

Lessons learned from one of New Zealand's most challenging civil engineering projects: rebuilding the earthquake damaged pipes, roads, bridges and retaining walls in the city of Christchurch 2011 - 2016.

SCIRT Survey As-Built Guideline

Story: Data Governance – Standardise, Process and Deliver

Theme: Finance and Business Systems

A technical guideline which defines SCIRT Delivery Team requirements for as-built field surveying and attribute information.

This document has been provided as an example of a tool that might be useful for other organisations undertaking complex disaster recovery or infrastructure rebuild programmes.

For more information about this document, visit www.scirtlearninglegacy.org.nz















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Survey As-Built Guideline

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	Name	Date
Author:	Charlie Dickson	13/03/2014
	Ekkehard Scheffler	
Reviewer:	Abigail Walsh	12/03/2014
	Emma Winthrop	
Reviewer 2.05:	Ekkehard Scheffler	14/07/2015

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Appendices

Appendix A Work Flow Chart for As Built Survey

Appendix B Design Drawing Examples

Appendix C Points, Lines and Outlines Examples

Appendix D As-built Requirements for Gravity Wastewater and Stormwater Systems

Appendix E As-built Requirements for Wastewater Pressure System

Appendix F As-built Requirements for Reticulated Water

Appendix G As-built Requirements for Vacuum Wastewater System

Revision History

Revision	Date	Name	Brief Description			
Α	17/12/12	Adam Churchill	Draft for feedback			
В	2/07/13	Charlie Dickson	Revised to be in guideline format			
С	1/08/13	Charlie Dickson	Modified diagrams for clarity			
1	2/09/13	Charlie Dickson	 Formatted in line with other SCIRT Documents. Formal Issue to Delivery Teams From C to 1: Appendix D- Figure D01 to D30 amended Appendix E -WW pressure system diagrams added. 			

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2 1	13/03/2014	Charlie Dickson Ekkehard Scheffler	Formal issue to Delivery Teams From 1 To 2: All sections have been revised. Major changes as below: Glossary Updated –Figure amended to include outlines Asset Category formatted – All Wastewater including Gravity /Pressure and Vacuum Systems added Asset Category Tables Amended – Include all assets in Appendix E , F and G Jeliverables A.1 There are now two input sheets and two reference sheets A.1.1 Feature Template Sheet Added –Information added A.1.2 Pick Lists Sheet Added – Information Added. A.1.3 Input sheet modified Lines A.1.4 Input sheet modified Lines A.1.5 Pick List Clarifications Added A.1.5.1 Old and New Manholes A.1.5.2 Commission Decommission Date A.1.5.3 Location Certainty A.1.5.4 Service Status A.4 Removed / abandoned Assets added Appendix A Flow chart modified to include FME Appendix B Additional Construction Drawings added Appendix C C.1 Points Clarified – Examples
			 C.2 Lines Clarified – Examples Pressure/Full and Partial Lines Added Relay Dig Open Trench Added C.3 Outlines Clarified – Examples Added All figures replaced Appendix D Gravity Wastewater – Overview Diagram added) Stormwater – Overview (Diagrams added) Pumping Station – Overview (Diagrams added) SAG Features for Stormwater and Wastewater updated and added Reference Sheets D01 to D35 Appendix E Wastewater Pressure System – Overview Diagram added Reference Sheets E01 to E10 created Appendix F Reticulated Water System – Overview Diagram added Reference Sheets F01 to F11 created
2.05 1	14/07/2015	Ekkehard Scheffler	Appendix F Vacuum Wastewater System – Overview Diagram added Reference Sheets G01 to G04 created Added serial number attributes to G01 Clarification on vacuum survey



Background

Traditionally the Christchurch City Council's (CCC) 'Infrastructure Design Standard' (IDS) has specified the as-built recording process for the entire Christchurch City infrastructure. The IDS is an all-encompassing document providing for all situations and has allowed flexibility in delivery formats supplied by contractors and developers.

Subsequent to the creation of the Infrastructure Rebuild Management Office (IRMO) and the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), a revision of the as-built process requirements was released under 'Notice to Contractor-31 – Project Closure Documentation' .This was largely based on the IDS with minor additions appended (including the requirement for metadata spreadsheets). In December 2012 the 'IRTSG' (Infrastructure Recovery Technical Standards and Guidelines), which lays the foundation for the specific requirements for the horizontal infrastructure, was implemented.

With the establishment of a single survey and design system within SCIRT, the potential to simplify the survey as-built recording process has been identified. This document the 'Survey As-built Guideline' (SAG) lays out a new process which aims to minimise the effort expended on as-built deliverables while not reducing the overall deliverable quality.

The Survey As-built Guideline is intended to support SCIRT in meeting the IRTSG requirements and does not replace or override them.

Executive Summary

The purpose of this document is to provide a technical guideline for as-built field surveying requirements and attribute information for wastewater, stormwater and water supply construction projects within the Stronger Christchurch Infrastructure Rebuild Team (SCIRT).

This Survey As-built Guideline defines the requirements of the Delivery Team and details the deliverable format for wastewater and stormwater, and reticulated water networks.

Compliance with the Survey As-built Guideline is critical for the success of SCIRT handover processes to CCC.

This Survey As-built Guideline will be revised and expanded as required to encompass the future as-built survey needs of SCIRT.

All as-built surveys (and supporting documents) are to be submitted by document controller via Project Centre under the SCIRT project number.



1 Glossary

Regarding As-built:

- Asset any item listed in Tables 1 to 6 (i.e. Manhole, Valve etc.).
- Asset Attribute (Asset Metadata) refers to a particular detail or information regarding the as-built asset.
- CCC Christchurch City Council.
- IDS CCC Infrastructure Design Standard, last reviewed May 2013.
- IRTSG Infrastructure Recovery Technical Standards and Guidelines, issued 31/10/1013.
- Line Asset consists of at least two X Y positions such as a pipe/lateral (Figure 1).



- Outline Asset consists of at least three X Y positions to form a polygon i.e. Pumping
 Station (Figure 1).
- Point Asset is any asset that can be defined by one X Y position i.e. manhole (Figure 1).
- RL reduced level.
- RW reticulated water (= WS = water supply).
- SCIRT As-built Template (S.A.T.) spreadsheet to collate as-built information about assets within one SCIRT project.
- SCIRT Survey As-built Guideline (S.A.G) this document.
- SCIRT Survey As-built Guideline (S.A.G) features refers to as-built requirement tables in appendices D, E, F and G - categories of assets.
- SW stormwater.
- UID unique identifier = unique name (e.g. WWMH-19912), consisting of prefix and unique number.
- Vertex a known point along a line, e.g. pipe start and end, bends, changes in grade or other known points; corner points or bends on outlines.
- WW wastewater.
- All measurements are to be entered in mm unless stated otherwise (except for coordinates and levels which are entered in meters).

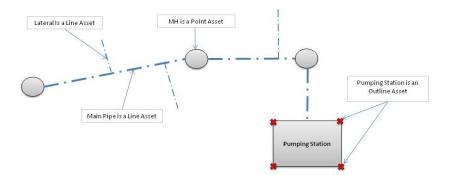


Figure 1: Point, Line or Outline Asset



2 Asset Category

2.1 Roading

Formal roading and pavement as-built requirements will remain the same as specified by the IRTSG. Additional survey as-built information may be required where there is a significant modification to road alignment, or where construction deviates from the design construction documentation.

Note: For the purposes of this guideline any Stormwater drainage within the road corridor is considered part of the Stormwater system contrary to other CCC asset management systems.

2.2 Retaining Walls

Retaining wall requirements will remain the same as specified by IRTSG.

2.3 Stormwater Drainage

All relevant Stormwater assets are to be surveyed according to this Survey As-Built Guideline. Appendix D lists and details the SW assets (and asset attributes) that are likely to be encountered and required to be recorded.

2.3.1 Stormwater Line Assets

Table 1 lists the SW line assets to be surveyed – see Appendix D for all features and attributes required.

Table 1: SW Line Assets

Line Asset (UID Prefix)	Feature to be Surveyed	SAG Feature No
Main Pipes (SWPI)	Location and invert of each end and bend of the pipe [X, Y, Z]	D17
Collector Pipes (SWPI)	Location and invert of each end and bend of the pipe [X, Y, Z]	D18
Lateral Pipes (SWLA)	X and Y position of each end and bend of the pipe	D19
Repair/Relay Dig (SWPR)	MH distance of start and end of the pipe repair	D20
Pipe Lining (SWPR)	MH distance of start and end of the lining patch	D21
Thrust Block [Outline] (SWST)	X and Y of corners of the surrounding feature	D26
Pump Station or Structure [Outline] (SWST)	X and Y of corners of the surrounding feature	D27
Culverts (SWPI)	Location and invert of each end of the structure [X, Y, Z]	D31
Structural Pipe Protection (SWPP)	X and Y of each end of the protection	D34
Electrical (WWEL)	X and Y position of each end and bend	E10



2.3.2 Stormwater Point Assets

Table 2 lists the SW point assets to be surveyed – see Appendix D for all features and attributes required.

Table 2: SW Point Assets

Point Asset (UID Prefix)	Feature to be Surveyed	SAG
		Feature No
Single Sump (SWSP)	Centre of Chamber [X , Y and Z at lid	D01
	and base]	
Double Sump (SWSP)	Centre of Chamber [X , Y and Z at lid	D02
	and base]	
Corner Sump (SWSP)	Centre of Chamber [X , Y and Z at lid	D03
	and base]	
Triple Sump (SWSP)	Centre of Chamber [X , Y and Z at lid	D04
	and base]	
Hillside Sump (SWSP)	Centre of Chamber [X , Y and Z at lid	D05
	and base]	
Inspection Chamber (SWIC)	Centre of Chamber [X , Y and Z at lid	D06
	and base]	
Small Trafficable Sump	Centre of Chamber [X , Y and Z at lid	D07
(SWSP)	and base]	
House Drain Sump (SWSP)	Centre of Chamber [X , Y and Z at lid	D08
	and base]	
Manholes (SWMH)	Centre of Chamber [X , Y and Z at lid	D09 to D12
	and base]	
Junction (SWJC)	X and Y position	D22
Lateral Junction (SWEY)	X and Y position	D23
Inspection Point (SWIP)	X and Y position	D24
End Cap (SWEC)	X and Y position	D25
Pump (SWPM)	Centre of Pump [X , Y and Z]	D28
Outlet (SWOT)	X, Y and Z position	D29
Valve (SWVA)	Centre of Pump [X , Y and Z]	D30
Headwall (SWHWO/SWHWI)	X, Y and Z position	D32
Flow Restriction (SWRD)	X, Y and Z position	D33
Vent (SWVT)	Centre of Vent [X and Y]	D35



2.4 Wastewater Drainage

All relevant Wastewater assets are to be surveyed according to this Survey As-Built Guideline. Appendices D, E and G list and detail the Wastewater assets (and asset attributes) that are likely to be encountered and required to be recorded.

2.4.1 Wastewater Line Assets

Table 3 lists the WW line assets to be surveyed – see Appendices D, E and G for all features and attributes required.

Table 3: WW Line Assets

Line Asset (UID Prefix)	Feature to be Surveyed	SAG
		Feature No
Flush Tank [Outline]	X and Y of corners of the surrounding	D14
(WWFT)	feature	
Flush Tank Water Supply	X and Y position of each end and bend	D15
Pipes (WWFT)	of the pipe	
Main Pipes (WWPI)	Position and invert of each end and	D17
	bend of the pipe [X, Y, Z]	
Collector Pipes (WWPI)	Position and invert of each end and	D18
	bend of the pipe [X, Y, Z]	
Lateral Pipes (WWLA)	X and Y position of each end and bend	D19
	of the pipe	
Repair/Relay Dig (WWPR)	MH distance of start and end of the	D20
	pipe repair	
Pipe Lining (WWPR)	MH distance of start and end of the	D21
	lining patch	
Thrust Block [Outline]	X and Y of corners of the surrounding	D26
(WWST)	feature	
Pump Station or Structure	X and Y of corners of the surrounding	D27
[Outline] (WWST)	feature	
Structural Pipe Protection	X and Y of each end of the protection	D34
(WWPP)		
WW Pressure Main (WWPI)	Position and invert of each end and	E02
	bend of the pipe [X, Y, Z]	
WW Pressure Lateral	X and Y position of each end and bend	E08
(WWLA)	of the pipe	
Electrical (WWEL)	X and Y position of each end and bend	E10
Vacuum Lateral (WWLA)	X and Y position of each end, bend	G03
	and lift of pipe	
Vacuum Main (WWPI)	ain (WWPI) Position and invert of each end, bend	
	and lift of the pipe [X, Y, Z]	



2.4.2 Wastewater Point Assets

Table 4 lists the WW point assets to be surveyed – see Appendices D, E and G for all features and attributes required.

Table 4: WW Point Assets

Point Asset (UID Prefix)	Feature to be Surveyed	SAG Feature No
Inspection Chamber (WWIC)	Centre of Chamber [X , Y and Z at lid and base]	D06
Manholes (WWMH)	Centre of Chamber [X , Y and Z at lid and base]	D09 to D12
Flush Manhole (WWMH)	Centre of Chamber [X , Y and Z at lid and base]	D13
Air Gap Separator (WWAG)	X and Y position	D16
Junction (WWJC)	X and Y position	D22
Lateral Junction (WWEY)	X and Y position	D23
Inspection Point (WWIP)	X and Y position	D24
End Cap (WWEC)	X and Y position	D25
Pump (WWPM)	Centre of Pump [X , Y and Z]	D28
Outfall (WWOF)	X, Y and Z position	D29
Valve (WWVA)	Centre of Valve [X , Y and Z]	D30
Vent (WWVT)	Centre of Vent [X and Y]	D35
Local Pressure Tank (WWLPT)	Centre of Pressure Tank [X, Y and Z]	E01
Local Pressure Boundary Kit (WWLPB)	Centre of Boundary Kit [X, Y and Z]	E03
Flushing Point Access (WWIC)	Centre of Flushing Point [X , Y and Z at lid and base]	E04
Isolation Valve (WWVA)	Centre of Isolation Valve [X, Y and Z]	E05
Reducing Coupler (WWJC)	X and Y position	E06
Local Pressure Control Panel (WWLPC)	X and Y position	E07
Vacuum Chamber (WWVC)	Centre of Vacuum Chamber [X, Y and Z at lid and base]	G01
Division Valve (WWVA)	Centre of Valve [X, Y and Z]	G02



2.5 Reticulated Water Systems

All relevant Reticulated Water assets are to be surveyed according to this Survey As-Built Guideline. Appendices D, E and F lists and details the RW assets (and asset attributes) that are likely to be encountered and required to be recorded.

2.5.1 Reticulated Water Line Assets

Table 5 lists the RW line assets to be surveyed - see Appendices D, E and F for all features and attributes required.

Table 5: RW Line Assets

Line Asset (UID Prefix)	Feature to be Surveyed	SAG
		Feature No
RW Thrust Block [Outline]	X and Y of corners of the surrounding	F03
(RWST)	feature	
RW Pipes – Mains (RWPI)	Location and invert of each end and	F04
	bend of the pipe [X, Y, Z]	
RW Pipes – Sub Mains	Location and invert of each end and	F04
(RWPI)	bend of the pipe [X, Y, Z]	
RW Pipes - Crossover	Location and invert of each end and	F04
(RWPI)	bend of the pipe [X, Y, Z]	
RW Pipes - Lateral (RWLA)	X and Y position of each end and bend	F04
	of the pipe	
RW Reservoir [Outline]	X and Y of corners of the surrounding	F09
(RWRE)	feature, Z at base	
RW Structure [Outline]	X and Y of corners of the surrounding	F11
(RWST)	feature	
Electrical (WWEL)	X and Y position of each end and bend	E10
Flush Tank Water Supply	X and Y position of each end and bend	D15
Pipes (WWFW)	of the pipe	
Structural Pipe Protection	X and Y of each end of the protection	D34
(RWPP)		



2.5.2 Reticulated Water Point Assets

Table 6 lists the RW point assets to be surveyed – see Appendices F and D for all features and attributes required.

Table 6: RW Point Assets

Point Asset (UID Prefix)	Feature to be Surveyed	SAG
		Feature No
RW Fire Hydrant (RWHR)	Centre of Asset [X, Y, Z]	F01
RW Valve (RWVA)	Centre of Asset [X, Y, Z]	F02
RW End Cap (RWEC)	X and Y position	F05
RW Pump (RWPM)	Centre of Asset [X, Y, Z]	F06
RW Connector (RWCN)	X and Y position	F07
RW Meter (RWMR)	X and Y position	F08
RW Reservoir Inlet/Outlet	X and Y position	F10
(RWIN / RWOT)		
RW Restrictor (RWRD)	X and Y position	F12
Air Gap Separator (WWAG)	X and Y position	D16

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3 Survey Control

Every survey as-built is to be completed in terms of the project specific benchmark control (detailed on the construction drawings) - these are in Mt Pleasant 2000 projection (New Zealand Geodetic Datum 2000).

The benchmarks are SCIRT project specific (based upon the Christchurch Drainage Datum).

The benchmarks used for As-builting are to be the same as those used for construction set out.

If these benchmarks are destroyed please contact the SCIRT Handover Coordinator for advice on which benchmarks to use. Do not source benchmarks from elsewhere as each project is in terms of specific project benchmarks.

3.1 Accuracies

This document frequently refers to an accuracy margin i.e. +/- X [mm]. X is typically 10mm, 30mm, 50mm or 100mm depending on the feature surveyed. It defines X as representing 2 standard deviations from the mean (or at a 95% confidence interval). For example, if the Survey As-built Guideline requires an accuracy of +/- 10mm, the delivered value will be within +/- 10mm 95% of the time.

The required accuracy is determined by the type and nature of the asset. The tables 7 and 8 detail the required accuracies.

3.1.1 Location Certainty 'Survey Accurate'

All assets are to be surveyed to the accuracies are outlined in table 7 as specified in the IRTSG. The attribute 'Location certainty' is to be set accordingly to 'Survey Accurate'.

Table 7: Accuracies required for survey as-built (Survey Accurate)

Required survey as-built accuracy (±mm)					
	mmN	mmE	Height	Height Type	
Pipe Invert	50	50	10	Invert	
Manhole Lid	100	100	30	Lowest Corner	
Manhole Base	100	100	30	Centre of Chamber Lowest Point	
Lateral Pipe	100	100	N/A	N/A	
All assets (unless specified above)	50	50	30		

Note: these accuracies cannot be reached using GPS devices.



3.1.2 Location Certainty 'Approximate'

In isolated cases it may not be possible to survey an asset to the required accuracy as specified in the IRTSG. These cases can be one of the following:

- Pipes laid without trench (e.g. directional drilling, pipe bursting) if pipe start/end not accessible
- Lined pipes (incl. laterals) without manhole access
- Lining or repair patches where the start and end distance from the upstream manhole is given
- Assets within structures (e.g. pumps inside wet wells)

These assets may be surveyed to the accuracies in table 8 and the attribute 'Location certainty' is to be set to one of the options in section 4.1.5.3 (except 'survey accurate').

If any asset was not surveyed to survey accuracy and location certainty 'approximate' has been used, the delivery team needs to supply justification for not meeting IRTSG requirements. This is to be supplied in the survey report.

Table 8: Accuracies for assets which are not surveyed to survey standard (Approximate)

Location Certainty 'Approximate' (±mm)					
	mmN	mmE	Height	Height Type	
Pipe Invert	1000	1000	150	Invert	
Manhole Lid	1000	1000	150	Lowest Corner	
Manhole Base	1000	1000	150	Centre of Chamber Lowest Point	
Lateral Pipe	1000	1000	N/A	N/A	
All assets (unless specified above)	1000	1000	150		

3.2 Design Change

A design change can be constituted by the following criteria:

- · The asset material differs from the design.
- The asset size differs from design.
- Any other attribute that differs from design including positional information that the Delivery Team surveyor considers a significant change from design.

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4 Deliverables

This section specifies which documents are to be provided and the format for delivery.

To satisfy this document there are four deliverables to the survey as-built:

- SCIRT As-built Template (SAT) (4.1)
- Red Line Marked Up Drawings (4.2)
- Survey As-built Report (4.3)
- Removed/abandoned assets identified on SCIRT GIS (4.4)

4.1 SCIRT As-built Template file (.xlsx) 'SAT'

All required coordinate data, level data and asset attributes (metadata) are to be captured within the latest version of the SCIRT As-built Template (SAT) at the commencement of the survey. A separate SAT for each network (WW, SW, RW) must be used.

The SAT has been separated into two input sheets and two reference sheets (Figure 2).

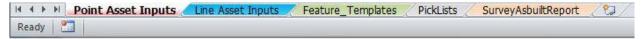


Figure 2: S.A.T. Sheets



4.1.1 Feature Templates Sheet

The SAT tab 'Feature_Templates' contains template rows for all SAG features (Figure 3). The templates are sorted by feature number (D01, D03 etc.) in column A. In order to use the template rows in the point or line asset input sheets, simply copy the respective row with the correct SAG feature number in column A and paste it into the point of line asset input sheet.

All cells highlighted in green contain pick lists which refer to the 'PickLists' tab (section 4.1.2). All other fields are to be completed or, if containing 'LEAVE BLANK', to be left blank or unchanged.

Refer to the individual feature descriptions for fields which may not need to be completed for all assets.

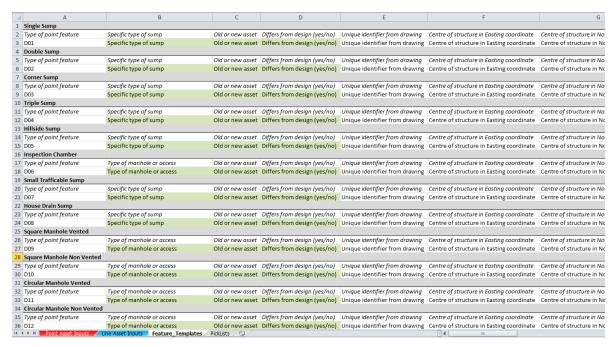


Figure 3: Feature Templates Tab in the SCIRT As-built Template



4.1.2 Pick Lists Sheet

A table of all valid pick list values can be found in the SAT tab 'PickLists'. The table can be filtered by list name, value or description (Figure 4).

The version number of the SAT can be found in cell D2. Please ensure to always use the latest SAT version when starting a new survey.

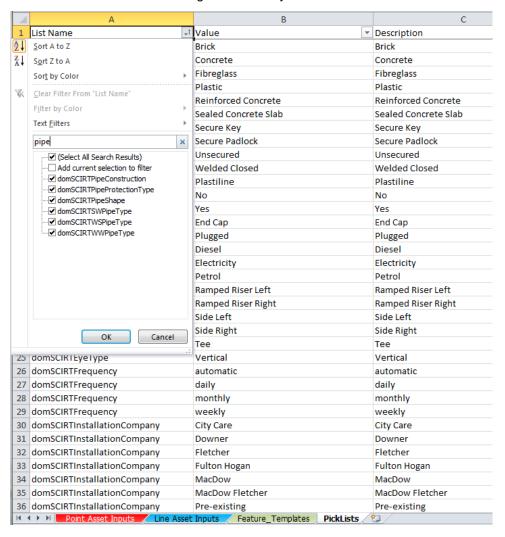


Figure 4: Pick ListsTab in the SCIRT As-built Template



4.1.3 Point Asset Input Sheet



The 'Point Asset Inputs' Sheet holds all point assets, a unique number needs to be specified for every asset. Refer to Appendices D, E, F and G for details of geospatial and attribute requirements. Figure 5 shows the SAT headers for point assets.



Figure 5: Point Asset Input Sheet Headings

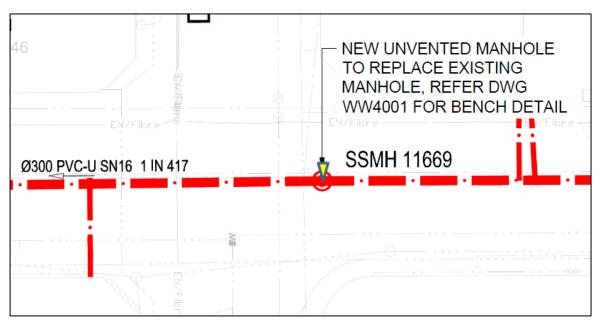


Figure 6: Point Asset Input Example - Manhole with unique name SSMH 11669 (New)



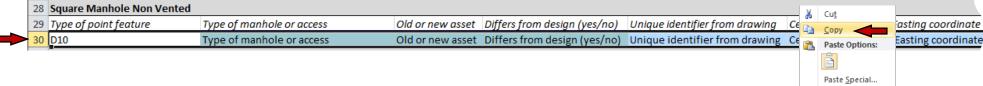
Point Asset - Input Sheet - directions for using feature templates

The following explains the use of the Point Asset Input sheet for the example manhole in figure 6 (see Appendices C-G for further notes and examples).

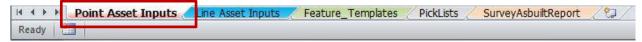
1. Select the 'Feature_Templates' Sheet at the bottom left of the SCIRT As-built Template.



2. Select the correct SAG Feature (D10 for Square Manhole Non Vented) and copy the whole row starting with that number (D10).



3. Select the 'Point Asset Inputs' Sheet at the bottom left of the SCIRT As-built Template.



- 4. **Paste** the feature template into the next empty row (Figure 7).
- 5. Complete all columns according to the SAG Feature table (regardless of design change).



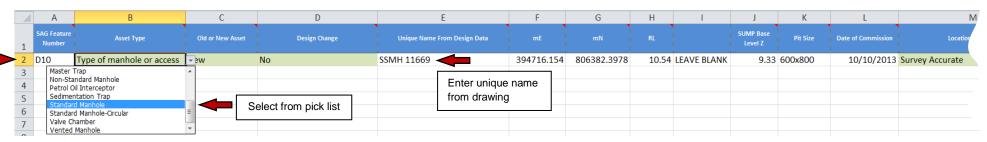


Figure 7: Point Asset Input Example of Square Manhole Non Vented (D10) with the unique name 'SSMH 11669'

- In most cases the asset being surveyed will be a new asset, but there is an option for old assets to be entered if required. (i.e. previously in the CCC database).
- For **old assets** which were not installed by the contractor (col C = Old)but do exist on the ground, enter all attributes which are known. Unknown attributes can be left blank/unchanged.
- 'Design Change' will be either 'Yes' or "No' depending on whether the delivery team surveyor considers the asset has a design change (see section 3.2)
- Select values from pick lists where highlighted in green
- Enter the unique name as shown on the construction drawing.
- Columns containing 'LEAVE BLANK' are to be left blank or must hold the value 'LEAVE BLANK'



4.1.4 Line Asset Input Sheet



A line or outline asset is any asset that is defined by more than one point e.g. a pipe or structure. Similar to the point inputs, a unique number needs to be specified for every asset. For example, if the asset is a lateral, the user will need to specify the same unique number for each point (vertex) surveyed on that lateral. Figure 8 shows the SAT headers for line assets.



Figure 8: Line Asset Input Sheet Headings

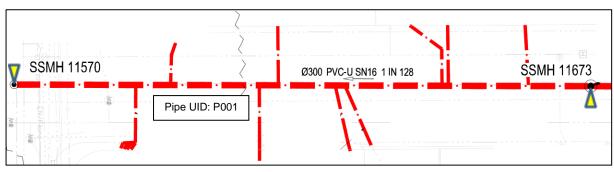


Figure 9: Example of gravity pipe between SSMH 11570 and SSMH 11673 with the unique name 'P001'



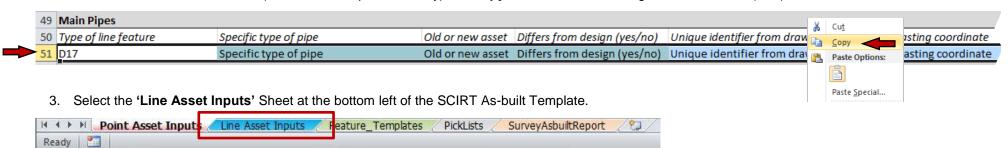
<u>Line Asset – Input Sheet</u> – directions for using feature templates

The following explains the use of the Line Asset Input sheet on the example gravity pipe in figure 9 (see Appendices C-G for further notes and examples).

1. Select the 'Feature_Templates' Sheet at the bottom left of the SCIRT As-built Template.



2. Select the correct SAG Feature (D17 for Main Pipes in Gravity) and copy the whole row starting with that number (D17).



- 4. Paste the feature template into the next empty row (create one row for each line or outline vertex) (Figure 10).
- 5. **Complete all columns** according to the SAG Feature table (regardless of design change) starting with the downstream vertex followed by all line/outline vertices in the correct order to the upstream vertex (please also enter the vertex number into column I).

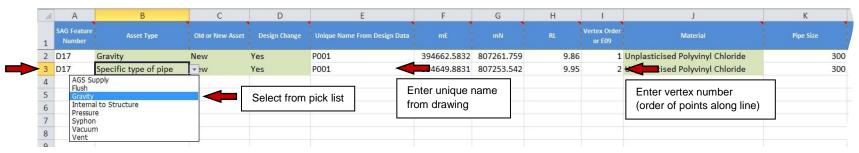


Figure 10: Line Asset Input Example of gravity pipe between SSMH 11570 and SSMH 11673 with the unique name 'P001' (column A-K)



- In most cases the asset being surveyed will be a new asset, but there is an option for old assets to be entered if required. (i.e. previously in the CCC database).
- For **old assets** which were not installed by the contractor (col C = Old)but do exist on the ground, enter all attributes which are known. Unknown attributes can be left blank/unchanged.
- 'Design Change' will be either 'Yes' or "No' depending on whether the delivery team surveyor considers the asset has a design change (see section 3.2)
- Select values from pick lists where highlighted in green
- Enter the unique name as shown on construction drawing.
- Column I is used to indicate the order of the point (vertex) along the pipe. I.e. enter 1 for the first point, 2 for the second point and so on.
- Column I may also be used to indicate the start and end points of an arc (curved line). Enter SA for start of arc and EA for end of arc. For more details see
 feature E09.
- Columns containing 'LEAVE BLANK' are to be left blank or must hold the value 'LEAVE BLANK'
- The 'At Pit' and 'To Pit' fields are required by the system to assign coordinate levels for each invert. If surveying an invert, the pit which you are surveying is the 'At Pit' and the pit at the other end of the pipe is the 'To Pit'. Always start at the downstream pit (for examples see Appendix C). See figure 11 below for example data in the SAT.

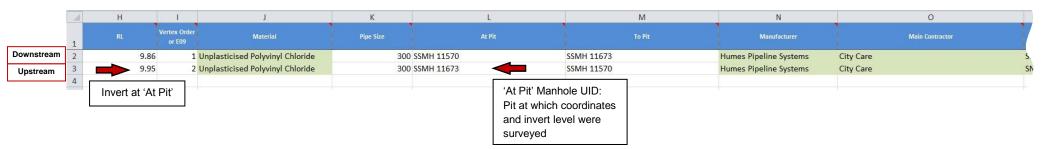


Figure 11: Line Asset Input Example of gravity pipe between SSMH 11570 and SSMH 11673 with the unique name 'P001' (column H-P)



4.1.5 Pick List Clarifications

The following clarifies some values used in the SAT pick lists

4.1.5.1 Old and New Manholes

Old Manhole	Less than 50% repair (maintenance i.e. cracking, minor repairs)
	Use old asset ID (from SCIRT GIS), e.g. WWMH-19912
New Manhole	More than 50 % (Refurbishment i.e. new lid and riser section)
	New asset ID, e.g. WWMH_10569_01

4.1.5.2 Commission/Decommission Date

Commission Date	When the asset was commissioned, when it became operational
Decommission Date	When the asset was either abandoned or removed (Service Status abandoned or removed)

4.1.5.3 Location Certainty

See section 3.1 for further details regarding Location Certainty.

Survey Accurate	Asset surveyed to surveying standards - see 3.1.1	
Below options are exceptions and to be used in rare cases only		
Survey Accurate XY, Approximate Z	Horizontally surveyed to surveying standards, vertically surveyed to approximate height	
Survey Accurate Z, Approximate XY	Vertically surveyed to surveying standards, horizontally surveyed to approximate location	
Approximate XYZ	Asset surveyed to approximate location – see 3.1.2	

4.1.5.4 Service Status

In Service	Asset functional i.e. operational
Abandoned	Decommissioned but still in place i.e. not operational
Removed	Permanently decommissioned and removed
Out of Service	Temporarily out of operation

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4.2 Red-line Marked Up Drawings

Each survey as-built is to be accompanied by a complete set of scanned redline drawings. The purpose of these is to record and detail any changes (from the design) during construction other than slight positional changes.

The Red-line drawings need to contain the full drawing set as latest revisions, including any agreed design changes, with the specific changes (including survey as-built levels) marked up in red pen and annotated with exact details of the change. Such changes might include:

- Additional assets installed, e.g. Manholes, Sumps.
- Changes to material types.
- Changes to pipe sizes, e.g. 150mm changed to 225mm.
- Additional bends in pipe.
- Change in the depth of pipe, e.g. 0.8 m changed to 1.5 m.
- Change in pit sizes, e.g. 1050mm changed to 1200mm.
- Reduction of assets installed, i.e. manhole not installed.
- Any unexpected findings, e.g. redundant 1m brick barrel sewer.
- Change in structure type. e.g. manhole to sump.

Each page shall be signed and dated, even in case of 'no changes'.

4.3 Survey As-built Report

A survey as-built report is required to provide detail for certain key areas detailed below. The purpose of this is to provide the SCIRT data team with the relevant information into how the survey was done. It also provides a measure of quality control ensuring that the key issues have been addressed.

The report is to be delivered as an additional tab within the SAT spreadsheet file and is to consist of the following headings:

- 1. To be titled 'SCIRT Project number and name' survey as-built report.
- 2. List of SCIRT construction drawings (list drawing numbers).
- 3. Survey benchmarks used for control.
- 4. Equipment used (and calibration expiry date).
- 5. Summary of redline drawing changes, (summarise changes from design).
- 6. General comments (include unexpected findings and any other comments worth noting).

4.4 Removed/Abandoned Assets

Previously, abandoned and removed assets were manually located on the SCIRT GIS viewer and entered into the Survey As-Built Template. This process proved to be problematic and time consuming.

A tool has been developed to assist Delivery Teams in the process of picking up abandoned and removed assets (Figure 12).

This tool is to be used by Delivery Teams as part of the Handover process of as built data. As-built data on abandoned assets (i.e. left in place, either as is or grouted or disabled in some way) and removed assets (i.e. entirely removed) will be recorded using this GIS tool, whereas data on new and existing in service assets are recorded in the Survey As-Built Template (SAT).



For detailed instructions on using this GIS tool, refer to NOR0066[1] GIS Abandoned/Removed Assets Tool, available from Project Centre.

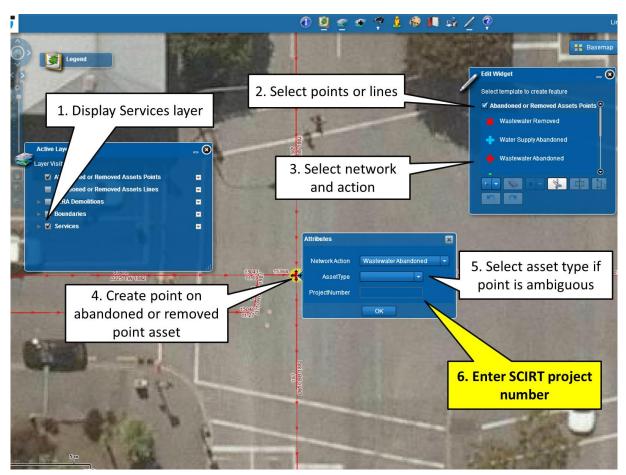


Figure 12: Screenshot from SCIRT GIS Tool 'Abandoned/Removed Assets'

4.5 Asset Naming (Unique Identifiers)

- 1. All assets must be named as per design drawings
- 2. If assets are installed/constructed outside of design drawings, the following convention is to be used to create a unique identifier:

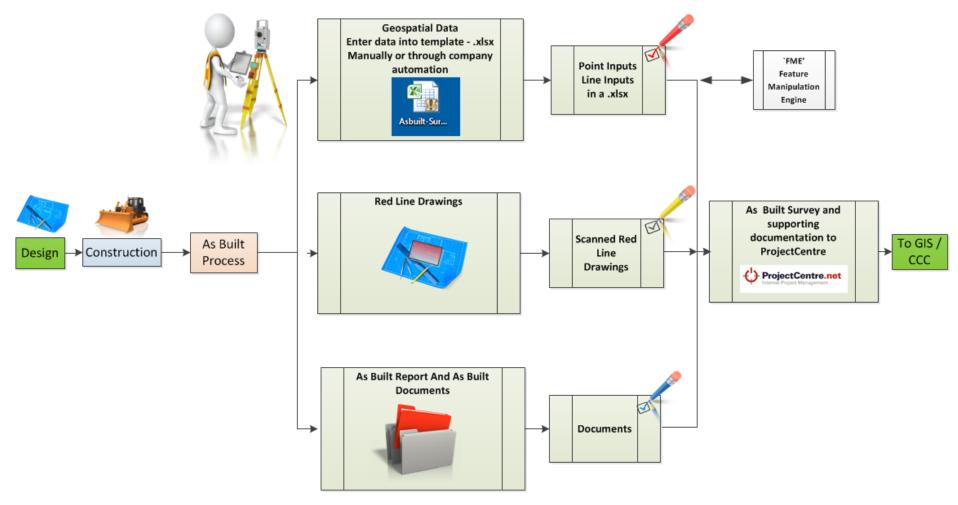
WWMH_10569_01 (Prefix_ Project Number_Unique ID)

- 3. For prefixes please see table 1 to 6 in section 2
 - Please ensure that a unique identifier is used for each asset



Appendix A Work Flow Chart for Survey As-Built





Survey As-Built Flowchart





Appendix B Design Drawing Examples



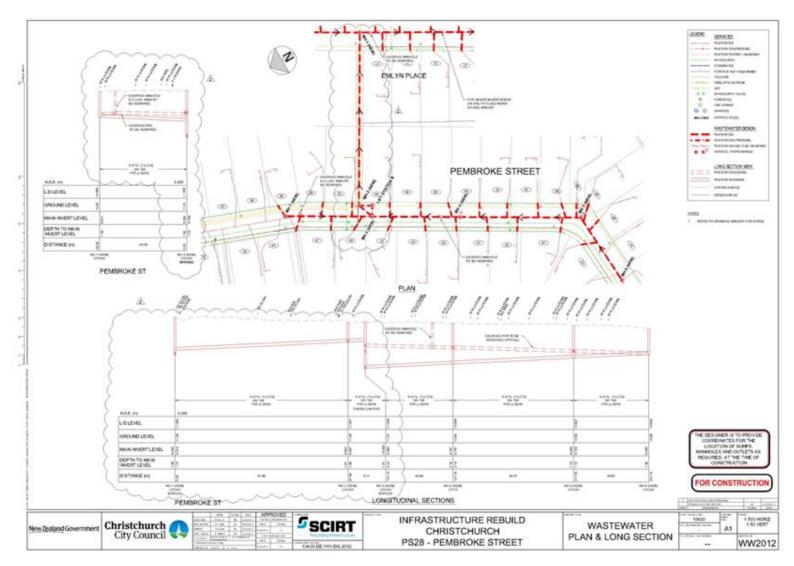


Figure 13: Design Drawing Example (WW gravity)



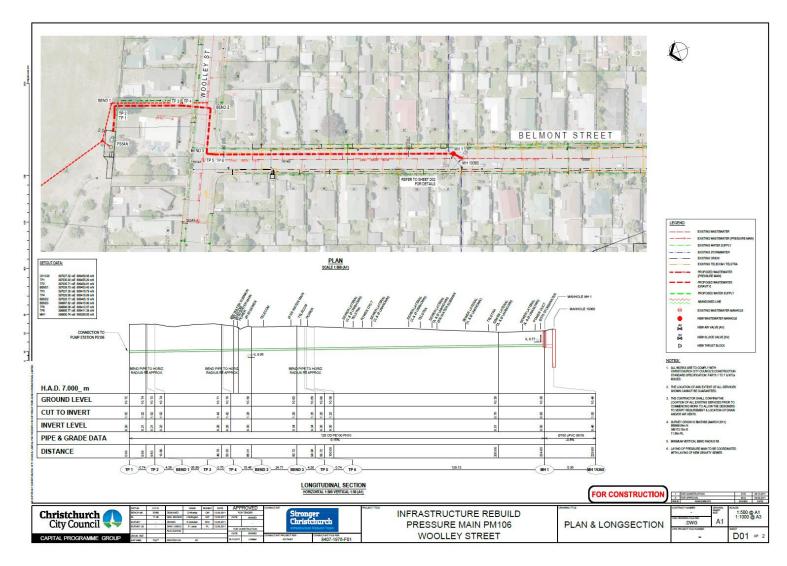


Figure 14: Design Drawing Example (WW pressure main)



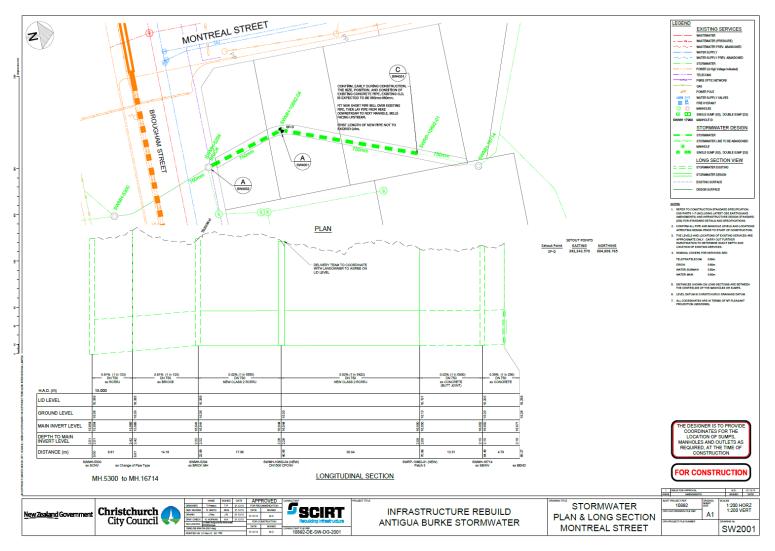


Figure 15: Design Drawing Example (SW gravity)



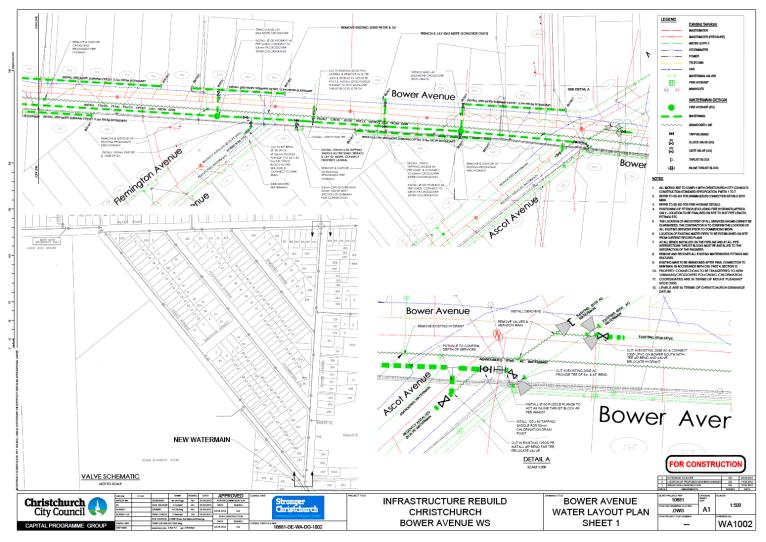


Figure 16: Design Drawing Example (RW)



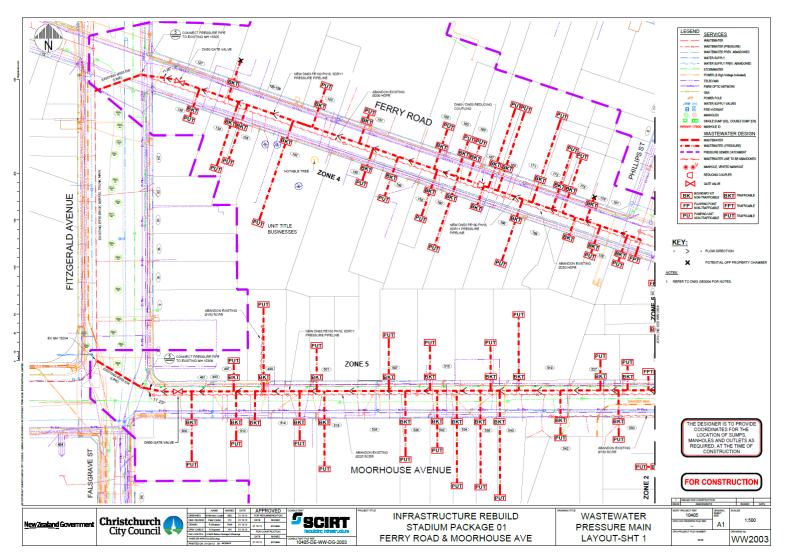


Figure 17: Design Drawing Example (WW Local Pressure Systems)



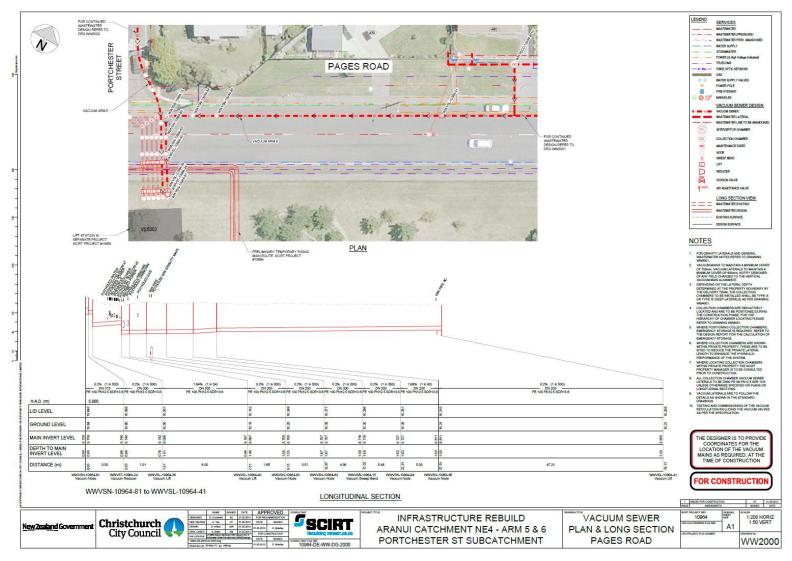


Figure 18: Design Drawing Example (WW Vacuum Systems)



Appendix C Points, Lines and Outlines Examples

C.1	Points Ex	amples	. 32
	C.1.1	D10 Square Manhole Non Vented	
	C.1.2	D02 Double Sump	
	C.1.3	D23 Lateral Junction	
	C.1.4	D24 Inspection Point	
	C.1.5	D12 Circular Manhole Non Vented (valve chamber manhole as part of a pump station)	,
0.2	Lines Exa	mples	. 35
	C.2.1	D17 Gravity Main	
	C.2.2	D19 Gravity Lateral	
	C.2.3	E02 Pressure Main	
	C.2.4	G04 Vacuum Main	
	C.2.5	D21 Pipe Lining (fully lined pipe)	
	C.2.6	D21 Pipe Lining (partial lined pipe)	
	C.2.7	D21 Pipe Lining (several lining patches)	
	C.2.8	D20 Repair/Relay Dig	
2.3	Outlines E	Example	. 44
		D27 Pump Chamber	



C.1 Points Examples



C.1.1 D10 Square Manhole Non Vented

Figure 19 is an example of typical SAT data for SAG feature **D10 Square Manhole Non Vented**. Please note the following:

- Col K: pit size entered as width x length as for square manhole
- Col X is left unchanged as there was no treatment on the new manhole

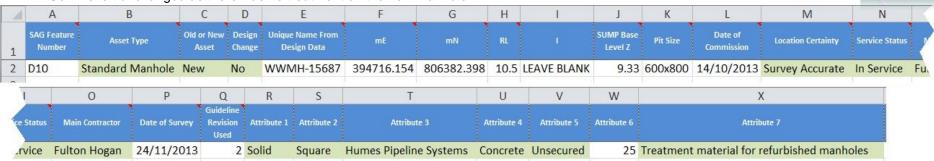


Figure 19: Example - Manhole Square D10 (Point)

C.1.2 D02 Double Sump

Figure 20 is an example of typical SAT data for SAG feature D02 Double Sump.

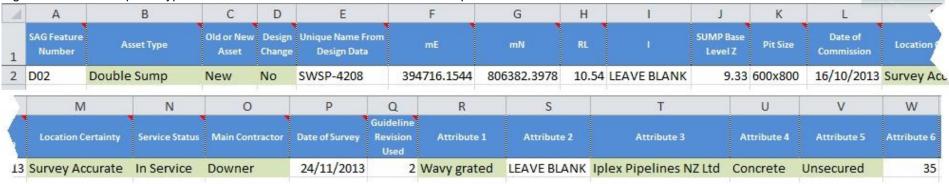
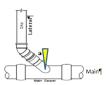


Figure 20: Example – Double Sump D02 (Point)



C.1.3 D23 Lateral Junction

Figure 21 is an example of typical SAT data for SAG feature **D23 Lateral Junction** (i.e. a join between lateral and main pipe).



26	А	В	С	D	E	F	G	Н	J	J	K	L	М	N	0	Р	Q
1	SAG Feature Number	Asset Type	Old or New Asset		Unique Name From Design Data	mE	mN	RL		SUMP Base Level Z	Pit Size	Date of Commission	Location Certainty	Service Status	Main Contractor	Date of Survey	Guideline Revision Used
2	D23	Side Right	New	Yes	WWEY-80678	394714.6064	807647.3024	LEAVE BLANK	LEAVE B	LEAVE BI	LEAVE BLA	26/07/2013	Survey Accurate	In Service	Downer	13/08/2013	2

Figure 21: Example – Lateral Junction D23 (Point)

C.1.4 D24 Inspection Point

Figure 22 is an example of typical SAT data for SAG feature **D24 Inspection Point**. Please note:

- Col H: RL can be left blank/unchanged.
- Col J: can be left blank/unchanged as not needed for inspection points.
- Col W: can be left blank/unchanged as not applicable to inspection points (and circular pits).
- Col X: can be left blank/unchanged as not applicable to inspection points.

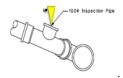




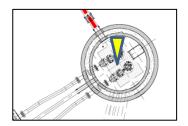
Figure 22: Example – Inspection Point D24 (Point)



C.1.5 D12 Circular Manhole Non Vented (valve chamber manhole as part of a pump station)

Figure 23 is an example of typical SAT data for SAG feature **D12 valve chamber manhole as part of a pump station**. This is to be entered as the applicable manhole (here **Circular Manhole Non Vented D12**). Please note the following:

- Asset Type is set to Valve Chamber (rather than manhole).
- All other attributes are completed as for any other manhole.



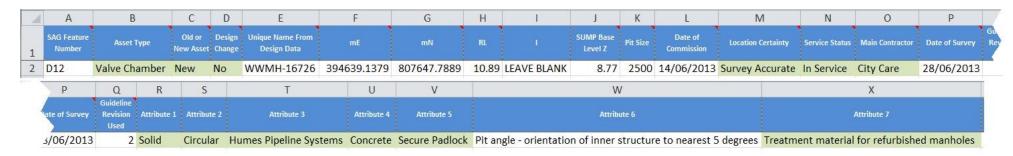


Figure 23: Example - Valve Chamber entered as Circular Manhole Non Vented D12 (Point)



C.2 Lines Examples



C.2.1 D17 Gravity Main

Figure 24 is an example of typical SAT data for SAG feature **D17 Gravity Main** with two vertices (points with XYZ coordinates). Please note:

- Asset Type is Gravity.
- First entry must be the downstream vertex (downstream 'At Pit', here WWMH-16431).
- Second entry is at the upstream vertex (upstream 'At Pit', here WWMH-16432), therefore 'At Pit' and 'To Pit' are swapped.
- Col Y: set to 0 (or left unchanged) as this applies to vacuum pipes only.

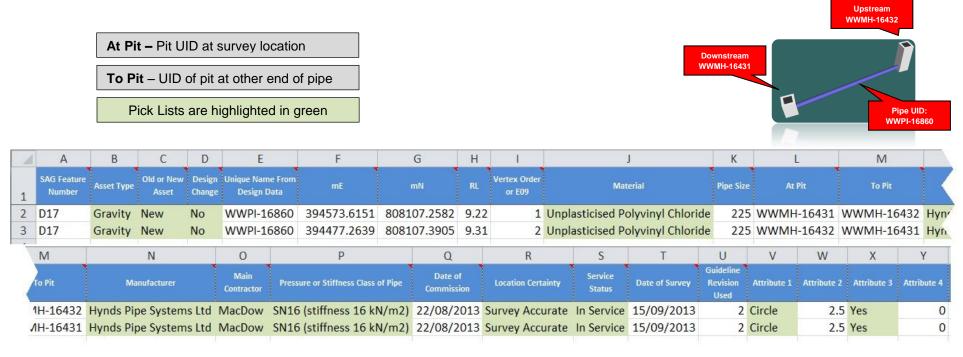


Figure 24: Example - Main Pipe Gravity (Line)

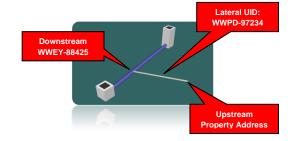


C.2.2 D19 Gravity Lateral

Figure 25 is an example of typical SAT data for SAG feature **D19 Gravity Lateral.** Please note:

- · Asset Type is Gravity.
- As in the above example, vertices are entered in order from downstream to upstream (starting at the Lateral Junction).
- Col I holds the order of the vertices.
- Col Z: set to 0 (or left unchanged) as this applies to vacuum laterals only.

Pick Lists are highlighted in green



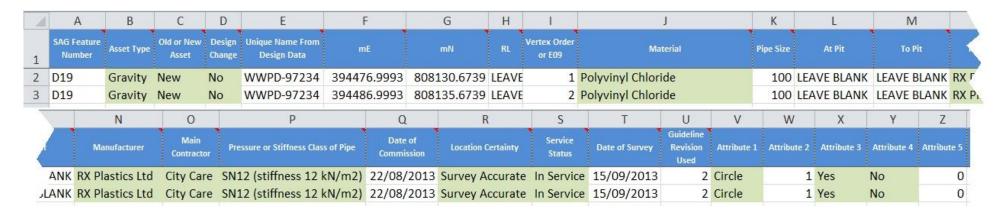


Figure 25: Example –Gravity Lateral (Line)



C.2.3 E02 Pressure Main

Figure 27 is an example of typical SAT data for SAG feature **E02 Pressure Main** with five vertices (Figure 26). Please note:

- The data has to be entered into the SAT starting from the downstream manhole 'MH1', followed by three bends and the upstream flange 'Tee001'.
- Each vertex (point) is represented by a row in the SAT Line Asset Inputs Sheet.
- To avoid misunderstandings, please enter the vertex order in column I (numbers in yellow circles in figure 26).

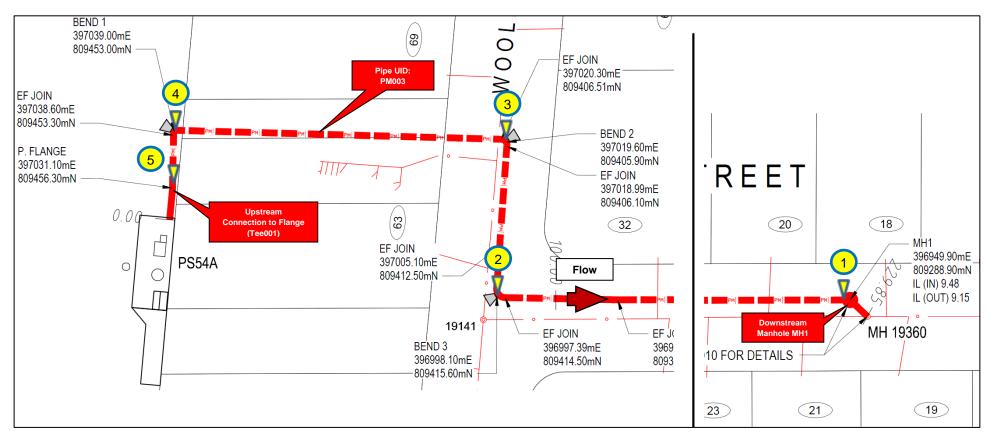


Figure 26: Example of Pressure Main between PS54 Flange 'Tee001' and Manhole 'MH1' with the unique name 'PM003' with 5 vertices



А	В	С	D	E	F		(6	Н	Į		J	K	L	M		N	
SAG Feature Number	Asset Type	Old or New Asset	Design Change	Unique Name From Design Data	ml	Ē	m	N	RL V	ertex Order or E09		Material	Pipe Size	At Pit	To Pit	Manu	facturer	Co
E02	Pressure	New	No	PM003	3969	49.23	809	288.32	9.48	1	Poly	ethelene 100	125	MH1	Tee001	Hynds	Pipe Syst	Flete
E02	Pressure	New	No	PM003	3969	98.55	809	415.62	9.51	2	Poly	ethelene 100	125	MH1	Tee001	Hynds	Pipe Syst	Fleto
E02	Pressure	New	No	PM003	3970	19.54	809	405.62	9.22	3	Poly	ethelene 100	125	MH1	Tee001	Hynds	Pipe Syst	Fle
E02	Pressure	New	No	PM003	3970	39.85	809	453.22	9.73	4	Poly	ethelene 100	125	MH1	Tee001	Hynds	Pipe Syst	Fle
E02	Pressure	New	No	PM003	3970	31.15	809	456.85	8.22	5	Poly	ethelene 100	125	Tee001	MH1	Hynds	Pipe Syst	Flet
N		0		Р		Q			R	S		T	U	V	W	Χ	Υ	
Manufactu	rer		Pressure o	r Stiffness Class	of Pipe			Locatio	n Certainty			Date of Survey	Guideline Revision Used	Attribute 1	Attribute 2	Attribute 3	Attribute 4	
nds Pipe	Syst Flet	cher PI	N12.5 (p	oressure 125	50 kPa)	24/07/	2013	Survey	Accurat	te In Ser	vice	15/09/2013	2	Circle	1.5	Yes	0	
tynds Pipe	Syst Flet	cher PI	N12.5 (p	oressure 125	50 kPa)	24/07/	2013	Survey	Accurat	te In Ser	vice	15/09/2013	2	Circle	1.5	Yes	0	
nds Pipe	Syst Flet	cher Pl	N12.5 (p	oressure 125	50 kPa)	24/07/	2013	Survey	Accurat	e In Ser	vice	15/09/2013	2	Circle	1.5	Yes	0	
ds Pipe	Syst Flet	cher Pl	N12.5 (p	oressure 125	50 kPa)	24/07/	2013	Survey	Accurat	te In Ser	vice	15/09/2013	2	Circle	1.5	Yes	0	
Inds Pipe	Syst Flet	cher PI	N12.5 (p	oressure 125	50 kPa)	24/07/	2013	Survey	Accurat	e In Ser	vice	15/09/2013	2	Circle	1.5	Yes	0	
	SAG Feature Number E02 E02 E02 E02 E02 N Manufactur nds Pipe 'nds Pipe ds Pipe	SAG Feature Number E02 Pressure E02 Pressure E02 Pressure E02 Pressure E02 Pressure Asset Type N Manufacture N Manufacturer Inds Pipe Syst Flet	SAG Feature Number Asset Type Old or New Asset E02 Pressure New N O Manufacturer Contractor Inds Pipe Syst Fletcher Plester Of Syst Fletcher Plester	SAG Feature Number Asset Type Old or New Asset Change E02 Pressure New No N O Main Contractor Inds Pipe Syst Fletcher PN12.5 (pressure New Pressure New Pressure New No N O Main Contractor Inds Pipe Syst Fletcher PN12.5 (pressure New PN12.5	SAG Feature Number Asset Type Old or New Asset Change Prom Design Data E02 Pressure New No PM003 NO PM003 NO PM003 NO P Main Contractor Pressure or Stiffness Class Inds Pipe Syst Fletcher PN12.5 (pressure 125 Inds Pipe Syst Fletcher PN12.5 (pressur	SAG Feature Number Asset Type Old or New Asset Change From Design Data E02 Pressure New No PM003 3969 E02 Pressure New No PM003 3969 E02 Pressure New No PM003 3970 N O PM003 3970 N Pressure or Stiffness Class of Pipe Inds Pipe Syst Fletcher PN12.5 (pressure 1250 kPa) Inds Pipe Syst Fletcher PN12.5 (pressure 1250 kPa)	SAG Feature Number Asset Type Old or New Asset Change From Design Data E02 Pressure New No PM003 396949.23 E02 Pressure New No PM003 396998.55 E02 Pressure New No PM003 397019.54 E02 Pressure New No PM003 397039.85 E02 Pressure New No PM003 397031.15 N O P Q Manufacturer Main Contractor Pressure or Stiffness Class of Pipe Commis Asset Type Old or New From Design Data No PM003 396949.23 PM003 397019.54 PM003 397031.54 PM003 397031.15 N O P Q Manufacturer Contractor PM1003 397031.15 N O P Q Manufacturer Contractor Pressure or Stiffness Class of Pipe Commis Asset Type Old or New From Design Data Contractor PM1003 397019.54 PM003 397031.15 N O P Q Manufacturer Contractor Pressure or Stiffness Class of Pipe Commis Asset Type Old or New From Design Data Contractor PM1003 396949.23 Asset Type New No PM003 397019.54 PM003 397019.54 E02 Pressure New No PM003 397039.85 E02 Pressure New No PM003 397039.85 E02 Pressure New No PM003 397039.85 E03 PM003 397039.85 E04 PM003 397039.85 E05 PM003 397039.85 E06 PM003 397039.85 E07 PM003 397039.85 E08 PM003 397039.85 E09 PM003 SM003 SM003 E09 PM003 SM003 SM003 E09 PM003 SM003 E09 PM00	SAG Feature Number Numbe	SAG Feature Number Asset Type Old or New Asset Design Change Unique Name From Design Data mE mN E02 Pressure New No PM003 396949.23 809288.32 E02 Pressure New No PM003 396998.55 809415.62 E02 Pressure New No PM003 397019.54 809405.62 E02 Pressure New No PM003 397039.85 809453.22 E02 Pressure New No PM003 397031.15 809456.85 N O P Q Main Contractor Pressure or Stiffness Class of Pipe Date of Commission Location Indicator Phone Syst Fletcher PN12.5 (pressure 1250 kPa) 24/07/2013 Survey 104 Pipe Syst Fletcher PN12.5 (pressure 1250 kPa) 24/07/2013 Survey 105 Possible Syst Fletcher PN12.5 (pressure 1250 kPa) 24/07/2013 Survey	N O P Q R	SAG Feature Number Asset Type Old or New Asset Design Change Unique Name From Design Data mE mN RL Vertex Order or E09 E02 Pressure New No PM003 396949.23 809288.32 9.48 1 E02 Pressure New No PM003 396998.55 809415.62 9.51 2 E02 Pressure New No PM003 397019.54 809405.62 9.22 3 E02 Pressure New No PM003 397039.85 809453.22 9.73 4 E02 Pressure New No PM003 397031.15 809456.85 8.22 5 N O P Q R S Manufacturer Main Contractor Pressure or Stiffness Class of Pipe Date of Commission Location Certainty Serv State In Server of Stiffness Class of Pipe PN12.5 (pressure 1250 kPa) 24/07/2013 Survey Accurate In Server of Survey Accurate In Server of Survey Accurate PN12.5 (pressure 1250 kPa) 24/07/2013 S	SAG Feature Number Asset Type No PM003 Asset Type No PM003 Asset Type Asset Type Asset Type No PM003 Asset Type Asset Type Asset Type No PM003 Asset Type Asset Type No PM003 Asset Type Asset Type Asset Type Asset Type Asset Type No PM003 Asset Type Asset A	SAG Feature Number	N O P Q R S T U Main Manufacturer Main Contractor Pressure or Stiffness Class of Pipe Date of Commission Location Certainty Status Date of Survey Status Status Date of Survey Status St	SAG Feature Number	SAG Feature Number Asset Type Old or New Asset Design Opata Image: Manual Design Data mN RL Vertex Order or E09 Material Pipe Size At Pit To Pit E02 Pressure New No PM003 396949.23 809288.32 9.48 1 Polyethelene 100 125 MH1 Tee001 E02 Pressure New No PM003 396998.55 809415.62 9.51 2 Polyethelene 100 125 MH1 Tee001 E02 Pressure New No PM003 397039.85 809453.22 9.73 4 Polyethelene 100 125 MH1 Tee001 E02 Pressure New No PM003 397031.15 809456.85 8.22 5 Polyethelene 100 125 MH1 Tee001 E02 Pressure New No PM003 397031.15 809456.85 8.22 5 Polyethelene 100 125 MH1 Tee001 Main Main Contractor Pressure or Stiffness Class of Pipe	SAG Feature Number	SAG Feature Asset Type Old or New Asset Ohange Data Data

Figure 27: Line Asset Input Example of Pressure Main between PS54 Flange 'Tee001' and Manhole 'MH1' with the unique name 'PM003' with 5 vertices (Line)

Note the following in the above SAT example (Figure 27):

- Col A: Pressure Main is SAG Feature E02
- Col B: Asset Type is Pressure
- Col E: all vertices are tagged with the same asset ID as all belong to one pipe
- Col F-H: coordinates and inverts are ordered from downstream vertex followed by all vertices in the correct order to the upstream vertex
- Col I: holds the vertex number (yellow numbers in figure 26), for arc codes see feature E09
- Col L-M: 'At Pit' is the downstream manhole except for the last vertex where 'At Pit' is the upstream Tee
- Col Y: can be left unchanged (or 0) as it doesn't apply to pressure pipes

At Pit – Pit UID at survey location

To Pit – UID of pit at other end of pipe

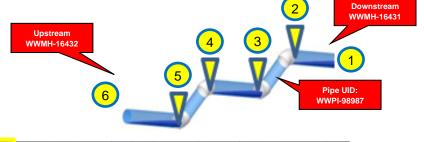
Pick Lists are highlighted in green



C.2.4 G04 Vacuum Main

Figure 28 is an example of typical SAT data for SAG feature **G04 Vacuum Main** with two vacuum lifts. Please note:

- Asset Type is Vacuum.
- There is one SAT row per vertex (per pipe grade change), ordered from downstream to upstream.
- Col I: holds the vertex number (yellow numbers).
- Col Y: contains number of vacuum lifts (2).



1	А	В	С	D	E	F	G	I	+	1	J	K		L	N	Λ	
1	SAG Feature Number	Asset Type	Old or New Asset	Design Change	Unique Name From Design Data	mE	mN	F	RL V	ertex Order or E09	Material	Pipe Size	At	Pit		Pit	Man
2	G04	Vacuum	New	No	WWPI-98987	394576.6151	808107.	2582	9.22	1	Polyethelene 100	150	WWMF	l-16431	WWMH	-16432	Air'
3	G04	Vacuum	New	No	WWPI-98987	394520.2639	808107.	3905	9.18 <mark></mark>	2	Polyethelene 100	150	WWMF	l-16431	WWMH	-16432	Air
4	G04	Vacuum	New	No	WWPI-98987	394522.6549	808107.	5587 8	3.5€	3	Polyethelene 100	150	WWMH	I-16431	WWMH	-16432	Air
5	G04	Vacuum	New	No	WWPI-98987	394497.2657	808107.	7242 8	3.44 <mark>-</mark>	4	Polyethelene 100	150	WWMH	I-16431	WWMH	-16432	Ai
5	G04	Vacuum	New	No	WWPI-98987	394499.2457	808107.	9574 8	3.11	5	Polyethelene 100	150	WWMH	l-16431	WWMH	-16432	Ai.
7	G04	Vacuum	New	No	WWPI-98987	394477.2639	808107.	9475 8	3.03	6	Polyethelene 100	150	WWMH	I-16432	WWMH	-16431	Air\
	M	N	C)	Р		Q	R	R	S	T	U	V	W	X	Y	
1	To Pit	Manufacture	r Main Co	ntractor	Pressure or Stiffnes	s Class of Pipe	Date of Commission	Location (Certainty	Service S		Guideline Revision Used	Attribute 1	Attribute 2	Attribute	3 Attribute	4
	W. Control of the Con		- Commence									_				4	_

To Pit	Manufacturer	Main Contractor	Pressure or Stiffness Class of Pipe	Date of Commission	Location Certainty	Service Status	Date of Survey	Revision Used	Attribute 1	Attribute 2	Attribute 3	Attribute 4
H-16432	AirVac	Fulton Hogan	PN12 (pressure 1200 kPa)	18/11/2013	Survey Accurate	In Service	15/12/2013	2	Circle	1.5	Yes	2
.vH-16432	AirVac	Fulton Hogan	PN12 (pressure 1200 kPa)	18/11/2013	Survey Accurate	In Service	15/12/2013	2	Circle	1.5	Yes	2
√MH-16432	AirVac	Fulton Hogan	PN12 (pressure 1200 kPa)	18/11/2013	Survey Accurate	In Service	15/12/2013	2	Circle	1.5	Yes	2
1H-16432	AirVac	Fulton Hogan	PN12 (pressure 1200 kPa)	18/11/2013	Survey Accurate	In Service	15/12/2013	2	Circle	1.5	Yes	2
rH-16432	AirVac	Fulton Hogan	PN12 (pressure 1200 kPa)	18/11/2013	Survey Accurate	In Service	15/12/2013	2	Circle	1.5	Yes	2
MH-16431	AirVac	Fulton Hogan	PN12 (pressure 1200 kPa)	18/11/2013	Survey Accurate	In Service	15/12/2013	2	Circle	1.5	Yes	2

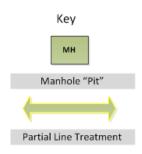
Figure 28: Line Asset Input Example of Vacuum Main MH1' with the unique name 'WWPI-98987' with 2 vacuum lifts (Line)



C.2.5 D21 Pipe Lining

Figure 29 is an example of typical SAT data for SAG feature **D21 Pipe Lining** (in this case a **fully lined pipe**). Please note:

- Pipe lining to be entered into SAG feature D21.
- Location given by one of the following:
 - Start and end distance from upstream manhole to be entered into col V & W (use full pipe length) or
 - Start and end coordinates may be entered into col F & G (if used, two SAT rows are required)
- Col B: select 'Full Lining'.
- Col J: select material or type of lining.
- Col K: diameter of 'host pipe'.
- When recording lining of laterals, enter the property address into col L (At Pit) and provide start/end coordinates where possible.



Start and End X and Y or start distance and end distance from Upstream Manhole

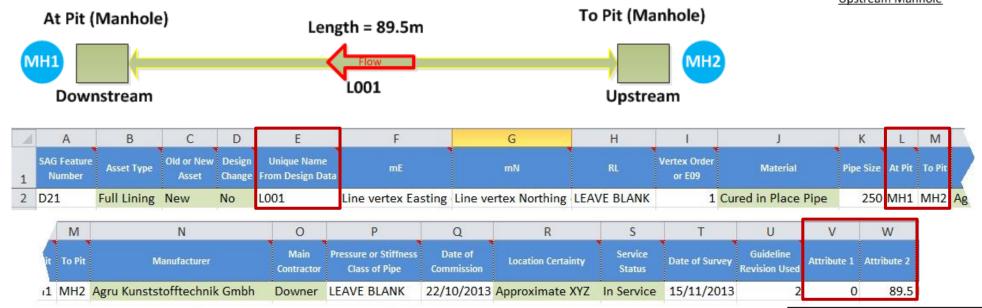


Figure 29: Full length pipe lining

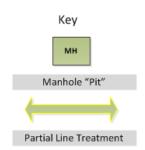
Lining from 0 to 89.5 m (full length)



C.2.6 D21 Pipe Lining

Figure 30 is an example of typical SAT data for SAG feature **D21 Pipe Lining** (in this case a **partially lined pipe**). Please note:

- Pipe lining to be entered into SAG feature D21.
- Location given by one of the following:
 - Start and end distance from upstream manhole to be entered into col V & W or
 - Start and end coordinates may be entered into col F & G (if used, two SAT rows are required)
- Col B: select 'Lining Patch'.
- Col J: select material or type of lining.
- Col K: diameter of 'host pipe'.
- When recording lining of laterals, enter the property address into col L (At Pit) and provide start/end coordinates where possible.



Start and End X and Y or start distance and end distance from Upstream Manhole

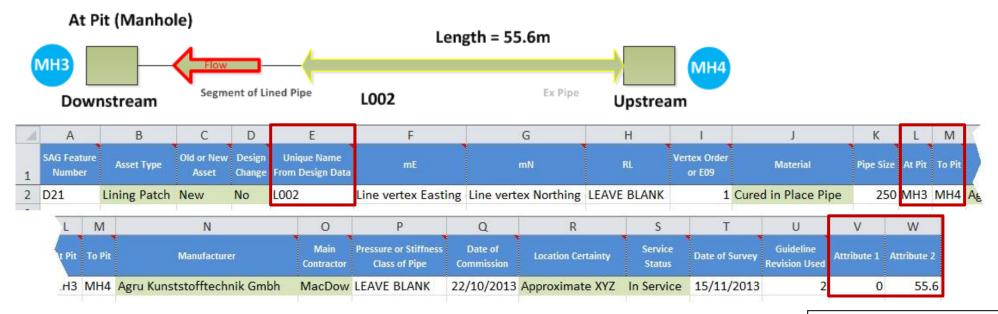


Figure 30: Partial length pipe lining

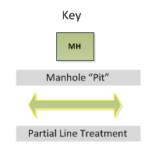
Lining from 0 to 55.6 m (partial)



C.2.7 D21 Pipe Lining

Figure 31 is an example of typical SAT data for SAG feature **D21 Pipe Lining** (in this case **several lining patches**). Please note:

- Pipe lining to be entered into SAG feature D21.
- Each lining patch has its own UID (here L003 and L004).
- Location given by one of the following:
 - Start and end distance from upstream manhole to be entered into col V & W or
 - Start and end coordinates may be entered into col F & G (if used, two SAT rows per patch are required)
- Col B: select 'Lining Patch'.
- Col J: select material or type of lining.
- Col K: diameter of 'host pipe'.



or start distance and end distance from Unstream Manhole

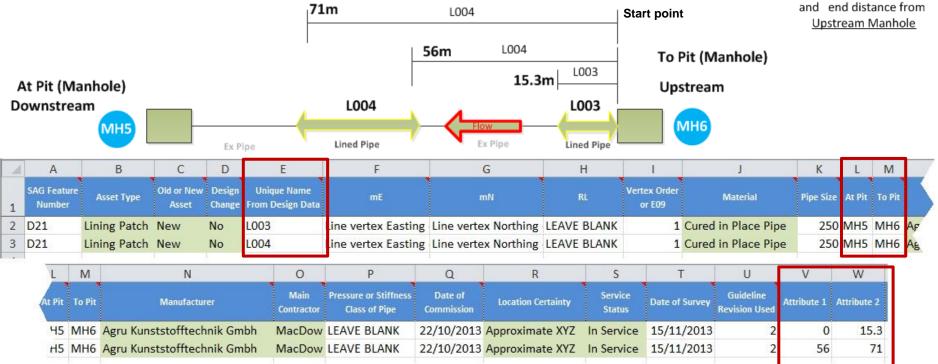


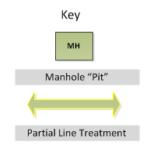
Figure 31: Partial pipe lining – several patches



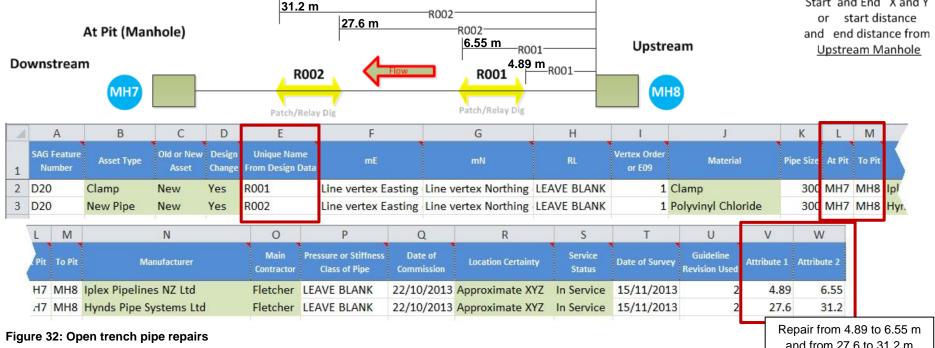
D20 Repair/Relay Dig

Figure 32 is an example of typical SAT data for SAG feature **D20 Repair/Relay Dig.** Please note:

- Open trench repairs (relay dig) to be entered into SAG feature D20.
- Location given by one of the following:
 - Start and end distance from upstream manhole to be entered into col V & W or
 - Start and end coordinates may be entered into col F & G (if used, two SAT rows per repair are required)
- Col B: select type of repair.
- Col J: select material or type of repaired section.
- Col K: diameter of 'host pipe'.
- When recording repairs on laterals, enter the property address into col L (At Pit) and provide start/end coordinates where possible.



Start and End X and Y or start distance



and from 27.6 to 31.2 m



C.3 Outlines Example

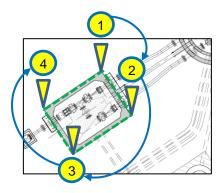


C.3.1 D27 Pump Chamber

Figure 33 is an example of typical SAT data for SAG feature **D27 Pump Chamber.** Please note:

- Asset Type is Pump Chamber.
- There is one SAT row for each vertex along the outline of the structure, ordered along the outline.
- Col I: holds the vertex number (yellow number).

Pick Lists are highlighted in green



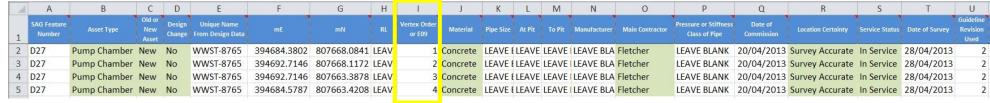


Figure 33: Line Asset Input Example of Pump Station Structure Outline 'Pump Chamber' (Outline)



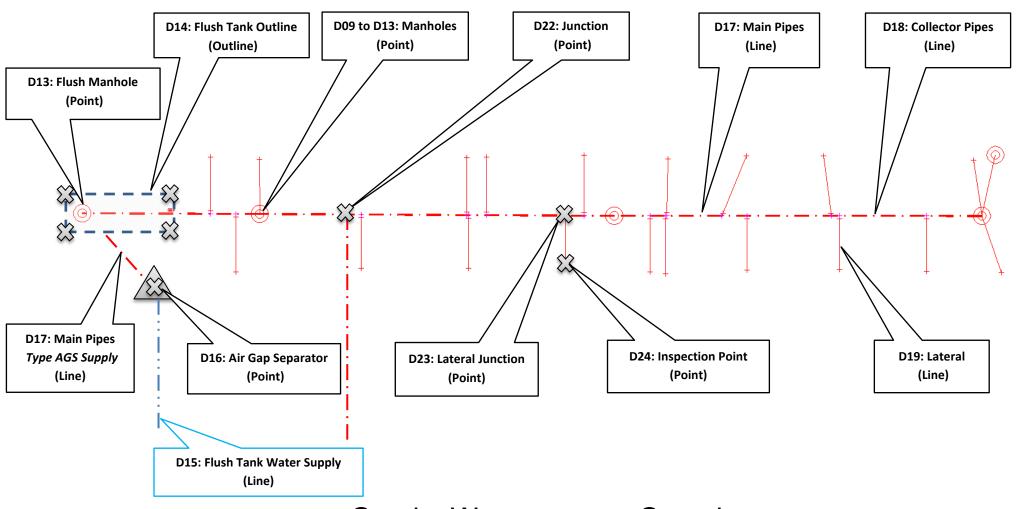
Appendix D As-built Requirements for Gravity Wastewater and Stormwater Systems

D01: Single Sump	50
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D14: Flush Tank	63
D15: Flush Tank Water Supply	64
D16: Air Gap Separator	65
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D18: Collector Pipes	67

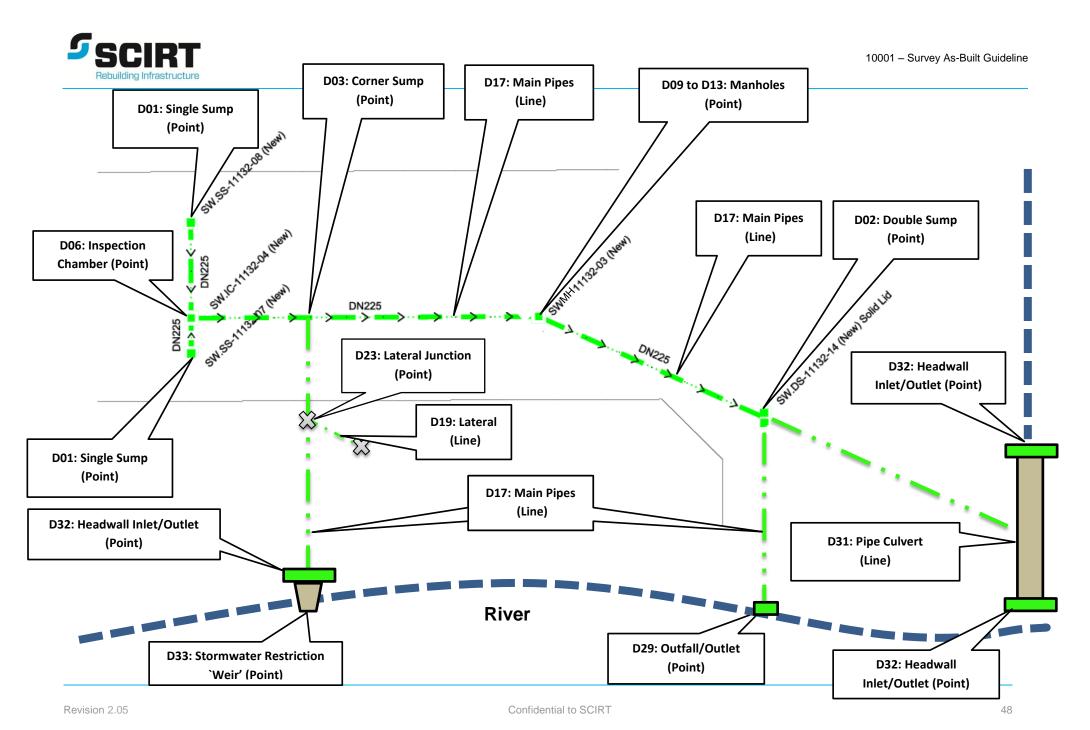


D19: Lateral	68
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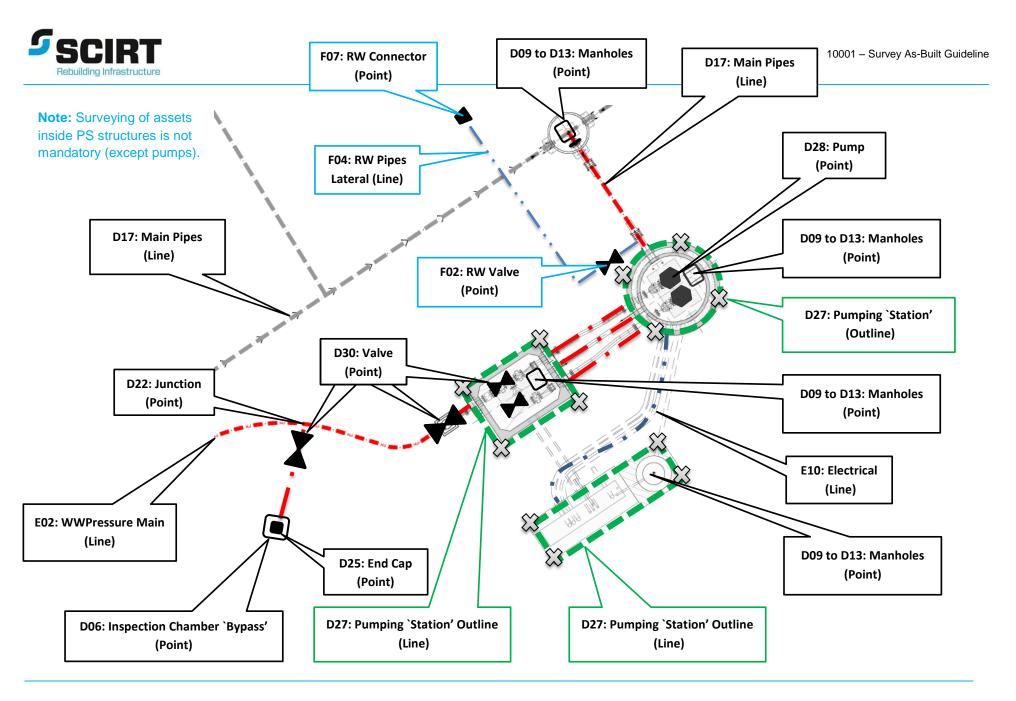




Gravity Wastewater – Overview



Stormwater - Overview





As-Built requirements (SW) **Single Sump (Point)** Name **Centre of Structure** Point Type **D01** "Point Asset Inputs" Sump RL XY SAT SAG Description Valid Values Column Type of point feature D01 В Select from pick list: domSCIRTSWInletType Specific type of sump С Select from pick list: domSCIRTOIdOrNewAsset Old or new asset Differs from design (yes/no) Select from pick list: domSCIRTDiffersFromDesign Sump Unique identifier from drawing data - text Centre of structure in Easting coordinate data - decimal number Centre of structure in Northing coordinate data - decimal number RL on lowest corner of lid data - decimal number RL at base of pit (lowest point) data - decimal number SINGLE SUMP D01: Single Width and length of pit (e.g. 600x800) or diameter of pit data - number Date of commission, Decommission date data - date (dd/mm/yyyy) Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty **Lowest Corner Lid Z** Service status - phase of operation Select from pick list: domSCIRTServiceStatus Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany Date of 'survey-start' data - date (dd/mm/yyyy) Guideline revision used for survey data - decimal number Select from pick list: domSCIRTLidStyle Style of sump lid Manufacturer of asset Select from pick list: domSCIRTManufacturer Select from pick list: domSCIRTAccessConstruction Construction Material of Sump Select from pick list: domSCIRTAccessSecurity Type of security on sump access Pit angle - orientation of inner structure to nearest 5 degrees data - number (rectangular pits only) Additional Information *All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT See Appendix C.1.2 for an SAT example.



As-Built requirements (SW)

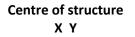
Name	Double Sump (Point)	•
Point Type	D02 "Point Asset Inputs"	

D02: Double Sump

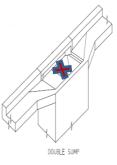
SAT	SAG Description	Valid Values
Column		
Α	Type of point feature	D02
В	Specific type of sump	Select from pick list: domSCIRTSWInletType
С	Old or new asset	Select from pick list: domSCIRTOldOrNewAsset
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign
E	Unique identifier from drawing	data - text
F	Centre of structure in Easting coordinate	data - decimal number
G	Centre of structure in Northing coordinate	data - decimal number
Н	RL on lowest corner of lid	data - decimal number
J	RL at base of pit (lowest point)	data - decimal number
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)
M	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)
Q	Guideline revision used for survey	data - decimal number
R	Style of sump lid	Select from pick list: domSCIRTLidStyle
Т	Manufacturer of asset	Select from pick list: domSCIRTManufacturer
U	Construction Material of Sump	Select from pick list: domSCIRTAccessConstruction
V	Type of security on sump access	Select from pick list: domSCIRTAccessSecurity
W	Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only)	data - number

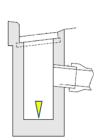
Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT See Appendix C.1.2 for an SAT example.



Sump RL





Lowest Corner Lid Z





As-Built requirements (SW)

Name	Corner Sump (Point)
Point Type	D03 "Point Asset Inputs"

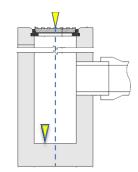
D03: Corner Sump

SAT Column	SAG Description	Valid Values
Α	Type of point feature	D03
В	Specific type of sump	Select from pick list: domSCIRTSWInletType
С	Old or new asset	Select from pick list: domSCIRTOldOrNewAsset
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign
E	Unique identifier from drawing	data - text
F	Centre of structure in Easting coordinate	data - decimal number
G	Centre of structure in Northing coordinate	data - decimal number
Н	RL on lowest corner of lid	data - decimal number
J	RL at base of pit (lowest point)	data - decimal number
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)
M	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)
Q	Guideline revision used for survey	data - decimal number
R	Style of sump lid	Select from pick list: domSCIRTLidStyle
Т	Manufacturer of asset	Select from pick list: domSCIRTManufacturer
U	Construction Material of Sump	Select from pick list: domSCIRTAccessConstruction
V	Type of security on sump access	Select from pick list: domSCIRTAccessSecurity
W	Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only)	data - number

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT See Appendix C.1.2 for an SAT example.

Centre of structure X Y



Sump RL Z

Lowest Corner Lid Z





D04: Triple Sump

As-Built requirements (SW)

Name	Triple Sump (Point)
Point Type	D04 "Point Asset Inputs"

SAT Column	SAG Description	Valid Values		
Α	Type of point feature	D04		
В	Specific type of sump	Select from pick list: domSCIRTSWInletType		
С	Old or new asset	Select from pick list: domSCIRTOldOrNewAsset		
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign		
E	Unique identifier from drawing	data - text		
F	Centre of structure in Easting coordinate	data - decimal number		
G	Centre of structure in Northing coordinate	data - decimal number		
Н	RL on lowest corner of lid	data - decimal number		
J	RL at base of pit (lowest point)	data - decimal number		
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number		
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)		
M	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty		
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus		
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany		
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)		
Q	Guideline revision used for survey	data - decimal number		
R	Style of sump lid	Select from pick list: domSCIRTLidStyle		
Τ	Manufacturer of asset	Select from pick list: domSCIRTManufacturer		
U	Construction Material of Sump	Select from pick list: domSCIRTAccessConstruction		
V	Type of security on sump access	Select from pick list: domSCIRTAccessSecurity		
W	Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only)	data - number		

Centre of structure X Y



Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT See Appendix C.1.2 for an SAT example.



SAT Column A Type of point feature B Specific type of sump Select from pick list: domSCIRTSWInletType C Old or new asset D Differs from design (yes/no) E Unique identifier from drawing G Centre of structure in Basting coordinate H RL on lowest corner of lid J RL at base of pit (lowest point) K Width and length of pit (e.g. 600x800) or diameter of pit L Date of commission, Decommission date L Cation certainty - accuracy of data N Service status - phase of operation Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTLocationCertainty Select from pick list: domSCIRTInstallationCompany data - decimal number Action Certainty - accuracy of data Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCompany data - decimal number Select from pick list: domSCIRTLocationCo		Name		Hillside Sump (Point)	•		
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SAT Column A Type of point feature B Specific type of sump C Old or new asset D Differs from design (yes/no) E Unique identifier from drawing G Centre of structure in Basting coordinate H RL on lowest corner of lid J RL at base of pit (lowest point) K Width and length of pit (e.g. 600x800) or diameter of pit L Date of commission, Decommission date M Location certainty - accuracy of data N Service status - phase of operation O Name of main contractor whom installed asset O Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Q Guddeline revision used for survey Ata - decimal number Ata - decimal number Ata - data (dd/mm/yyyy) Ata - data - data - data (dd/mm/yyyy) Ata - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTManufacturer							
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E Unique identifier from drawing data - text F Centre of structure in Easting coordinate data - decimal number G Centre of structure in Northing coordinate data - decimal number H RL on lowest corner of lid data - decimal number J RL at base of pit (lowest point) data - decimal number K Width and length of pit (e.g. 600x800) or diameter of pit data - number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction		С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset		
H RL on lowest corner of lid data - decimal number J RL at base of pit (lowest point) data - decimal number K Width and length of pit (e.g. 600x800) or diameter of pit data - number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction		D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign		
H RL on lowest corner of lid data - decimal number J RL at base of pit (lowest point) data - decimal number K Width and length of pit (e.g. 600x800) or diameter of pit data - number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	鱼	E	Unique identifier from drawir	g	data - text		
H RL on lowest corner of lid data - decimal number J RL at base of pit (lowest point) data - decimal number K Width and length of pit (e.g. 600x800) or diameter of pit data - number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	\mathbf{E}	F	Centre of structure in Eastin	g coordinate	data - decimal number		
H RL on lowest corner of lid data - decimal number J RL at base of pit (lowest point) data - decimal number K Width and length of pit (e.g. 600x800) or diameter of pit data - number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	5 [G	Centre of structure in Northi	ng coordinate	data - decimal number	PLAN	
K Width and length of pit (e.g. 600x800) or diameter of pit L Date of commission, Decommission date M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation O Name of main contractor whom installed asset P Date of 'survey-start' Q Guideline revision used for survey R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset U Construction Material of Sump Select from pick list: domSCIRTManufacturer Select from pick list: domSCIRTManufacturer Select from pick list: domSCIRTManufacturer Select from pick list: domSCIRTAccessConstruction	ဟ 🛚	Н	RL on lowest corner of lid		data - decimal number		
P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	a)	J	RL at base of pit (lowest point	nt)	data - decimal number		
P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	ŏΓ	K	Width and length of pit (e.g.	600x800) or diameter of pit	data - number		
P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	·~	L	Date of commission, Decom	mission date	data - date (dd/mm/yyyy)		
P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Style of sump lid Select from pick list: domSCIRTLidStyle T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	≝┌	М	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty		1
Composition	= □	N	Service status - phase of op	eration	Select from pick list: domSCIRTServiceStatus		
T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction		0	Name of main contractor wh	om installed asset	Select from pick list: domSCIRTInstallationCompany		
T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	က်	Р	Date of 'survey-start'		data - date (dd/mm/yyyy)		V
T Manufacturer of asset Select from pick list: domSCIRTManufacturer U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	ö	Q	Guideline revision used for s	urvey	data - decimal number		V
U Construction Material of Sump Select from pick list: domSCIRTAccessConstruction	∩ r	R	Style of sump lid		Select from pick list: domSCIRTLidStyle		
		Т	Manufacturer of asset		Select from pick list: domSCIRTManufacturer		L
		U	Construction Material of Sur	np	Select from pick list: domSCIRTAccessConstruction		
V Type of security on sump access Select from pick list: domSCIRTAccessSecurity Sump RL		V	Type of security on sump ac	cess	Select from pick list: domSCIRTAccessSecurity	Sui	mn RI
W Pit angle - orientation of inner structure to nearest 5 degrees data - number (rectangular pits only)		W		nner structure to nearest 5 degrees	data - number		Z
				6. W. L. L. W. L.	N N S N S S S S		
*Additional Information *All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT			er columns must be I endix C.1.2 for an SAT e		E "LEAVE BLANK" as default in SAT		



Nan	е	Inspection Chamber (F	Point)	_
Poir	t Type	D06 "Point Asset Inputs"	•	Centre of structure
	• •			ΧY
SAT Colu	SAG Description		Valid Values	
Α	Type of point feature		D06	
В	Type of manhole or acc	cess	Select from pick list: domSCIRTXXAccessType	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
5 D	Differs from design (yes	s/no)	Select from pick list: domSCIRTDiffersFromDesign	
ž E	Unique identifier from d	Irawing	data - text	
F	Centre of structure in E	asting coordinate	data - decimal number	
D E F G H	Centre of structure in N	lorthing coordinate	data - decimal number	Flow
Н	RL on lowest corner of	lid	data - decimal number) Flow Flow
J	RL at manhole base (lo	owest point)	data - decimal number	7-1-1-1
L/	Width and length of pit	(e.g. 600x800) or diameter of pit	data - number	! V
5 -	Date of commission, De	ecommission date	data - date (dd/mm/yyyy)	
L M N O P Q R	Location certainty - acc	curacy of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase	of operation	Select from pick list: domSCIRTServiceStatus	
0	Name of main contract	or whom installed asset	Select from pick list: domSCIRTInstallationCompany	_
P	Date of 'survey-start'		data - date (dd/mm/yyyy)	V
Q	Guideline revision used	for survey	data - decimal number	
R	Style of access lid		Select from pick list: domSCIRTLidStyle	
. S	Shape of access lid		Select from pick list: domSCIRTLidType	
5 T	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
5 T U	Construction Material		Select from pick list: domSCIRTAccessConstruction	
V	Type of security on acc	ess	Select from pick list: domSCIRTAccessSecurity	
W	(rectangular pits only)	n of inner structure to nearest 5 degrees	data - number	
Х	Treatment material for	refurbished manholes	Select from pick list: domSCIRTAccessTreatmentType	
Add	itional Information			Lowest Corner Lid Z
*AI	other columns must l	be left "blank" or hold the value	"LEAVE BLANK" as default in SAT	
Col	W: leave blank/uncha	anged for circular chambers		
	X: leave blank/uncha			



Name Point Ty		Small Trafficable Sum	As-Built requirements (SW)		
Point Ty		· ·	p (Pollit)		
	oe	D07 "Point Asset Inputs"		Lowest Corner	Cambua of sturreture
					Centre of structure
				Lid Z	ХҮ
SAT Column	SAG Description		Valid Values		<u>-</u>
A	Type of point feature		D07		\ <u>\</u>
B C D	Specific type of sump		Select from pick list: domSCIRTSWInletType		V
E C	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset		A
5 D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	· · · · · · · · · · · · · · · · · · ·	
り E	Unique identifier from drawing	1	data - text		
F	Centre of structure in Easting	coordinate	data - decimal number	A A A A A	
9 G	Centre of structure in Northing coordinate		data - decimal number		
₽	RL on lowest corner of lid		data - decimal number		V
<i>i</i> g □	RL at base of pit (lowest point	:)	data - decimal number		¥
K	Width and length of pit (e.g. 600x800) or diameter of pit		data - number		
¥	Date of commission, Decommission date		data - date (dd/mm/yyyy)		
Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty		
= N	Service status - phase of oper		Select from pick list: domSCIRTServiceStatus	PLAN	CROSS SECTION
- 0	Name of main contractor who		Select from pick list: domSCIRTInstallationCompany		
<u>a</u> <u>b</u>	Date of 'survey-start'		data - date (dd/mm/yyyy)		Sump RL
B 0	Guideline revision used for su	rvey	data - decimal number		Julip KL
<i>์</i> 🕟	Style of sump lid	•	Select from pick list: domSCIRTLidStyle		Z
T	Manufacturer of asset		Select from pick list: domSCIRTManufacturer		
^ U	Construction Material of Sump	0	Select from pick list: domSCIRTAccessConstruction		
D07	Type of security on sump according		Select from pick list: domSCIRTAccessSecurity		
W		ner structure to nearest 5 degrees	data - number		



Name	House Drain Sump (Po	oint)		
Point Ty	pe D08 "Point Asset Inputs"	•		
•	•		Lowest Corner	Centre of structur
			Lid Z	ХҮ
SAT Column	SAG Description	Valid Values		-
Α	Type of point feature	D08		\/
В	Specific type of sump	Select from pick list: domSCIRTSWInletType		٧
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset		
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign		
Е	Unique identifier from drawing	data - text	1	
F	Centre of structure in Easting coordinate	data - decimal number		<u></u>
D E F G	Centre of structure in Northing coordinate	data - decimal number		
H J K	RL on lowest corner of lid	data - decimal number		V
J	RL at base of pit (lowest point)	data - decimal number		V
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number	7	
u –	Date of commission, Decommission date	data - date (dd/mm/yyyy)		
M N O P	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty		
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	PLAN	CROSS SECTION
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	7	
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)		Sump RL
Q	Guideline revision used for survey	data - decimal number		3
R	Style of sump lid	Select from pick list: domSCIRTLidStyle		Z
T	Manufacturer of asset	Select from pick list: domSCIRTManufacturer		
\ IT	Construction Material of Sump	Select from pick list: domSCIRTAccessConstruction		
U				
R T U V	Type of security on sump access	Select from pick list: domSCIRTAccessSecurity		



	Square Manhole V	ented (Point)	
Point Typ	D09 "Point Asset Inputs"		Lowest Corner
			Lid Z
SAT Column	SAG Description	Valid Values	
A	Type of point feature	D09	
В	Type of manhole or access	Select from pick list: domSCIRTXXAccessType	
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	\ <u></u> ; /
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
Е	Unique identifier from drawing	data - text	
F	Centre of structure in Easting coordinate	data - decimal number	(()
G	Centre of structure in Northing coordinate	data - decimal number	
Н	RL on lowest corner of lid	data - decimal number	
J	RL at manhole base (lowest point)	data - decimal number	/' \
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number	<u> </u>
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)	Centi
M	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	Struc
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	X
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	^
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)	
Q	Guideline revision used for survey	data - decimal number	
R	Style of access lid	Select from pick list: domSCIRTLidStyle	
S	Shape of access lid	Select from pick list: domSCIRTLidType	
Т	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
U	Construction Material	Select from pick list: domSCIRTAccessConstruction	
V	Type of security on access	Select from pick list: domSCIRTAccessSecurity	Y
W	Pit angle - orientation of inner structure to nearest 5 de (rectangular pits only)		
Χ	Treatment material for refurbished manholes	Select from pick list: domSCIRTAccessTreatmentType	Manhole Base RL



Point T	ype D10 "Point Asset I	nputs"	
			Lowest Corner
SAT Column	SAG Description	Valid Values	Lid Z
Α	Type of point feature	D10	
В	Type of manhole or access	Select from pick list: domSCIRTXXAccessType	
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
Е	Unique identifier from drawing	data - text	
F	Centre of structure in Easting coordinate	data - decimal number	(
G	Centre of structure in Northing coordinate	data - decimal number	
Н	RL on lowest corner of lid	data - decimal number	
J	RL at manhole base (lowest point)	data - decimal number	
K	Width and length of pit (e.g. 600x800) or diameter of	pit data - number	
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
М	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	Cent
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	stru
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)	∀ x
Q	Guideline revision used for survey	data - decimal number	
R	Style of access lid	Select from pick list: domSCIRTLidStyle	<u> </u>
S	Shape of access lid	Select from pick list: domSCIRTLidType	
Т	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
U	Construction Material	Select from pick list: domSCIRTAccessConstruction	
V	Type of security on access	Select from pick list: domSCIRTAccessSecurity	
W	Pit angle - orientation of inner structure to neare (rectangular pits only)		
Х	Treatment material for refurbished manholes	Select from pick list: domSCIRTAccessTreatmentType	
			Manhole Base RL Z
	onal Information		2
*All ot	her columns must be left "blank" or hol	d the value "LEAVE BLANK" as default in SAT	
Col X:	leave blank/unchanged if N/A		



Name Point Typ	oe	Circular Manhole Vent D11 "Point Asset Inputs"	ed (Point)	Lowest Corner Lid Z
				Lid Z
SAT Column	SAG Description		Valid Values	
A	Type of point feature		D11	
В	Type of manhole or access		Select from pick list: domSCIRTXXAccessType	
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawi	ng	data - text	
F	Centre of structure in Eastin	g coordinate	data - decimal number	
G	Centre of structure in Northi	ng coordinate	data - decimal number	
Н	RL on lowest corner of lid		data - decimal number	
J	RL at manhole base (lowest	point)	data - decimal number	
K	Width and length of pit (e.g.	600x800) or diameter of pit	data - number	
L	Date of commission, Decom	mission date	data - date (dd/mm/yyyy)	Cent
М	Location certainty - accurac	of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of op	eration	Select from pick list: domSCIRTServiceStatus	stru
0	Name of main contractor wh	om installed asset	Select from pick list: domSCIRTInstallationCompany	<u> </u>
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	V
Q	Guideline revision used for s	survey	data - decimal number	
R	Style of access lid		Select from pick list: domSCIRTLidStyle	
S	Shape of access lid		Select from pick list: domSCIRTLidType	
T	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	製 間
U	Construction Material		Select from pick list: domSCIRTAccessConstruction	
V	Type of security on access		Select from pick list: domSCIRTAccessSecurity	i i
W	(rectangular pits only)	inner structure to nearest 5 degrees	data - number	
Χ	Treatment material for refur	pished manholes	Select from pick list: domSCIRTAccessTreatmentType	
				Manhole Base RL
Addition	nal Information			Z
		eft "blank" or hold the value	e "LEAVE BLANK" as default in SAT	
		ed for circular manholes	LETTE BETTING GO GOTGGIC III O/TI	
	eave blank/unchange			
See Ap	pendix C.1.1 for an S.	a i example.		



Point Typ			Vented (Point)	Lowest Corner
1 Onit Typ	DIE 1 OINC/ CO	oct inputo		Lid Z
SAT Column	SAG Description		Valid Values	
Α	Type of point feature		D12	
В	Type of manhole or access		Select from pick list: domSCIRTXXAccessType	
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing		data - text	
F	Centre of structure in Easting coordinate		data - decimal number	
G	Centre of structure in Northing coordinate		data - decimal number	
Н	RL on lowest corner of lid		data - decimal number	Centr
J	RL at manhole base (lowest point)		data - decimal number	struc
K	Width and length of pit (e.g. 600x800) or diameter	er of pit	data - number	
L	Date of commission, Decommission date		data - date (dd/mm/yyyy)	x
M	Location certainty - accuracy of data		Select from pick list: domSCIRTLocationCertainty	∀
N	Service status - phase of operation		Select from pick list: domSCIRTServiceStatus	Y
0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Q	Guideline revision used for survey		data - decimal number	
R	Style of access lid		Select from pick list: domSCIRTLidStyle	
S	Shape of access lid		Select from pick list: domSCIRTLidType	
Т	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
U	Construction Material		Select from pick list: domSCIRTAccessConstruction	
V	Type of security on access		Select from pick list: domSCIRTAccessSecurity	
W	Pit angle - orientation of inner structure to (rectangular pits only)	nearest 5 degrees	data - number	
X	Treatment material for refurbished manholes		Select from pick list: domSCIRTAccessTreatmentType	
				Manhole Base RL
Additio	nal Information			Z
*All oth Col W: Col X: I	er columns must be left "blank" or leave blank/unchanged for circular eave blank/unchanged if N/A pendix C.1.1 for an SAT example.		e "LEAVE BLANK" as default in SAT	



	Name		Flush Manhole (Point)		
	Point Typ	oe	D13 "Point Asset Inputs"		Lowest Corner Lid Z
	SAT Column	SAG Description		Valid Values	
-	A	Type of point feature		D13	
l	В	Type of manhole or access		Select from pick list: domSCIRTXXAccessType	
l	С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
l	D	Differs from design (yes/no		Select from pick list: domSCIRTDiffersFromDesign	
l	Е	Unique identifier from draw	ng	data - text	
l	F	Centre of structure in Eastin	ng coordinate	data - decimal number	
ľ	G	Centre of structure in North	ing coordinate	data - decimal number	
<u>ല</u>	Н	RL on lowest corner of lid		data - decimal number	
ō ⋷	J	RL at manhole base (lowes	t point)	data - decimal number	是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个
ב	K	Width and length of pit (e.g	600x800) or diameter of pit	data - number	(A)
Mannole	L	Date of commission, Decor	nmission date	data - date (dd/mm/yyyy)	
<u> </u>	M	Location certainty - accurac	y of data	Select from pick list: domSCIRTLocationCertainty	
	N	Service status - phase of or	peration	Select from pick list: domSCIRTServiceStatus	1
L	0	Name of main contractor w	nom installed asset	Select from pick list: domSCIRTInstallationCompany	Centre of structure
Insh	Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	X Y
⊇ ſ	Q	Guideline revision used for	survey	data - decimal number	Y
┸┃	R	Style of access lid		Select from pick list: domSCIRTLidStyle	
	S	Shape of access lid		Select from pick list: domSCIRTLidType	
3	T	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
5	U	Construction Material		Select from pick list: domSCIRTAccessConstruction	
┛▮	V	Type of security on access		Select from pick list: domSCIRTAccessSecurity	
	W	(rectangular pits only)	inner structure to nearest 5 degrees	data - number	
	X	Treatment material for refu	bished manholes	Select from pick list: domSCIRTAccessTreatmentType	
	*All oth Col W: Col X: I		ed for circular manholes ed if N/A	"LEAVE BLANK" as default in SAT	Manhole Base RL Z



	Point Typ	e	D14 "Line Asset Inputs"		Lowest Corner
	•		e features require at least	three row entries in the SAT.	Lid Z
	SAT Column	SAG Description		Valid Values	
	Α	Type of polygon feature		D14	
	В	Vented or non vented		Select from pick list: domSCIRTWWFlushTankType	
	С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
	D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
	E	Unique identifier from drawin	g	data - text	
	F	Polygon vertex Easting coord	dinate	data - decimal number	
	G	Polygon vertex Northing coo	rdinate	data - decimal number	65.65
	Н	RL on lowest corner of lid		data - decimal number	
~	ı	Number of vertex (point alon	g outline) or arc code	data - text	3
Tank	J	Construction Material		Select from pick list: domSCIRTAccessConstruction	
ש.	K	Width and length of pit (e.g.	600x800) or diameter of pit	data - number	
	N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
Flush	0	Name of main contractor who	om installed asset	Select from pick list: domSCIRTInstallationCompany	V
<u>S</u>	Q	Date of commission, Decom	mission date	data - date (dd/mm/yyyy)	
<u> </u>	R	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty	
ш	S	Service status - phase of ope	eration	Select from pick list: domSCIRTServiceStatus	
	Т	Date of 'survey-start'		data - date (dd/mm/yyyy)	
4	U	Guideline revision used for s	urvey	data - decimal number	
2	V	Capacity of tank in litres		data - decimal number	
	W	Shape of access lid		Select from pick list: domSCIRTLidType	
	Χ	Type of security on access		Select from pick list: domSCIRTAccessSecurity	
	Υ	Flushing interval of tank (pick	c closest)	Select from pick list: domSCIRTFrequency	
	Z	How is the tank operated		Select from pick list: domSCIRTWWFlushTankOperation	
	*All oth Col I: e Col V: r	nter number of vertex	along outline al capacity of the tank	All corner points along outline to be surveyed. Create one SAT row per surveyed point. value "LEAVE BLANK" as default in SAT	Centre of structure X Y



Line T	pe	D15 "Line Asset Inputs		Centre of structure
	Lir	e features require at leas	t two row entries in the SAT.	ΧY
SAT Columi	SAG Description		Valid Values	
A	Type of line feature		D15	
В	Specific type of pipe		Select from pick list: domSCIRTWSPipeType	
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
Е	Unique identifier from drawi	ng	data - text	
F	Line vertex Easting coordinate	ate	data - decimal number	
G	Line vertex Northing coording	ate	data - decimal number	
I	Number of vertex (point alo	ng line) or arc code	data - text	
J	Material of pipe		Select from pick list: domSCIRTPipeConstruction	
K	Nominal diameter in mm		data - number	
N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
0	Name of main contractor wh		Select from pick list: domSCIRTInstallationCompany	
Р	Pressure class (PN) or stiffr		Select from pick list: domSCIRTPressureStiffness	
Q	Date of commission, Decom		data - date (dd/mm/yyyy)	
R	Location certainty - accurac		Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of op Date of 'survey-start'	eration	Select from pick list: domSCIRTServiceStatus	
U	Guideline revision used for	SURVOY	data - date (dd/mm/yyyy) data - decimal number	
W	Average burial depth to inve		data - decimal number	
X	Was the pipe laid in a trench	• •	Select from pick list: domSCIRTTrenched	
				All bends, start/end points to be surveyed. Create one SAT row per surveye
*All c			ne value "LEAVE BLANK" as default in SAT with the downstream end	point.



L

0

Gap

Air

D16:

As-Built requirements (WW) **Air Gap Separator (Point)** Name Point Type D16 "Point Asset Inputs" **Centre of structure** SAG Description Valid Values SAT Column Type of point feature D16 Specific point feature data - text Old or new asset Select from pick list: domSCIRTOldOrNewAsset Separator Differs from design (yes/no) Select from pick list: domSCIRTDiffersFromDesign Unique identifier from drawing Centre of structure in Easting coordinate data - decimal number G Centre of structure in Northing coordinate data - decimal number Nominal diameter in mm data - number

XY

Additional Information *All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT

Date of commission, Decommission date

Name of main contractor whom installed asset

Location certainty - accuracy of data Service status - phase of operation

Guideline revision used for survey

Date of 'survey-start'

Manufacturer of asset

Type of security on access

data - date (dd/mm/yyyy)

data - date (dd/mm/yyyy)

data - decimal number

Select from pick list: domSCIRTLocationCertainty

Select from pick list: domSCIRTInstallationCompany

Select from pick list: domSCIRTServiceStatus

Select from pick list: domSCIRTManufacturer

Select from pick list: domSCIRTAccessSecurity



	Name Line Type	9	Main Pipes (Line D17 "Line Asset Inputs"		Centre of structure
				two row entries in the SAT.	X Y and Z
	SAT Column	SAG Description		Valid Values	
	A	Type of line feature		D17	
	В	Specific type of pipe		Select from pick list: domSCIRTWWPipeType	
	С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
	D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
	E	Unique identifier from drawi	ng	data - text	
	F	Line vertex Easting coordina	ate	data - decimal number	
Ī	G	Line vertex Northing coording	nate	data - decimal number	V _E
	Н	Invert level at vertex		data - decimal number	
တ	l	Number of vertex (point alor	ng line) or arc code	data - text	
ö	J	Material of pipe		Select from pick list: domSCIRTPipeConstruction	•
jbe	K	Nominal diameter in mm		data - number	
Ы	L	At Pit - UID name from design drawing		data - text	
	М	To Pit - UID name from design drawing		data - text	
	N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
Main	0	Name of main contractor wh	nom installed asset	Select from pick list: domSCIRTInstallationCompany	At Pit To Pit
≥	Р	Pressure class (PN) or stiffn	ness rating (SN)	Select from pick list: domSCIRTPressureStiffness	X – Y and Z X – Y and
	Q	Date of commission, Decom	nmission date	data - date (dd/mm/yyyy)	X-1 and 2
_	R	Location certainty - accurac	y of data	Select from pick list: domSCIRTLocationCertainty	
2	S	Service status - phase of op	peration	Select from pick list: domSCIRTServiceStatus	
_	Т	Date of 'survey-start'		data - date (dd/mm/yyyy)	
	U	Guideline revision used for s	survey	data - decimal number	
	V	Pipe Shape		Select from pick list: domSCIRTPipeShape	
	W	Average burial depth to inve	• •	data - decimal number	
L	X	Was the pipe laid in a trench	h? (yes/no)	Select from pick list: domSCIRTTrenched	
	*All oth Col I: e Col W:		x along line starting v	e value "LEAVE BLANK" as default in SAT with the downstream end	All bends, start/end points to be surveyed. Create one SAT row per surveyed point.



	Name		Collector Pipes	(Line)	Centre of structure	
	Line Type	e	D18 "Line Asset Inputs			
		Line	features require at leas	t two row entries in the SAT.	X Y and Z	
	SAT Column	SAG Description		Valid Values		
-	Α	Type of line feature		D18		
	В	Specific type of pipe		Select from pick list: domSCIRTWWPipeType		
	С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset		
	D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign		
	E	Unique identifier from drawing	1	data - text		
	F	Line vertex Easting coordinat	Э	data - decimal number		
Ī	G	Line vertex Northing coordina	te	data - decimal number		
S	Н	Invert level at vertex		data - decimal number		
9		Number of vertex (point along	line) or arc code	data - text		
	J	Material of pipe		Select from pick list: domSCIRTPipeConstruction		
ጉ	K	Nominal diameter in mm		data - number		
_	L	At Pit - UID name from design	drawing	data - text		
Collector	M	To Pit - UID name from design drawing		data - text		
บ เ	N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer		
9	0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany		
≡ ⊺	Р	Pressure class (PN) or stiffne	ss rating (SN)	Select from pick list: domSCIRTPressureStiffness		
Ϋ́	Q	Date of commission, Decomm	nission date	data - date (dd/mm/yyyy)	To Pit At Pit	
	R	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty	To Pit X – Y and Z X – Y and	
 œ	S	Service status - phase of ope	ration	Select from pick list: domSCIRTServiceStatus		
_	T	Date of 'survey-start'		data - date (dd/mm/yyyy)		
ם ר	U	Guideline revision used for su	rvey	data - decimal number		
	V	Pipe Shape		Select from pick list: domSCIRTPipeShape		
	W	Average burial depth to invert	of pipe	data - decimal number		
	Χ	Was the pipe laid in a trench?	(yes/no)	Select from pick list: domSCIRTTrenched		
	*All oth			ne value "LEAVE BLANK" as default in SAT	All bends, start/end points to be surveyed. Create one SAT row pe	
	Col W:	nter number of vertex accuracy 0.5m pendix C.2.1 for an SA		with the downstream end	surveyed point.	



Line Typ	D19 "Line Asset Inputs"	-	
	Line features require at least two re		Centre of structure
SAT Column	SAG Description	Valid Values	ΧY
A	Type of line feature	D19	
В	Specific type of lateral	Select from pick list: domSCIRTXXLateralType	^
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	At Start
F	Line vertex Easting coordinate	data - decimal number	X and Y
G	Line vertex Northing coordinate	data - decimal number	
I	Number of vertex (point along line) or arc code	data - text	<u> </u>
J	Material of pipe	Select from pick list: domSCIRTPipeConstruction	
K	Nominal diameter in mm	data - number	
N	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Pressure class (PN) or stiffness rating (SN)	Select from pick list: domSCIRTPressureStiffness	A STATE OF THE STA
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)	At End X and Y
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
Т	Date of 'survey-start'	data - date (dd/mm/yyyy)	
U	Guideline revision used for survey	data - decimal number	
V	Pipe Shape	Select from pick list: domSCIRTPipeShape	
W	Average burial depth to invert of pipe	data - decimal number	
Χ	Was the pipe laid in a trench? (yes/no)	Select from pick list: domSCIRTTrenched	
Υ	Do several units share this lateral? (yes/no)	Select from pick list: domSCIRTSharedConnection	
AA	Type of lateral junction	Select from pick list: domSCIRTEyeType	
AB	Distance of IP from lateral start (from connection to existing private lateral) in mm	data - number	
Additio	onal Information		All bends, start/end points to b surveyed.
		W 54 / 5 B 44 / 6 B 4 C 4 C 4 C 4 C 4 C 4 C 4 C 4 C 4 C 4	•
	her columns must be left "blank" or hold the valu		Create one SAT row per survey
	enter number of vertex along line starting with th	ne downstream end	point.
Col W:	accuracy 0.5m		



Panair/Palay Dig (Lina)
As-Built requirements (WW, SW, RW)

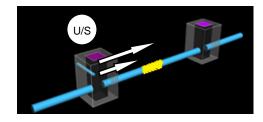
Line Type	D20 "Line Asset Inputs"	
	If entered without coordinates, this feature red	quires only one row per repair.
SAT Column	SAG Description	Valid Values
A	Type of line feature	D20
В	Type of repair	Select from pick list: domSCIRTRepairType
С	Old or new asset	Select from pick list: domSCIRTOldOrNewAsset
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign
E	Unique identifier from drawing	data - text
F	Line vertex Easting coordinate	data - decimal number
G	Line vertex Northing coordinate	data - decimal number
	Number of vertex (point along line) or arc code	data - text
J	Material used for repair	Select from pick list: domSCIRTRepairMaterial
K	Nominal diameter in mm	data - number
L	At Pit - UID name from design drawing	data - text
M	To Pit - UID name from design drawing	data - text
N	Manufacturer of asset	Select from pick list: domSCIRTManufacturer
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus
T	Date of 'survey-start'	data - date (dd/mm/yyyy)
U	Guideline revision used for survey	data - decimal number
V	Distance of lining/repair start from inner wall of structure of upstream MH in m	data - decimal number
W	Distance of lining/repair end from inner wall of structure of upstream MH in m	data - decimal number

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Use this feature for dig repairs only (new pipe sections or pipe clamps) – pipe lining is to be entered into D21

Col V&W: Make sure to measure distances from the inner wall of the upstream manhole structure. See Appendix C.2.8 for an SAT example.

Distance to start and end of repair from upstream MH









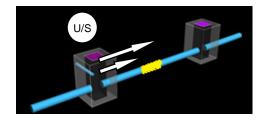
Name	Pipe Lining (Line)		
Line Type	D21 "Line Asset Inputs"		
	If entered without coordinates, this feature req	uires only one row per patch.	
SAT Column	SAG Description	Valid Values	
Α	Type of line feature	D21	
В	Type of repair	Select from pick list: domSCIRTRepairType	
С	Old or new asset	Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	
F	Line vertex Easting coordinate	data - decimal number	
G	Line vertex Northing coordinate	data - decimal number	
1	Number of vertex (point along line) or arc code	data - text	
J	Material used for repair	Select from pick list: domSCIRTRepairMaterial	
K	Nominal diameter in mm	data - number	
L	At Pit - UID name from design drawing	data - text	
M	To Pit - UID name from design drawing	data - text	
N	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
Т	Date of 'survey-start'	data - date (dd/mm/yyyy)	
U	Guideline revision used for survey	data - decimal number	
V	Distance of lining/repair start from inner wall of structure of upstream MH in m	data - decimal number	
W	Distance of lining/repair end from inner wall of structure of upstream MH in m	data - decimal number	

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Use this feature for pipe lining only (lining patches or fully lined pipes) – pipe repairs are to be entered into D20

Col V&W: Make sure to measure distances from the inner wall of the upstream manhole structure. See Appendix C.2.5 up to C.2.7 for SAT examples.

Distance to start and end of lining from upstream MH







As-Built requirements (WW. SW)



Name Point T	ype	Junction (Point) D22 "Point Asset Inputs"		Centre of Junction X Y
	SAG Description Type of point feature Type of junction Old or new asset Differs from design (yes/no) Unique identifier from draw Centre of structure in Eastil Centre of structure in North Date of commission, Decor Location certainty - accurac Service status - phase of of Name of main contractor w Date of 'survey-start' Guideline revision used for	ng rig coordinate rimission date ry of data peration rim installed asset		Centre of Junction X Y Main Nair Standard 'T' junction
	onal Information ther columns must be	left "blank" or hold th	e value "LEAVE BLANK" as default in SAT	4.



Name			(Point)	
Point Typ	e	D23 "Point Asset Inputs		
				Centre of Lateral Junction
SAT Column	SAG Description		Valid Values	ΧY
Α	Type of point feature		D23	
В	Type of lateral junction		Select from pick list: domSCIRTEyeType	-1-
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	[]
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	ond Lateral
E	Unique identifier from draw	ing	data - text	operation of the state of the s
F	Centre of structure in East	ng coordinate	data - decimal number	[]
G	Centre of structure in North	ing coordinate	data - decimal number	
L	Date of commission, Deco	nmission date	data - date (dd/mm/yyyy)	
M	Location certainty - accura	cy of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of o	peration	Select from pick list: domSCIRTServiceStatus	
0	Name of main contractor w	hom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Q	Guideline revision used for	survey	data - decimal number	
				This asset is located at the junction between a lateral and a main
*All oth	nal Information er columns must be pendix C.1.3 for an S		e value "LEAVE BLANK" as default in SAT	and a main



Name		Inspection Point	: (Point)	
Point Ty	ре	D24 "Point Asset Inputs	,	
SAT	SAG Description		Valid Values	Centre of Inspection Point
Column	SAG Description		valiu values	ΧY
Α	Type of point feature		D24	
В	Type of manhole or acce	ss	Select from pick list: domSCIRTXXAccessType	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/r	10)	Select from pick list: domSCIRTDiffersFromDesign	\sim
E F G L	Unique identifier from dra	wing	data - text	
F	Centre of structure in Eas	sting coordinate	data - decimal number	
G	Centre of structure in No		data - decimal number	1000 45"
- L	Date of commission, Dec	ommission date	data - date (dd/mm/yyyy)	Inspection Bend) §
М	Location certainty - accur	acy of data	Select from pick list: domSCIRTLocationCertainty	\
N	Service status - phase of	operation	Select from pick list: domSCIRTServiceStatus	\
0	Name of main contractor	whom installed asset	Select from pick list: domSCIRTInstallationCompany	
P	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Q	Guideline revision used for	or survey	data - decimal number	
M N O P Q U	Construction Material		Select from pick list: domSCIRTAccessConstruction	
				100¢ Inspection Pipe
	nal Information			
	ner columns must be pendix C.1.4 for an		e value "LEAVE BLANK" as default in SAT	



	Name Point Typ	e	End Cap (Point) D25 "Point Asset Input		
	SAT Column	SAG Description		Valid Values	Centre of End Cap
	Α	Type of point feature		D25	XY
	В	Specific type of end cap		Select from pick list: domSCIRTEndCapType	
	С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
	D	Differs from design (yes/no	0)	Select from pick list: domSCIRTDiffersFromDesign	
	E	Unique identifier from draw	ring	data - text	
	F	Centre of structure in East	ng coordinate	data - decimal number	by by by
	G	Centre of structure in North	ning coordinate	data - decimal number	
Q	L	Date of commission, Deco	mmission date	data - date (dd/mm/yyyy)	
ap	M	Location certainty - accura	cy of data	Select from pick list: domSCIRTLocationCertainty	
ပ	N	Service status - phase of c	peration	Select from pick list: domSCIRTServiceStatus	7
7	0	Name of main contractor w	hom installed asset	Select from pick list: domSCIRTInstallationCompany	
End	Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Ш	Q	Guideline revision used for	survey	data - decimal number	
D25:					End Cap Lateral Section View
		nal Information er columns must be	left "blank" or hold th	ne value "LEAVE BLANK" as default in SAT	



Name		•	Point or Outline)	Thrust Block Outline or
Line Type		D26 "Line Asset Inpu	ts"	
	Outlin	e features require at le	ast three row entries in the SAT.	Centre of Structure
SAT Column	SAG Description		Valid Values	XY
Α	Type of polygon feature		D26	
В	Specific type of structure Old or new asset Differs from design (yes/no)		Select from pick list: domSCIRTXXStructureType	
С			Select from pick list: domSCIRTOldOrNewAsset	
D			Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawin	g	data - text	
F	Polygon vertex Easting coor	dinate	data - decimal number	
G	Polygon vertex Northing coordinate Number of vertex (point along outline) or arc code		data - decimal number	
I			data - text	
J	Predominant material of stru	cture	Select from pick list: domSCIRTXXStructureMaterial	
0	Name of main contractor wh	om installed asset	Select from pick list: domSCIRTInstallationCompany	4) (1)
Q	Date of commission, Decommission date		data - date (dd/mm/yyyy)	₩
R	Location certainty - accuracy of data		Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of ope	eration	Select from pick list: domSCIRTServiceStatus	
Т	Date of 'survey-start'		data - date (dd/mm/yyyy)	
U	Guideline revision used for s	urvey	data - decimal number	
			Centre of structure <i>or</i> all corner points along outline to be surveyed. Create one SAT row per surveyed point.	
*All oth Col I: e	nal Information er columns must be lenter number of vertex pendix C.3.1 for an SA	calong outline	he value "LEAVE BLANK" as default in SAT	(3)



As-Built requirements (WW. SW)

	no Bant requirements (1111, etc)	
Name	Pumping Station (Outline)	
Line Type	D27 "Line Asset Inputs"	

SAT Column	SAG Description	Valid Values
Α	Type of polygon feature	D27
В	Specific type of structure	Select from pick list: domSCIRTXXStructureType
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign
E	Unique identifier from drawing	data - text
F	Polygon vertex Easting coordinate	data - decimal number
G	Polygon vertex Northing coordinate	data - decimal number
I	Number of vertex (point along outline) or arc code	data - text
J	Predominant material of structure	Select from pick list: domSCIRTXXStructureMaterial
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus
T	Date of 'survey-start'	data - date (dd/mm/yyyy)
U	Guideline revision used for survey	data - decimal number
		All corner points along outline to be surveye Create one SAT row per surveyed point.

See SAG feature E10 for surveying pump station cables.

Additional Information

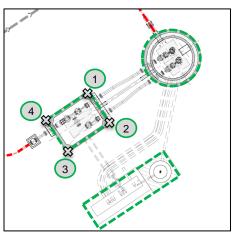
*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Use this feature for all pump station related structures or other larger manholes, populate col B accordingly.

Col I: enter number of vertex along outline

See Appendix C.1.5 and C.3.1 for an SAT example and beginning of Appendix D for more information.

Pump Station or Structure Outline ΧY







Type D28 "Point Asset Inputs"		
SAG Description	Valid Values	Contro of Dum
Type of point feature	D28	Centre of Pump
Type of function pump used for	Select from pick list: domSCIRTXXPumpType	X Y and Z (on pump)
Old or new asset	Select from pick list: domSCIRTOldOrNewAsset	
Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
Unique identifier from drawing	data - text	
Centre of structure in Easting coordinate	data - decimal number	
Centre of structure in Northing coordinate	data - decimal number	
Height above datum	data - decimal number	STATE OF THE STATE
Date of commission, Decommission date	data - date (dd/mm/yyyy)	
Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
Date of 'survey-start'	data - date (dd/mm/yyyy)	
Guideline revision used for survey	data - decimal number	
Name and/or number of pump station	data - text	
Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
Serial number of asset	data - text	The second secon
Backup Energy Source	Select from pick list: domSCIRTEnergySource	
Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only)	data - number	
Capacity of pump in litres per hour	data - number	
Manufacturer warranty reference	data - text	
Manufacturer warranty term in years	data - decimal number	
	Type of point feature Type of function pump used for Old or new asset Differs from design (yes/no) Unique identifier from drawing Centre of structure in Easting coordinate Centre of structure in Northing coordinate Height above datum Date of commission, Decommission date Location certainty - accuracy of data Service status - phase of operation Name of main contractor whom installed asset Date of 'survey-start' Guideline revision used for survey Name and/or number of pump station Manufacturer of asset Serial number of asset Backup Energy Source Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only) Capacity of pump in litres per hour Manufacturer warranty reference	Type of point feature Type of function pump used for Select from pick list: domSCIRTXXPumpType Old or new asset Differs from design (yes/no) Select from pick list: domSCIRTOldOrNewAsset Differs from design (yes/no) Unique identifier from drawing Centre of structure in Easting coordinate Centre of structure in Northing coordinate Height above datum Date of commission, Decommission date Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty Service status - phase of operation Select from pick list: domSCIRTLocationCertainty Service status - phase of operation Select from pick list: domSCIRTServiceStatus Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany data - date (dd/mm/yyyy) Guideline revision used for survey Name and/or number of pump station Manufacturer of asset Select from pick list: domSCIRTManufacturer Serial number of asset Select from pick list: domSCIRTManufacturer Serial number of asset Select from pick list: domSCIRTManufacturer Serial number of asset Select from pick list: domSCIRTManufacturer Serial number of asset Select from pick list: domSCIRTManufacturer Serial number of asset Select from pick list: domSCIRTManufacturer Serial number of asset Select from pick list: domSCIRTEnergySource Pit angle - orientation of inner structure to nearest 5 degrees (rectangular pits only) Capacity of pump in litres per hour Manufacturer warranty reference data - text



				1
SAT Column	SAG Description		Valid Values	Outlat / Outlat
Α	Type of point feature		D29	Outlet/Outfall
В	Type of outfall/outlet		Select from pick list: domSCIRTOutletType	X Y and Z
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawin	-	data - text	
F	Centre of structure in Easting		data - decimal number	
G	Centre of structure in Northir	ng coordinate	data - decimal number	
Н	Height above datum		data - decimal number	
L	Date of commission, Decom	mission date	data - date (dd/mm/yyyy)	
M	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of op-		Select from pick list: domSCIRTServiceStatus	
0	Name of main contractor wh	om installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	10 30 30 20 20 20 20 20 20 20 20 20 20 20 20 20
Q	Guideline revision used for s	urvey	data - decimal number	
T	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
V	Type of security on outlet ac	cess	Select from pick list: domSCIRTAccessSecurity	
Addition	nal Information			



Nam Poir	ne nt Type		Valve (Point) D30 "Point Asset Inputs"	•		
	турс		200 Tomeriood inputo			
SAT Colu		SAG Description		Valid Values	Centre of Valve X Y and Z	
Α		ype of point feature		D30	A Yanu Z	
В		Type of valve		Select from pick list: domSCIRTXXValveType		
С	_	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset		
D		Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign		
E		Unique identifier from drawing		data - text		
F		Centre of structure in East		data - decimal number		
G		Centre of structure in North	ning coordinate	data - decimal number	The state of the s	
Н		Height above datum		data - decimal number		
Valve	N	lominal diameter in mm		data - number	The same of the sa	
≟ ∟		Date of commission, Deco		data - date (dd/mm/yyyy)		
W W		ocation certainty - accura		Select from pick list: domSCIRTLocationCertainty		
II II		Service status - phase of o		Select from pick list: domSCIRTServiceStatus		
		Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany		
၉ 🖹		Date of 'survey-start'		data - date (dd/mm/yyyy)		
Q	G	Guideline revision used for survey		data - decimal number		
R		Valve normal operating position - open or closed		Select from pick list: domSCIRTValveNormalOperating		
Т	N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer		
U	٧	alve closure rotation dire	ction	Select from pick list: domSCIRTValveClosureRotation		
W		lain function of valve		Select from pick list: domSCIRTValveFunction		
Х		/alve control point		Select from pick list: domSCIRTValveControlPoint		
Υ		Manual or motorised valve		Select from pick list: domSCIRTValveActuation		
Z	N	Aanufacturer warranty terr	n in years	data - decimal number		
		Information columns must be	left "blank" or hold the	e value "I FAVE BI ANK" as default in SAT		
			left "blank" or hold the	e value "LEAVE BLANK" as default in SAT		



Name

D31: Culvert

As-Built requirements	(SW)

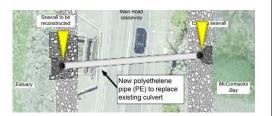
Line Type	•	D31 "Line Asset Inputs"		
	Line	features require at least two	row entries in the SAT.	
SAT Column	SAG Description		Valid Values	
Α	Type of line feature		D31	
В	Specific type of pipe		Select from pick list: domSCIRTSWPipeType	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing		data - text	
F	Line vertex Easting coordinate)	data - decimal number	
G	Line vertex Northing coordinate	e	data - decimal number	
Н	Invert level at vertex		data - decimal number	
!	Number of vertex (point along	line) or arc code	data - text	
J	Material of pipe		Select from pick list: domSCIRTPipeConstruction	
K	Nominal diameter in mm		data - number	
L	At Pit - UID name from design drawing		data - text	
M	To Pit - UID name from design drawing		data - text	
N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany	
Р	Pressure class (PN) or stiffness rating (SN)		Select from pick list: domSCIRTPressureStiffness	
Q	Date of commission, Decommission date		data - date (dd/mm/yyyy)	
R	Location certainty - accuracy of data		Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of oper	ation	Select from pick list: domSCIRTServiceStatus	
T	Date of 'survey-start'		data - date (dd/mm/yyyy)	
U	Guideline revision used for su	rvey	data - decimal number	
V	Pipe Shape		Select from pick list: domSCIRTPipeShape	
W	Average burial depth to invert	of pipe	data - decimal number	
X	Was the pipe laid in a trench?	(ves/no)	Select from pick list: domSCIRTTrenched	

Culvert (Line)

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Create one SAT row for each vertex, starting at downstream pit Col I: enter number of vertex along line starting with the downstream end Col W: accuracy 0.5m

Centre of structure X Y and Z





All bends, start/end points to be surveyed. Create one SAT row per surveyed point.



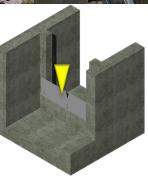
Name	Headwall Inlet/Outlet (Point) D32 "Point Asset Inputs"		•		
Point Type		D32 "Point Asset Input	S [*]		
SAT Column	SAG Description		Valid Values	Outlet Outfall	
Α	Type of point feature		D32	Outlet/Outfall	
В	Type of outlet/outfall		Select from pick list: domSCIRTOutletType	X Y and Z	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset		
D	Differs from design (yes/n	10)	Select from pick list: domSCIRTDiffersFromDesign		
E	Unique identifier from dra	wing	data - text		
F	Centre of structure in Eas	ting coordinate	data - decimal number		
G	Centre of structure in Nor	thing coordinate	data - decimal number		
Н	Height above datum		data - decimal number		
L	Date of commission, Decommission date Location certainty - accuracy of data		data - date (dd/mm/yyyy)		
М			Select from pick list: domSCIRTLocationCertainty		
N	Service status - phase of	operation	Select from pick list: domSCIRTServiceStatus	E CONTRACTOR OF THE PARTY OF TH	
0	Name of main contractor	whom installed asset	Select from pick list: domSCIRTInstallationCompany		
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)		
Q	Guideline revision used for	or survey	data - decimal number		
Т	Manufacturer of asset		Select from pick list: domSCIRTManufacturer		
V	Type of security on outlet	access	Select from pick list: domSCIRTAccessSecurity		
	nal Information	LeG Websel West health	ne value "LEAVE BLANK" as default in SAT		



As-Built requirements (SW) **Stormwater Flow Restriction 'Weir' (Point)** Name Point Type D33 "Point Asset Inputs" SAT SAG Description Valid Values Restriction Column Type of point feature Select from pick list: domSCIRTSWFlowRestrictionType Type of stormwater flow restriction Select from pick list: domSCIRTOIdOrNewAsset Old or new asset D Select from pick list: domSCIRTDiffersFromDesign Differs from design (yes/no) Е Unique identifier from drawing data - text Centre of structure in Easting coordinate data - decimal number Centre of structure in Northing coordinate data - decimal number **Stormwater Flow** RL at which water overflows data - decimal number Date of commission, Decommission date data - date (dd/mm/yyyy) Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty Service status - phase of operation Select from pick list: domSCIRTServiceStatus Select from pick list: domSCIRTInstallationCompany Name of main contractor whom installed asset Date of 'survey-start' data - date (dd/mm/yyyy) Guideline revision used for survey data - decimal number Select from pick list: domSCIRTManufacturer Manufacturer of asset **D33**: Additional Information *All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT

Flow Restriction X Y and Z







As-Built requirements (WW, SW, RW) **Structural Pipe Protection (Line)** Name Point Type D34 "Point Asset Inputs" **Pipe Protection** Line features require at least two row entries in the SAT. SAT SAG Description Valid Values ΧY Column D34 D34: Structural Pipe Protection Type of line feature Type of structural pipe protection Select from pick list: domSCIRTPipeProtectionType Select from pick list: domSCIRTOIdOrNewAsset Old or new asset D Differs from design (yes/no) Select from pick list: domSCIRTDiffersFromDesign Unique identifier from drawing data - text Line vertex Easting coordinate data - decimal number Line vertex Northing coordinate data - decimal number Number of vertex (point along line) or arc code data - text Select from pick list: domSCIRTInstallationCompany Name of main contractor whom installed asset Date of commission, Decommission date data - date (dd/mm/yyyy) Select from pick list: domSCIRTLocationCertainty Location certainty - accuracy of data Select from pick list: domSCIRTServiceStatus Service status - phase of operation Date of 'survey-start' data - date (dd/mm/yyyy) Guideline revision used for survey data - decimal number Create one SAT row per surveyed point. Additional Information *All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Col I: enter number of vertex along line starting with the downstream end



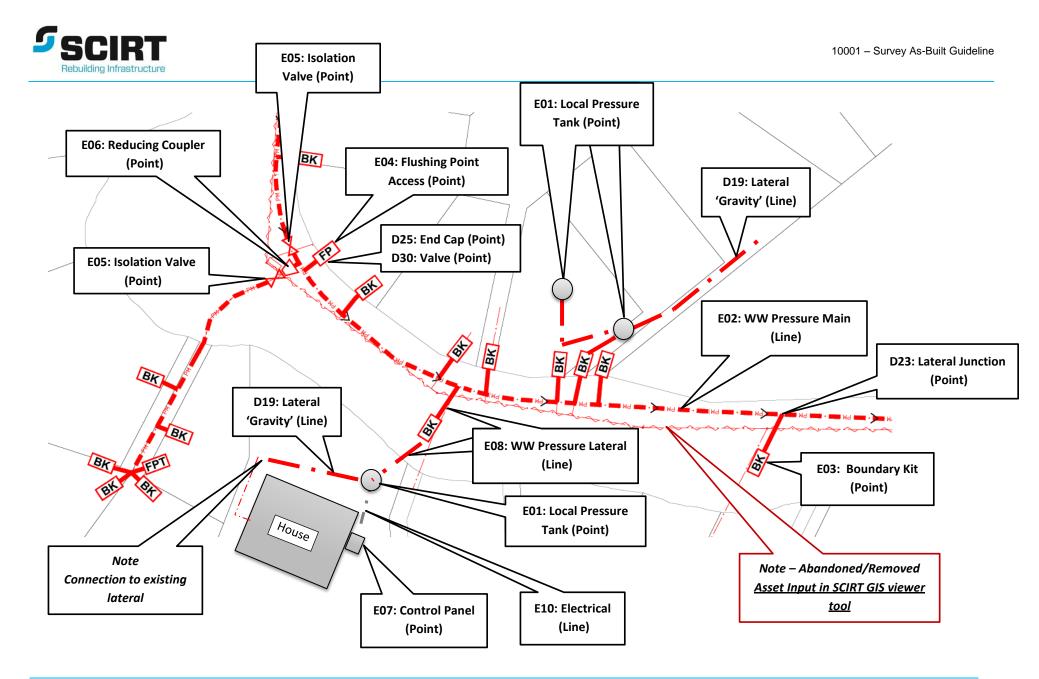
Name		Vent (Point)	•	
Point Typ	ре	D35 "Point Asset Inputs	"	
				Centre of Vent
SAT Column	SAG Description		Valid Values	ΧY
Α	Type of point feature		D35	
В	Specific point feature		data - text	
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawin	U	data - text	
F	Centre of structure in Easting		data - decimal number	
G	Centre of structure in Northing coordinate		data - decimal number	
L	Date of commission, Decommission date		data - date (dd/mm/yyyy)	ACL LS TOWN
Б М	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty	
L M N	Service status - phase of operation		Select from pick list: domSCIRTServiceStatus	
. 0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany	
P	Date of 'survey-start'		data - date (dd/mm/yyyy)	
í	Guideline revision used for s	urvey	data - decimal number	
R	Does it have telemetry ducts	? (yes/no)	Select from pick list: domSCIRTWWTelemetryDucts	
	nal Information ner columns must be le	eft "blank" or hold th	e value "LEAVE BLANK" as default in SAT	RESPONSE MONTH AND THE PROPERTY OF THE PROPERT

See SAG feature E10 for surveying pump station cables.



Appendix E As-built Requirements for Wastewater Pressure System

E01: Local Pressure Tank System	87
E02: WW Pressure Main	88
E03: Local Pressure Boundary Kit	89
E04: Flushing Point Access	90
E05: Isolation Valve	91
E06: Reducing Coupler	92
E07: Local Pressure Control Panel	93
E08: WW Pressure Lateral	94
E09: Curved Pipes	95
E10: Electrical	96





Name Point Typ	pe	E01 "Point Asset Inputs	Tank System (Point)		of structure
SAT Column	SAG Description		Valid Values	<u> </u>	. 12
Α	Type of point feature		E01		
В	Specific type of pressure to	ank	Select from pick list: domSCIRTWWPressureTankType		
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset		
D	Differs from design (yes/no	0)	Select from pick list: domSCIRTDiffersFromDesign		
E	Unique identifier from draw	ring	data - text		
F	Centre of structure in Easti	ng coordinate	data - decimal number		
G	Centre of structure in North	ning coordinate	data - decimal number		
Н	RL on lowest corner of lid		data - decimal number		
L	Date of commission, Deco	mmission date	data - date (dd/mm/yyyy)	PLAN AT FOOTING LEVEL	
M	Location certainty - accura-	cy of data	Select from pick list: domSCIRTLocationCertainty	T	
N	Service status - phase of o	peration	Select from pick list: domSCIRTServiceStatus	1 ∨	PLAN
0	Name of main contractor w	hom installed asset	Select from pick list: domSCIRTInstallationCompany	∃	V
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	1	MA TOTAL
Q	Guideline revision used for	survey	data - decimal number		
Т	Manufacturer of asset		Select from pick list: domSCIRTManufacturer		wanter or
W	Number of pumps operatin	g in tank	data - number		- De la comp
Χ	Capacity of tank in litres		data - decimal number		
Z	Manufacturer warranty terr	n in years	data - decimal number		- 1-2 2-1 F
				SECTION	SECTION 8CM E 1 20
Addition	nal Information			non trafficable	trafficable
*All oth	er columns must be	left "blank" or hold th	e value "LEAVE BLANK" as default in SAT		
Ī					



	Name		WW Pressure N		X Y and Z
L	Point Typ	<u>e</u>	E02 "Line Asset Inputs	"	RE
			e features require at leas	st two row entries in the SAT.	
	SAT Column	SAG Description		Valid Values	S DN
	A	Type of line feature		E02	
Ī	В	Specific type of pipe		Select from pick list: domSCIRTWWPipeType	
Ī	С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
	D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	[5] [5] [5]
	E	Unique identifier from drawir	ng	data - text	
_ [F	Line vertex Easting coordina	ite	data - decimal number	
Main	G	Line vertex Northing coordin	ate	data - decimal number	BR
<u> </u>	Н	Invert level at vertex		data - decimal number	
≥ [Number of vertex (point along line) or arc code		data - text	
o l	J	Material of pipe		Select from pick list: domSCIRTPipeConstruction	
¥□	K	Nominal diameter in mm		data - number	
<u>ار</u>	L	At Pit - UID name from design	gn drawing	data - text	
is [M	To Pit - UID name from design	gn drawing	data - text	
WW Pr	N	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
	0	Name of main contractor wh	om installed asset	Select from pick list: domSCIRTInstallationCompany	
	Р	Pressure class (PN) or stiffn	ess rating (SN)	Select from pick list: domSCIRTPressureStiffness	
	Q	Date of commission, Decom	mission date	data - date (dd/mm/yyyy)	
	R	Location certainty - accuracy of data		Select from pick list: domSCIRTLocationCertainty	
	S	Service status - phase of operation		Select from pick list: domSCIRTServiceStatus	
	T	Date of 'survey-start'		data - date (dd/mm/yyyy)	
o L	U	Guideline revision used for s	survey	data - decimal number	
ш	V	Pipe Shape		Select from pick list: domSCIRTPipeShape	
	W	Average burial depth to inve	_ ' '	data - decimal number	
L	Х	Was the pipe laid in a trench	n? (yes/no)	Select from pick list: domSCIRTTrenched	
	Addition	nal Information	BK		
	*All oth	er columns must be l	eft "blank" or hold t	ne value "LEAVE BLANK" as default in SAT	
				with the downstream end	
		accuracy 0.5m	along into starting	men ene de miser cam end	All bends, start/end points to be
			AT avample		surveyed. Create one SAT row per
	see App	endix C.2.3 for an SA	a i example		surveyed point.



Point Type E03 "Point Asset Inputs" Valid Values Valid Values Valid Values A Type of point feature E03 B Standard or non standard kit Select from pick list domSCIRTWWBoundaryKitType C Old or new asset Select from pick list domSCIRTOIdOnNewAsset D Differs from design (yes/no) Select from pick list domSCIRTOIdOnNewAsset E Unique identifier from drawing data - text F Centre of structure in Point in Northing coordinate data - decimal number G Centre of structure in Northing coordinate data - decimal number H RL on lowest corner of lid data - decimal number L Date of commission, Decommission date data - data (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list domSCIRTLocationCertainty N Service status - phase of operation Select from pick list domSCIRTInstallationCompany Q Guideline revision used for survey data - date (dd/mm/yyyy) R Trafficable or non trafficable structure Select from pick list domSCIRTInstallationCompany data - decimal number Adata - decimal number Select from pick list domSCIRTInstallationCompany data - decimal number Adata - decimal number Select from pick list domSCIRTInstallationCompany data - decimal number Adata - decimal number	Name	-		Boundary Kit (Point)	
Column A Type of point feature E03 B Standard or non standard kit Select from pick list: domSCIRTWWBoundaryKitType C Old or new asset Select from pick list: domSCIRTOIdOrNewAsset D Differs from design (yes/no) Select from pick list: domSCIRTOIdFersFromDesign E Unique identifier from drawing data - text F Centre of structure in Easting coordinate data - decimal number G Centre of structure in Northing coordinate data - decimal number H RL on lowest corner of lid data - decimal number L Date of commission, Decommission date data - data (dd/mm/yyyy) M Location certainty - accuracy of data N Service status - phase of operation Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - data (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number T Trafficable or non trafficable structure Select from pick list: domSCIRTTnafficable T Manufacturer of asset Select from pick list: domSCIRTTnafficable Manufacturer warranty term in years data - decimal number	Point Typ	t Type E03 "Point Asset Inputs"			Centre of structure
B Standard or non standard kit Select from pick list: domSCIRTWWBoundaryKitType C Old or new asset Select from pick list: domSCIRTOIdOrNewAsset D Differs from design (yes/no) Select from pick list: domSCIRTDiffersFromDesign E Unique identifier from drawing data - text C entre of structure in Easting coordinate data - decimal number G Centre of structure in Northing coordinate data - decimal number H RL on lowest corner of lid data - decimal number L Date of commission, Decommission date data - decimal number L Date of commission, Decommission date data - decimal number N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) G Guideline revision used for survey R Trafficable or non trafficable structure Select from pick list: domSCIRTTafficable T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years		SAG Description		Valid Values	X Y and Z
C Old or new asset D Differs from design (yes/no) Select from pick list: domSCIRTOIdOrNewAsset D Unique identifier from drawing F Centre of structure in Easting coordinate G Centre of structure in Northing coordinate H RL on lowest corner of lid L Date of commission, Decommission date M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTLocationCertainty Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany data - date (dd/mm/yyyy) Q Guideline revision used for survey R Trafficable or non trafficable structure Z Manufacturer of asset Select from pick list: domSCIRTManufacturer data - decimal number	Α	Type of point feature		E03	
D Differs from design (yes/no) E Unique identifier from drawing F Centre of structure in Easting coordinate G Centre of structure in Northing coordinate H RL on lowest corner of lid Date of commission, Decommission date L Date of commission, Decommission date M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' Q Guideline revision used for survey R Trafficable or non trafficable structure T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years	В	Standard or non standard k	t	Select from pick list: domSCIRTWWBoundaryKitType	
E Unique identifier from drawing F Centre of structure in Easting coordinate G Centre of structure in Northing coordinate H RL on lowest corner of lid L Date of commission, Decommission date L Date of commission, Decommission date M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany Date of 'survey-start' Q Guideline revision used for survey R Trafficable or non trafficable structure T Manufacturer of asset Select from pick list: domSCIRTTrafficable Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
F Centre of structure in Easting coordinate data - decimal number G Centre of structure in Northing coordinate data - decimal number H RL on lowest corner of lid data - decimal number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Trafficable or non trafficable structure Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
G Centre of structure in Northing coordinate data - decimal number H RL on lowest corner of lid data - decimal number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Trafficable or non trafficable structure Select from pick list: domSCIRTTrafficable T Manufacturer of asset Select from pick list: domSCIRTTManufacturer Z Manufacturer warranty term in years data - decimal number	E	Unique identifier from drawi	ng	data - text	6 77777 5
H RL on lowest corner of lid data - decimal number L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Trafficable or non trafficable structure Select from pick list: domSCIRTTrafficable T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years	F	Centre of structure in Eastir	g coordinate	data - decimal number	
L Date of commission, Decommission date data - date (dd/mm/yyyy) M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' Q Guideline revision used for survey R Trafficable or non trafficable structure T Manufacturer of asset Select from pick list: domSCIRTTrafficable Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	G	Centre of structure in North	ng coordinate	data - decimal number	
M Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany P Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Trafficable or non trafficable structure Select from pick list: domSCIRTTrafficable T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	Н	RL on lowest corner of lid		data - decimal number	
N Service status - phase of operation Select from pick list: domSCIRTServiceStatus O Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany Date of 'survey-start' data - date (dd/mm/yyyy) Q Guideline revision used for survey data - decimal number R Trafficable or non trafficable structure Select from pick list: domSCIRTTrafficable T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	L	Date of commission, Decon	nmission date	data - date (dd/mm/yyyy)	
O Name of main contractor whom installed asset P Date of 'survey-start' Q Guideline revision used for survey R Trafficable or non trafficable structure T Manufacturer of asset Z Manufacturer warranty term in years Select from pick list: domSCIRTInstallationCompany data - date (dd/mm/yyyy) data - decimal number Select from pick list: domSCIRTTrafficable Select from pick list: domSCIRTManufacturer data - decimal number	M	Location certainty - accurac	y of data	Select from pick list: domSCIRTLocationCertainty	
O Name of main contractor whom installed asset P Date of 'survey-start' Q Guideline revision used for survey R Trafficable or non trafficable structure T Manufacturer of asset Z Manufacturer warranty term in years Select from pick list: domSCIRTManufacturer data - decimal number Select from pick list: domSCIRTManufacturer data - decimal number	N	Service status - phase of or	eration	Select from pick list: domSCIRTServiceStatus	PLAN
Q Guideline revision used for survey R Trafficable or non trafficable structure Select from pick list: domSCIRTTrafficable T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	0	Name of main contractor wl	nom installed asset	Select from pick list: domSCIRTInstallationCompany	<u></u>
R Trafficable or non trafficable structure Select from pick list: domSCIRTTrafficable T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
T Manufacturer of asset Select from pick list: domSCIRTManufacturer Z Manufacturer warranty term in years data - decimal number	Q	Guideline revision used for	survey	data - decimal number	
Z Manufacturer warranty term in years data - decimal number	R	Trafficable or non trafficable	structure	Select from pick list: domSCIRTTrafficable	V
	T	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
SECTION	Z	Manufacturer warranty term	in years	data - decimal number	
SECTION					
					SECTION
			6. 201	L WEAVE BLANK!	
Additional Information	*All oth	er columns must be	left "blank" or hold th	e value "LEAVE BLANK" as default in SAT	
Additional Information *All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT					



Name	Flushing Point Acc	cess (Point)	
Point Typ	E04 "Point Asset Inputs"		Centre of structure
SAT Column	SAG Description	Valid Values	X Y and Z
Α	Type of point feature	E04	
В	Type of manhole or access	Select from pick list: domSCIRTXXAccessType	7
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	7
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	
F	Centre of structure in Easting coordinate	data - decimal number	D25: End Cap (Point)
G	Centre of structure in Northing coordinate	data - decimal number	D30: Valve (Point)
Н	RL on lowest corner of lid	data - decimal number	
J	RL at manhole base (lowest point)	data - decimal number	PLAN
K	Width and length of pit (e.g. 600x800) or diameter of pit	data - number	
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
M	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	444
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	1
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	1
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)	
Q	Guideline revision used for survey	data - decimal number	
R	Style of access lid	Select from pick list: domSCIRTLidStyle	
S	Shape of access lid	Select from pick list: domSCIRTLidType	
Т	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
U	Construction Material	Select from pick list: domSCIRTAccessConstruction	
V	Type of security on access	Select from pick list: domSCIRTAccessSecurity	***
W	Pit angle - orientation of inner structure to nearest 5 deg (rectangular pits only)		
Χ	Treatment material for refurbished manholes	Select from pick list: domSCIRTAccessTreatmentType	SECTION
*All other	al Information er columns must be left "blank" or hold the veave blank/unchanged for circular chambers eave blank/unchanged if N/A endix C.1.1 for an SAT example.		



Valid Values E05 Select from pick list: domSCIRTXXValveType Select from pick list: domSCIRTOldOrNewAsset	Centre of structure X Y and Z
Select from pick list: domSCIRTXXValveType Select from pick list: domSCIRTOldOrNewAsset	V
Select from pick list: domSCIRTXXValveType Select from pick list: domSCIRTOldOrNewAsset	V
Select from pick list: domSCIRTOIdOrNewAsset	V
·	A SULLIVER OF THE STATE OF THE
	V//// W
Select from pick list: domSCIRTDiffersFromDesign	
data - text	
(, , , , , , , , , , , , , , , , , , ,	
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·	\////\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
·	
'	(////4/////////////////////////////////
data - decimal number	
	data - decimal number data - decimal number data - decimal number data - decimal number data - date (dd/mm/yyyy) Select from pick list: domSCIRTLocationCertainty Select from pick list: domSCIRTServiceStatus Select from pick list: domSCIRTInstallationCompany data - date (dd/mm/yyyy) data - decimal number Select from pick list: domSCIRTValveNormalOperating Select from pick list: domSCIRTValveNormalOperating Select from pick list: domSCIRTValveClosureRotation Select from pick list: domSCIRTValveControlPoint Select from pick list: domSCIRTValveControlPoint Select from pick list: domSCIRTValveActuation data - decimal number



Point Typ		E06 "Point Asset Inputs		Centre of structure
SAT Column	SAG Description		Valid Values	ХҮ
A	Type of point feature		E06	P. C.
В	Type of junction		Select from pick list: domSCIRTJunctionType	
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	a la
D	Differs from design (yes/n	10)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from dra	wing	data - text	
F	Centre of structure in Eas	ting coordinate	data - decimal number	BK & DN6350
G	Centre of structure in Nor	thing coordinate	data - decimal number	REDUCING
L	Date of commission, Deco	ommission date	data - date (dd/mm/yyyy)	DNSO
M	Location certainty - accura	acy of data	Select from pick list: domSCIRTLocationCertainty	BK
N	Service status - phase of	operation	Select from pick list: domSCIRTServiceStatus	
0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany	TON THE RESERVE TO THE PARTY OF
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Q	Guideline revision used for	or survey	data - decimal number	
	nal Information er columns must be	e left "blank" or hold th	e value "LEAVE BLANK" as default in SAT	

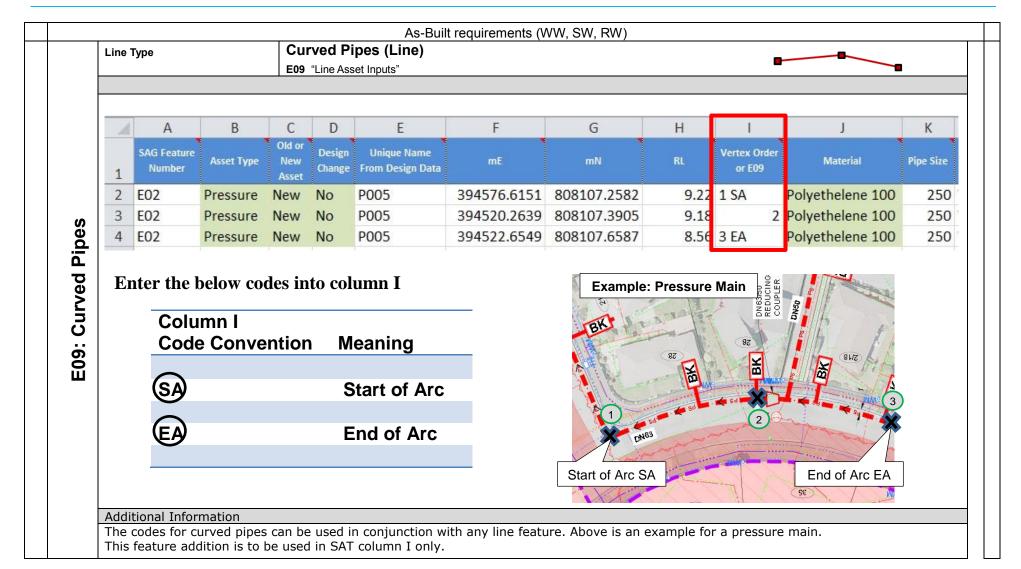


		E07 "Point Asset Inputs	Control Panel (Point)	Centre of structure
SAT Column	SAG Description		Valid Values	ΧY
Α	Type of point feature		E07	Front Soundary
В	Standard or non standard	panel	Select from pick list: domSCIRTWWControlPanelType	***************************************
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no))	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from draw	ring	data - text	
F	Centre of structure in East	ng coordinate	data - decimal number	
G	Centre of structure in North	ning coordinate	data - decimal number	15
L	Date of commission, Deco	mmission date	data - date (dd/mm/yyyy)	
M	Location certainty - accura	cy of data	Select from pick list: domSCIRTLocationCertainty	Control Panel
N	Service status - phase of c	peration	Select from pick list: domSCIRTServiceStatus	***************************************
0	Name of main contractor w	hom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Q	Guideline revision used for	survey	data - decimal number	
Т	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
U	Does the asset have telem	etry? (yes/no)	Select from pick list: domSCIRTTelemetryFitted	Y //
Z	Manufacturer warranty terr	n in years	data - decimal number	1
	al Information er columns must be	left "blank" or hold th	e value "LEAVE BLANK" as default in SAT	Powers



Name	WW Pressure Later	al (Line)	
Line Typ	E08 "Line Asset Inputs"		ХҮ
	Line features require at least two	row entries in the SAT.	
SAT Column	SAG Description	Valid Values	
Α	Type of line feature	E08	
В	Specific type of lateral	Select from pick list: domSCIRTXXLateralType	
С	Old or new asset	Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	A PIZ
Е	Unique identifier from drawing	data - text	Elisable
F	Line vertex Easting coordinate	data - decimal number	
F G I	Line vertex Northing coordinate	data - decimal number	
1	Number of vertex (point along line) or arc code	data - text	S C C
J	Material of pipe	Select from pick list: domSCIRTPipeConstruction	DNS _{SO}
K	Nominal diameter in mm	data - number	
N	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Pressure class (PN) or stiffness rating (SN)	Select from pick list: domSCIRTPressureStiffness	/
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
N O P Q R S	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	PressureLateral
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	Z / P
Т	Date of 'survey-start'	data - date (dd/mm/yyyy)	Pressure Lateral
U	Guideline revision used for survey	data - decimal number	g 💸 🗸
V	Pipe Shape	Select from pick list: domSCIRTPipeShape	
W	Average burial depth to invert of pipe	data - decimal number	~ ~ /
X	Was the pipe laid in a trench? (yes/no)	Select from pick list: domSCIRTTrenched	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
X Y	Do several units share this lateral? (yes/no)	Select from pick list: domSCIRTSharedConnection	/
AA	Type of lateral junction	Select from pick list: domSCIRTEyeType	
AB	Distance of IP from lateral start (from connection to existing priv lateral) in mm	ate data - number	
			All bends, start/end points to be
Additio	nal Information	·	
Col I: 6	er columns must be left "blank" or hold the vanter number of vertex along line starting with accuracy 0.5m		surveyed. Create one SAT row per surveyed point.







Line Ty	rpe Electrica E10 "Line As		хү
	Line features requ		
SAT	SAG Description	Valid Values	Front Soundary
A	Type of line feature	E10	
В	Type of cable	Select from pick list: domSCIRTWWPressureCableType	
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	15
F	Line vertex Easting coordinate	data - decimal number	
G	Line vertex Northing coordinate	data - decimal number	Control Panel
=	Number of vertex (point along line) or arc code	data - text	
Ž	Conduit material	Select from pick list: domSCIRTPipeConstruction	
	Conduit diameter	data - number	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
<u>و</u>	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	YY
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	1.3
_ T	Date of 'survey-start'	data - date (dd/mm/yyyy)	14
2 0	Guideline revision used for survey	data - decimal number	1 1 1
<u> </u>	Was the pipe laid in a trench? (yes/no)	Select from pick list: domSCIRTTrenched	Power su
*All o	onal Information ther columns must be left "blank" of enter number of vertex along line s	hold the value "LEAVE BLANK" as default in SAT	All bends, start/end points to be surveyed. Create one SAT row per surveyed point.



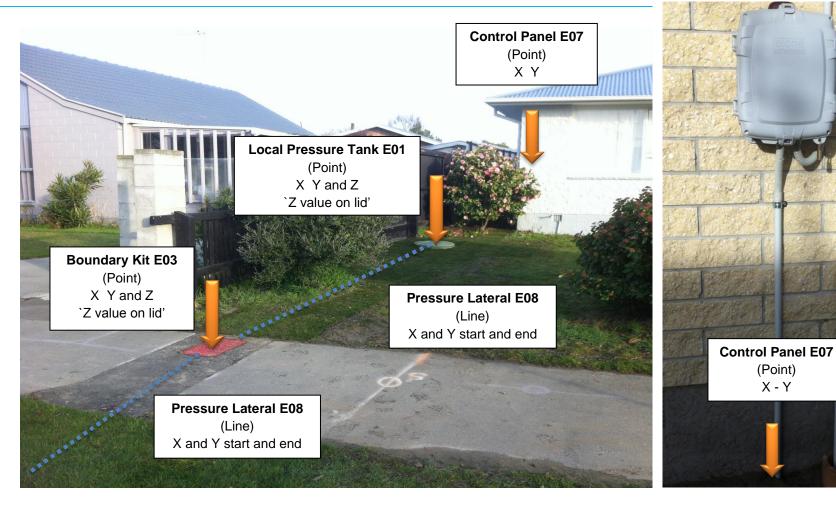


Figure 34: Pressure System Layout for a Typical Household



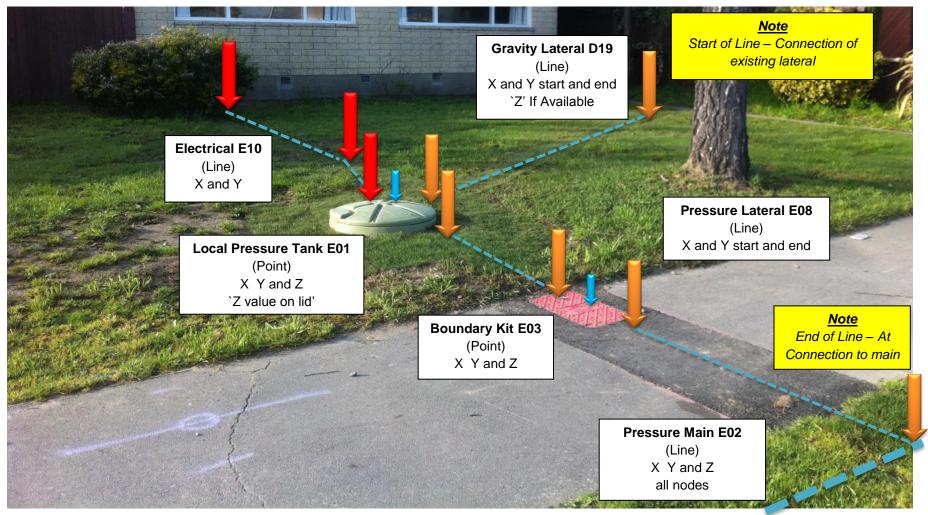


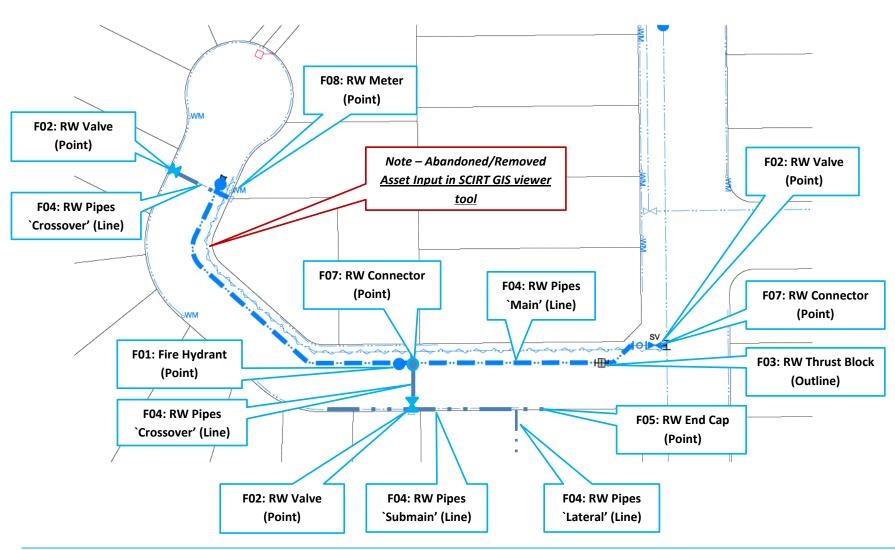
Figure 35: WW Pressure System Layout Overview



Appendix F As-built Requirements for Reticulated Water

F01: RW Fire	e Hydrant10)1
F02: RW Val	lve10)2
F03: RW Thr	rust Block10)3
F04: RW Pip	pes10)5
F05: RW End	d Cap10)6
F06: RW Pur	mp10)7
F07: RW Co	nnector10)8
F08: RW Me	eter10)9
F09: RW Res	servoir11	10
F10: RW Res	servoir Inlet/Outlet11	11
F11: RW Str	ructure11	12
F12: RW Res	strictor11	13







Name Point Type		RW Fire Hydran	•	Centre of hydrant X Y and Z
		F01 "Point Asset Inputs	5	
SAT Column	SAG Description		Valid Values	
Α	Type of point feature		F01	
В	Standard or non standard		Select from pick list: domSCIRTWSHydrantType	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no	0)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drav	ving	data - text	
F G H L	Centre of structure in East	ing coordinate	data - decimal number	
G	Centre of structure in Nort	hing coordinate	data - decimal number	
Н	RL on lowest corner of lid		data - decimal number	
L	Date of commission, Deco	mmission date	data - date (dd/mm/yyyy)	
M	Location certainty - accura	icy of data	Select from pick list: domSCIRTLocationCertainty	
	Service status - phase of o	pperation	Select from pick list: domSCIRTServiceStatus	_
N O P	Name of main contractor v		Select from pick list: domSCIRTInstallationCompany	V V
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	V
Q	Guideline revision used fo	r survey	data - decimal number	V
	Manufacturer of asset nal Information ner columns must be	left "blank" or hold th	Select from pick list: domSCIRTManufacturer le value "LEAVE BLANK" as default in SAT	FIRE HYDRANT



Po	Name RW Valve (Point) Point Type F02 "Point Asset Inputs"		F02 "Point Asset Innuts"	•	Centre of valve
	инс тур	<u>, </u>	1 02 1 ont / Goot inputs		XYZ
SA	AT olumn	SAG Description		Valid Values	
Α		Type of point feature		F02	
В		Type of valve		Select from pick list: domSCIRTXXValveType	
С		Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
D		Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
Е		Unique identifier from draw	ng	data - text	
F		Centre of structure in Eastir	ng coordinate	data - decimal number	
G		Centre of structure in North	ing coordinate	data - decimal number	
H K L M		Height above datum		data - decimal number	
2 K		Nominal diameter in mm		data - number	V
<u>ע</u>		Date of commission, Decon	nmission date	data - date (dd/mm/yyyy)	Finished surface—
M		Location certainty - accurac	y of data	Select from pick list: domSCIRTLocationCertainty	Valve box
		Service status - phase of or	peration	Select from pick list: domSCIRTServiceStatus	
0		Name of main contractor w	nom installed asset	Select from pick list: domSCIRTInstallationCompany	
I P		Date of 'survey-start'		data - date (dd/mm/yyyy)	
i Q		Guideline revision used for	survey	data - decimal number	
Q R		Is the valve (incl. lid) buried	below ground? (yes/no)	Select from pick list: domSCIRTWSValveBuried	
∟ ⊤		Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
U		Valve closure rotation direc	tion	Select from pick list: domSCIRTValveClosureRotation	
V		Valve normal operating pos	ition - open or closed	Select from pick list: domSCIRTValveNormalOperating	
W		Main function of valve		Select from pick list: domSCIRTValveFunction	
Х		Valve control point		Select from pick list: domSCIRTValveControlPoint	
Υ		Manual or motorised valve		Select from pick list: domSCIRTValveActuation	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Z		Manufacturer warranty term	in years	data - decimal number	VALVE
A/	4	Pressure triggering opening	/closing of valve in kPa	data - number	
Λ.	ddition	al Information			
			I C: WI I I // I I I : :	I WEAVE BLANKS I COLOR	
*/	All othe	er columns must be	left "blank" or hold the	value "LEAVE BLANK" as default in SAT	



Name Line Typ	9	RW Thrust Bloc F03 "Line Asset Inpu	•		The st Black Cultivation
J.	Outline features require at least thre			s in the SAT.	Thrust Block Outline or
SAT Column	SAG Description		Valid Val		Centre of Structure X Y
A	Type of polygon feature		F03		7 '
В	Specific type of structure		Select fro	om pick list: domSCIRTXXStructureType	
С	Old or new asset		Select fro	om pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no		Select fro	om pick list: domSCIRTDiffersFromDesign	
Е	Unique identifier from draw	ng	data - tex	xt	/ .
F	Polygon vertex Easting coo	dinate	data - ded	cimal number	2/
G	Polygon vertex Northing co	ordinate	data - ded	cimal number	
I	Number of vertex (point alo		data - tex	ct	
F G I J	Predominant material of str		Select fro	om pick list: domSCIRTXXStructureMaterial	AT THE
0	Name of main contractor whom installed asset Date of commission, Decommission date Location certainty - accuracy of data		Select fro	om pick list: domSCIRTInstallationCompany	
Q R S T				te (dd/mm/yyyy)	
R				om pick list: domSCIRTLocationCertainty	
S	Service status - phase of or	eration	Select fro	om pick list: domSCIRTServiceStatus	
Т	Date of 'survey-start'		data - dat	te (dd/mm/yyyy)	/
U	Guideline revision used for	survey	data - ded	cimal number	***
			all corner poi	Centre of structure <i>or</i> nts along outline to be surveyed. e SAT row per surveyed point.	4 1
*All oth	nal Information ner columns must be nter number of verte		the value "LEAVE	BLANK" as default in SAT	



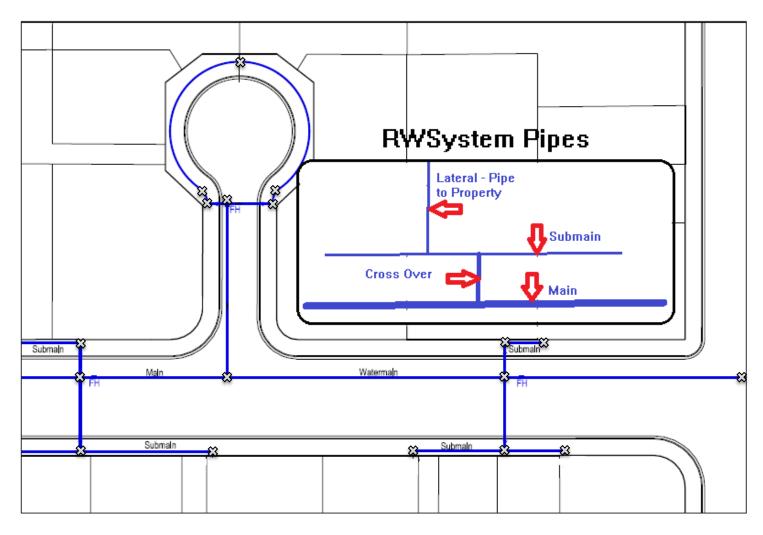
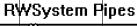


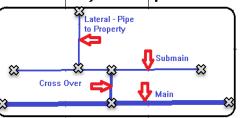
Figure RWSystem Pipes



As-Built requirements (RW) **RW Pipes (Line)** Name Line Type F04 "Line Asset Inputs" Line features require at least two row entries in the SAT. SAT SAG Description Valid Values Column Type of line feature Select from pick list: domSCIRTWSPipeType В Specific type of pipe С Select from pick list: domSCIRTOIdOrNewAsset Old or new asset D Select from pick list: domSCIRTDiffersFromDesign Differs from design (yes/no) Е Unique identifier from drawing data - text Line vertex Easting coordinate data - decimal number Line vertex Northing coordinate G data - decimal number Н Invert level at vertex data - decimal number Number of vertex (point along line) or arc code data - text **Pipes** Material of pipe Select from pick list: domSCIRTPipeConstruction Nominal diameter in mm data - number Manufacturer of asset Select from pick list: domSCIRTManufacturer 0 Name of main contractor whom installed asset Select from pick list: domSCIRTInstallationCompany F04: RW Pressure class (PN) or stiffness rating (SN) Select from pick list: domSCIRTPressureStiffness data - date (dd/mm/yyyy) Date of commission, Decommission date Location certainty - accuracy of data Select from pick list: domSCIRTLocationCertainty Service status - phase of operation Select from pick list: domSCIRTServiceStatus Date of 'survey-start' data - date (dd/mm/yyyy) U Guideline revision used for survey data - decimal number W Average burial depth to invert of pipe data - decimal number Was the pipe laid in a trench? (yes/no) Select from pick list: domSCIRTTrenched

Centre of pipe vertex X Y







Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Use this feature for all RW pipe types incl. laterals.

Col I: enter number of vertex along line starting with the downstream end Col W: accuracy 0.5 m

All bends, start/end points to be surveyed. Create one SAT row per surveyed point.



Name		RW End Cap (P	oint)			
Point Ty	уре	F05 "Point Asset Inputs"				
SAT Column	SAG Description		Valid Values	Centre of End Cap		
Α	Type of point feature		F05	ХҮ		
В	Specific type of end cap		Select from pick list: domSCIRTEndCapType			
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset			
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign			
Е	Unique identifier from drawing		data - text	PVC 7-7 PVC		
F	Centre of structure in Eas	ting coordinate	data - decimal number			
G L M	Centre of structure in Nort		data - decimal number			
L	Date of commission, Deco	ommission date	data - date (dd/mm/yyyy)			
M	Location certainty - accura	acy of data	Select from pick list: domSCIRTLocationCertainty			
N	Service status - phase of operation		Select from pick list: domSCIRTServiceStatus			
0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany			
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)			
Q	Guideline revision used for	or survey	data - decimal number			
Q						
	onal Information		he value "LEAVE BLANK" as default in SAT			



Point			
SAT Colum	SAG Description	Valid Values	
Α	Type of point feature	F06	
В	Type of function pump used for	Select from pick list: domSCIRTXXPumpType	
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
Е	Unique identifier from drawing	data - text	
F	Centre of structure in Easting coordinate	data - decimal number	
G	Centre of structure in Northing coordinate	data - decimal number	
Н	Height above datum	data - decimal number	
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
H L M N	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
O P	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompar	
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)	
II Q	Guideline revision used for survey	data - decimal number	
R	Name and/or number of pump station	data - text	
Т	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
R T U	Serial number of asset	data - text	
V	Backup Energy Source	Select from pick list: domSCIRTEnergySource	
X	Capacity of pump in litres per hour	data - number	
Υ	Manufacturer warranty reference	data - text	
Z	Manufacturer warranty term in years	data - decimal number	

Centre of Pump X Y and Z (on pump)





Name		RW Connector	(Point)	
Point Typ	e	F07 "Point Asset Inpu	•	Centre of Connector
	SAG Description			X Y
SAT Column	SAG Description		Valid Values	λ 1
Α	Type of point feature		F07	
В	Type of connector		Select from pick list: domSCIRTWSConnectorType	V
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	΄ Δ Δ
D	Differs from design (yes/no	0)	Select from pick list: domSCIRTDiffersFromDesign	47 1 -73
E	Unique identifier from drav	ving	data - text	/—— <u>——————————————————————————————————</u>
F	Centre of structure in East	ing coordinate	data - decimal number	\ ¶⊟₽
G	Centre of structure in Nort	ning coordinate	data - decimal number	∴ d⊟b
L	Date of commission, Deco	mmission date	data - date (dd/mm/yyyy)	V
M	Location certainty - accuracy of data		Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of operation		Select from pick list: domSCIRTServiceStatus	A
0	Name of main contractor v	hom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	· ·
Q	Guideline revision used fo	survey	data - decimal number	
*All oth			the value "LEAVE BLANK" as default in SAT submains are not required.	



	Name		RW Meter (Point	•	
ŀ	Point Typ			,,,	Centre of structure
Ī	SAT Column	SAG Description		Valid Values	ΧY
ľ	A	Type of point feature		F08	
ı	В	Specific point feature		data - text	
	С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
	D	Differs from design (yes/i	no)	Select from pick list: domSCIRTDiffersFromDesign	
	E	Unique identifier from dra	wing	data - text	<u> </u>
ľ	F	Centre of structure in Easting coordinate		data - decimal number	
ľ	G	Centre of structure in Northing coordinate		data - decimal number	
Mere	K	Nominal diameter in mm		data - number	
וַ צָּ	L	Date of commission, Dec	ommission date	data - date (dd/mm/yyyy)	
שַ	M	Location certainty - accuracy of data		Select from pick list: domSCIRTLocationCertainty	·
	N	Service status - phase of	operation	Select from pick list: domSCIRTServiceStatus	PLAN
^	0	Name of main contractor	whom installed asset	Select from pick list: domSCIRTInstallationCompany	<u> </u>
	Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
	Q	Guideline revision used f	or survey	data - decimal number	
Ġ	Т	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
00	U	Serial number of asset		data - text	
∟ [V	Does the asset have tele	metry? (yes/no)	Select from pick list: domSCIRTTelemetryFitted	
	Addition	nal Information			
-			a loft "blank" on bald th	a value "I FAVE DI ANIV" an defecult in CAT	
	[™] All oth	er columns must be	e left "blank" or hold th	e value "LEAVE BLANK" as default in SAT	



F09: RW Reservoir

As-Built requirements (RW)

Name	RW Reservoir (Outline)	
Line Type	F09 "Line Asset Inputs"	

SAT	SAG Description	Valid Values
Column	SAG Description	valid values
	T () ()	F00
A	Type of polygon feature	F09
В	Specific polygon feature	data - text
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign
E	Unique identifier from drawing	data - text
F	Polygon vertex Easting coordinate	data - decimal number
G	Polygon vertex Northing coordinate	data - decimal number
Н	Height above datum	data - decimal number
	Number of vertex (point along outline) or arc code	data - text
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus
T	Date of 'survey-start'	data - date (dd/mm/yyyy)
U	Guideline revision used for survey	data - decimal number
V	Name of reservoir	data - text
W	Capacity in cubic metres	data - number
X	Type of security on access	Select from pick list: domSCIRTAccessSecurity

All corner points along outline to be surveyed.

Create one SAT row per surveyed point.

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in SAT Col I: enter number of vertex along outline

Outline of structure X Y and Z







	L CAG Provide and			Centre of structure
SAT Column	SAG Description		Valid Values	ХҮ
A	Type of point feature		F10	
В	Asset type on which outlet	s installed	Select from pick list: domSCIRTWSOutletType	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from draw	ing	data - text	
F	Centre of structure in Eastin	ng coordinate	data - decimal number	
G	Centre of structure in North	ing coordinate	data - decimal number	
L	Date of commission, Decor	nmission date	data - date (dd/mm/yyyy)	
M	Location certainty - accurac	y of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of o		Select from pick list: domSCIRTServiceStatus	
0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'		data - date (dd/mm/yyyy)	
Q	Guideline revision used for	survey	data - decimal number	



1 -	lame		RW Structure (O	rutine)	
L	ine Type)	F11 "Line Asset Inputs"		Outline of structure
		Outlin	ne features require at leas	et three row entries in the SAT.	
	SAT	SAG Description		Valid Values	XY
Α	Column	Type of polygon feature		F11	
H		Specific type of structure		Select from pick list: domSCIRTXXStructureType	
		Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	
		Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	•	Unique identifier from drawin	ıa	data - text	
F		Polygon vertex Easting coor	U .	data - decimal number	
.	3	Polygon vertex Northing coo		data - decimal number	
דן ע		Number of vertex (point alon		data - text	
5 J		Predominant material of stru	,	Select from pick list: domSCIRTXXStructureMaterial	
3)	Name of main contractor wh	om installed asset	Select from pick list: domSCIRTInstallationCompany	
5 0	2	Date of commission, Decom	mission date	data - date (dd/mm/yyyy)	
5 F	₹	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty	
	3	Service status - phase of ope	eration	Select from pick list: domSCIRTServiceStatus	
		Date of 'survey-start'		data - date (dd/mm/yyyy)	/ / 🕸
	J	Guideline revision used for s	urvey	data - decimal number	1 / 1
	/	Type of security on access		Select from pick list: domSCIRTAccessSecurity	1 – –
• V	٧	Capacity in cubic metres		data - number	F02: RW Valve (Point)
_ ×	(Construction style (for tanks)		Select from pick list: domSCIRTWSTankConstructionStyle	
				All corner points along outline to be surveyed. Create one SAT row per surveyed point.	
		nal Information er columns must be l	eft "blank" or hold th	e value "LEAVE BLANK" as default in SAT	
C	Col I: e	nter number of vertex X: leave blank/unchar	k along outline		



Point Typ	De	F12 "Point Asset Input	S"	Centre of restrictor
SAT	SAG Description		Valid Values	X Y
Column	O/10 Doddinpilon		Tuliu Tuliuoo	
Α	Type of point feature		F12	
В	Specific point feature		data - text	
С	Old or new asset		Select from pick list: domSCIRTOldOrNewAsset	The state of the s
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	•	data - text	在
F	Centre of structure in Eastin	_	data - decimal number	
G	Centre of structure in Northi		data - decimal number	
G L M N O	Date of commission, Decom		data - date (dd/mm/yyyy)	
M	Location certainty - accuracy		Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of op		Select from pick list: domSCIRTServiceStatus	The second second
O P	Name of main contractor wh	iom installed asset	Select from pick list: domSCIRTInstallationCompany	THE RESERVE OF THE PARTY OF THE
Q	Date of 'survey-start' Guideline revision used for s		data - date (dd/mm/yyyy) data - decimal number	
W	Capacity in cubic metres	Burvey	data - decimal number	Service of the servic
Addition	nal Information			



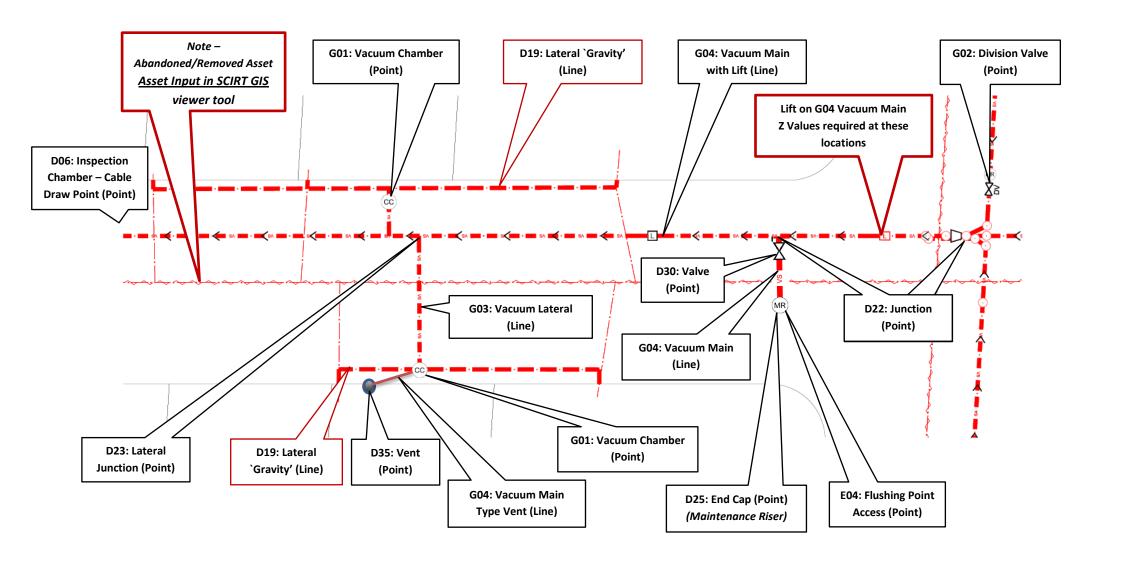
Appendix G As-built Requirements for Vacuum Wastewater System

G01: Vacuum Chamber	116
G02: Division Valve	117
G03: Vacuum Lateral	118
G04: Vacuum Main	119



VACUUM SERVICE LATERAL TYPICAL SECTION





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Point Type G01 "Point Asset Inputs"		_	Centre of structure X Y and Z
SAT Column	SAG Description	Valid Values	V
A	Type of point feature	G01	<u></u> *
В	Specific type of vacuum chamber	Select from pick list: domSCIRTWWVacuumChamberType	F740000 1000000
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	
F	Centre of structure in Easting coordinate	data - decimal number	
G	Centre of structure in Northing coordinate	data - decimal number	
Н	RL on lowest corner of lid	data - decimal number	
J	RL at base of pit (lowest point)	data - decimal number	
L	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
M	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Date of 'survey-start'	data - date (dd/mm/yyyy)	
Q	Guideline revision used for survey	data - decimal number	
R	Trafficable or non trafficable structure	Select from pick list: domSCIRTTrafficable	
S	Shape of access lid	Select from pick list: domSCIRTLidType	
T	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
U	Construction material of chamber	Select from pick list: domSCIRTAccessConstruction	
V	Type of security on access	Select from pick list: domSCIRTAccessSecurity	
W	Serial number of tank	data - text	
Χ	Capacity of tank in litres	data - decimal number	
Υ	Serial numbers of interface valves (divide by)	data - text	
Z	Manufacturer warranty term in years	data - decimal number	
AA	Number of interface valves in chamber	data - number	
AB	Has this chamber been installed with a bottom plate? (yes/no)	Select from pick list: domSCIRTWWTankBottomPlate	Bottom of structure
AC	Type of additional storage apart from this chamber	Select from pick list: domSCIRTWWTankAdditionalStorage	
AD	Unique identifier for telemetry	data - text	Z
Additio	nal Information		
	ner columns must be left "blank" or hold the valu	ie "LEAVE BLANK" as default in SAT	



	Name Division Valve (Point)		Centre of valve	
Point Typ	Point Type G02 "Point Asset Inputs"			X Y and Z
SAT Column	SAG Description		Valid Values	
Α	Type of point feature		G02	
В	Type of valve		Select from pick list: domSCIRTXXValveType	
С	Old or new asset		Select from pick list: domSCIRTOIdOrNewAsset	7
D	Differs from design (yes/no)		Select from pick list: domSCIRTDiffersFromDesign	AND THE PARTY OF T
E	Unique identifier from drawing	g	data - text	V///M W///A
F	Centre of structure in Easting	coordinate	data - decimal number	
e G	Centre of structure in Northin	g coordinate	data - decimal number	
G H K	Height above datum		data - decimal number	
ж К	Nominal diameter in mm		data - number	
L	Date of commission, Decomm	nission date	data - date (dd/mm/yyyy)	
M N O P Q	Location certainty - accuracy	of data	Select from pick list: domSCIRTLocationCertainty	
N	Service status - phase of ope	ration	Select from pick list: domSCIRTServiceStatus	
2 0	Name of main contractor whom installed asset		Select from pick list: domSCIRTInstallationCompany	
P	Date of 'survey-start'		data - date (dd/mm/yyyy)	(//// <u>A</u> /////
Q	Guideline revision used for su	ırvey	data - decimal number	
R	Valve normal operating positi	on - open or closed	Select from pick list: domSCIRTValveNormalOperating	
T U	Manufacturer of asset		Select from pick list: domSCIRTManufacturer	
5 0	Valve closure rotation direction	on	Select from pick list: domSCIRTValveClosureRotation	
W	Main function of valve		Select from pick list: domSCIRTValveFunction	
X	Valve control point		Select from pick list: domSCIRTValveControlPoint	
Υ	Manual or motorised valve		Select from pick list: domSCIRTValveActuation	SECTION
Z	Manufacturer warranty term in	n years	data - decimal number	SECTION
	nal Information er columns must be le	ft "blank" or hold the	e value "LEAVE BLANK" as default in SAT	

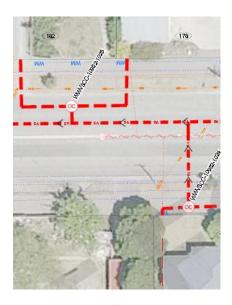


changes at lifts)
Col W: accuracy 0.5m

Name	Vacuum Lateral (Line)		
Line Type	G03 "Line Asset Inputs"		
	Line features require at least two ro	w entries in the SAT.	
SAT Column	SAG Description	Valid Values	
Α	Type of line feature	G03	
В	Specific type of lateral	Select from pick list: domSCIRTXXLateralType	
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	
F	Line vertex Easting coordinate	data - decimal number	
G	Line vertex Northing coordinate	data - decimal number	
I	Number of vertex (point along line) or arc code	data - text	
J	Material of pipe	Select from pick list: domSCIRTPipeConstruction	
K	Nominal diameter in mm	data - number	
N	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompa	
Р	Pressure class (PN) or stiffness rating (SN)	Select from pick list: domSCIRTPressureStiffness	
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)	
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
Т	Date of 'survey-start'	data - date (dd/mm/yyyy)	
U	Guideline revision used for survey	data - decimal number	
V	Pipe Shape	Select from pick list: domSCIRTPipeShape	
W	Average burial depth to invert of pipe	data - decimal number	
Χ	Was the pipe laid in a trench? (yes/no)	Select from pick list: domSCIRTTrenched	
Υ	Do several units share this lateral? (yes/no)	Select from pick list: domSCIRTSharedConnection	
Z	Number of vacuum lifts (for vacuum pipes)	data - number	
AA	Type of lateral junction	Select from pick list: domSCIRTEyeType	
AB	Distance of IP from lateral start (from connection to existing private lateral) in mm	data - number	

Col I: enter number of vertex along line starting with the downstream end (also survey grade

Lateral Pipe X Y



All bends, start/end points to be surveyed.
Create one SAT row per surveyed point.



See Appendix C.2.4 for an SAT example.

	Line features require at leas	X Y and Z	
SAT Column	SAG Description	Valid Values	
A	Type of line feature	G04	**************************************
В	Specific type of pipe	Select from pick list: domSCIRTWWPipeType	113
С	Old or new asset	Select from pick list: domSCIRTOIdOrNewAsset	NAME AND ADDRESS OF THE PARTY O
D	Differs from design (yes/no)	Select from pick list: domSCIRTDiffersFromDesign	
E	Unique identifier from drawing	data - text	
F	Line vertex Easting coordinate	data - decimal number	
G	Line vertex Northing coordinate	data - decimal number	
Н	Invert level at vertex	data - decimal number	sn s
1	Number of vertex (point along line) or arc code	data - text	0
J	Material of pipe	Select from pick list: domSCIRTPipeConstruction	
K	Nominal diameter in mm	data - number	
L	At Pit - UID name from design drawing	data - text	
M	To Pit - UID name from design drawing	data - text	
N	Manufacturer of asset	Select from pick list: domSCIRTManufacturer	
0	Name of main contractor whom installed asset	Select from pick list: domSCIRTInstallationCompany	
Р	Pressure class (PN) or stiffness rating (SN)	Select from pick list: domSCIRTPressureStiffness	SUPERIOR STATE OF THE STATE OF
Q	Date of commission, Decommission date	data - date (dd/mm/yyyy)	There is
R	Location certainty - accuracy of data	Select from pick list: domSCIRTLocationCertainty	
S	Service status - phase of operation	Select from pick list: domSCIRTServiceStatus	
Т	Date of 'survey-start'	data - date (dd/mm/yyyy)	_
U	Guideline revision used for survey	data - decimal number	V
V	Pipe Shape	Select from pick list: domSCIRTPipeShape	
W	Average burial depth to invert of pipe	data - decimal number	V
X	Was the pipe laid in a trench? (yes/no)	Select from pick list: domSCIRTTrenched	
Υ	Number of vacuum lifts (for vacuum pipes)	data - number	
Addition	nal Information	e value "LEAVE BLANK" as default in SAT	Z Values at change of grade



Notes : - Please refer to appendices D for pickups of assets associated with a Wastewater Vacuum System

- D06 Inspection Chamber
- D10 Square Manhole Non Vented
- D12 Circular Manhole Non Vented
- D19 Gravity Lateral
- D22 Junction
- D24 Inspection Point
- D25 End Cap
- D26 Thrust Block
- D27 Pumping Station and Structures
- D28 Pump
- D30 Valve
- D35 Vent