number	The type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used for constructing this item. Related to: ■ WW_SEPARATOR_MAT_TBD
ID_SEPARATOR_TYPE	Number	The type of separator. Related to: ■ WW_SEPARATOR_TYPE_TBD
INPUT_ELEVATION	Number	The elevation of the input, measured in meters.
INPUT_ELEVATION_1	Number	The elevation of the first input, measured in meters.
INPUT_ELEVATION_2	Number	The elevation of the second input, measured in meters.

Name	Data Type	Description
IS_CLOSEOFF	Number	Is there a close off?
LAYERTHICKNESS	Number	The thickness of the layer.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NOMINAL_SIZE	Number	The nominal size of the item, measured in meters.
OUTPOUT_ELEVATION	Number	The elevation of the outflow.
OUTPUT_ELEVATION	Number	The elevation of the outflow, measured in meters.
SEP_CODE	Number	The separator code.
SEP_PROCESS_NAME	Number	The separator process name.
SEP_VOLUME	Number	The separator volume, measured in cubic meters.
TEMP_OPTIM	Number	The optimum operating temperature, measured in degrees Celsius.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Outfall

An outlet of a river, drain, or a sewer where it discharges into the sea or lake.

- Computation table — WW_OUTFALL

■ Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
BOTTOM_ELEVA-TION	Number	Elevation of the bottom part of the item relative to the section, measured in meters.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the item, measured in meters.
DIMENSION_1	Number	The first dimension of the outfall, measured in meters.
DIMENSION_2	Number	The second dimension of the outfall, measured in meters.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FLOW_ACTUAL	Number	The actual flow rate.
ID_BANK_PROTECTION	Number	The bank protection ID. Related to: ■ WW_BANK_PROTECTION_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_GRATING_PROTECTION	Number	The grating protection ID. Related to: ■ WW_GRATING_PROTECTION_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_MATERIAL	Number	The material used in the construction of this item. Related to: ■ WW_SEPARATOR_MAT_TBD
ID_OUTFALL_TYPE	Number	The outfall type. Related to: ■ WW_OUTFALL_TYPE_TBD

Name	Data Type	Description
ID_OUTLET_TYPE	Number	The outlet type. Related to: ■ WW_OUTLET_TYPE_TBD
ID_SOIL_PROTEC-TION	Number	The soil protection ID. Related to: ■ WW_SOIL_PROTECTION_TBD
INCLINATION	Number	The inclination.
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
OUTFALL_COEFFI-CIENT	Number	The outfall coefficient.
OUTPUT_ELEVATION	Number	The elevation of the outflow, measured in meters.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Pump

A mechanical device for wastewater systems that draws material into itself through an entrance port and forces the material out through an exhaust port.

- Computation table — WW_PUMP
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
BOTTOM_ELEVA-TION	Number	Elevation of the bottom part of the item relative to the section, measured in meters.
DATE_CREATION	Date	The date when the item was created.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item.

Name	Data Type	Description
		Related to: ■ WW_CONTACT
FID_MANUFAC-TURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
ID_COOLING_METH-OD	Number	The cooling method. Related to: ■ WW_COOLING_METHOD_TBD
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_PUMP_TYPE	Number	The type of pump. Related to: ■ WW_PUMP_TYPE_TBD
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.

Name	Data Type	Description
MANOMETRIC_ELEVATION	Number	The menometric elevation, measured in meters.
MANUFACTURER_TYPE	Varchar2	A description of the manufacturer type.
MEASURED_OUTFLOW	Number	The measured flow of the pump.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NR_PUMPS	Number	The number of pumps.
POWER	Number	The power of the model.
PUMP_ELEVATION	Number	The elevation of the item relative to the ground, measured in meters.
RATED_OUTFLOW	Number	The flow rating of the pump.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUCTIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Restrictor

- Computation table — WW_RESTRICTOR
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
DATE_CREATION	Date	The date when the item was created.
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_RESTRICT-OR_OUTLET	Number	The restrictor outlet ID. Related to: ■ WW_RESTRICTOR_OUTLET_TBD
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.

Name	Data Type	Description
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NOMINAL_OUTPUT	Number	The nominal output.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.

For more information, see Network Point Creation (page 4).

Screen

- Computation table — WW_SCREEN
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
DATE_CREATION	Date	The date when the item was created.
DEPTH	Number	The depth of the item, measured in meters.
DIMENSION_1	Number	The first dimension of the item.
DIMENSION_2	Number	The second dimension of the item.
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to:

Name	Data Type	Description
		■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
ID_CLEANER_INTER-VENTION	Number	The cleaner intervention ID. Related to: ■ WW_CLEANER_INTERVENTION_TBD
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_GRATING_TYPE	Number	The grating type ID. Related to: ■ WW_GRATING_TYPE_TBD
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_INSTALLA-TION_TYPE	Number	The type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_SCREEN_TYPE	Number	The screen type ID. Related to: ■ WW_SCREEN_TYPE_TBD

Name	Data Type	Description
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SOIL_PERCOLA-TION_RATE	Number	The soil percolation rate.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.

For more information, see Network Point Creation (page 4).

Septic Tank

Typically a below-grade receptacle or chamber in which solid organic waste is decomposed and purified by anaerobic bacteria.

- Computation table — WW_SEPTIC_TANK
- Feature type — Attribute

Name	Data Type	Description
AREA	Number	The area of the item, measured in square meters.
BOTTOM_ELEVA-TION	Number	Elevation of the bottom part of the item relative to the section, measured in meters.
CAPACITY	Number	The capacity of the item, measured in cubic meters.

Name	Data Type	Description
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the item.
DIMENSION_2	Number	The second dimension of the item.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FLOW_RATE	Number	The rate of flow of the item.
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_STRUCT_CONDI-TION	Number	The structural condition of the item. Related to: ■ WW_STRUCT_CONDITION_TBD

Name	Data Type	Description
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence identifier.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Starch

- Computation table — WW_STARCH
- Feature type — Attribute

Name	Data Type	Description
CAPACITY	Number	The capacity of the item, measured in cubic meters.
DEPTH	Number	The depth of the item, measured in meters.
DIMENSION_1	Number	The first dimension of the item, measured in meters.
DIMENSION_2	Number	The second dimension of the item, measured in meters.
FID_ENV_PARAMETERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The street location of this item. Related to:

Name	Data Type	Description
		■ WW_LOCATION
FID_SITE	Number	The relation of the item to the site. Related to: ■ WW_SITE
ID_FRESH_WATER	Number	The fresh water ID. Related to: ■ WW_FRESH_WATER_TBD
ID_INSTALLA-TION_TYPE	Number	The type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
INPUT_ELEVATION	Number	The input elevation, measured in meters.
NAME_NUMBER	Varchar2	The name or number of this item.
NOMINAL_SIZE	Number	The nominal size.
OUTPUT_ELEVATION	Number	The output elevation of the out flow, measured in meters.

For more information, see Network Point Creation (page 4).

Strainer

A strainer is a type of sieve typically associated with separating liquids from solids.

- Computation table — WW_STRAINER

■ Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
DATE_CREATION	Date	The date when the item was created.
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
ID_DISPOSI-TION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_HYDRAUL-IC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_INSTALLATION	Number	The installation ID. Related to: ■ WW_INSTALLATION_TBD
ID_INSTALLA-TION_TYPE	Number	The type of installation. Related to: ■ WW_INSTALLATION_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD

Name	Data Type	Description
ID_STRAINER_BODY	Number	The strainer body ID. Related to: ■ WW_STRAINER_BODY_TBD
ID_STRAINER_FACE	Number	The strainer face ID. Related to: ■ WW_STRAINER_FACE_TBD
ID_STRAINER_TYPE	Number	The strainer type ID. Related to: ■ WW_STRAINER_TYPE_TBD
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence indentifier.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.

For more information, see Network Point Creation (page 4).

Treatment Plant

A structure containing equipment used to treat or remove unwanted constituents from wastewater.

- Computation table — WW_TREATMENT_PLANT
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
AREA	Number	The area of the item, measured in square meters.
BOTTOM_ELEVA-TION	Number	Elevation of the bottom part of the item relative to the section, measured in meters.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the item.
DIMENSION_2	Number	The second dimension of the item.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION

Name	Data Type	Description
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FLOW_ACTUAL	Number	The actual rate of flow of the item.
FLOW_RATED	Number	The rated flow of the item.
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_STRUCT_CONDITION	Number	The structural condition of the item. Related to: ■ WW_STRUCT_CONDITION_TBD
ID_TREATMENT_PLANT_TYPE	Number	The type of treatment plant. Related to: ■ WW_TREATMENT_PLANT_TYPE_TBD
IS_HANDOVER	Number	Is there a handover?

Name	Data Type	Description
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NR_PUMPS	Number	The number of pumps.
POPULATIONEQUI-VALENTS	Number	The population equivalents.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

For more information, see Network Point Creation (page 4).

Valve

A fitting or device that is used for controlling flow through a wastewater line.

- Computation table — WW_VALVE

■ Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANU-FACTURER	Varchar2	The manufacturer address.
BOTTOM_ELEVA-TION	Number	Elevation of the bottom part of the item relative to the section, measured in meters.
DATE_CREATION	Date	The date when the item was created.
DIMENSION_1	Number	The first dimension of the item.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_ENV_PARAMET-ERS	Number	The environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFAC-TURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER

Name	Data Type	Description
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_SERVICE_TYPE	Number	The service type of the valve. Related to: ■ WW_SERVICE_TYPE_TBD
ID_VALVE_STATE	Number	The state of the valve. Related to: ■ WW_VALVE_STATE_TBD
ID_VALVE_TYPE	Number	The typeof valve. Related to: ■ WW_VALVE_TYPE_TBD
IS_HANDOVER	Number	Is there a handover?
LISA_GUID	Varchar2	The LISA unique identifier.
MANUFACTURER_TYPE	Varchar2	A description of the manufacturer type.

Name	Data Type	Description
MAX_STROKE_ELEVATION	Number	The maximum stroke elevation.
MOVING_SPEED	Number	The moving speed.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	The additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence identifier.
UFIS_CONSTRUCTIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.
ZERO_POSITION	Number	The zero position of the item.

For more information, see Network Point Creation (page 4).

Wastewater Network Point

A wastewater point stores the network points that are the network topology nodes. These points can be related to a site and can have one or more related geometry details (WW_POINT_DETAIL_xx).

Wastewater Network Point	Description
Topic	Topology
Table name	WW_POINT, point feature class.
FID_SITE	You can assign a site to describe the location.

Wastewater Network Point	Description
Z	Standard attribute to store a height, for example, terrain elevation of a manhole.

Profile

The Profile topic stores the profile feature classes.

Name	Description
TB_PROFILE	A profile system table used to store the profile origin.
TB_PROFILE_AXIS	A profile system table used to store the profile axis.
WW_xxx_PRO	Profile feature classes used to store the profile drawing.

To create profiles, refer to the Profile Manager and Creating a Profile with Profile Manager topic in the Topobase Client User Guide.

Protection

Use three basic feature classes to display and manage wastewater network protection: anode (point), anode test station (point), and casing (polygon).

Both anodes and casings are usually related to a section. The best way to access those feature classes is to use the predefined Protection Creation workflow.

For more information, see Protection Creation (page 9).

Anode

An anode is made of a sacrificial material that is more reactive than the material used to make a cathode (for example, a pipe). The anode is electrically connected to the cathode. When an electrical current is passed between the anode and the cathode, the current starts a chemical reaction where the anode, being the more reactive of the two materials, corrodes. This leaves the cathode undamaged.

- Computation table — WW_ANODE

■ Feature type — Point

Name	Data Type	Description
ANODE_WEIGHT	Number	The anode weight quantity, measured in kilograms.
DATE_CREATION	Date	The date when the item was created.
DATE_INSPECTED	Date	The date when the item was inspected.
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FID_SECTION	Number	The relation with the section. Related to: ■ WW_SECTION
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.

Name	Data Type	Description
ID_ANODE_MATERIAL	Number	The anode material ID. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Anode Test Station

A central location where anodes are tested for performance in wastewater systems.

- Computation table — WW_ANODE_TEST_STATION
- Feature type — Point

Name	Data Type	Description
DATE_CREATION	Date	The date when the item was created.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item.

Name	Data Type	Description
		Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
ID_INSULA- TION_TYPE	Number	The insulation type code. Related to: ■ WW_INSULATION_TYPE_TBD
ID_TYPE	Number	The type of anode test station. Related to: ■ WW_ANODE_TEST_STATION_TBD
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NO_TERMINAL	Number	The number of terminals.
ORIENTATION	Number	The orientation of the anode test station.
QUALITY	Number	The quality of the sign.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.

Name	Data Type	Description
WIRE_SIZE	Number	The size of the wire, measured in meters.
WIRE_TYPE	Number	The type of anode test station. Related to: ■ WW_WIRE_TYPE_TBD
Z	Number	The height value, measured in meters.

Casing

A material used to encase and protect sections of the wastewater system.

- Computation table — WW_CASING
- Feature type — Polygon

Name	Data Type	Description
AREA	Number	The area of the item, measured in square meters.
CADASTRAL_INFO	Varchar2	Description of cadastral information, such as land boundaries, structure locations, boundary dimensions, etc.
CASING_LENGTH	Number	The length of the item, measured in square meters.
CERTIFICATE	Varchar2	A description of the item's DIN/ISO/DVGW/TUEV value.
CROSSED_OBJECT	Varchar2	A description of objects which are crossed (below surface) by this item. for example, roads, rivers, buildings, railways, etc.
DATE_ACQUIRED	Date	The date when the data was acquired.
DATE_CREATION	Date	The date when the item was created.

Name	Data Type	Description
DATE_STARTUP	Date	The date when responsibility of the item was taken.
DIAMETER_INSIDE	Number	The inside diameter of the section.
DIAMETER_NOMINAL	Varchar2	The manufacturer's designated size, or nominal diameter (rounded to the nearest unit), for the subject item. For example, 1" gas hydrant, 2" meter, 6" pipe, etc.
DIAMETER_OUTSIDE	Number	The outside diameter of the section.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFACTURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_SECTION	Number	The relation with one section. Related to: ■ WW_SECTION
GEOM	Geometry	Feature geometry polyline. For more information, see *Oracle Spatial Users Guide and Reference*.
GROUND_ELEVATION	Number	The elevation of the item relative to the ground.
HOUSE	Varchar2	The house address.
HOUSE_SUPPLEMENT	Varchar2	The house address supplement.
HYDRAULIC_FRICTION	Number	The hydraulic friction or roughness along the inside the section; what decreases the pressure relative to the length.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_COATING_INSIDE	Number	The type of coating along the inside of the section. Related to: ■ WW_COATING_TBD
ID_COATING_OUTSIDE	Number	The type of coating along the outside of the section. Related to: ■ WW_COATING_TBD
ID_CONDITION	Number	The condition of the item. For example, broken, leaking, etc. Related to:

Name	Data Type	Description
		■ WW_CONDITION_TBD
ID_DISPOSITION_STATE	Number	The state of the disposition of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FOUNDATION_TYPE	Number	The type of foundation for this item. Related to: ■ WW_FOUNDATION_TBD
ID_LAYING_TYPE	Number	How was the item placed at its location. For exmaple, open ditch, laying on ground, etc. Related to: ■ WW_LAYING_TYPE_TBD
ID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
ID_MATERIAL	Number	The material used to manufacture this item.
LOCATION	Varchar2	A brief description of where the item is located. For example, 1m from the wall.
MODEL_NUMBER	Varchar2	The model name or number of the item.
NAME_NUMBER	Varchar2	The name or number of this item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
PRESSURE_MAX	Number	The manufacturer's or industry standard's maximum pressure rating for the subject item.
SERIAL_NUMBER	Varchar2	The unique serial number of the manufacturer.
THICKNESS	Number	The thickness of the section wall.

Name	Data Type	Description
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.
VALUE	Varchar2	A short description of the model. This value is used for the domain table representation of the model.

Section

The basic wastewater application contains one wastewater line feature; the section. Network geometry is stored separately in the WW_LINE feature class. This feature class stores geometry only; not attributes, and is related to the wastewater feature, WW_LINE.FID_ATTR.

NOTE The records of the geometry feature classes are maintained by Topobase. Do not enhance geometry feature classes by adding customer attributes. The geometry feature classes build the network topology.

- WW_LINE: line string feature class – network line; geometry
- WW_SECTION: attribute feature class – utility line

Section feature models: The section feature class has a model table (WW_SECTION_MODEL).

Section Feature Class Form

Use the basic feature class form of the wastewater section to view and edit the feature attributes and to view related data.

The Section feature class form contains the following elements:

- **General tab** — Displays general feature information.
- **Details tab** — Displays detailed feature attributes and links to all point features the section is connected to.

- **Related Tables tab** — Provides direct access to the following related tables:

Related Table	Description
Maintenance	Information about section maintenance (WW_MAINTENANCE)
Casing	Casing for protection of the section (WW_CASING)
Anode	Anode for protection of the section (WW_ANODE)
Sub Drain Area	(WW_SUB_DRAIN_AREA)
Line	Line geometry (WW_LINE)
Label	Label for pipe features (WW_PIPE_TBL)

- **Inspection Editor tab** — Displays the inspection editor. See Inspection Editor (page 249).
- **Table tab** — Displays all attributes in table form.

Some feature class forms provide functions for further processing of the selected records. These functions can be accessed via menu or control buttons. See Use Wastewater Feature Functions (page 26).

Section

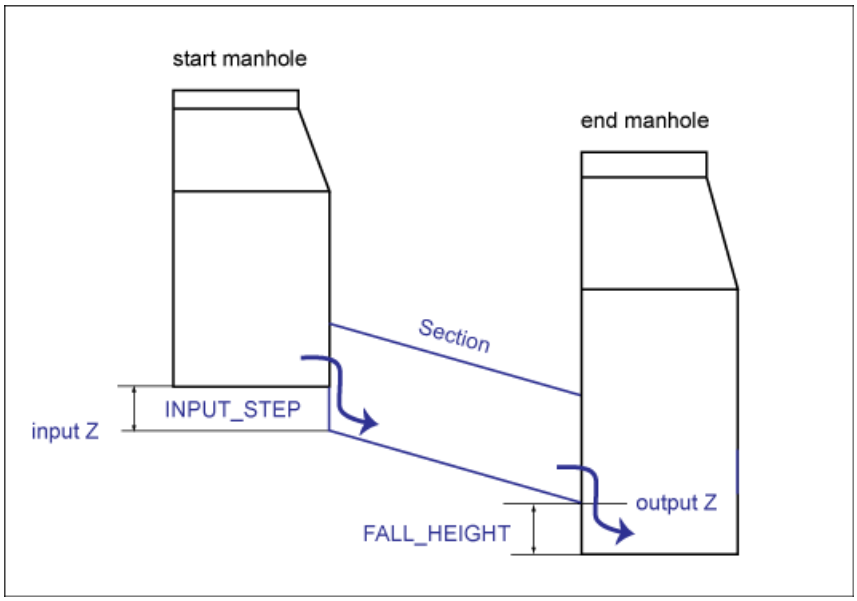
A section is a wastewater channel or pipe between network points. Sections are the only standard line feature of a wastewater utility model.

The data model stores both real pipe geometry and the network topology, which is a more abstract view. Physically, a pipe runs between two manhole structures and a manhole has a certain diameter. Topologically, a section runs from manhole (center) to manhole (center).

Use intermediate points to add detail so the line from manhole to manhole is more accurate.

NOTE In the wastewater document options, you can enable manhole/section validation. See Set Wastewater Document Options (page 267).

The manhole/section validation checks the consistency of the bottom height in the section and manhole feature class. In the feature class form, attributes that do not match are highlighted, and a tooltip explains the inconsistency.



Wastewater data model: Section between two manholes. Physically the section is represented by a pipe that runs between the manhole structures.

- Computation table — WW_SECTION
- Feature type — Attribute

Name	Data Type	Description
AVG_DEPTH	Number	The average depth of the section.
CADASTRAL_INFO	Varchar2	Description of cadastral information, such as land boundaries, structure locations, boundary dimensions, etc.
CONNECTION_COMMENTS	Varchar2	Connection comments pertaining to the section.

Name	Data Type	Description
CONNECTION_DESIGNATION	Varchar2	Description of cadastral information, such as land boundaries, structure locations, boundary dimensions, etc.
CONNECTION_DISTANCE	Number	The average depth of the section.
CONNECTION_FIXING	Varchar2	Description of cadastral information, such as land boundaries, structure locations, boundary dimensions, etc.
DATE_ACQUIRED	Date	The date when the data was acquired.
DATE_CREATION	Date	The date when the item was created.
DATE_STARTUP	Date	The date when responsibility of the item was taken.
DIAMETER_INSIDE	Number	The inside diameter of the section.
DIAMETER_OUTSIDE	Number	The outside diameter of the section.
DIMENSION_1	Number	The first dimension of the item, measured in meters.
DIMENSION_2	Number	The second dimension of the item, measured in meters.
DISTANCE	Number	The distance covered by the section, measured in meters.
END_Z	Number	The height above sea-level of the end point of the section, measured in meters.
EXIST_SPECIAL_PROFILE	Number	The existing special profile of the section.
FALL_HEIGHT	Number	The water fall height at the end of the section, measured in meters.

Name	Data Type	Description
FID_CONSESSION-AIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT
FID_DRAIN_AREA	Number	The drain area of the section. Related to: ■ WW_DRAIN_AREA
FID_ENV_PARAMET-ERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the maintenance of this item. Related to: ■ WW_CONTACT
FID_MANUFAC-TURER	Number	The manufacturer of this item. Related to: ■ WW_MANUFACTURER
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to:

Name	Data Type	Description
		■ WW_CONTACT
FID_TREAT-MENT_PLANT	Number	The treament plant related to this item. See Treatment Plant (page 224) Related to: ■ WW_TREATMENT_PLANT
FID_WASHING_AREA	Number	The washing area in which the section is placed. See Washing Area. Related to: ■ WW_WASHING_AREA
FILE_NAME	Varchar2	The file related to this item.
FIXING	Varchar2	The fixing entry.
GROUP_SECTION	Varchar2	The group section.
HYDRAULIC_FRIC-TION	Number	Hydraulic friction or the roughness inside a section which decreases the pressure relative to the length.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_CATHODIC_PRO-TECTION	Number	The type of cathodic protection applied to the section. For example, victim anode, AC, DC, etc. Related to: ■ WW_CATHODIC_PROTECTION_TBD
ID_COATING_INSIDE	Number	The type of coating along the inside of the section. Related to: ■ WW_COATING_TBD

Name	Data Type	Description
ID_COATING_OUTSIDE	Number	The type of coating along the outside of the section. Related to: ■ WW_COATING_TBD
ID_CONDITION	Number	The condition of the item. For example, broken, leaking, etc. Related to: ■ WW_CONDITION_TBD
ID_CONNECTION_EDGE_TYPE	Number	The connection edge type ID. Related to: ■ WW_CONNECTION_EDGE_TYPE_TBD
ID_CONNECTION_TYPE	Number	The connection type ID. Related to: ■ WW_CONNECTION_TYPE_TBD
ID_CONSTR_PROFILE	Number	The additional constructed element on the profile. Related to: ■ WW_CONSTR_PROFILE_TBD
ID_DATA_ORIGIN	Number	The data origin ID. Related to: ■ WW_DATA_ORIGIN_TBD
ID_DISPOSITION_STATE	Number	The disposition state of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_DRAIN_PATTERN	Number	The drainage pattern code. Related to: ■ WW_DRAIN_PATTERN_TBD

Name	Data Type	Description
ID_FLOODPLAIN	Number	Defines whether the section is in a floodplain. Related to: ■ WW_FLOODPLAIN_TBD
ID_FOUNDATION	Number	The type of foundation. Related to: ■ WW_FOUNDATION_TBD
ID_FUNCTION	Number	The function ID. Related to: ■ WW_FUNCTION_TBD
ID_GROUNDWATER	Number	The groundwater ID. Related to: ■ WW_GROUNDWATER_TBD
ID_HEIGHT_ACCURACY	Number	The accuracy of the elevation. Related to: ■ WW_HEIGHT_ACCURACY_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD
ID_LAYING_TYPE	Number	Describes how the item was placed on its location. For example, open ditch, laying on ground, etc. Related to: ■ WW_LAYING_TYPE_TBD
ID_LINING	Number	The lining ID. Related to: ■ WW_LINING_TBD

Name	Data Type	Description
ID_LINING_MATERIAL	Number	The lining material ID. Related to: ■ WW_MATERIAL_TBD
ID_MARKER_TYPE	Number	Describes how the item is marked on the ground. For example, marker, magnetic tape, tape, etc. Related to: ■ WW_MARKER_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_MATERIAL_ORIGIN	Number	The material origin ID. Related to: ■ WW_MATERIAL_ORIGIN_TBD
ID_OTHER_CONSTRUCTION	Number	Describes any other construction placed in the section. Related to: ■ WW_OTHER_CONSTR_TBD
ID_OWNERSHIP	Number	The owner of this item. Related to: WW_OWNERSHIP_TBD
ID_PRESSURE_PROCEDURE	Number	The pressure procedure ID. Related to: WW_PRESSURE_PROCEDURE_TBD
ID_PROFILE	Number	Describes the profile of the section. Related to: WW_PROFILE_TBD
ID_PROFILE_ORIGIN	Number	The profile origin ID. Related to: WW_PROFILE_ORIGIN_TBD

Name	Data Type	Description
ID_RENOVATION	Number	Describes the restoration or replacement of the section. For example, concrete, epoxy, fitting, etc. Related to: WW_RENOVATION_TBD
ID_SOIL_TYPE	Number	The type of soil. Related to: ■ WW_SOIL_TYPE_TBD
ID_TRAFFIC_SITUATION	Number	The state of the traffic passing over the section. Related to: ■ WW_TRAFFIC_SITUATION_TBD
ID_UTILISATION	Number	The utilization of the section. Related to: ■ WW_UTILISATION_TBD
ID_WATER_PROTECTION	Number	The degree of water protection. Related to: ■ WW_WATER_PROTECTION_TBD
INPUT_DEPTH	Number	The depth of the section at the start of the section, measured in meters.
INPUT_STEP	Number	The difference between the soil elevation and the input elevation in the start manhole, measured in meters.
INPUT_Z	Number	The height above sea level at the input point of the section, measured in meters.
LISA_GUID	Varchar2	The LISA unique identifier.
LOCATION	Varchar2	A brief description of where the item is located. For example, 1m from the wall.
MAX_FLOW	Number	The maximum flow possible through the section.

Name	Data Type	Description
MAX_PRESSURE	Number	The maximum pressure rating of the section.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	Additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
OUTPUT_DEPTH	Number	The depth of the section at the end of the section, measured in meters.
OUTPUT_Z	Number	The height above sea level at the output point of the section, measured in meters.
PIPE_LENGTH	Number	The length of the physical pipe, measured in meters.
PIPE_SLOPE	Number	The slope of the physical pipe.
RATEDPRESSURE	Number	The pressure rating of the section.
REGULARINDIVIDUALPIPELENGTH	Number	The regular individual pipe length.
SEQUENCEID	Number	The unique sequence identifier.
SERIAL_NUMBER	Varchar2	The unique serial number of the manufacturer.
START_Z	Number	The height above sea level at the start point of the section, measured in meters.
THICKNESS	Number	The thickness of the pipe wall.
TOTAL_LENGTH	Number	The three dimensional length of the section; the total length between the manholes, measured in meters.
TOTAL_SLOPE	Number	The computed slope of the section.

Name	Data Type	Description
TRANS-IT_RIGHT_DOCU-MENT	Varchar2	The reference to the transit right document on private parcel.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's data integrity and should not be used to store the subject item's data.
VALUE	Varchar2	A short description of the model. This value is used for the domain table representation of the model.

See also:

- Wastewater Elevation, Slope, and Height (page 268)
- Section Creation (page 5)
- Intermediate Point (page 188)
- Section Remove (page 6)

Inspection Editor

Use the Inspection Editor to review imported information pertaining to specific sections of the wastewater network.

To access the inspection editor

1. Double-click a section of the wastewater network.
2. In the Section form, click the Inspection Editor tab.

Inspection Editor Interface

The Inspection Editor interface is divided into three panes where you can review, edit and add observations.

- **Tools Pane** — On the left side; shows the tools for managing inspection observations.

- **Image/Information Pane** — On the right side; shows the inspection video along with descriptive information about the video content.
- **Inspection/Video Controls Pane** — Across the bottom; controls the video and selection of primary and secondary inspection data.

Inspection Editor Menus

There are several menus included in the Inspection Editor.

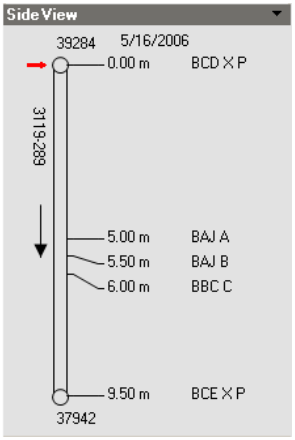
Menu	Description	Toolbar Icon
Section	Open Report—Displays an inspection report for the current section. The report is displayed in a secondary window. You can print the report or change its format to HTML, ASCII, or PDF.	
Damage	Create Point Damage—Allows you to create a damage instance occurring at a specific point in the section.	
	Create Lateral Damage—Allows you to create a damage instance occurring somewhere around the circumference of the section.	
	Create Longitudinal Damage—Allows you to create a damage instance occurring along the length of the section.	
	Auto Zoom—Automatically zooms to a selected inspection observation.	
	Auto Highlight—Automatically highlights the selected inspection observation.	
Video	Play/Pause—Starts or pauses the video.	
	Stop—Stops the video.	
	Fast Forward—Speeds up video.	

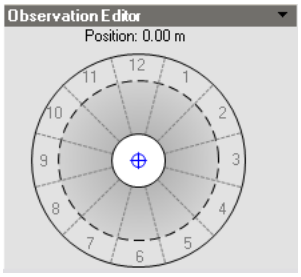
Menu	Description	Toolbar Icon
	Rewind—Rewinds the video.	
	Next—Advances the video by one frame so you can more accurately perform inspections.	
	Previous—Backs the video up by one frame.	
Dock (icon)	In/Out—An icon at the right-hand side of the menu that controls whether the Inspection Editor is docked with the form or whether it is undocked. When undocked, you can still view the Inspection Editor and choose other tabs in the form.	

Tools Pane

The Tools pane is divided into four sections; Tools, Side View, Description and Observation Editor.

Tool Pane Section	Description
Tools 	The Tools section contains several icons that duplicate some of the functionality found in the Section and Damage menus. You can choose to enable or disable automatic zoom and highlight, or you can open a report for inspection. At the right side of the Tools section is an icon you can use to collapse or expand the Tools pane. If you click the Open Report button, the inspection report is displayed in a secondary window. You can print the report or change its format to HTML, ASCII, or PDF.
Side View	The Side View section displays a graphical representation of an inspected section of pipe between a *from*

Tool Pane Section	Description
	*manhole* and a *to manhole* along with their unique feature IDs. **NOTE** The 'from manhole' is always at the top of the side view. To the left of the section representation is an arrow which indicates flow direction. To the right of the section representation is a list of distances and corresponding damage codes. Double-clicking a damage code changes the description data shown in the Description section and also advances or rewinds the video to that location along the section. **NOTE** If multiple observations are within 2 meters of one another, double-clicking or moving the slider over one of the observations with auto-highlight or auto-zoom all the observations. This occurs only when Auto Highlight or Auto Zoom are active. Hovering the cursor over a damage code displays a menu where you can choose to highlight or zoom to the damage, open a form, delete the damage observation, or fix the damage observation. Navigating the red arrows in the side view to different damage observations will also advance or rewind the video display to the selected observation.
Description 	The Description section contains information regarding the currently selected damage observation. You can find the following information: ■ Distance from the base manhole to the location where the damage is reported. ■ The damage code based on the wastewater standard you selected. ■ The position of the damage observation based on the Observation Editor. ■ Optionally, you can add a short description of the actual damage observation. For example, Severe lengthwise crack.

Tool Pane Section	Description
Observation Editor 	The Observation Editor section contains a graphical representation of the inside of the inspected section looking from the 'from manhole' toward the 'to manhole'. The observation editor is further delineated by twelve wedges representing positions on a clock. Observations in the observation editor are depicted as follows: ■ A point on the dashed line indicates a *point damage* observation. For example, a point placed at the 6-o-clock position means damage is localized to that specific point in the section. ■ A solid line running around the dashed line indicates a *lateral damage* observation. For example, a solid line running along the dashed line from 7-o-clock to 10-o-clock means damage running around the circumference of the section between the 7- and 10-o-clock positions. ■ A point with an arrow pointing toward or away from the center indicates a *longitudinal damage* observation. For example, a point at 5-o-clock with an arrow pointing toward the center means there is damage along the length of the section starting at the 5-o-clock position and running for a specified distance. ■ A dashed line running around the dashed line indicates a combination of a *lateral and longitudinal damage* observation with a beginning at one clock position and an end at another clock position. For example, a dashed line running along the dashed line from 12-o-clock to 3-o-clock means there is damage starting at the 12-o-clock position and ending some distance along the section at the 3-o-clock position.

Image/Information Pane

The Video/Information pane displays the inspection video that was imported along with the other inspection data. Along with the video, inspection and section data related to the video is displayed, such as a description of where

the video was shot, the data the inspection team recorded the video, what the section of pipe is made of and how big it is.

The video is synchronized with the documented observations noted in the Side View section of the Tools pane. This means that if you played the video and notice damage 3 meter into the section, there is likely to be a damage observation called out in the Side View.

Inspection/Video Controls Pane

The Inspection/Video Controls pane allows you to select the main and secondary inspections with which you want to work. A main inspection is always needed, but the secondary inspection is set to "None" by default. You can open the secondary inspection list and select a secondary inspection. The secondary inspection is displayed beside the main inspection in the side view where you can perform a side-by-side comparison of the two inspections. Using a secondary inspection does not advance or rewind a video file, if one is loaded.

The video control buttons beneath the video display duplicate the controls in the Video menu. When using the controls while reviewing inspection observations, you can play, pause, stop, fast forward or rewind the video. You can also move frames forward or back one frame at a time to more accurately inspect video content.

If you only want to review video of the inspection data, you can use the Inspection Editor Web. The web version displays a video window with playback controls and an inspection list where you can choose the specific inspection data you want to view.

NOTE Topobase Client uses the Windows Media Player for video playback which supports WMV and MPG file formats. Topobase Web uses the Microsoft® SilverLight™ player which only supports WMV video files.

Site

A site consists of one master feature class (attribute) with related line, point and polygon feature classes. Each network point can be connected to a site.

Sites are not part of the network topology. They are a useful means to group various features of the utility network to make them reachable. A site stores for example house number and location.

The easiest way to connect a network point to a site is to use the Network Point Creation workflow.

Use the Site Creation workflow to create sites that by default are related to one geometry feature. However, you can add more geometries and equipment features using the feature class form.

See also:

- Site Creation (page 8)
- Connect Points to Site (page 32)
- Remove Connections from a Site (page 33)

Construction Part

The construction part feature class manages additional attributes of the structural part of a manhole.

- Feature class — WW_CONSTRUCTION_PART
- Feature type — Attribute

Name	Data Type	Description
FID_MANHOLE	Number	The relation to the manhole feature. Related to: ■ WW_MANHOLE
HEIGHT	Number	The height value.
ID_CONSTRUC-TION_SHAPE	Number	Describes the shape of the construction. Related to: ■ WW_CONSTRUCTION_SHAPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_STRUCTUR-AL_PART	Number	The structural part ID. Related to: ■ WW_STRUCTURAL_PART_TBD

Name	Data Type	Description
LENGH	Number	The length value.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
NR_STRUCTURAL_PARTS	Number	The number of structural parts.
WIDTH	Number	The width value.

Site

The Site feature class is used to enclose assemblies and make them reachable by fittings, valves, etc.

- Feature class — WW_SITE
- Feature type — Attribute

Name	Data Type	Description
ADDRESSOFMANUFACTURER	Varchar2	The site manufacturer's address.
DATA_TRANSMISSION	Number	Data transmission? [yes/no].
DATE_ACQUIRED	Date	The date when the data was acquired.
DATE_CREATION	Date	The date when the item was created.
DATE_STARTUP	Date	The date when responsibility of the item was taken.
FID_CONSESSIONAIRE	Number	The concessionaire of this item. Related to: ■ WW_CONTACT

Name	Data Type	Description
FID_ENV_PARAMET-ERS	Number	The relation to the environmental parameters. Related to: ■ WW_ENV_PARAMETERS
FID_INSTALLER	Number	The enterprise in charge of building the item. Related to: ■ WW_CONTACT
FID_LOCATION	Number	The location of the item (street). Related to: ■ WW_LOCATION
FID_MAINTENANCE	Number	The company that is responsible for the mainten-ance of this item. Related to: ■ WW_CONTACT
FID_OPERATOR	Number	The operator of this item. Related to: ■ WW_CONTACT
FID_OWNER	Number	The owner of this item. Related to: ■ WW_CONTACT
FID_SITE	Number	Use to store the site in site. Related to: ■ WW_SITE
FID_TREAT-MENT_PLANT	Number	The treament plant related to this item. See Treatment Plant (page 224) Related to: ■ WW_TREATMENT_PLANT
FOOTPRINT	Number	The site footprint.

Name	Data Type	Description
GROUND_ELEVATION	Number	The elevation of the item relative to the ground, measured in meters.
HOUSE	Varchar2	The house number.
HOUSE_SUPPLEMENT	Varchar2	The house number supplement.
ID_ACCURACY	Number	How the current position of the item was determined. For example, exactly, by positioning, unknown, or inexactly. Related to: ■ WW_ACCURACY_TBD
ID_CONDITION	Number	The condition of the item. For example, broken, leaking, etc. Related to: ■ WW_CONDITION_TBD
ID_DISPOSITION_STATE	Number	The disposition state of the item. For example, death, planed, etc. Related to: ■ WW_DISPOSITION_STATE_TBD
ID_FOUNDATION	Number	The type of foundation. Related to: ■ WW_FOUNDATION_TBD
ID_FUNCTION	Number	The function ID. Related to: ■ WW_FUNCTION_TBD
ID_HYDRAULIC_FUNCTION	Number	The hydraulic function of the item. Related to: ■ WW_HYDRAULIC_FUNCTION_TBD

Name	Data Type	Description
ID_LAYING_TYPE	Number	Describes how the item was placed on its location. For example, open ditch, laying on ground, etc. Related to: ■ WW_LAYING_TYPE_TBD
ID_LOCATION	Number	The street location of this item. Related to: ■ WW_LOCATION
ID_MARKER_TYPE	Number	Describes how the item is marked on the ground. For example, marker, magnetic tape, tape, etc. Related to: ■ WW_MARKER_TYPE_TBD
ID_MATERIAL	Number	The material used to construct this item. Related to: ■ WW_MATERIAL_TBD
ID_OWNERSHIP	Number	The owner of this item. Related to: WW_OWNERSHIP_TBD
ID_PLANT_COMBINATION	Number	The plant combination ID. Related to: WW_PLANT_COMBINATION_TBD
ID_TYPE	Number	Describes the kind of site. Related to: WW_SITE_TYPE_TBD
IS_BYPASS	Number	Is there a bypass?
IS_PLANT_COMBINATION	Number	Is there a plant combination?
IS_HANDOVER	Number	Is there a handover?

Name	Data Type	Description
LISA_GUID	Varchar2	The LISA unique identifier.
LOCATION	Varchar2	A brief description of where the item is located. For example, 1m from the wall.
MANUFAC-TURER_TYPE	Varchar2	A description of the manufacturer type.
NAME_NUMBER	Varchar2	The name or number of this item.
NAME_NUMBER_1	Varchar2	Additional name number of the item.
NARRATIVE	Varchar2	A description or other unique information concerning the subject item.
SEQUENCEID	Number	The unique sequence identifier.
SERIAL_NUMBER	Varchar2	The unique serial number of the manufacturer.
SERVICE	Varchar2	The service provided by this site.
SITE_DEPTH	Number	The depth dimension of the item, measured in meters.
SITE_LENGTH	Number	The length dimension of the item, measured in meters.
SITE_WIDTH	Number	The width dimension of the item, measured in meters.
SPACE_ABOVE_GROUND	Number	The space above ground, measured in meters.
SPACE_BE-LOW_GROUND	Number	The space below ground, measured in meters.
UFIS_CONSTRUC-TIONNUMBER	Number	The UFIS construction number.
USER_FLAG	Varchar2	An operator defined work area. This attribute can be used by the operator for user defined system processes. It does not effect the subject item's

Name	Data Type	Description
		data integrity and should not be used to store the subject item's data.

Utility

The utility model allows you to separate the geometries from attributes. This lets you maintain complex network topologies with soft and hard split points.

For example, a house connection is connected to one main section. If you connect an additional house, you don't want to split the main. Instead, you should connect the new house connection to the main pipe. In this case, the connection is done using a soft split.

The utility model has several feature rules which maintain the network.

Utility	Description
Topic	Utility
Table name	WW_POINT, point feature class. WW_LINE, line geometry.

Wastewater Feature Rules

Many feature classes in the wastewater data model are comprised of feature rules. Use the data model administrator to view, enable, or disable feature rules.

Feature rules are methods and triggers that process data according to predefined algorithms. For example, feature rules perform consistency and dependency checks at certain events, such as before inserting or after modifying a feature class. A number of predefined feature rules are available, or you can define your own server-side feature rules or create client-side feature rules.

When you run Data Acquisition workflows in the wastewater application, feature rules improve the efficiency of adding feature classes and ensuring data consistency.

To explore wastewater feature rules

1 Start Topobase Administrator and open the Wastewater workspace.

2 Start the data model administrator. Select the document. Click Document menu ➤ Data Model.

3 In the data model explorer, right-click the feature class. Click Edit Feature Rules.

4 In the Feature Rules Properties dialog box, click the Client Side (.NET) tab.

To disable or enable a feature rule

1 Start the data model administrator and select the document.

2 In the data model explorer under the Administration topic, select the feature class, such as Washing Area.

3 Right-click the feature class and click Edit Feature Rules.

4 In the Feature Rules Properties dialog box, click the Client Side (.NET) tab.

5 To enable or disable a feature rule, do one of the following:
   - In the Applied Rule Bases list, select or clear the feature rule.
   - In the Rule Base Definitions list, click a definition row and click Add to move the item to the Applied Rule Bases list.

6 Click Save and Close.

For more information regarding feature rules, see the Topobase Feature Rules Reference.

Feature Rules: Manhole

The manhole feature rules check the number of sections, section elevation and cover elevation values when a manhole is added or modified.

- **Compute Number of Sections** — For new manholes, calculates the number of incoming and outgoing sections and stores the number in the attributes NR_INPUT_SECTION and NR_OUTPUT_SECTION.
- **Compute Section Elevation** — Computes some values of the section, its manholes, and their covers.

NOTE You must configure the computation of elevation, slope, and heights in the wastewater document options. See Set Wastewater Document Options (page 267).

To learn more about section elevation, see Wastewater Elevation, Slope, and Height (page 268).

- **Compute Elevation** — The cover height is stored in a Cover Z attribute which is the difference between the soil elevation and the terrain elevation. To learn more about height, see Wastewater Elevation, Slope, and Height (page 268).

See also:

- Manhole (page 192)

Feature Rules: Sub Drain Area

The sub drain area feature rules check the sub-drain area, sub-drain area drains, sub-drain area sections, sub-drain area manholes, and the transferal of values from the model table to the sub-drain area table.

Each sub-drain area can belong to one drain area. This relation is stored in the attribute WW_SUB_DRAIN_AREA.FID_DRAIN_AREA.

Also, feature rules calculate some values, transfer values from the model table, and connect the sub-drain area to a section or a manhole.

- **Compute Sub Drain Area** — Calculates the following significant values:
  COVERED_AREA = AREA * DISCHARGE_COEFFICIENT
  NOT_COVERED_AREA = AREA * (1-DISCHARGE_COEFFICIENT)
  INHABITANT_DENSITY = INHABITANT/HECTARE [ha]
  See WW_ComputeSubDrainArea_BIU.
- **Connect Sub Drain Area Drain Area** — Connects a sub-drain area to the drain area, when you digitize a sub-drain area that lies within a drain area. When two or more drain areas are found, they are highlighted and you can select which one to assign. See WW_ConnSubAreaWDrainArea_BIU.
- **Connect Sub Drain Area Section** — Connects a section with a sub-drain area if it is contained in the sub-drain area. Also, this rule checks whether the utilization for the sub-drain area and the section match. See WW_ConnSubDrainAreaSection_BI or WW_ConnSubDrainAreaSection_BU.

- **Connect Sub Drain Area Manhole** — Connects the start manhole or end manhole of a section with a sub-drain area if it is contained in this area. Also, this rule checks whether the utilization for the sub-drain area and the manhole match. See WW_ConnSubDrainAreaManhole_BIU.
- **Transfer Value from Model** — When you select a model for the sub-drain area, this rule transfers the corresponding value from the model table to the sub-drain area table.

In Topobase Administrator, you can disable the feature rules. See Explore Feature Rules.

See also:

- Sub Drain Area (page 61)

Feature Rules: Washing Area

The washing area feature rules allow you to connect washing areas to sections or sections to a washing area. (WW_SECTION.FID_WASHING_AREA).

- **Connect Washing Area to a Section** — When a washing area is specified, this rule automatically connects existing sections that fall within that washing area. See WW_ConnWashingAreaSection_BIU.
- **Connect Section to a Washing Area** — When a section is added that lies within an existing washing area, this rule connects the section to the washing area. When two or more washing areas are found, they are highlighted so you can select which one to assign to the section. See WW_ConnSectionWashingArea_BI.

Use the Topobase Administrator to enable and disable feature rules.

Explore Stop Conditions

Network topologies are comprised of predefined stop conditions. You can view them with the Data Model administrator.

To explore stop conditions

1. Start Topobase Administrator and open the Wastewater workspace.

2 Click Document menu ➤ Data Model to select the document.

3 In the data model explorer, expand Topologies.

4 Expand a topology and expand the Conditions folder.

5 Right-click the stop condition you want to view and click Properties. The Tracing Condition dialog box is displayed.

6 View or edit the setting for the stop condition or click Cancel to exit.

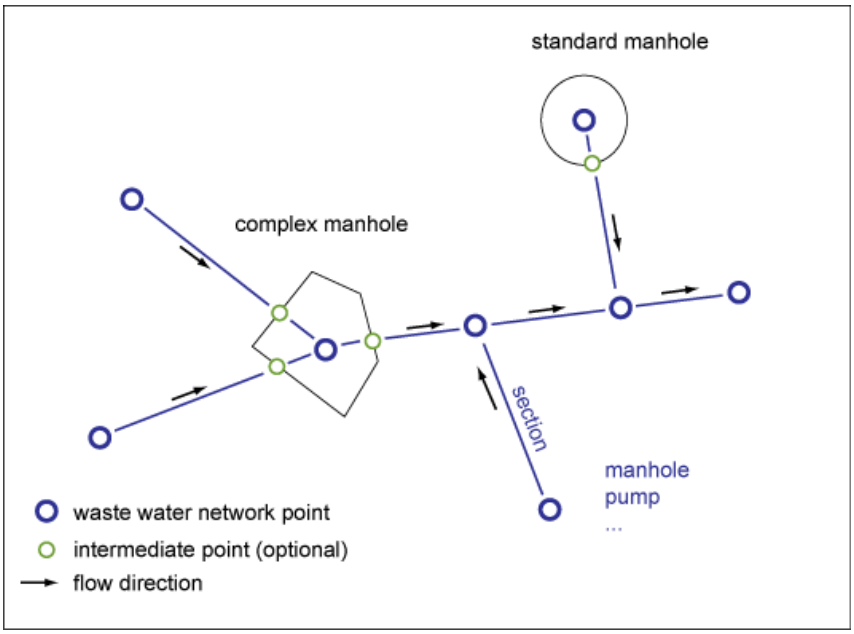
For more information about defining conditions, see Network Tracer.

See also:

- Create a Stop Condition (page 12)

Explore Wastewater Topologies

The Topobase wastewater data model contains the wastewater network topology, which is built from the point feature class (WW_POINT) and the section feature class (WW_LINE).



Topobase Wastewater network topology

Only the point feature classes of the Point topic and the section feature class of the Section topic are part of the wastewater network topology.

Network topology tables have the suffixes _NNOD (topology nodes) and _NLNK (topology links).

Other feature classes, such as the Protection or the Site feature classes, are not part of the network topology.

Achieving a Valid Network Topology

The topology requires that network points always lie at the start or end of a network line. A network point must never lie on a line. If you insert a network point on a network line, the line must be split at the insertion point. The consistency of the topology is maintained by feature rules.

If you remove a network point, you must merge the connecting lines.

For more information, see Intermediate Point (page 188), Split Lines (page 35), and Extract Points from Lines (page 38).

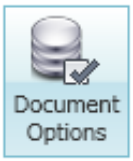
For more information about the feature rules, see Understand and Work with the Wastewater Data Model (page 39)

Set Wastewater Document Options

Use the wastewater document options to specify how feature rules and functions of features shall be applied.

To set wastewater document options

1 On the ribbon, click Settings tab ➤ Setup panel ➤ Document Options.



2 In the tree view, click Wastewater.

3 Make one or more of the following types of settings:

- Click the General tab to specify general options.
- Click the Elevation Computation Priority tab to specify which elevation values get calculated automatically.
- Click the Classification tab to specify the default classification type.

Select options as shown in the following table

Wastewater Document Options	Description
General tab	
Tolerances	Specifies the search distance for the automatic connection of points and covers.
Validation	Enables or disables validation. Select Manhole/Section to check height consistency. See Section (page 239). Select Sub Drain Area Model to check the model parameters. See Sub Drain Area (page 61).
Elevation Computation Priority tab	Specifies the values that are calculated automatically, such as cover height, section fall height. Select the values and use the arrow buttons to change the priority.

Wastewater Document Options	Description
	To aid in PIPE_LENGTH and TOTAL_LENGTH calculations, use the Copy Values option to specify if the INPUT_Z and OUTPUT_Z values are automatically copied to START_Z and END_Z values, respectively.
Classification tab	
Classification	Select one of three classification standards. When Topobase cannot find the import data types, the selected classification standard is used as the default standard to classify imported data. ■ DWA Classifier — The default standard used for the automated classification of wastewater objects. The successor to the ATV standard. ■ ISYBAU Classifier — Set for classification based on the ISYBAU XML standard. This standard is newer than the ISYBAU 96 standard. ■ ISYBAU96 Classifier — Set for classification based on the ISYBAU 1996 / 2001 standard.

Wastewater Elevation, Slope, and Height

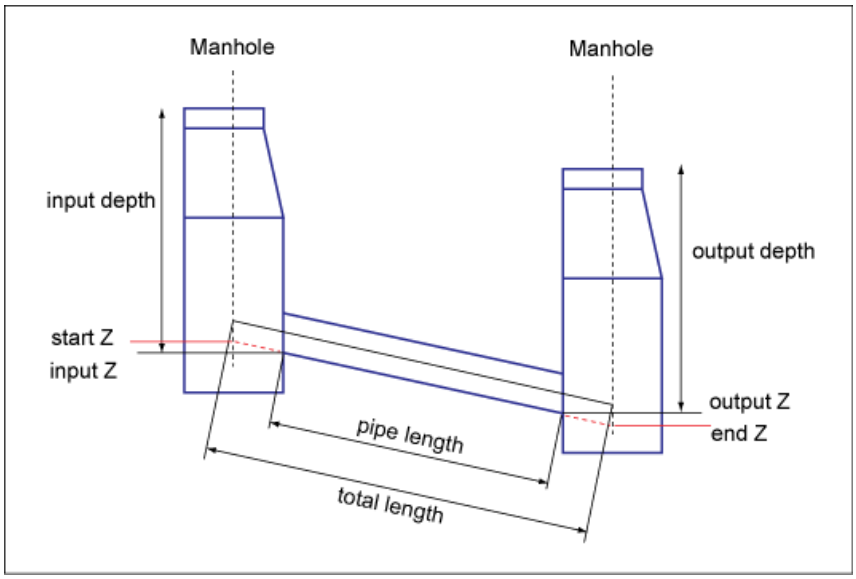
Elevation management ensures consistent values for the heights of related covers, manholes, and sections. The relation between the elevation of the wastewater feature heights and measured depths must be validated. Values that can both be measured or calculated can be compared to validate each other. For example, bottom elevation plus the depth of a manhole should result in the cover height.

Height is a terrain elevation or a height above sea level. Height is usually stored in a *_Z attribute. Depth is a value that is usually measured with a meter rule.

For wastewater networks, the storage of heights and slopes is very important. The data model provides both a simple and a detailed approach. You can either store the network by simply connecting manholes or you can use intermediate points for a more detailed model. You can also refine the network according to your workflow. First, the surveyor measures the covers above ground. Next, the wastewater specialist measures the wastewater network underground with exact coordinates and heights.

If you do not use intermediate points for the entries of the sections into the manhole or manhole structure, the following values are valid for the section:

- START_Z = INPUT_Z
- END_Z = OUTPUT_Z

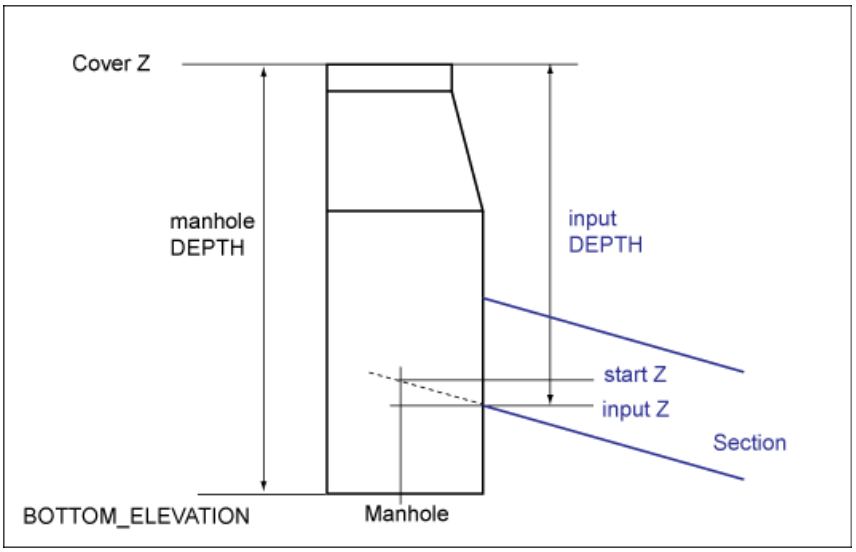


The Topobase Wastewater data model stores section attributes in either a simplified or a detailed structure.

The Compute Section Elevation feature rule calculates consistent elevation values. If you modify a value, you are prompted to adjust related values. By default, this feature rule is activated. However, you must configure the execution of this feature rule in the wastewater document option.

IMPORTANT You must enable the automatic computation of elevation, slope, and height in the wastewater document options. Also, you can define which values shall be calculated. See Set Wastewater Document Options (page 267).

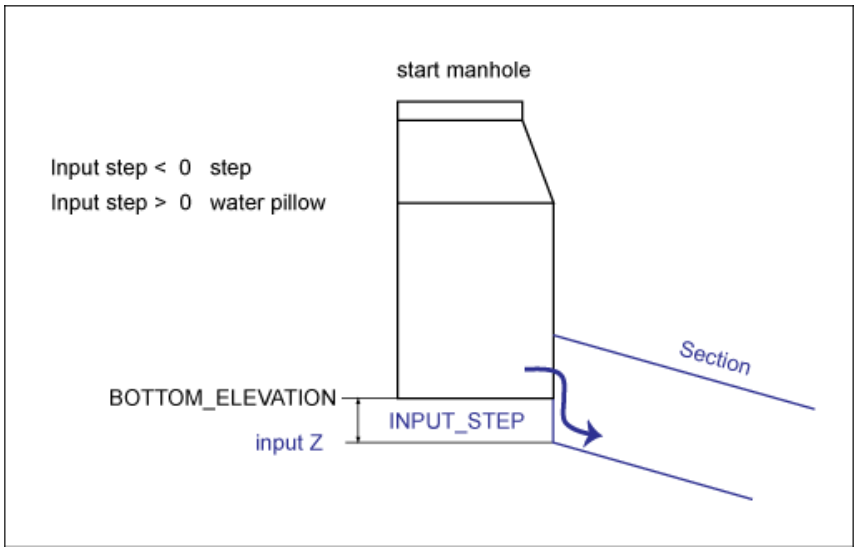
Elevation	Feature rule
Manhole bottom elevation	Cover_Start.Z – Manhole_Start.DEPTH =Manhole_Start.BOTTOM_ELEVATION Cover_End.Z – Manhole_End.DEPTH =Manhole_End.BOTTOM_ELEVATION
Section input and output Z	Cover_Start.Z – Section.INPUT_DEPTH = Section.INPUT_Z Cover_End.Z – Section.OUTPUT_DEPTH = Section.OUTPUT_Z
Slope (section)	TOTAL_SLOPE = (START_Z – END_Z)/TOTAL_LENGTH PIPE_SLOPE = (INPUT_Z – OUTPUT_Z)/PIPE_LENGTH
Fall height and input step	Section.FALL_HEIGHT = Section.OUTPUT_Z – Manhole_End.BOTTOM_ELEVATION Section.INPUT_STEP = Section.INPUT_Z - Manhole_Start.BOTTOM_ELEVATION INPUT_STEP > 0: water pillow INPUT_STEP < 0: step.



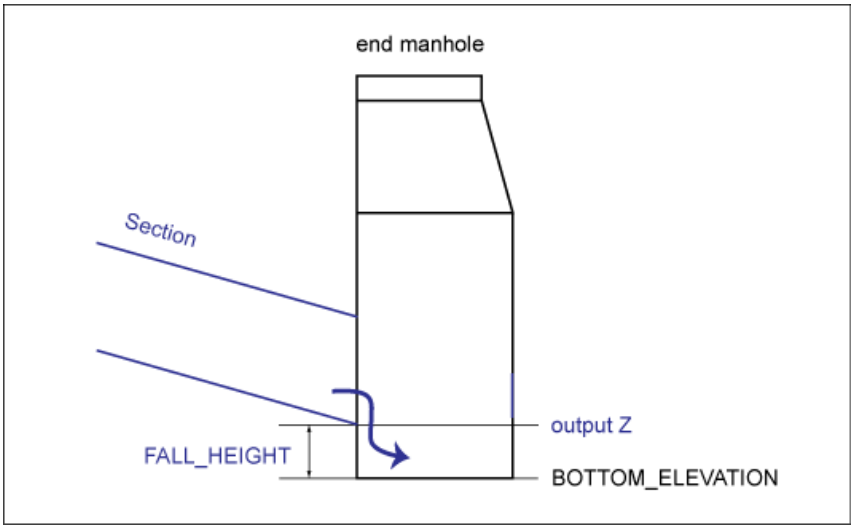
Feature rules check values

Several feature rules check the elevation consistency, for example to ensure that the flow direction is continuous and that pipe slopes are always greater zero.

- Manhole_Start.DEPTH >= Section.INPUT_DEPTH
- Manhole_End.DEPTH >= Section.OUTPUT_DEPTH
- Section.INPUT_Z >= Manhole_Start.BOTTOM_ELEVATION
- Section.OUTPUT_Z >= Manhole_End.BOTTOM_ELEVATION
- Section.START_Z >= Section.INPUT_Z
- Section.OUTPUT_Z >= Section.END_Z
- Section.INPUT_Z >= Section.OUTPUT_Z
- Section.TOTAL_SLOPE >= 0
- Section.PIPE_SLOPE >= 0



Wastewater data model: Section with input step < 0



Wastewater data model: Section with fall height

See also:

- Understand and Work with the Wastewater Data Model (page 39)

- Feature Rule: Manhole

Define Labels

The basic Wastewater application contains predefined label definitions for most of the feature classes. The standard attribute for the label text is called Name Number.

NOTE By default labels are not visible in the drawing. Only labels that are defined as auto labels are created during the create feature operation. Insert labels using Home tab ➤ Quick Access panel ➤ Create Label.

Label tables use the suffix _TBL and contain feature labels.

Example Section label — The following label definition is used to write the diameter, length and material. The label text is queried from the tables WW_SECTION, WW_LINE, WW_SECTION_MODEL, and WW_MATERIAL_TBD.

```
SELECT nvl2(max(DIMENSION_1),'','')||max(DIMENSION_2)||'
'||round(sum(line.LENGTH),1)||' '||max(material.VALUE)
FROM WW_SECTION sec,   WW_LINE line,  WW_MATERIAL_TBD material
WHERE sec.FID= $id
AND sec.FID = line.FID_ATTR(+)
AND sec.ID_MATERIAL = material.ID(+)
```

For more information about defining labels, see the Creating a Label Definition in the Topobase Administrator Guide.

Glossary

area topology Description of spatial relationship between geographic area features. Area topologies contain line strings and centroids. In Topobase™, the polygons are generated automatically from the surrounding line strings. Examples of area topologies are parcels, land use, land cover and political boundaries. See also Topology.

centroid A point that indicates a polygon (approximately in the center). In Topobase, centroids are part of area topologies and belong to the surrounding edges (line string feature class). The centroid normally holds the polygon's attribute data. See also Area Topology.

COGO Abbreviation for Coordinate Geometry. COGO functionality provides calculation routines, such as for intersection, projection, orthogonal survey, offset lines, and right angle course.

Display Manager For stylization in Autodesk Map 3D, applies custom styles to selected features and objects. To view the Display Manager task, select Display Manager in the list at the top of the Task Pane. Also used for stylization of Topobase features.

display model In Topobase, you use display models to administer thematic views. A display model definition specifies which set of layer files (feature layers) is loaded into the Display Manager. Also, the display model defines multi map windows and autoload layers.

document In Topobase, a document is an Oracle® database schema with additional settings in the Topobase System user (database server schema TBSYS). A document is an Oracle database user plus settings for menu bars, toolbars and forms. A document must be assigned to a workspace to be accessible by Topobase Client or Topobase Web. You can create, edit, and configure the documents using the Topobase Administrator.

document explorer Control element in the Topobase Client task pane and in the Topobase Web layout. Use the tree view to show the objects that are stored in the database. For different requirements and more clarity these objects can be grouped into explorer groups. Provides a document-specific

view to process the following objects: Topics (and feature classes), domains, topologies, intersections, system tables, and workflows. You can define a different document explorers for each document. Also called Topobase explorer.

domain Sets of values. For example, a domain defines the values that are allowed for a feature attribute. Topobase data models store domains in domain tables (*****_*TBD*). Domain tables are created using the Topobase data model administrator.

explorer group In Topobase Administrator, a configuration that specifies which objects are to be shown in the document explorer. These settings are saved as Explorer Groups.

feature In Topobase, an entity of a feature class. Each feature in a feature class represents a row or record in the feature class table.

feature class In Topobase, the basic class for objects. For example, a parcel is a feature class. In a database, each feature class corresponds to one Oracle table. A feature class can have any number of attributes (Oracle columns), one of which can be of type "geometry". There are general types of feature classes, such as the following:

- Attribute (feature class without geometry)
- Line String
- Polygon
- Point
- Centroid
- Label
- Compound Polygon
- Compound Linestring

You can group several feature classes for each topic. Each feature class contains many entities/instances or records, which are called features.

feature class form Database form to view and edit attribute data stored in Topobase. Forms can be customized with the Topobase form designer.

feature explorer Control element used to display a set of features in a tree view, resulting from a selection, a validation, or a tracing.

graphic connection A connection between Topobase and Autodesk Map or Autodesk MapGuide to display the features. Topobase Client has a graphic

connection to Autodesk Map. Topobase Web has a graphic connection to Autodesk MapGuide.

job perimeter Spatial area where a job can be processed. You can use job perimeters to control where the modifications of the current job is allowed. Features outside the job perimeter cannot be processed. Also, you can define feature rules to be applied on the objects within the perimeter.

label In Topobase, any attribute data of a feature can be displayed as text, using label features. Label features are generated by arbitrary select statements that can be defined by the customer and therefore are a flexible way to add inscriptions to the objects. Label definitions (select statements and other settings) are stored in the system table TB_LABEL_DEF. Label definitions can be created or edited using the Topobase data model administrator. Label features can be stylized with the Display Manager by displaying the LABEL_TEXT property.

label definition Select statements that create labels. The label definition 1) queries data from the database and 2) specifies positioning and text orientation. This information is used in the Display Manager for stylization.

label feature class Feature class type used to store label features in the database <feature class name>_TBL. Each feature class (parent feature class) can have exactly one label feature class. The label feature class contains default attributes only, and contains no other specific attributes. It stores a relation to the parent feature class.

label placer Places a label to generate a label feature, to write information into the drawing or the map.

logical topology Description of the relationship of features of any feature classes, both attribute or geometry feature classes. The features need not to be spatially connected. For example, a logical topology connects points with points, lines with lines,lines to points, or attribute features to attriute features. Utility networks are based on logical topologies that connect points (nodes) and lines (edges).

For example, a logical topology can represent a waste water network or electrical transmission lines.

master-detail form Type of feature class form where related records are shown in an embedded sub-form on one or more tabs.

network topology See logical topology.

Polygon Object built of line segments that form an enclosed area. In Topobase, polygons are stored in a polygon feature class.

Position Finder Finds the location of a certain object, such as a building, a parcel, or any other type of feature that has geometry. The geometry found will be the center of a graphic generation or a zoom GoTo. There are several types of search such as Sequential search and Flat search.

profile In Topobase, a longitudinal section of line features. A profile is created by projecting features on an axis.

profile data model Data model consisting of a set of profile system tables and an arbitrary set of profile feature classes. Profile system tables store the basic configuration and settings. Profile feature classes store the components of each profile drawing.

prototype drawing Drawing that stores all used blocks, symbols, regular and other lines, text styles and dimensioning styles.

schema plan A schematic diagram that represents real world features by transforming the original feature geometry to an alternative location, for example by applying a coordinate offset. The schema plan represents the real world features in a clear structure, and preserves topology. A schema plan can either be displayed as overlay to the original features, or in a secondary window. You use Topobase Administrator to define schema plans.

schematic feature In Topobase, schematic features are derived from real world features. They are stored in the database and are used to draw the schema plan. Each schematic feature is associated to its real world feature.

TBMAIN Topobase Main User, which is a Topobase System User with restricted rights. The default name for the Topobase Main User is TBMAIN. To start the application, non-administrator users can optionally connect to the Topobase Main User.

TBSYS Topobase System User. Topobase system database schema. Topobase server component that stores application settings and server-side stored procedures. The default name for the Topobase System user is TBSYS. Application users must be connected to the Topobase System user or to the Topobase Main User TBMAIN to start the application.

template In Topobase, a template is an arrangement of recurrent features. The arrangement includes feature attributes, geometry and connectivity. In Topobase Client, you use templates to place a feature arrangement in one single step.

topic In Topobase, a group of several feature classes. A topic is a collection of feature class tables. Topics can be thought of as containers used to organize feature classes. Considering a data transfer, topics are fully independent of one another. Each topic may have sub-topics.

To build a clear and transparent data structure, you can group feature classes into topics, group several topics into main topics, and define feature classes with sub-feature classes. These relations between topics and feature classes serve only as an illustration of the data structure. There is not necessarily an actual relation between the tables.

Topobase Administrator A Topobase basic module, used for Topobase administration. Topobase Administrator contains several components, such as:

- Topobase data model administrator
- Topobase form designer
- Topobase report designer
- Topobase job administrator

Topobase Client A component of Topobase Administrator, used for registering and processing data stored in Topobase through forms and using Autodesk Map for graphic processing.

Topobase data model administrator A Topobase module used to process and establish data structures (topics, tables, attributes, topologies, and intersections) in Topobase. Also, you can define label definitions and dimensioning.

Topobase job All changes in the Topobase data pool can be controlled and performed by exact reports on appropriate processing steps, if they are performed inside a job. Using jobs allows you to control the version. A job includes various processing states (live, pending, project). For each processing state, an application exactly defines which actions are allowed.

Topobase System User Database schema that stores application settings and server-side stored procedures. Default name is TBSYS. Application users must be connected to the Topobase System User to start the application. They can either connect directly to the Topobase System User or use a Topobase Main User which has restricted rights. See also TBSYS and TBMAIN.

Topobase Web The web version of Topobase applications.

topology A geometric shape property in which metrical relations play no role. Topology describes how lines, nodes, and polygons connect and relate to each other, and it forms the basis for spatial analysis as network tracing. In Topobase, topologies can be administered within individual groups of feature classes. They can be defined with the Topobase data model administrator.

topology checker Tool to check topologies. The results are displayed in a tree view, displaying all feature errors.

user A person who works with any Topobase application. Each application user belongs to a group called a user group, with certain tasks and rights. Examples of users: Mr. MILLER, Mr. SMITH, Ms. BAKER; BILLY, TONY, LARRY.

user group A group of users having certain task and rights. Examples of user groups: ADMIN, VIEWER, EDITOR, and so on. A member of a user group can access workspaces only if he has a permission. He may use certain tools and functions and he has certain rights to edit or view the data.

utility model Topobase data model component for utility applications, which provides feature classes and rules for utility networks.

viewport Area of interest for the generate graphic process. A Topobase viewport is a spatial filter on the map.

workflow In Topobase applications, a guide for the user through tasks like acquisition, analysis, and reports.

workspace The central workflow unit in Topobase. For different user groups, such as EDITOR, VIEWER or ADMIN, you can define the appropriate workspaces, with respective roles and rights. A workspace comprises one or more documents.

From the user's point of view, a workspace is the starting point of his work. He must open a workspace to work with any Topobase application. By selecting a workspace, he will load all necessary objects, including the appropriate menus and toolbars, with a single mouse-click. Therefore, he can even access data from different applications, such as land management and wastewater, in arbitrary combinations.

Index

C

classification
    wastewater 16
classify
    wastewater 16
cover
    height 268
create features
    wastewater 3

D

data model
    Topobase Wastewater 39

E

elevation
    calculation - wastewater 267

F

feature classes
    Topobase Wastewater 39
feature rules
    elevation (wastewater) 268
    Topobase Wastewater 39

H

height
    -s of wastewater objects 268

I

initiate
    workflow 2
introduction
    wastewater 1

M

manage
    wastewater network topologies 17

N

network analysis
    wastewater 10

O

options
    wastewater - 267

R

report generation
    wastewater 15
reports
    wastewater 15

S

start
    workflow 2

T

topologies
    managing wastewater network 17

W

wastewater
    classification 16
    create features 3
    elevation management 268

introduction 1
network analysis 10
network topology 265
report generation 15
workflows 2
wastewater options 267
workflow
initiate 2
start 2
workflows
wastewater 2