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**VOLUME 5    CONTRACT DOCUMENTS  
FOR SPECIALIST  
ACTIVITIES**

**SECTION 9    MODEL CONTRACT  
DOCUMENTS FOR CCTV  
SURVEY OF HIGHWAY  
DRAINAGE SYSTEMS**

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**PART 5**

**HIGHWAY DRAIN CONDITION  
CLASSIFICATION**

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## HEADER INFORMATION

The coding information may be entered on a standard coding form (See Table NG 90/3) or the equivalent information may be entered directly into the computer.

The following general principles should be followed when completing the header section of the standard coding form:

- A separate header sheet shall be started for each complete drain length between nodes, unless noted otherwise. If an intermediate manhole is discovered during the survey a new sheet should be started.
- For continuation sheets complete only: pipe length reference, date, name of surveyor and sheet no.

### Header Information

The header information is input into a number of different fields. Some of these fields are alphabetic (ie names and descriptions), some are numeric (dimensions) and some require the use of standard codes.

It may not be necessary, or appropriate, to complete all of the fields, in which case the incomplete field(s) should be “shaded” or “hatched” to indicate that they have not been completed.

#### **Field 1 – Highways Agency Region/Overseeing Organisation**

(AAM – Overseeing Organisation) (Mandatory)

Enter the owner of the asset i.e. Highways Agency Region.

#### **Field 2 – Name of Inspector**

(ABH – Name of Inspector) (Mandatory)

Enter the name of the inspector and the Survey Contractor’s company.

#### **Field 3 – Employer’s Job Reference**

(ABJ – Employer’s Job Reference)

Enter the Overseeing Organisation’s job reference code.

#### **Field 4 – Contractor’s Job Reference**

(ABI – Inspector’s Job Reference)

Enter the job contractor/inspector’s job reference code.

#### **Field 5 – Route Number**

(AAP – Name of drain system) (Mandatory)

Enter the route number of the highway as specified by the Overseeing Organisation.

#### **Field 6 – Division/District**

(AAO – District)

Enter the name of the district/division as specified by the Overseeing Organisation.

#### **Field 7 – Pipe Length Reference**

(AAA – Pipe length reference) (Mandatory)

Enter the appropriate standard pipe length reference number as specified by the Overseeing Organisation.

#### **Field 8 – Date**

(ABF – Date of inspection) (Mandatory)

Enter the survey date in the order of year, month, day as specified in BS EN 28601 using the format YYYY-MM-DD (e.g. 2004-04-11 means 11 April 2004). Any blanks are to be zero filled.

#### **Field 9 – Time**

(ABG – Time of inspection)

Enter the local time at commencement of survey as specified in BS EN 28601 using the hh:mm format. (e.g. 14:41 means 1441 hrs. local time). Leading zeros should be included where necessary.

#### **Field 10 – Location**

(AAJ – Location) (Mandatory)

Enter “street name” of upstream manhole. If the street name is not known enter the place name and a general description of the location.

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**Field 11 – Town/Village**

(AAN – Town or village)

Enter the name of the town/village where the drain is located.

**Field 12 – Location Type Code (XSP)**

(AAL – Location Type) (Mandatory)

The type of location of the drain as follows:

UK national Code	Location type		EN Code (user defined)
	Roads other than motorways	Motorways	
XS1	Left Outside Verge (adjacent to footway)	Not used	XS1
XS2	Left Footway	Not used	XS2
XS3	Left Verge	Verge	XS3
XS4	Lane 1	Hard shoulder	XS4
XS5	Lane 2	Left lane	XS5
XS6	Lane 3	Middle lane	XS6
XS7	Lane 4	Right lane	XS7
XS8	Right Verge	Central reserve/ Right verge	XS8
XS9	Right Footway	Not used	XS9
XS0	Right outside Verge	Not used	XS0
XSE	Right turning lane	Lane 5	XSE
XSQ	Slip road	Slip road	XSQ
XSR	Bus lane	Lane 6	XSR
XST	Crawler lane	Crawler lane	XST
XSW	Left turning lane	Not used	XSW
XSX	Any other option	Any other option	XSX

Only one of the above codes may be entered into this field.

**Field 13 – Start Node reference**

(AAB – Start node reference) (Mandatory)

The node reference of the start node as specified by the Overseeing Organisation’s Representative.

**Field 14 – Depth at Start Node**

(ACH – Depth)

Enter the depth of the invert of the pipeline below cover level at the start node. This should be numeric and in metres.

**Field 15 – Finish Node Reference**

(AAF - Finish node reference) (Mandatory)

The node reference of the finish node as specified by the Overseeing Organisation’s Representative.

**Field 16 – Depth at Finish Node**

(ACI – Depth)

Enter the depth of the invert of the pipeline below cover level at the finish node. This should be numeric and in metres.

**Field 17 - Use of drain**

(ACK – Use of sewer)

Enter one of the following single character codes to define the use of the drain:

UK national Code	Use	EN Code
F	Foul drain or drain	A
S	Surface water drain or drain	B
C	Combined drain or drain	C
T	Trade effluent drain or drain	D
W	Culverted watercourse	E
Z	Other	Z

**Field 18 – Type of drain**

(ACJ - Type of drain)

Enter one of the following single character codes for the type of drain:

UK national Code	Use	EN Code
A	Gravity drain	A
B	Rising main	B

**Field 19 – Direction of inspection**

(AAK – Direction of inspection) (Mandatory)

Enter one of the following codes for a description of the direction of inspection:

UK national Code	Use	EN Code
A	Downstream	A
B	Upstream	B
C	Not known	C

**Field 20 – Height or Diameter**

(ACB – Height) (Mandatory)

Enter the diameter or height of the section in millimetres. (Numeric)

**Field 21 – Width**

(ACC – Width) (Mandatory unless width equals height)

Enter the width of the section in millimetres. (Not required where both dimensions are the same e.g. circle)

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**Field 22 – Shape**

(ACA – Shape) (Mandatory)

Enter one of the following codes to describe the cross section of the pipeline as follows:

UK national Code	Use	EN Code
C	Circular	A
R	Rectangular	B
E	Egg-shaped	C
U	U – shaped	D
A	Arch shaped	E
O	Oval	F
B	Barrel	XA
H	Horseshoe	XB
T	Trapezoidal	XC
K	Kerb block	XD
Z	Other – further details should be recorded using a general remark	Z

**Field 23 – Material**

(ACD – Material) (Mandatory)

Enter one of the following codes for the fabric of the drain. Where the pipeline has been lined the material recorded is the material of the original pipeline.

UK national Code	Material	EN Code
AC	Asbestos cement	AA
BL	Bitumen	AB
PF	Pitch fibre	AC
BR	Brickwork	AD

UK national Code	Material	EN Code
VC	Clay	AE
CL	Cement mortar	AF
CO	Concrete	AG
RC	Reinforced concrete	AH
SPC	Sprayed concrete	AI
CO	Concrete segments	AJ
CS	Fibre cement	AK
FC	Fibre reinforced plastics	AL
CI	Cast iron	AM
GI	Grey cast iron	AN
DI	Ductile cast iron	AO
ST	Steel	AP
XI	Unidentified type of iron or steel	AQ
MAC	Masonry (coursed)	AR
MAR	Masonry (uncoursed)	AS
EP	Epoxy	AT
PS	Polyester	AU
PE	Polyethylene	AV
PP	Polypropylene	AW
PVC	PVC-U	AX
XP	Unidentified type of plastics	AY
X	Unidentified material	AZ
Z	Other – details should be recorded in the remarks section	Z

**Field 24 – Lining Material**

(ACF – Lining Material)

Where the drain has been relined enter one of the material codes above to describe the material. If the drain is not lined leave the field blank.

**Field 25 – Lining Type**

(ACE – Lining Type)

Where a pipeline has been lined, the method of the lining as follows:

UK national Code	Lining Type	EN Code
M	Lining inserted during manufacture	A
SP	Sprayed lining	B
CIP	Cured in place lining	C
SEG	Segmental linings	D
DP	Lining with discrete pipes	E
CP	Lining with continuous pipes	F
CF	Close fit lining	G
SW	Spirally wound lining	H
Z	Other – further remarks should be recorded using a general remark	Z

**Field 26 – Cleaning**

(ACM – Cleaning) (Mandatory)

Where the drain was cleaned prior to the inspection as follows:

UK national Code	Cleaning	EN Code
Y	The drain was cleaned prior to inspection	A
N	The drain was not cleaned prior to inspection	B

**Field 27 – General Remark**

(ADE – General Remark)

A remark which cannot be included in any other way.

**Field 28 – Strategic Drain**

(ACL – Strategic)

The Overseeing Organisation’s Representative should assign an alpha-numeric code based on the strategic importance of the drain.

Description	Code
Drains within the Central Reserve are of greater strategic importance due to the consequences of flooding	A1
Transverse drains have a high strategic importance due to the problems associated with access for remedial works	A2
Carrier pipes adjacent to running lanes of very heavily trafficked roads where flooding or remedial work will seriously affect traffic movement	B1
Toe drains to embankments	B2
Other drainage systems	C1

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**Field 29 – Purpose of Inspection**

(ABP – Purpose of Inspection)

The purpose of the inspection:

UK national Code	Purpose	EN Code
E	Final control of new construction	A
J	End of warranty period	B
G	Routine inspection of condition	C
A	Suspected structural problem	D
H	Suspected operational problem	E
B	Suspected infiltration problem	F
C	Final control of renovation or repair	G
D	Transfer of ownership	H
I	Investment planning	I
F	Sample survey	J
X	Other – further details should be recorded using a general remark	Z

**Field 30 – Flow Control Measures**

(ADC – Flow Control Measures)

The measures taken to deal with the flow at the time of the inspection:

UK national Code	Method of Flow Control	EN Code
N	No flow control	A
BL	Flows blocked upstream	B
PB	Flows partially blocked upstream	C
X	Other – further details should be recorded using a general remark	Z

**Field 31 – Precipitation**

(ADA – Precipitation)

The precipitation as follows:

UK national Code	Precipitation	EN Code
N	No precipitation	A
R	Rain	B
S	Melting snow or ice	C

**Field 32 – Temperature**

(ADB – Temperature)

Enter the temperature in Celcius or as a code as follows:

UK national Code	Temperature	EN Code
A	Temperature is above freezing	A
B	Temperature is below freezing	B

**Field 33 – Pipe Unit Length**

(ACG – Pipe Unit Length)

Enter the length in millimetres of individual pipe units that comprise the pipeline. Where the pipe is continuous this should be left blank.

**Field 34 – Length of Drain**

(ABQ – Anticipated Length) (Mandatory)

Enter the anticipated length of the inspection. (This can then be compared to the actual length if the inspection is abandoned).

**Field 35 – Year of construction**

(ACN – Year came into operation) (Mandatory where known)

Enter the approximate year the drain came into operation either as a single year in CCYY format or as a range in CCYY-CCYY format (e.g. 1970-1979).

**Field 36 – Method of Inspection**

(ABE – Method of Inspection) (Mandatory)

Enter the method of access as follows:

UK national Code	Method of Inspection	EN Code
A	Direct inspection (man-entry)	A
B	CCTV	B
C	Inspection from manhole or inspection chamber only	C

**Field 37 – Standard**

(ABA – Standard) (Mandatory)

Enter the version of the standard used to record the data. This should be in the form EN 13508-2:2001.

**Field 38 – Video Image storage**

(ABK – Video Image storage)

Enter the type of media used for storing images as follows:

UK national Code	Method of Storage	EN Code
VHS	VHS video cassette tape	A
CD	Video CD	B
X	Other – further details should be recorded as a general remark	Z

**Field 39 – Video Image location system**

(ABM – Video Image location system)

For moving images, the method of recording the position on the tape or CD shall be recorded as follows:

UK national Code	Method of Location	EN Code
A	The recording time in hours and minutes since the start of the tape	A
B	A machine dependant numeric counter	B
X	Other – further details should be recorded as a general remark	Z

**Field 40 – Video Image Volume**

(ABO – Video volume)

The reference number of the volume, film, tape or CD.

A unique location reference for each observation is also recorded in the feature codes where applicable.



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***Field 41 – Photograph Storage***

(ABL – Photograph Storage)

The type of media used for storing images as follows:

UK national Code	Method of Storage	EN Code
A	Still photographs	A
B	Still computer images held on computer, in JPEG format	B
X	Other – further details should be recorded using a general remark	Z

***Field 42 – Photograph Volume***

(ABN – Photograph Volume)

The reference number of the film or CD.

A unique reference for each photograph shall also be included in the feature code where applicable.

# CODES RELATING TO THE FABRIC OF THE PIPELINE

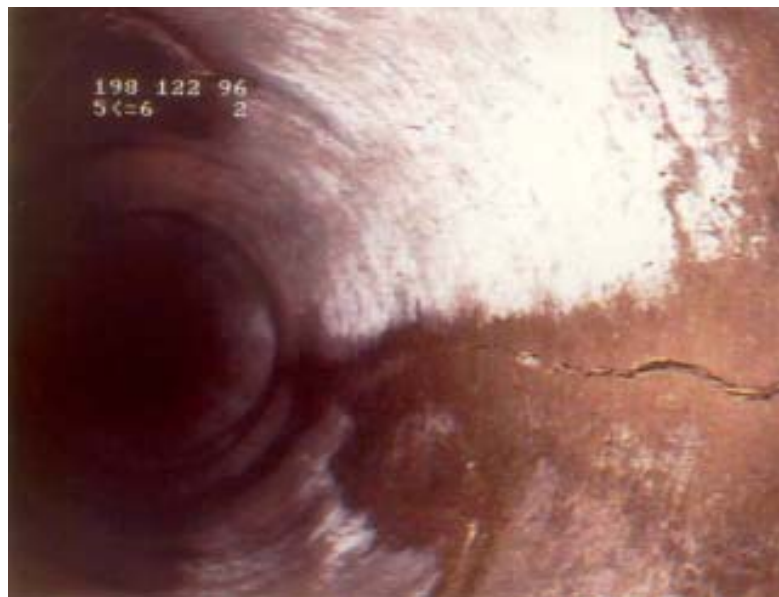
## FISSURE

CRACK - When crack lines are visible on the pipe wall, but pieces are still in place

FRACTURE – Crack visibly open in a pipe wall, pieces still in place

EN Code	Nat Eq Code	Description
BABBA	CL	Crack longitudinal at ..... o'clock
BABBB	CC	Crack circumferential from..... to....o'clock
BABBC	CM	Cracks multiple from ....to.....o'clock
BABBD	CS	Cracks spiral from..... to..... o'clock
BABCA	FL	Fracture longitudinal at.....o'clock
BABCB	FC	Fracture circumferential from..... to....o'clock
BABCC	FM	Fracture multiple from ....to.....o'clock
BABCD	FS	Fracture spiral from..... to..... o'clock

If it is possible to measure the width of the fissure this may be recorded in the 1<sup>st</sup> characterisation box.



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification			Clock				
						Band	Dim1	Dim2	%	At/From	To		
			FL				5				03		
			CL				1				04		
			DEE						5	04	05		

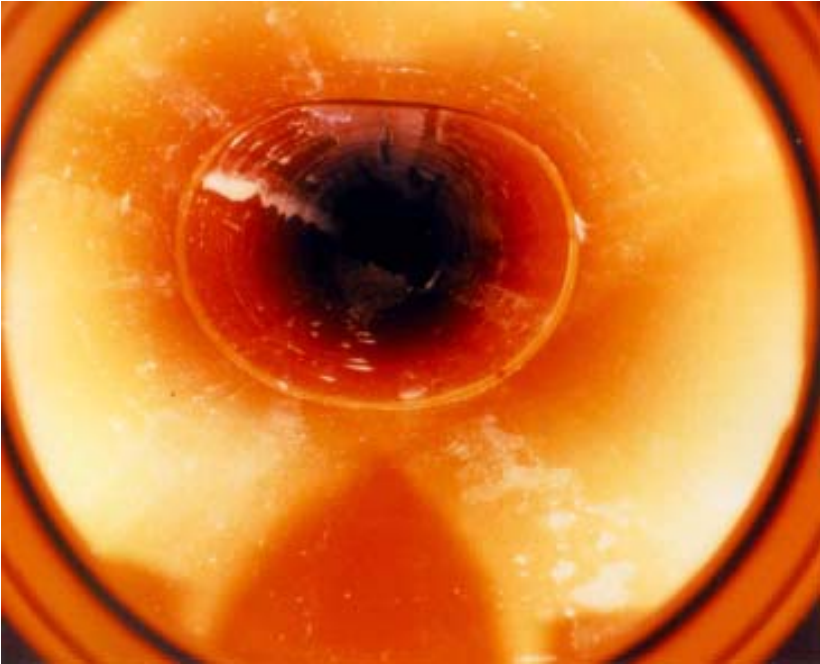
**Highway Drain Condition Classification**

**DEFORMATION**

The cross sectional shape of the pipeline has been deformed from its original shape.

EN Code	Nat Eq Code	Description
BAA	D	Deformed drain ....%

It is unlikely that the DH code will be used, as this applies to brick sewers.



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			D						10			

**BREAK/COLLAPSE**

BREAK – pieces of pipe visibly displaced but not missing

MISSING – missing pieces of wall/hole

COLLAPSE – complete loss of structural integrity.

EN Code	Nat Eq Code	Description
BACA	B	Broken pipe at .....(OR from ....o'clock to ...)o'clock
BACB	H	Hole in drain at.....(OR from ....o'clock to...) o'clock
BACC	XP	Collapsed drain, .....% loss of cross-sectional area



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			XP							07	07	
			SV									

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**SURFACE DAMAGE**

The surface of the pipeline has been damaged by chemical (including corrosion of metal pipes) or mechanical action.

EN Code	Nat Eq Code	Description
BAFA	SW	Increased roughness at.....(OR from ....o'clock to...) o'clock
BAFB	SS	Spalling at.....(OR from ....o'clock to...) o'clock
BAFC	SAV	Visible aggregate at.....(OR from ....o'clock to...) o'clock
BAFD	SAP	Aggregate projecting from surface at.....(OR from ....o'clock to...) o'clock
BAFE	SAM	Missing aggregate at.....(OR from ....o'clock to...) o'clock
BAFF	SRV	Visible reinforcement at.....(OR from ....o'clock to...) o'clock
BAFG	SRP	Reinforcement projecting from surface at.....(OR from ....o'clock to...) o'clock
BAFH	SRC	Corroded reinforcement at.....(OR from ....o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification			Clock				
						Band	Dim1	Dim2	%	At/From	To		
			SAP								04	08	

**INTRUDING CONNECTION**

A connecting pipe projecting into the pipeline, obstructing the cross-sectional area.

EN Code	Nat Eq Code	Description
BAG & BCAF	CXI	Connection intruding at.....o'clock, diameter...mm, intrusion....%.



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			CXI				150		35	02		
			WLT						20			



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**DEFECTIVE CONNECTION/JUNCTION**

A connection or junction is defective. Where this code is used the connection code BCA is also required.

EN Code	Nat Eq Code	Description
BAH & BCAF/BCAA	CX(I)/JX	Connection [OR junction] defective at.....o'clock, diameter...mm, (intrusion....%)
BAHA & BCAF/BCAA	CXP(I)/JXP	Connection [OR junction] defective, position incorrect at.....o'clock, diameter...mm, (intrusion....%)
BAHB & BCAA	CXG(I)	Connection defective, gap at.....o'clock, diameter...mm, intrusion...mm
BAHC & BCAA	CXH(I)	Connection defective, partial gap at.....o'clock, diameter...mm, (intrusion....%)
BAHD & BCAF/BCAA	CXD(I)/JXD	Connection [OR junction] defective, connecting pipe is damaged at.....o'clock, diameter...mm, (intrusion....%)
BAHE & BCAF/BCAA	CXB(I)/JXB	Connection [OR junction] defective, connecting pipe is blocked at.....o'clock, diameter...mm, (intrusion....%)

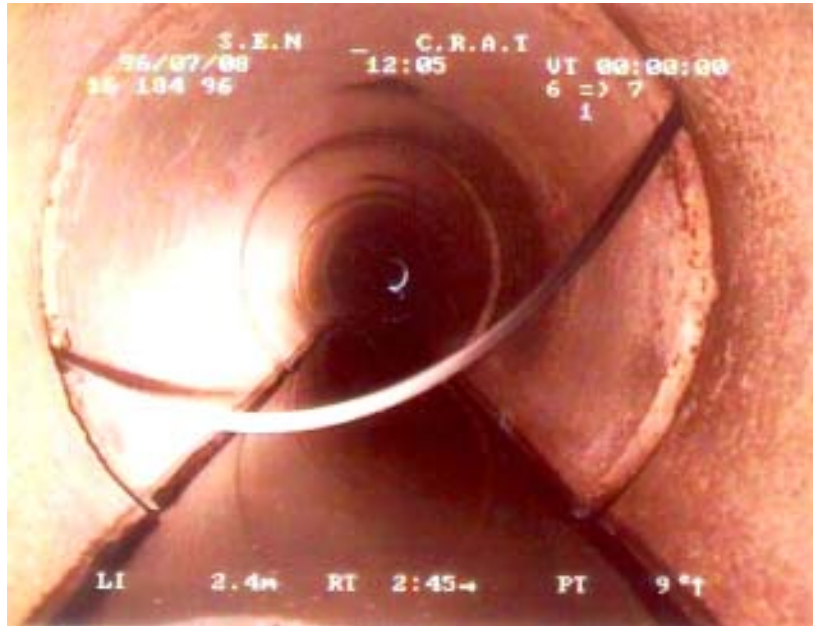


Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification				Clock			
						Band	Dim1	Dim2	%	At/From	To		
			CXP				150				10		
			DEE						5	07	09		

**INTRUDING SEALING MATERIAL**

All or part of the material used to seal a joint between two adjacent pipes is intruding into the pipeline.

EN Code	Nat Eq Code	Description
BAIA	SR	Sealing ring intruding at.....o'clock
BAIZ	SO	Other sealant intruding at.... (OR from ....o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers					Remarks	
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From		To
			SR							09	02	



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**DISPLACED JOINT**

Adjacent pipes are displaced from their intended position in relation to each other.

Longitudinal displacements of less than 10 mm shall not be recorded.

EN Code	Nat Eq Code	Description
BAJA	OJ (M/L)	Longitudinal open joint (Medium OR Large)
BAJB	JD (M/L)	Joint displaced (Medium OR Large)
BAJC	AJ	Joint displaced angular

The relevant band (M/L) should also be correctly identified in the coding sheet. The band categories are as follows:

M	Between 1.0 and 1.5 times thickness of pipe
L	> 1.5 times thickness of pipe



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification			Clock				
						Band	Dim1	Dim2	%	At/From	To		
			OJ			M							
			DER						5				
			WLT						15				



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification			Clock				
						Band	Dim1	Dim2	%	At/From	To		
			JD			M							
			WLC						5				

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Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification			Clock				
						Band	Dim1	Dim2	%	At/From	To		
			AJ				30				09		

**LINING DEFECT**

The lining of the pipeline is defective.

EN Code	Nat Eq Code	Description
BAKA	LXD	Defective lining, lining detached at.... (OR from ....o'clock to...) o'clock
BAKB	LXC	Defective lining, discoloration of the lining at.... (OR from ....o'clock to...) o'clock
BAKC	LXE	Defective lining, defective end of lining at.... (OR from ....o'clock to...) o'clock
BAKDA	LXWL	Defective lining, longitudinal wrinkled lining at.... (OR from ....o'clock to...) o'clock
BAKDB	LXWC	Defective lining, circumferential wrinkled lining at.... (OR from ....o'clock to...) o'clock
BAKDC	LXWS	Defective lining, spiral wrinkled lining at.... (OR from ....o'clock to...) o'clock
BAKE	LXB	Defective lining, blistered lining at.... (OR from ....o'clock to...) o'clock
BAKZ	LXZ	Defective lining, other lining defect at.... (OR from ....o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			LXWC						5	07	12	
			WLT						10			

**DEFECTIVE REPAIR**

A repair has been carried out on the drain or sewer which now has a defect. Where this code is used the point repair code BCB is also required.

<b>EN Code</b>	<b>Nat Eq Code</b>	<b>Description</b>
BAL	RX	Defective repair at.... (OR from ....o'clock to...) o'clock

**WELD FAILURE**

A failure in a weld in the fabric of the pipeline.

<b>EN Code</b>	<b>Nat Eq Code</b>	<b>Description</b>
BAMA	WXL	Weld failure longitudinal at ..... o'clock
BAMB	WXC	Weld failure circumferential from..... to....o'clock
BAMC	WXS	Weld failure helical from ....to.....o'clock

**POROUS PIPE**

The pipe material is seen to be porous (due to a manufacturing defect).

Note: Manufactured porous concrete pipes are a common feature of highway drainage systems

EN Code	Nat Eq Code	Description
BAN	PP	Pipe material is porous at.... (OR from ...o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			PP							02	04	
			IS							02	04	

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**SOIL VISIBLE THROUGH DEFECT**

The soil outside the pipe is visible through a defect.

<b>EN Code</b>	<b>Nat Eq Code</b>	<b>Description</b>
BAO	SV	Soil visible at.... (OR from ....o'clock to...) o'clock

**VOID VISIBLE THROUGH DEFECT**

A void outside the pipe is visible through a defect.

<b>EN Code</b>	<b>Nat Eq Code</b>	<b>Description</b>
BAP	VV	Void visible at.... (OR from ....o'clock to...) o'clock



# CODES RELATING TO THE OPERATION OF THE PIPELINE

## ROOTS

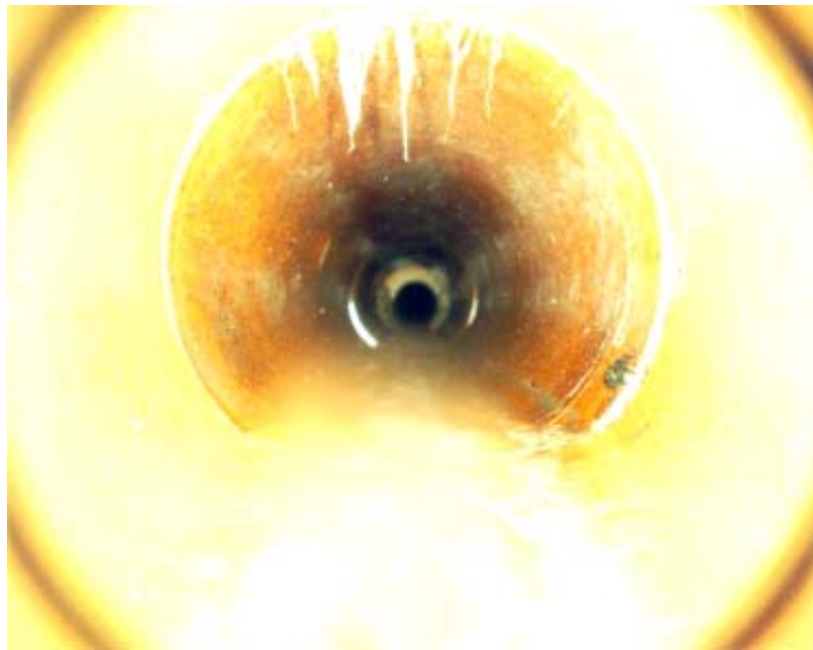
Roots of trees or other plants growing into the pipeline through joints, defects or connections.

EN Code	Nat Eq Code	Description
BBAA	RT	Roots tap at.... (OR from ....o'clock to...) o'clock
BBAB	RF	Roots fine at.... (OR from ....o'clock to...) o'clock
BBAC	RM	Roots mass.....% cross-sectional area loss at.... (OR from ....o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers					Remarks	
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From		To
			RT	J					20	07	10	
			WLT						20			





Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			RF						5	11	01	
			CL				2			02	05	
			WLC						5			



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			RM	J					90	08	05	

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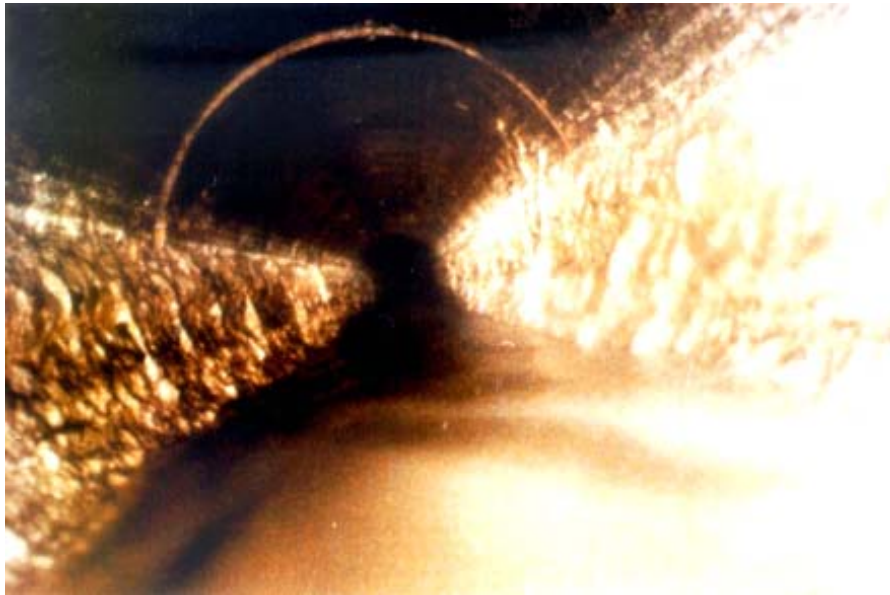
**ATTACHED DEPOSITS**

Material attached to the wall of the pipeline.

EN Code	Nat Eq Code	Description
BBBA	DEE	Attached deposits, encrustation at.... (OR from ....o'clock to...) o'clock .....% cross- sectional area loss
BBBB	DEG	Attached deposits, Grease at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBBC	DEF	Attached deposits, Fouling at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBBZ	DEZ	Other attached deposits at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			DEE	J					30	12	05	
			CC	J			1		09	12		
			DEE						5			
			WL						5			



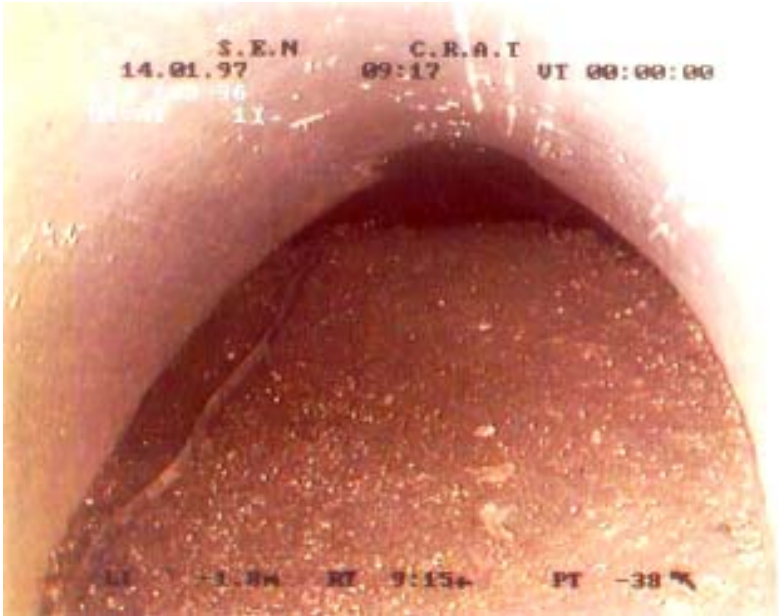
Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/ From	To	
			DEG						5	02	05	
			DEG						5	07	10	
			WLT						15			

Highway Drain Condition Classification

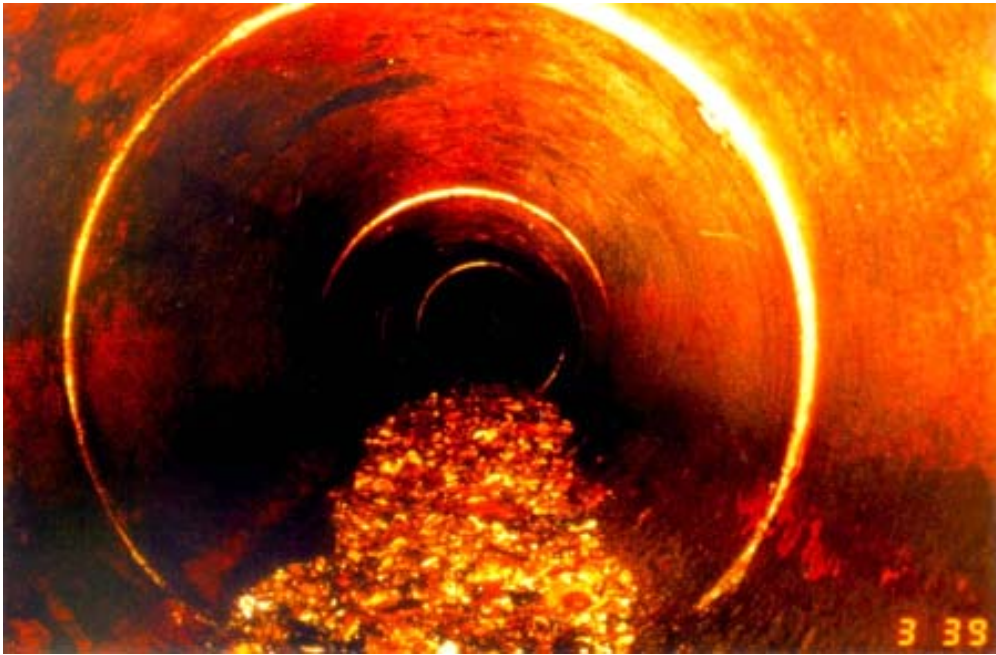
**SETTLED DEPOSITS**

Deposited material in the invert of the pipeline.

EN Code	Nat Eq Code	Description
BBCA	DES	Settled deposits fine at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBCB	DER	Settled deposits coarse at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBCC	DEC	Settled deposits hard or compacted at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBCZ	DEX	Other settled deposits at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			DES						60	02	10	



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			DER						5	05	07	



Highway Drain Condition Classification

**INGRESS OF SOIL**

Soil from the surrounding ground is intruding into the pipeline.

EN Code	Nat Eq Code	Description
BBDA	INGS	Ingress of soil, sand at.... (OR from ....o'clock to...) o'clock.....% cross-sectional area loss
BBDB	INGP	Ingress of soil, peat at.... (OR from ....o'clock to...) o'clock.....% cross-sectional area loss
BBDC	INGF	Ingress of soil, other fine material at.... (OR from ....o'clock to...) o'clock.....% cross-sectional area loss
BBDD	INGG	Ingress of soil, gravel at.... (OR from ....o'clock to...) o'clock.....% cross-sectional area loss
BBDZ	INGZ	Ingress of soil, other at.... (OR from ....o'clock to...) o'clock.....% cross-sectional area loss



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			INGS	J					40	05	10	

**OTHER OBSTACLES**

Objects in the pipeline, obstructing the cross-sectional area.

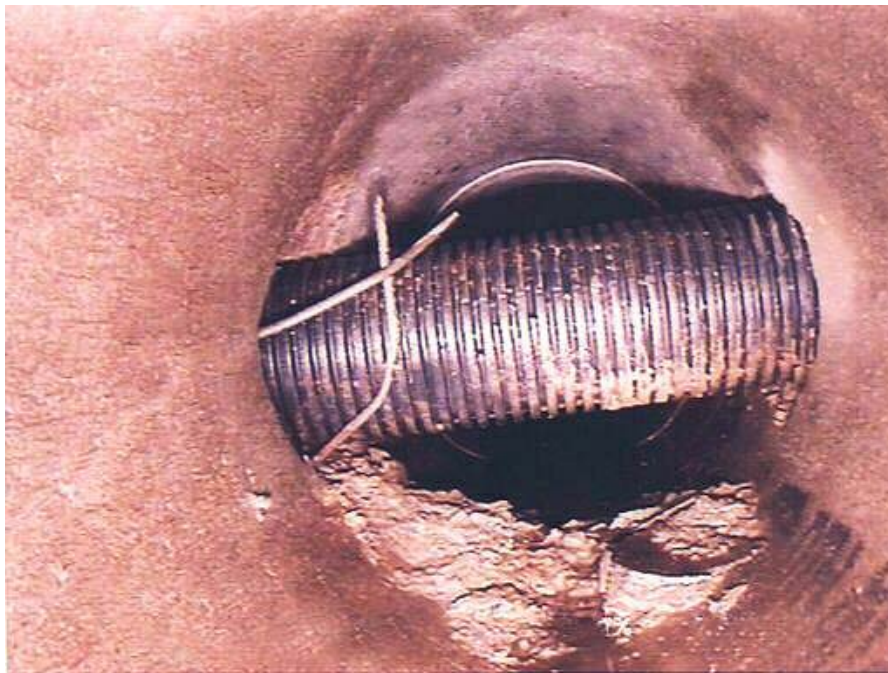
This code shall only be used where none of the other codes (BBA to BBD) are applicable.

EN Code	Nat Eq Code	Description
BBEA	OBB	Other Obstacle, brick or masonry in invert at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEB	OBM	Other Obstacle, pipe material in invert at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEC	OBX	Other Obstacle, other object in invert at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBED	OBI	Other Obstacle protruding through wall at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEE	OBJ	Other Obstacle wedged in joint at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEF	OBC	Other Obstacle through connection/junction at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEG	OBP	Other Obstacle, external pipe/cable at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEH	OBS	Other Obstacle, built into structure at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss
BBEZ	OBZ	Other Obstacle at.... (OR from ....o'clock to...) o'clock .....% cross-sectional area loss



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			OBX						25	07	02	Stopper
			SAPZ							09	03	
			WLT						30			





Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From	To	
			OBP						30	09	03	Reinforcing visible
			DEC						30	04	08	

**INFILTRATION**

The ingress of water through the wall of the pipe or through joints or defects.

EN Code	Nat Eq Code	Description
BBFA	IS	Infiltration seeper at.... (OR from ....o'clock to...) o'clock
BBFB	ID	Infiltration dripper at.... (OR from ....o'clock to...) o'clock
BBFC	IR	Infiltration runner at.... (OR from ....o'clock to...) o'clock
BBFD	IG	Infiltration gusher at.... (OR from ....o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks
			Code	Joint	Material	Quantification				Clock		
						Band	Dim1	Dim2	%	At/From	To	
			IS	J						12		
			DEE	J					5	07	05	
			WLC						5			

**Highway Drain Condition Classification**

**EXFILTRATION**

Visible leakage of flow out of the pipeline.

EN Code	Nat Eq Code	Description
BBG	EX	Exfiltration

**VERMIN**

Vermin actually observed.

EN Code	Nat Eq Code	Description
BBHA	VR	Rat, .... animals observed at a single location
BBHZ	VZ	Other vermin,.... animals observed at a single location



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification				Clock			
						Band	Dim1	Dim2	%	At/From	To		
			VR				1						

# INVENTORY CODES

## CONNECTION

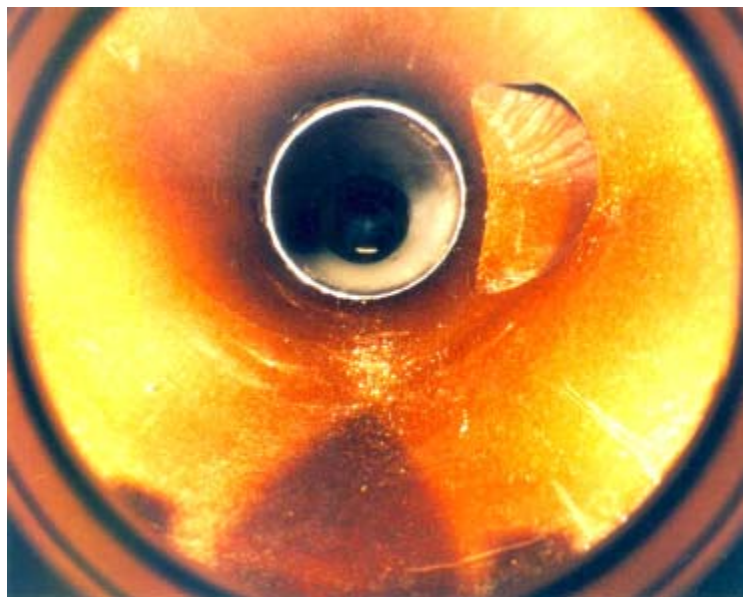
Another pipeline is connected to the pipeline being inspected.

The Overseeing Organisation’s Representative may determine that where a connecting branch is equal to the size of the pipeline or where it is greater than a specified size, the location of a connection should be regarded as a node. It is assumed that the majority of connections recorded using this code will be circular in section.

Junction - a pipe unit with a prefabricated connection;

Connection other than a junction - (to be used where the detail necessary to classify the connection as either B, C, D or E is not available).

EN Code	Nat Eq Code	Description
BCAAA	JN	Junction, at ..... o'clock, diameter...mm
BCAFA	CN	Other than junction at ..... o'clock, diameter...mm



Dist (m)	Video Ref.	Cont defect	Letters			Numbers						Remarks	
			Code	Joint	Material	Quantification				Clock			
						Band	Dim1	Dim2	%	At/From	To		
			JN				150				03		

**Highway Drain Condition Classification**

**POINT REPAIR**

A short section of drain has been repaired.

EN Code	Nat Eq Code	Description
BCBA	RPR	Point repair, pipe replaced at.... (OR from ....o'clock to...) o'clock
BCBB	RPL	Point repair, localised lining at.... (OR from ....o'clock to...) o'clock
BCBC	RPI	Point repair, injected mortar at.... (OR from ....o'clock to...) o'clock
BCBD	RPS	Point repair, other injected sealing material at.... (OR from ....o'clock to...) o'clock
BCBE	RPH	Point repair, hole repaired at.... (OR from ....o'clock to...) o'clock
BCBZ	RPZ	Point repair, other trenchless method at.... (OR from ....o'clock to...) o'clock



Dist (m)	Video Ref.	Cont defect	Letters			Numbers					Remarks	
			Code	Joint	Material	Quantification			Clock			
						Band	Dim1	Dim2	%	At/From		To
			RPL							12	12	



## CURVATURE OF PIPELINE

The route of the drain deviates by means of a prefabricated bend or deviation that does not take place at a joint (curved pipeline).

EN Code	Nat Eq Code	Description
BCCA	LL	Line of drain deviates left
BCCAA	LLU	Line of drain deviates left and up
BCCAB	LLD	Line of drain deviates left and down
BCCB	LR	Line of drain deviates right
BCCBA	LRU	Line of drain deviates right and up
BCCBB	LRD	Line of drain deviates and right and down
BCC_A	LU	Line of drain deviates up
BCC_B	LD	Line of drain deviates down

## START NODE TYPE

Information about the node at the start of the inspection.

EN Code	Nat Eq Code	Description
BCDA	MH	Manhole
BCDB	IC	Inspection chamber
BCDC	RE	Rodding eye
BCDD	LH	Lamphole
BCDE	OF	Outfall to watercourses
BCDF	BR	Major connection without manhole
BCDXA	GY	Gully
BCDXB	CP	Catchpit
BCDXC	SK	Soakaway
BCDXD	OS	Oil separator
BCDZ	OC	Other special chamber

## FINISH NODE TYPE

Information about the node at the finish of the inspection.

EN Code	Nat Eq Code	Description
BCEA	MHF	Manhole
BCEB	ICF	Inspection chamber
BCEC	REF	Rodding eye
BCED	LHF	Lamphole
BCEE	OFF	Outfall to watercourses
BCEF	BRF	Major connection without manhole
BCEXA	GYF	Gully
BCEXB	CPF	Catchpit
BCEXC	SKF	Soakaway
BCEXD	OSF	Oil separator
BCEZ	OCF	Other special chamber

## OTHER CODES

### GENERAL PHOTOGRAPH

A still photograph has been taken to record the general condition of the drain and is not related to a particular feature.

EN Code	Nat Eq Code	Description
BDA	GP	General photograph number... taken at this point

### GENERAL REMARK

A remark which cannot be included in any other way.

EN Code	Nat Eq Code	Description
BDB	REM	General remark at this point

### INSPECTION ABANDONED

The inspection has been terminated before the intended finish node was reached.

Where the reason is due to an obstruction this obstruction shall be coded separately using the appropriate main code.

EN Code	Nat Eq Code	Description
BDC		Inspection abandoned
BDCA	SAOB	Inspection abandoned due to obstruction
BDCB	WL	Inspection abandoned due to high water level
BDCC	EQ	Inspection abandoned due to equipment failure
BDCZ	Z	Inspection abandoned due to other reasons

### WATER LEVEL

The level of water above the invert of the drain.

EN Code	Nat Eq Code	Description
BDD	WL	Water level .... % height/diameter
BDDA	WLC	Clear water level.....% height/diameter
BDDB	WLT	Turbid water level.....% height/diameter

## FLOW IN INCOMING PIPE

Information about the flow in an incoming pipe.

The liquid in the pipe is:

- clear (the invert is visible);
- turbid or discoloured.

Where this is used, an item for a connection (Code JN, or CN, CNI, CXI, CX, JX etc) is also required.

EN Code	Nat Eq Code	Description
BDE	FW	Flow in incoming pipe, at ..... o'clock .....% of the vertical dimension
BDEA	FWC	Clear flow in incoming pipe, at ..... o'clock .....% of the vertical dimension
BDEAB	FWCS	Wrong surface water flow in incoming foul pipe at ..... o'clock .....% of the vertical dimension
BDEB	FWT	Turbid flow in incoming pipe at ..... o'clock .....% of the vertical dimension
BDEBB	FWTF	Wrong foul flow in incoming surface water pipe at ..... o'clock .....% of the vertical dimension
BDEYY	FWYY	Flow in incoming pipe not visible at ..... o'clock .....% of the vertical dimension

## ATMOSPHERE WITHIN THE PIPELINE

A potentially hazardous atmosphere was encountered.

EN Code	Nat Eq Code	Description
BDFA	OD	Hazardous atmosphere, oxygen deficiency
BDFB	HS	Hazardous atmosphere, hydrogen sulphide
BDFC	ME	Hazardous atmosphere, methane
BDFZ	GZ	Hazardous atmosphere, other

## LOSS OF VISION

The view of the pipeline is obstructed.

EN Code	Nat Eq Code	Description
BDGA	CUW	Loss of vision, camera under water
BDGB	CUD	Loss of vision, silt
BDGC	CUS	Loss of vision, steam
BDGZ	CUZ	Loss of vision, other