XML Specification For MSCC4 Sewer Inspection Data

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1. GENERAL

The file shall start with a standard xml header

<?xml version="1.0" encoding = "UTF-8" standalone ="yes">

Followed by the reference to the the style sheet as follows:

<?xml-stylesheet type="text/xsl" href="http://www.wrcplc.co.uk/srm/schemas/mscc4_cctv.xsl" ?>

The general structure for each survey shall be in two parts; the header information and the observations during the survey. For Drains and sewers, the structure of these shall be in the general form:

<SurveyGroup xmlns="http://www.wrcplc.co.uk/srm"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemalocation="http://www.wrcplc.co.uk/srm/schemas/mscc4_cctv.xsd">
  <Survey>
    <Header>
      <Client>-</Client>
      etc
    </Header>
    <Observations>
      <Observation>
        <Video Ref>-</VideoRef>
        <Distance>-</Distance>
        etc
        <!--  child tags as described in draft -->
      </Observation>
      <!--  multiple observations possible -->
    </Observations>
  </Survey>
</SurveyGroup>

For manholes or inspection chambers it shall be of the general form:
Manhole surveys and pipe surveys may be mixed in the same Survey Group if desired in which case the Surveys should always precede the Node Surveys.

The header fields shall be in accordance with Section 2.1 or Section 3.1 and the Observation fields shall be in accordance with Section 2.2 or Section 3.2.

2. DRAINS AND SEWERS

2.1 Header information

2.1.1 Introduction

The header information is described in Chapter 3 of the WRc Manual of Sewer Condition Classification 4th Edition.

This section specifies the XML element name for each data item, whether the inclusion of the field in the data file is mandatory and whether it is mandatory to provide a non-blank value for the field.

For convenience the type of data and, where specified, the list of codes are also reproduced from the Manual of Sewer Condition Classification. Where specified, the list of codes should be treated as a restrictive list. Any other validation rules are also included.

2.1.2 Field 1 – Client

Type of content = TEXT

Maximum field length = 30 characters
XML element name = Client
XML element mandatory = No
Completion of field mandatory = No

2.1.3 Field 2 – Name of Surveyor
Type of content = TEXT
Maximum field length = 12 characters
XML element name = NameOfSurveyor
XML element mandatory = No
Completion of field mandatory = No

2.1.4 Field 3 – Client’s Job reference
Type of content = TEXT
Maximum field length = 10 characters
XML element name = ClientsJobRef
XML element mandatory = No
Completion of field mandatory = No

2.1.5 Field 4 – Contractor’s Job reference
Type of content = TEXT
Maximum field length = 10 characters
XML element name = ContractorsJobRef
XML element mandatory = No
Completion of field mandatory = No

2.1.6 Field 5 – Drainage Area
Type of content = TEXT or NUMBER
Maximum field length = 10 characters
XML element name = DrainageArea
XML element mandatory = No
Completion of field mandatory = No
2.1.7 Field 6 – Division / District

Type of content = TEXT

Maximum field length = 4 characters

XML element name = DivisionDistrict

XML element mandatory = No

Completion of field mandatory = No

2.1.8 Field 7 – Pipeline Length Reference

Type of content = TEXT

Maximum field length = 14 characters

XML element name = PipelineLengthRef

XML element mandatory = Yes

Completion of field mandatory = Yes

Rules:

The pipeline length reference should be either in accordance with STC25 (see MSCC4 Appendix A) or Highways Agency Specification HD 43/04 Drainage Data Management System for Highways (Design Manual for Roads and Bridges Volume 4 Section 2)

- Text format should be AB1234 5678X.
- Where there are more than 99 nodes in a 100m square the last two numbers in the STC25 reference may optionally be replaced by alphabetical characters or a mixture of alphabetic and numeric characters.
- The numeric part of the field may be split by any non numeric character e.g.:
  - space “AB1234 5678X” or “AB1234 56ABX” or “AB1234 5678a.1”; or
  - underscore “AB1234_5678X” or “AB1234_56A8X” or “AB1234_5678a.1”; or
  - slash “AB1234/5678X” or “AB1234/567BX” or “AB1234/5678a.1”; or
  - no separator “12345678X” or “AB123456ABX” or “AB12345678a.1”.
- For sewers the suffix may be X, Y or Z or not used.
- For highways the suffix is “.number”

2.1.9 Field 8 – Date

Type of content = DATE in ISO 8601 CCYY-MM-DD format

XML element name = Date

XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:
  • Blanks are to be zero filled.

2.1.10 Field 9 – Time
Type of content = TIME in ISO 8601 format hh:mm
XML element name = Time
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Use the 24 hour clock
  • Blanks are to be zero filled.

2.1.11 Field 10 – Location (Street Name)
Type of content = TEXT
Maximum field length = 50 characters
XML element name = LocationStreet
XML element mandatory = Yes
Completion of field mandatory = Yes

2.1.12 Field 11 – Location (Town or Village)
Type of content = TEXT
Maximum field length = 30 characters
XML element name = LocationTown
XML element mandatory = Yes
Completion of field mandatory = Yes

2.1.13 Field 12 – Location Type Code
Type of content = TEXT
Maximum field length = 3 characters
XML element name = LocationTypeCode
XML element mandatory = No
Completion of field mandatory = No

Rules:

- Use one of the codes in Tables 1 and 2.

**Table 1  Codes for Location Type (Sewerage Undertakers and Domestic Drainage)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD</td>
<td>Road</td>
</tr>
<tr>
<td>FWY</td>
<td>A footway beside a road</td>
</tr>
<tr>
<td>VG</td>
<td>Verge</td>
</tr>
<tr>
<td>PD</td>
<td>Other pedestrian area</td>
</tr>
<tr>
<td>FLD</td>
<td>Fields (farmland and public open space)</td>
</tr>
<tr>
<td>PR</td>
<td>Property with buildings</td>
</tr>
<tr>
<td>GDN</td>
<td>Gardens (within private property)</td>
</tr>
<tr>
<td>BLG</td>
<td>Under a permanent building</td>
</tr>
<tr>
<td>WLD</td>
<td>Woodland</td>
</tr>
<tr>
<td>DIF</td>
<td>Difficult access (motorway, railway, watercourse, inside building)</td>
</tr>
<tr>
<td>WWY</td>
<td>Under a waterway</td>
</tr>
<tr>
<td>Z</td>
<td>Other</td>
</tr>
</tbody>
</table>

**Table 2  Codes for Location Type (Highways Authorities)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Roads other than motorways</th>
<th>Motorways</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS1</td>
<td>Left Outside Verge (adjacent to footway)</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XS2</td>
<td>Left Footway</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XS3</td>
<td>Left Verge</td>
<td>Verge</td>
<td></td>
</tr>
<tr>
<td>XS4</td>
<td>Lane 1</td>
<td>Hard shoulder</td>
<td></td>
</tr>
<tr>
<td>XS5</td>
<td>Lane 2</td>
<td>Slow lane</td>
<td></td>
</tr>
<tr>
<td>XS6</td>
<td>Lane 3</td>
<td>Central lane</td>
<td></td>
</tr>
<tr>
<td>XS7</td>
<td>Lane 4</td>
<td>Fast lane</td>
<td></td>
</tr>
<tr>
<td>XS8</td>
<td>Right Verge</td>
<td>Central reserve/Right verge</td>
<td></td>
</tr>
<tr>
<td>XS9</td>
<td>Right Footway</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XS0</td>
<td>Right Outside Verge (adjacent to footway)</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XSE</td>
<td>Right turning lane</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XSQ</td>
<td>Slip road</td>
<td>Slip road</td>
<td></td>
</tr>
<tr>
<td>XSR</td>
<td>Bus lane</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XST</td>
<td>Crawler lane</td>
<td>Crawler lane</td>
<td></td>
</tr>
<tr>
<td>XSW</td>
<td>Left turning lane</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>XSY</td>
<td>Any other option</td>
<td>Any other option</td>
<td></td>
</tr>
</tbody>
</table>

**2.1.14  Field 13 – Start Node Reference**

Type of content = TEXT
Maximum field length = 12 characters
XML element name = StartNodeRef
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:

The node reference should be either in accordance with STC25 (see MSCC4 Appendix A) or Highways Agency Specification HD 43/04 Drainage Data Management System for Highways (Design Manual for Roads and Bridges Volume 4 Section 2)

- Text format should be AB1234 5678 or AB1234 5678a.
- Where there are more than 99 nodes in a 100m square the last two numbers in the STC25 reference may optionally be replaced by alphabetical characters or a mixture of alphabetic and numeric characters.
- The numeric part of the field may be split by a space, a hyphen, an underscore or a forward slash or there may be no separating character e.g.:
  - space “AB1234 5678” or ”AB1234 56AB” or ”AB1234 5678a”; or
  - underscore “AB1234_5678” or ”AB1234_567B” or ”AB1234_5678a”; or
  - slash “AB1234/5678” or ”AB1234 56A8” or ”AB1234/5678a”; or
  - no separator “AB12345678” or ”AB123456AB” or ”AB12345678a”.

2.1.15 Field 14 – Depth at Start Node

Type of content = NUMBER
Minimum value = 00.00
Maximum value = 99.99
Number of decimal places = 2
XML element name = DepthAtStartNode
XML element mandatory = No
Completion of field mandatory = No

2.1.16 Field 15 – Finish Node Reference

Type of content = TEXT
Maximum field length = 12 characters
XML element name = FinishNodeRef
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:

The node reference should be either in accordance with STC25 (see MSCC4 Appendix A) or Highways Agency Specification HD 43/04 Drainage Data Management System for Highways (Design Manual for Roads and Bridges Volume 4 Section 2)

- Text format should be AB1234 5678 or AB1234 5678a.
- Where there are more than 99 nodes in a 100m square the last two numbers in the STC25 reference may optionally be replaced by alphabetical characters or a mixture of alphabetic and numeric characters.
- The numeric part of the field may be split by a space, a hyphen, an underscore or a forward slash or there may be no separating character e.g.:
  - space “AB1234 5678” or ”AB1234 567B” or ”AB1234 5678a”; or
  - underscore “AB1234_5678” or ”AB1234_567B” or ”AB1234_5678a”; or
  - slash “AB1234/5678” or ”AB1234 56A8” or ”AB1234/5678a”; or
  - no separator “AB12345678” or ”AB123456AB” or ”AB12345678a”; or

2.1.17 Field 16 – Depth at Finish Node

Type of content = NUMBER

Minimum value = 00.00

Maximum value = 99.99

Number of decimal places = 2

XML element name = DepthAtFinishNode

XML element mandatory = No

Completion of field mandatory = No

2.1.18 Field 17 – Use of Drain/Sewer

Type of content = TEXT

Maximum field length = 1 character

XML element name = UseOfDrainSewer

XML element mandatory = No

Completion of field mandatory = No

Rules:

- Use one of the following codes.
2.1.19 Field 18 – Type of Drain/Sewer

Type of content = TEXT
Maximum field length = 1 character
XML element name = TypeOfDrainSewer
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Use either A or B:

2.1.20 Field 19 – Direction

Type of content = TEXT
Maximum field length = 1 character
XML element name = Direction
XML element mandatory = Yes
Completion of field mandatory = Yes
Rules:
  • Use either U or D.

2.1.21 Field 20 – Height or Diameter

Type of content = NUMBER
Minimum value = 20
Maximum value = 99999
Number of decimal places = 0
XML element name = HeightDiameter
XML element mandatory = No
Completion of field mandatory = No
2.1.22 Field 21 – Width

Type of content = NUMBER
Minimum value = 20
Maximum value = 99999
Number of decimal places = 0
XML element name = Width
XML element mandatory = No
Completion of field mandatory = No

Rules:
• May be left blank.

2.1.23 Field 22 – Shape

Type of content = TEXT
Maximum field length = 1 character
XML element name = Shape
XML element mandatory = No
Completion of field mandatory = No

Rules:
• Use one of the following codes.

A Arched (with flat bottom)
B Barrel (e.g. beer barrel shape)
C Circular
E Egg shaped
H Horseshoe (i.e. inverted U)
O Oval
R Rectangular
T Trapezoidal
U U-shaped with flat top
K Kerb block
Z Other (state in Comments).

2.1.24 Field 23 – Material

Type of content = TEXT
Maximum field length = 3 characters
XML element name = Material
XML element mandatory = No

Completion of field mandatory = No

Rules:

- Use one of the following codes.

  AC  Asbestos cement
  BL  Bitumen (lining)
  BR  Brick
  CI  Cast iron
  CL  Cement mortar (lining)
  CO  Concrete
  CS  Concrete segments
  DI  Ductile iron
  EP  Epoxy
  FC  Fibre cement
  FRP  Fibre reinforced plastics
  GI  Grey cast iron
  PVC Polyvinyl chloride
  PE  Polyethylene
  PP  Polypropylene
  PS  Polyester
  RC  Reinforced concrete
  SPC  Sprayed concrete
  ST  Steel
  VC  Vitrified clay (i.e. all clayware)
  PF  Pitch fibre
  MAC Masonry – in regular courses
  MAR Masonry – randomly coursed
  X  Unidentified material
  XI  Unidentified type of iron or steel
  XP  Unidentified type of plastics
  Z  Other (details should be recorded in the remarks section)

2.1.25  Field 24 – Lining Material

Type of content = TEXT

Maximum field length = 3 characters

XML element name = LiningMaterial

XML element mandatory = No

Completion of field mandatory = No

Rules:

- Use one of the Material codes from the table in Field 23 above.
2.1.26  Field 25 – Lining Type
Type of content = TEXT
Maximum field length = 3 characters
XML element name = LiningType
Completion of field mandatory = No
Rules:
• Use one of the following codes.
• May be left blank.
M  Lining inserted during manufacture
SP  Sprayed lining
CIP Cured in place lining
SEG Segmental linings
DP  Lining with discrete pipes
CP  Lining with continuous pipes
CF  Close fit lining
SW  Spirally wound lining
Z  Other – further remarks should be recorded using a general remark

2.1.27  Field 26 – Pre-cleaned
Type of content = TEXT
Maximum field length = 1 character
XML element name = Precleaned
Completion of field mandatory = Yes
Rules:
• Use the codes Y, N or Z.

2.1.28  Field 27 – General Remarks
Type of content = TEXT
Maximum field length = 50 characters
XML element name = GeneralRemarks
Completion of field mandatory = No
2.1.29 Field 28 – Critical Drain/Sewer

Type of content = TEXT

Maximum field length = 3 character

XML element name = CriticalDrainSewer

XML element mandatory = No

Completion of field mandatory = No

Rules:

- Use the codes A, B, C or Z. This may optionally be followed by up to 2 additional characters

Note: Critical sewer categories are defined in Volume 1 of the Sewerage Rehabilitation Manual. Category A is most critical and Category C is non-critical and Z is not known.

2.1.30 Field 29 – Purpose of Inspection

Type of content = TEXT

Maximum field length = 1 character

XML element name = PurposeOfInspection

XML element mandatory = No

Completion of field mandatory = No

Rules:

- Use one of the following codes.

A  Investigation of known structural or service defects
B  Investigation of infiltration problems
C  Post completion inspection of repairs or renovations
D  Pre-adoption survey prior to vesting as public sewer
E  Post completion inspection of new sewers
F  Sample survey of sewers to determine asset condition of a sewer system
G  Routine inspection of condition
H  Investigation of a suspected operational problem
I  Investment planning
J  End of warranty period
X  Other (state in Comments)

2.1.31 Field 30 – Flow Control Measures

Type of content = TEXT

Maximum field length = 2 characters
XML element name = FlowControlMeasures
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Use one of the following codes.
  
N       No flow control
BL      Flows blocked upstream
PB      Flows partially blocked upstream
X       Other – further details should be recorded using a general remark

2.1.32 Field 31 – Weather
Type of content = TEXT
Maximum field length = 1 character
XML element name = Weather
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Enter either D, R or S.

2.1.33 Field 32 – Temperature
Type of content = TEXT
Maximum field length = 1 character
XML element name = Temperature
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Enter either A or B.

2.1.34 Field 33 – Pipe Unit Length
Type of content = NUMBER
Minimum value = 0.1
Maximum value = 9.9
Number of decimal places = 1
2.1.35 Field 34 – Expected Length
Type of content = NUMBER
Minimum value = 0.1
Maximum value = 999.9
Number of decimal places = 1
XML element name = ExpectedLength
XML element mandatory = No
Completion of field mandatory = No

2.1.36 Field 35 – Year Constructed
Type of content = TEXT
Maximum field length = 9 characters
XML element name = YearConstructed
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Enter the year either as a single year in CCYY format (e.g. 1923) or as a range in CCYY-CCYY format (e.g. 1923-1930).
- Enter Z if year is not known.

2.1.37 Field 36 – Method of Inspection
Type of content = TEXT
Maximum field length = 1 character
XML element name = MethodOfInspection
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:
• Enter either A, B or C.

2.1.38 Field 37 – Standard
Type of content = TEXT
Maximum field length = 18 characters
XML element name = Standard
XML element mandatory = Yes
Completion of field mandatory = Yes
Rules:
• Enter the version of the standard, in the form BS EN 13508-2:2003.

2.1.39 Field 38 – Video Image Storage
Type of content = TEXT
Maximum field length = 3 characters
XML element name = VideoImageStorage
XML element mandatory = No
Completion of field mandatory = No
Rules:
• Use one of the following codes.
  VHS  VHS video cassette tape
  CD   Video CD
  DVD  Video DVD
  X    Other – further details should be recorded as a general remark

2.1.40 Field 39 – Video Image Location System
Type of content = TEXT
Maximum field length = 1 character
XML element name = VideoImageLocationSystem
XML element mandatory = No
Completion of field mandatory = No
Rules:
• Enter either A, B or X.
2.1.41 Field 40 – Video Image Volume
Type of content = NUMBER or TEXT
Maximum field length = 30 characters
XML element name = VideoImageVolume
XML element mandatory = No
Completion of field mandatory = No
This field may be used to store either the reference to a physical storage medium (the particular DVD, CD or Tape) OR to a video filename. Where it is necessary to store both of these this field should be used to store the reference to the physical storage medium and a VVR code should be used at chainage zero to store the video filename.

2.1.42 Field 41 – Photographic Storage
Type of content = TEXT
Maximum field length = 1 character
XML element name = PhotographicStorage
XML element mandatory = No
Completion of field mandatory = No
Rules:
• Enter either A, B or X.

2.1.43 Field 42 – Photographic Volume
Type of content = NUMBER or TEXT
Maximum field length = 10 characters
XML element name = PhotographicVolume
XML element mandatory = No
Completion of field mandatory = No

2.1.44 Fields 43 – 45 – Client Defined
Type of content = TEXT or NUMBER
Maximum field length = 20 characters
XML element name = ClientDefined1, ClientDefined2, ClientDefined3
XML element mandatory = No
2.2 Observations section

2.2.1 Introduction

The coding system is described in Chapters 2 & 4 of the WRc Manual of Sewer Condition Classification 4th Edition.

This section specifies the XML element name for each data item, whether the inclusion of the field in the data file is mandatory and whether it is mandatory to provide a non-blank value for the field.

Where the field length for a text entry is not specified it may be assumed to be 256 characters.

2.2.2 Initial records

The first records shall start at distance of 0.00m NOT at the cable calibration point. (See MSCC4 Section 1.4.3).

The first two codes used should always be (See MSCC4 Section 2.4):

- **Start node type (e.g. MH).** This is always the first piece of information to be entered in the data section.

- **Water level, WL,** is always the second piece of information to be entered in the data section. After this initial entry only changes in water level are recorded. Enter the water level in terms of percentage height in the % column. If there is no flow in the sewer, zero (0) is entered.

The uses of the various columns are described below.

2.2.3 Video reference

Type of content = NUMBER

Minimum value = 0:00:00

Maximum value = 9:59:59

Number of decimal places = N/A

XML element name = VideoRef

XML element mandatory = Yes
Completion of field mandatory = Yes (for CCTV inspection)

The time reference in the format h:mm:ss (e.g. 1:23:30 indicates a time 1 hour 23 minutes and 30 seconds from the start of the tape or recording).

2.2.4 Photograph reference

Type of content = TEXT or NUMBER

Maximum field length = 50 characters

XML element name = PhotographRefs

XML sub element name = PhotographRef

XML element mandatory = No

Completion of field mandatory = No

A reference will only be given where a still image or photograph is taken.

Enter the still image file name or a photograph number. It is usual to number photographs consecutively.

Where there is more than one filename the sub-element is repeated.

2.2.5 Distance

Type of content = NUMBER (to 1 decimal place)

Minimum value = 0.0

Maximum value = 999.9

Number of decimal places = 1

XML element name = Distance

XML element mandatory = Yes

Completion of field mandatory = Yes

Enter the distance in metres of each structural, service, constructional or miscellaneous code from the start of the survey length. Spaces can be zero filled or left blank.

First entry should be 0.0.

2.2.6 Continuous defect

Type of content = TEXT

Maximum field length = 3 characters

Letter (S = start or F = finish) followed by a number (integer) between 01 and 99.
XML element name = ContinuousDefect
XML element mandatory = No
Completion of field mandatory = No

Rules:

- Must start with 01 and run through numbers consecutively
- No duplication of numbers (S01 and F01 may only appear once etc.)
- F01 can't be entered before S01 etc.
- There must be an F code for all S codes before the SA (survey abandoned code).

2.2.7 Code

Type of content = TEXT
Maximum field length = 5 characters
XML element name = Code
XML element mandatory = Yes
Completion of field mandatory = Yes

Enter the appropriate structural, service, constructional or miscellaneous code (see Section 4). The code is composed of a number of elements. There is a basic code which may be further described by ancillary codes. For example the basic code F (fracture) may be further described by the ancillary code L (longitudinal).

These may then be further described by:

2.2.8 Joint

Type of content = TEXT
Maximum field length = 1 character
XML element name = Joint
XML element mandatory = No
Completion of field mandatory = No

Rules:

- Only letter J should be used
- This column should not be used where the Code column contains JD or OJ codes at the same distance.

2.2.9 Material

Type of content = TEXT
Maximum field length = 3 characters  
XML element name = Material  
XML element mandatory = No  
Completion of field mandatory = No  

Rules:  
• This column should only be used where the Code column contains MC or LC codes.

2.2.10 Band  
Type of content = TEXT  
Maximum field length = 1 character  
XML element name = Band  
XML element mandatory = No  
Completion of field mandatory = No  

Rules:  
• Only letters M or L should be used  
• This column should only be used where the Code column contains JD or OJ codes.

2.2.11 Dimension 1 & 2  
Type of content = TEXT or NUMBER  
Maximum field length = Dimension 1 - 30 characters, Dimension 2 - 12 characters  
XML element name = Dimension1  
XML element mandatory = No  
Completion of field mandatory = No  
XML element name = Dimension2  
XML element mandatory = No  
Completion of field mandatory = No  

Rules:  
• Data shall be entered in the Dimension 1 column first.  
• The Dimension 2 column shall only be used where a second dimension is required, otherwise it will be left blank.
2.2.12 Percentage

Type of content = Text
Minimum value = 00
Maximum value = 100
Number of decimal places = 0
XML element name = Percentage
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Data shall be entered in 5% increments.
- Leading zeros to be included (e.g. 5% shall be entered as 05).

2.2.13 Clock reference At/From & To

Type of content = NUMBER
Minimum value = 01
Maximum value = 12
Number of decimal places = 0
XML element name = ClockRefAtFrom
XML element mandatory = No
Completion of field mandatory = No
XML element name = ClockRefTo
XML element mandatory = No
Completion of field mandatory = No

Rules:
- A number between 1 and 12
- Numbers 1 to 9 should be entered as 01, 02 etc.
- If a single clock ref is required it shall be entered in the At/From column.
- If two clock references are required both columns shall be completed.

2.2.14 Remarks

Type of content = TEXT
Maximum field length = 50 characters
XML element name = Remarks
XML element mandatory = No
Completion of field mandatory = No

Rules:

- If the REM code is used in the Code column then there should be an accompanying remark in this column.

3. MANHOLES AND INSPECTION CHAMBERS

3.1 Header information

3.1.1 Introduction

The header information is described in Chapter 6 of the WRc Manual of Sewer Condition Classification 4th Edition.

This section specifies the XML element name for each data item, whether the inclusion of the field in the data file is mandatory and whether it is mandatory to provide a non-blank value for the field.

For convenience the type of data and, where specified, the list of codes are also reproduced from the Manual of Sewer Condition Classification. Where specified, the list of codes should be treated as a restrictive list. Any other validation rules are also included.

3.1.2 Field 1 – Client

Type of content = TEXT

Maximum field length = 30 characters
XML element name = Client
XML element mandatory = No
Completion of field mandatory = No

3.1.3 Field 2 – Name of Surveyor

Type of content = TEXT

Maximum field length = 12 characters
XML element name = NameOfSurveyor
XML element mandatory = No
Completion of field mandatory = No
3.1.4 Field 3 – Client’s Job reference
Type of content = TEXT
Maximum field length = 10 characters
XML element name = ClientsJobRef
XML element mandatory = No
Completion of field mandatory = No

3.1.5 Field 4 – Contractor’s Job reference
Type of content = TEXT
Maximum field length = 10 characters
XML element name = ContractorsJobRef
XML element mandatory = No
Completion of field mandatory = No

3.1.6 Field 5 – Drainage Area
Type of content = TEXT or NUMBER
Maximum field length = 10 characters
XML element name = DrainageArea
XML element mandatory = No
Completion of field mandatory = No

3.1.7 Field 6 – Division / District
Type of content = TEXT
Maximum field length = 4 characters
XML element name = DivisionDistrict
XML element mandatory = No
Completion of field mandatory = No

3.1.8 Field 7 – Manhole/Node Reference
Type of content = TEXT
Maximum field length = 12 characters
XML element name = ManholeRef
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:
The node reference should be either in accordance with STC25 (see MSCC4 Appendix A) or Highways Agency Specification HD 43/04 Drainage Data Management System for Highways (Design Manual for Roads and Bridges Volume 4 Section 2)

- Text format should be AB1234 5678 or AB1234 5678a.
- Where there are more than 99 nodes in a 100m square the last two numbers in the STC25 reference may optionally be replaced by alphabetical characters or a mixture of alphabetic and numeric characters.
- The numeric part of the field may be split by a space, a hyphen, an underscore or a forward slash or there may be no separating character e.g.:
  - space “AB1234 5678” or ”AB1234 56AB” or ”AB1234 5678a”; or
  - underscore “AB1234_5678” or ”AB1234_567B” or ”AB1234_5678a”; or
  - slash “AB1234/5678” or ”AB1234 56A8” or ”AB1234/5678a”; or
  - no separator “AB12345678” or ”AB123456AB” or ”AB12345678a”; or

3.1.9 Field 8 – National Grid Reference
The field should contain text in the form of two integer numbers (the x coordinate and the y coordinate respectively) separated a space of any non-numerical character. The two integers and incorporate leading zeros where necessary. The OS 100km grid square characters should be converted to the numerical form and included in the coordinates. The two coordinates should be transferred separately as follows:

XML element name = NationalGridRef
XML element mandatory = No
XML sub-element name = NationalGridRefX
XML sub-element mandatory = No
Type of content = NUMBER (integer)
Minimum value = 000000
Maximum value = 999999
Number of decimal places = 0
Completion of field mandatory = No
XML element name = NationalGridRefY
XML sub-element mandatory = No
Type of content = NUMBER (integer)
Minimum value = 000000
Maximum value = 999999
Number of decimal places = 0
Completion of field mandatory = No
Example:

```xml
<NationalGridRef>
  <NationalGridRefX>123456</NationalGridRefX>
  <NationalGridRefY>789012</NationalGridRefY>
</NationalGridRef>
```

3.1.10 Field 9 – Date

Type of content = DATE in ISO 8601 CCYY-MM-DD format
XML element name = Date
XML element mandatory = Yes
Completion of field mandatory = Yes
Rules:

- Blanks are to be zero filled.

3.1.11 Field 10 – Time

Type of content = TIME in ISO 8601 format hh:mm
XML element name = Time
XML element mandatory = No
Completion of field mandatory = No
Rules:

- Use the 24 hour clock
- Blanks are to be zero filled.

3.1.12 Field 11 – Location (Street Name)

Type of content = TEXT
Maximum field length = 50 characters
XML element name = LocationStreet
3.1.13 Field 12 – Location (Town or Village)
Type of content = TEXT
Maximum field length = 30 characters
XML element name = LocationTown
XML element mandatory = Yes
Completion of field mandatory = Yes

3.1.14 Field 13 – Location Type Code
Type of content = TEXT
Maximum field length = 3 characters
XML element name = LocationTypeCode
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use one of the codes in Tables 1 and 2.

Table 1 Codes for Location Type (Sewerage Undertakers and Domestic Drainage)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD</td>
<td>Road</td>
</tr>
<tr>
<td>FWY</td>
<td>A footway beside a road</td>
</tr>
<tr>
<td>VG</td>
<td>Verge</td>
</tr>
<tr>
<td>PD</td>
<td>Other pedestrian area</td>
</tr>
<tr>
<td>FLD</td>
<td>Fields (farmland and public open space)</td>
</tr>
<tr>
<td>PR</td>
<td>Property with buildings</td>
</tr>
<tr>
<td>GDN</td>
<td>Gardens (within private property)</td>
</tr>
<tr>
<td>BLG</td>
<td>Under a permanent building</td>
</tr>
<tr>
<td>WLD</td>
<td>Woodland</td>
</tr>
<tr>
<td>DIF</td>
<td>Difficult access (motorway, railway, watercourse, inside building)</td>
</tr>
<tr>
<td>WWWY</td>
<td>Under a waterway</td>
</tr>
<tr>
<td>Z</td>
<td>Other</td>
</tr>
</tbody>
</table>

Table 2 Codes for Location Type (Highways Authorities)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads other than motorways</td>
<td>Motorways</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>XS1 Left Outside Verge (adjacent to footway)</td>
<td>Not used</td>
</tr>
<tr>
<td>XS2 Left Footway</td>
<td>Not used</td>
</tr>
<tr>
<td>XS3 Left Verge</td>
<td>Verge</td>
</tr>
<tr>
<td>XS4 Lane 1</td>
<td>Hard shoulder</td>
</tr>
<tr>
<td>XS5 Lane 2</td>
<td>Slow lane</td>
</tr>
<tr>
<td>XS6 Lane 3</td>
<td>Central lane</td>
</tr>
<tr>
<td>XS7 Lane 4</td>
<td>Fast lane</td>
</tr>
<tr>
<td>XS8 Right Verge</td>
<td>Central reserve/Right verge</td>
</tr>
<tr>
<td>XS9 Right Footway</td>
<td>Not used</td>
</tr>
<tr>
<td>XS0 Right Outside Verge (adjacent to footway)</td>
<td>Not used</td>
</tr>
<tr>
<td>XSE Right turning lane</td>
<td>Not used</td>
</tr>
<tr>
<td>XSQ Slip road</td>
<td>Slip road</td>
</tr>
<tr>
<td>XSR Bus lane</td>
<td>Not used</td>
</tr>
<tr>
<td>XST Crawler lane</td>
<td>Crawler lane</td>
</tr>
<tr>
<td>XSW Left turning lane</td>
<td>Not used</td>
</tr>
<tr>
<td>XSY Any other option</td>
<td>Any other option</td>
</tr>
</tbody>
</table>

### 3.1.15 Field 14 – Land Ownership

Type of content = TEXT

Maximum field length = 2 characters

XML element name = LandOwnership

XML element mandatory = No

Completion of field mandatory = No

Rules:

- Use one of the following codes.

  PU Public
  PR Private
  Z Not known

### 3.1.16 Field 15 – Vertical Reference Point

Type of content = TEXT

Maximum field length = 2 characters

XML element name = VerticalRef

XML element mandatory = Yes

Completion of field mandatory = Yes

Rules:
• Use one of the following codes.

I  Invert lowest outgoing pipe in the manhole/inspection chamber
C  Cover (highest corner of frame or highest point on a circular frame)
OD National Datum
LD Local Datum
Z  Other

3.1.17  Field 16 – Circumferential Reference Point

Type of content = NUMBER (2 digit integer)
Minimum value = 06
Maximum value = 06
Number of decimal places = 0
XML element name = CircumferentialRef
XML element mandatory = Yes
Completion of field mandatory = Yes
Rules:
• Leading zero to be included.

3.1.18  Field 17 – Use of Manhole/Inspection Chamber

Type of content = TEXT
Maximum field length = 1 character
XML element name = UseOfManhole
XML element mandatory = No
Completion of field mandatory = No
Rules:
• Use one of the following codes.

C  Combined
F  Foul
S  Surface water
T  Trade effluent
W  Culverted watercourse
Z  Other (state in Comments)

3.1.19  Field 18 – General Remarks

Type of content = TEXT
3.1.20 Field 19 – Shape of Cover

Type of content = TEXT
Maximum field length = 2 characters
XML element name = ShapeOfCover
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use one of the following codes.
  C  Circular
  HX Hexagonal
  OC Octagonal
  OV Oval
  R  Rectangular
  T  Triangular
  Z  Other (state in Comments)

3.1.21 Field 20 – Material of Cover

Type of content = TEXT
Maximum field length = 3 characters
XML element name = MaterialOfCover
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use one of the following codes.
  AC Asbestos cement
  BL Bitumen (lining)
  BR Brick
  CI Cast iron
  CL Cement mortar (lining)
  CO Concrete
  CS Concrete segments
DI  Ductile iron
EP  Epoxy
FC  Fibre cement
FRP  Fibre reinforced plastics
GI  Grey cast iron
PVC  Polyvinyl chloride
PE  Polyethylene
PP  Polypropylene
PS  Polyester
RC  Reinforced concrete
SPC  Sprayed concrete
ST  Steel
VC  Vitrified clay (i.e. all clayware)
PF  Pitch fibre
MAC  Masonry – in regular courses
MAR  Masonry – randomly coursed
X  Unidentified material
XI  Unidentified type of iron or steel
XP  Unidentified type of plastics
Z  Other (details should be recorded in the remarks section)

3.1.22 Field 21 – Width of Cover

Type of content = NUMBER
Minimum value = 10
Maximum value = 999
Number of decimal places = 0
XML element name = WidthOfCover
XML element mandatory = No
Completion of field mandatory = No

Rules:
• May be left blank.

3.1.23 Field 22 – Breadth of Cover

Type of content = NUMBER
Minimum value = 10
Maximum value = 999
Number of decimal places = 0
XML element name = BreadthOfCover
XML element mandatory = No
3.1.24 Field 23 – Shape of Access

Type of content = TEXT

Maximum field length = 2 characters

XML element name = ShapeOfAccess

XML element mandatory = No

Completion of field mandatory = No

Rules:

• Use one of the following codes.

  C  Circular
  HX  Hexagonal
  OC  Octagonal
  OV  Oval
  R  Rectangular
  T  Triangular
  Z  Other (state in Comments)

3.1.25 Field 24 – Width of Access

Type of content = NUMBER

Minimum value = 10

Maximum value = 999

Number of decimal places = 0

XML element name = WidthOfAccess

XML element mandatory = No

Completion of field mandatory = No

Rules:

• May be left blank.

3.1.26 Field 25 – Breadth of Access

Type of content = NUMBER

Minimum value = 10
Maximum value = 999
Number of decimal places = 0
XML element name = BreadthOfAccess
XML element mandatory = No
Completion of field mandatory = No
Rules:
• May be left blank.

3.1.27 Field 26 – Material

Type of content = TEXT
Maximum field length = 3 characters
XML element name = Material
XML element mandatory = No
Completion of field mandatory = No
Rules:
• Use one of the following codes.

AC  Asbestos cement
BL  Bitumen (lining)
BR  Brick
CI  Cast iron
CL  Cement mortar (lining)
CO  Concrete
CS  Concrete segments
DI  Ductile iron
EP  Epoxy
FC  Fibre cement
FRP  Fibre reinforced plastics
GI  Grey cast iron
PVC  Polyvinyl chloride
PE  Polyethylene
PP  Polypropylene
PS  Polyester
RC  Reinforced concrete
SPC  Sprayed concrete
ST  Steel
VC  Vitrified clay (i.e. all clayware)
PF  Pitch fibre
MAC  Masonry – in regular courses
MAR  Masonry – randomly coursed
X  Unidentified material
XI  Unidentified type of iron or steel
XP Unidentified type of plastics
Z Other (details should be recorded in the remarks section)

3.1.28 Field 27 – Type of Steps

Type of content = TEXT
Maximum field length = 1 character
XML element name = TypeOfSteps
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Use one of the following codes.

S Single width – wide enough for one foot only
D Double width – wide enough for both feet
L Ladder
T Toe holes in benching or wall of chamber or shaft
N No steps provided
Z Other

3.1.29 Field 28 – Material of Steps

Type of content = TEXT
Maximum field length = 2 characters
XML element name = MaterialOfSteps
XML element mandatory = No
Completion of field mandatory = No
Rules:
  • Use one of the following codes.

AL Aluminium
GI Galvanised Iron
IR Iron/Steel
PL Plastic
PM Metal encapsulatedin plastic
SS Stainless steel
Z Other

3.1.30 Field 29 – Pre-cleaned

Type of content = TEXT
Maximum field length = 1 character
XML element name = Precleaned
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use the codes Y, N or Z.

3.1.31 Field 30 – Critical

Type of content = TEXT
Maximum field length = 1 character
XML element name = Critical
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use the codes A, B, C or Z.

Note: Critical sewer categories are defined in Volume 1 of the Sewerage Rehabilitation Manual. Category A is most critical and Category C is non-critical and Z is not known.

3.1.32 Field 31 – Purpose of Inspection

Type of content = TEXT
Maximum field length = 1 character
XML element name = PurposeOfInspection
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use one of the following codes.

A  Investigation of known structural or service defects
B  Investigation of infiltration problems
C  Post completion inspection of repairs or renovations
D  Pre-adoption survey prior to vesting as public sewer
E  Post completion inspection of new sewers
F  Sample survey of sewers to determine asset condition of a sewer system
G  Routine inspection of condition
H  Investigation of a suspected operational problem
I  Investment planning
J  End of warranty period
3.1.33 Field 32 – Flow Control Measures

Type of content = TEXT
Maximum field length = 2 characters
XML element name = FlowControlMeasures
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Use one of the following codes.
  N           No flow control
  BL          Flows blocked upstream
  PB          Flows partially blocked upstream
  X           Other – further details should be recorded using a general remark

3.1.34 Field 33 – Weather

Type of content = TEXT
Maximum field length = 1 character
XML element name = Weather
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Enter either D, R or S.

3.1.35 Field 34 – Temperature

Type of content = TEXT
Maximum field length = 1 character
XML element name = Temperature
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Enter either A or B.
3.1.36 Field 35 – Chamber Unit Length

Type of content = NUMBER
Minimum value = 0.1
Maximum value = 9.9
Number of decimal places = 1
XML element name = ChamberUnitLength
XML element mandatory = No
Completion of field mandatory = No

3.1.37 Field 36 – Year Constructed

Type of content = TEXT
Maximum field length = 9 characters
XML element name = YearConstructed
XML element mandatory = No
Completion of field mandatory = No

Rules:
• Enter the year either as a single year in CCYY format (e.g. 1923) or as a range in CCYY-CCYY format (e.g. 1923-1930).
• Enter Z if year is not known.

3.1.38 Field 37 – Method of Inspection

Type of content = TEXT
Maximum field length = 1 character
XML element name = MethodOfInspection
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:
• Enter either A, B or C.

3.1.39 Field 38 – Standard

Type of content = TEXT
Maximum field length = 18 characters
XML element name = Standard
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:

• Enter the version of the standard, in the form BS EN 13508-2:2003.

3.1.40 Field 39 – Video Image Storage

Type of content = TEXT
Maximum field length = 3 characters
XML element name = VideoImageStorage
XML element mandatory = No
Completion of field mandatory = No

Rules:

• Use one of the following codes.

VHS VHS video cassette tape
CD Video CD
DVD Video DVD
X Other – further details should be recorded as a general remark

3.1.41 Field 40 – Video Image Location System

Type of content = TEXT
Maximum field length = 1 character
XML element name = VideoImageLocationSystem
XML element mandatory = No
Completion of field mandatory = No

Rules:

• Enter either A, B or X.

3.1.42 Field 41 – Video Image Volume

Type of content = NUMBER or TEXT
Maximum field length = 30 characters
XML element name = VideoImageVolume
This field may be used to store either the reference to a physical storage medium (the particular DVD, CD or Tape) OR to a video filename. Where it is necessary to store both of these this field should be used to store the reference to the physical storage medium and a VVR code should be used at chainage zero to store the video filename.

3.1.43 Field 42 – Photographic Storage

Type of content = TEXT

Maximum field length = 1 character

XML element name = PhotographicStorage

XML element mandatory = No

Completion of field mandatory = No

Rules:

• Enter either A, B or X.

3.1.44 Field 43 – Photographic Volume

Type of content = NUMBER or TEXT

Maximum field length = 10 characters

XML element name = PhotographicVolume

XML element mandatory = No

Completion of field mandatory = No

3.1.45 Fields 44 – 46 – Client Defined

Type of content = TEXT or NUMBER

Maximum field length = 20 characters

XML element name = ClientDefined1, ClientDefined2, ClientDefined3

XML element mandatory = No

Completion of field mandatory = No

3.1.46 Field 47 – Node Type

Type of content = TEXT

Maximum field length = 2 characters
XML element name = NodeType
XML element mandatory = Yes
Completion of field mandatory = Yes

Rules:

- Use one of the following codes.

  MH  Manhole
  IC  Inspection chamber
  RE  Rodding eye
  LH  Lamphole
  OF  Outfall
  BR  Major connection without manhole
  GY  Gully
  CP  Catchpit
  SK  Soakaway
  OS  Oil separator
  OC  Other special chamber

3.1.47 Fields 48 – Location Plan Image File Name

Type of content = TEXT or NUMBER
Maximum field length = 30 characters

XML element name = LocationPlanImageFileName
XML element mandatory = No
Completion of field mandatory = No

3.2 Observations section

3.2.1 Introduction

The coding system is described in Chapters 5 & 7 of the WRc Manual of Sewer Condition Classification 4th Edition.

This section specifies the XML element name for each data item, whether the inclusion of the field in the data file is mandatory and whether it is mandatory to provide a non-blank value for the field.

The uses of the various columns are described below.

3.2.2 Video reference

Type of content = NUMBER
Minimum value = 0:00:00
Maximum value = 9:59:59
Number of decimal places = N/A

XML element name = VideoRef

XML element mandatory = Yes

Completion of field mandatory = Yes (for CCTV inspection)

The time reference in the format h:mm:ss (e.g. 1:23:30 indicates a time 1 hour 23 minutes and 30 seconds from the start of the tape or recording).

3.2.3 Photograph reference

Type of content = TEXT or NUMBER

Maximum field length = 50 characters

XML element name = PhotographRefs

XML sub element name = PhotographRef

XML element mandatory = No

Completion of field mandatory = No

A reference will only be given where a still image or photograph is taken.

Enter the still image file name or a photograph number. It is usual to number photographs consecutively.

Where there is more than one filename the sub-element is repeated.

3.2.4 Distance

Type of content = NUMBER

Minimum value = 0.0

Maximum value = 99.9

Number of decimal places = 1

XML element name = Distance

XML element mandatory = Yes

Completion of field mandatory = Yes

Enter the distance in metres of each structural, service, constructional or miscellaneous code from the start of the survey length. Spaces can be zero filled or left blank.

First entry should be 0.0.
3.2.5 Continuous defect

Type of content = TEXT

Maximum field length = 3 characters

Letter (S = start or F = finish) followed by a number (integer) between 01 and 99.

XML element name = ContinuousDefect

XML element mandatory = No

Completion of field mandatory = No

Rules:

- Must start with 01 and run through numbers consecutively
- No duplication of numbers (S01 and F01 may only appear once etc.)
- F01 can't be entered before S01 etc.
- There must be an F code for all S codes before the SA (survey abandoned code).

3.2.6 Code

Type of content = TEXT

Maximum field length = 5 characters

XML element name = Code

XML element mandatory = Yes

Completion of field mandatory = Yes

Enter the appropriate structural, service, constructional or miscellaneous code (see Section 7). The code is composed of a number of elements. There is a basic code which may be further described by ancillary codes. For example the basic code F (fracture) may be further described by the ancillary code H (horizontal).

These may then be further described by:

3.2.7 Joint

Type of content = TEXT

Maximum field length = 1 character

XML element name = Joint

XML element mandatory = No

Completion of field mandatory = No

Rules:
• Only letter J should be used
• This column should not be used where the Code column contains JD or OJ codes at the same distance.

3.2.8  Material

Type of content = TEXT
Maximum field length = 3 characters
XML element name = Material
XML element mandatory = No
Completion of field mandatory = No

Rules:
  • This column should only be used where the Code column contains MC or LC codes.

3.2.9  Band

Type of content = TEXT
Maximum field length = 1 character
XML element name = Band
XML element mandatory = No
Completion of field mandatory = No

Rules:
  • Only letters M or L should be used
  • This column should only be used where the Code column contains JD or OJ codes.

3.2.10  Dimension 1 & 2

Type of content = TEXT
Maximum field length = Dimension 1 - 30 characters, Dimension 2 - 12 characters
XML element name = Dimension1
XML element mandatory = No
Completion of field mandatory = No
XML element name = Dimension2
XML element mandatory = No
Completion of field mandatory = No

Rules:
- Data shall be entered in the **Dimension 1** column first.
- The **Dimension 2** column shall only be used where a second dimension is required, otherwise it will be left blank.

### 3.2.11 Percentage

Type of content = Text

Minimum value = 00

Maximum value = 100

Number of decimal places = 0

XML element name = Percentage

XML element mandatory = No

Completion of field mandatory = No

Rules:
- Data shall be entered in 5 % increments.
- Leading zeros to be included (e.g. 5% shall be entered as 05).

### 3.2.12 Clock reference At/From & To

Type of content = NUMBER

Minimum value = 01

Maximum value = 12

Number of decimal places = 0

XML element name = ClockRefAtFrom

XML element mandatory = No

Completion of field mandatory = No

XML element name = ClockRefTo

XML element mandatory = No

Completion of field mandatory = No

Rules:
- A number between 1 and 12
- Numbers 1 to 9 should be entered as 01, 02 etc.
• If a single clock ref is required it shall be entered in the **At/From** column.
• If two clock references are required both columns shall be completed.
• Clock references should be given with reference to the circumferential reference point.

### 3.2.13 Location of observation

**Type of content** = TEXT  
**Maximum field length** = 3 characters  
**XML element name** = LocationOfObservation  
**XML element mandatory** = Yes  
**Completion of field mandatory** = Yes  

**Rules:**

• Use one of the following codes.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF</td>
<td>Cover and frame</td>
</tr>
<tr>
<td>AC</td>
<td>Adjusting construction</td>
</tr>
<tr>
<td>S</td>
<td>Shaft</td>
</tr>
<tr>
<td>T</td>
<td>Taper</td>
</tr>
<tr>
<td>RS</td>
<td>Reducing slab</td>
</tr>
<tr>
<td>CH</td>
<td>Chamber</td>
</tr>
<tr>
<td>L</td>
<td>Landing</td>
</tr>
<tr>
<td>B</td>
<td>Benching</td>
</tr>
<tr>
<td>CHL</td>
<td>Channel</td>
</tr>
<tr>
<td>I</td>
<td>Invert</td>
</tr>
</tbody>
</table>

### 3.2.14 Remarks

**Type of content** = TEXT  
**Maximum field length** = 50 characters  
**XML element name** = Remarks  
**XML element mandatory** = No  
**Completion of field mandatory** = No  

**Rules:**

• If the REM code is used in the **Code** column then there should be an accompanying remark in this column.