Government Digital Service

National Underground Asset Register (NUAR)

NUAR Data Model Publication

Item Descriptions for the NUAR Harmonised Data Model

Publication History

Date	Version	Description
12/08/2024	0.1	First publication of the NUAR Data Model
10/03/2025	1.0	Publication of the NUAR Data Model – V2.1.3

Purpose of this document

This document provides descriptions for the Feature Types, Data Types and Attributes in the NUAR Harmonised Data Model.

Feature Type	Description
NUARObject	**NUARObject:** ***<<FeatureType>>*** Parent Feature Type for all entities in the NUAR database. Establishes the key metadata attributes required for data inserts, updates and deletions.
dateLastUpdated	**datelastUpdated**: **Mandatory** The date upon which this data item was last updated at source. This may be specified at the feature level in some datasets (e.g. a LastModifiedDate field), otherwise this should reflect the date upon which this data item was last supplied to the NUAR submission process (i.e. it should have the same value as the dateOfSubmission for the submission event during which this data item was supplied). dateLastUpdated will be updated to the current date and time for an individual feature in the event that it is explicitly identified as being unchanged since the last update.
dateOfLastLifecycleStatusChange	**dateOfLastLifecycleStatusChange:** **Optional** The date upon which the current ***lifecycleStatus*** value was set
lifecycleStatus	**lifecycleStatus:** **Mandatory** **Default = 'Submitted'** A description of a feature's stage in the general feature lifecycle, through submission, publication, retirement, archive and deletion. Currently used mainly at the Submission level to dictate which data submissions are ready for publication to the live view.
nuarVersion	**nuarVersion:** **Optional**

	An indication of the version of the service at the time that this feature was created. Not used at present.
systemLoadDate	**systemLoadDate:** **Mandatory** Date at which the data record for this entity was last loaded into the datastore system. In the case of NUAR, this is the database which is the target of the Data Transformation and Ingestion process, populated after transformation to the target NUAR Data Model is completed.
systemID	**systemID:** **Mandatory** A mandatory, auto-generated identifier which is globally unique within the NUAR platform, and persistent for the lifespan of a data record representing a Feature Version (i.e. an instance of a feature distinguished from other instances of the same feature by distinct values of the System ID attribute and metadata values representing the date and time when the instance was created for use in the NUAR platform. A Feature Version is represented by a single Data Record.
Feature Type	**Description**
NUARSubmissionEvent	**NUARSubmissionEvent:** ***<<FeatureType>>*** Feature Type representing individual data load events.
dataModelVersion	**dataModelVersion:** **Optional** The version number of the NUAR data model at the time of this submission event.
dateOfCompletion	**dateofCompletion:** **Optional**

	Date and time upon which the submission event completes, as opposed to the existing ***dateOfSubmission*** attribute which is assumed to represent the date and time of initiation. Must be populated if Status='Completed'
dateOfSubmission	**dateOfSubmission:** **Optional** The date and time at which the data load event was initiated
eventName	**eventName:** **Optional** Any name assigned to the data load event by the system managing the data load process.
noChange	**noChange:** **Mandatory** **Default = FALSE** A flag to indicate whether the submission represents a statement of "No Change" relative to a previous submission whose ID is specified in the ***noChangeToSubmissionID*** attribute. A No Change submission results in the dateLastUpdated value being set to the submission date for all features related to the previous submission for which "No Change" is being asserted.
noChangeToSubmissionID	**noChangeToSubmissionID:** **Optional** Must be specified if noChange=TRUE. The systemID value of a previous submission for which No Change is specified in a subsequent submission.
region	**region:** **Optional** The name of the data provider's region or sub-area to which this submission is related.

replacementScope	**replacementScope:** **Mandatory** **Default = 'Organisation'** A value which specifies the level at which the content of this submission supersedes, and replaces, the content of a previous submission. It effectively specifies which features should be deleted from the publication database before inserting the features in the latest submission. Values for replacementScope are defined in the <SubmissionReplacementScopeValue> codelist. Possible values are as follows: **> None** No features are removed before publishing features from the current submission. **> Organisation (default)** All features related to the Submission Asset Owner are removed prior to publishing the features in the current submission. This effectively represents a full republish of data for the specified organisation. **> Submission** This mechanism can be used to replace data for a specific predecessor submission only. **> Dataset** This mechanism can be used to replace data for specific datasets only. **> Area** This mechanism can be used to replace data for specific sites or geographical areas only. **> Feature** This mechanism can be used to replace specific features only.
result	**result:**

	Optional Indicates the result of a submission event. Values for result are defined in the **<SubmissionResultValue>** codelist.
status	**status:** **Optional** Indicates the current status of a submission event. Values for status are defined in the **<SubmissionStatusValue>** codelist.
spatialReferenceSystem	**spatialReferenceSystem:** **Optional** The horizontal CRS values associated with the features within it. If there is more than one distinct value, this should be a semicolon-delimited list.
submissionDomain	**submissionDomain:** **Optional** The domain or sector to which the Submission relates.
submissionID	**submissionID:** **Optional** Any identifier assigned to the data load event by the system managing the data load process.
submissionType	**submissionType:** **Mandatory** **Default = 'Asset Data'** Indicates the type of data being supplied as part of a submission. Values for submissionType are defined in the **<SubmissionTypeValue>** codelist.
Feature Type	**Description**

NUARActor	**NUARActor:** ***<<FeatureType>>*** Feature Type representing the organisations or actors who interact with the NUAR platform. This includes data providers, data owners and asset (object) owners and operators. All entities in the database should have a Foreign Key identifying a record in **<NUARActor>** which represents the Data Provider for that entity.
accreditationID	**accreditationID:** **Optional** The reference number or identifier for any relevant accreditation held by this organisation.
actorType	**actorType:** **Optional** The type of organisation (NUAR Actor) represented in terms of its relationship to the data held in NUAR. Values for actorType are defined in the **<ActorTypeValue>** codelist.
address	**address:** **Optional** The address (e.g. head office or registered address of the legal entity) of the organisation. Represented by the **<NUARAddressType>** Data Type.
administeredByParent	**administeredByParent:** **Optional** **Default=FALSE** A flag indicating whether an organisation is administered from a parent organisation.
copyrightText	**copyrightText:**

	Optional Any copyright or legal text that applies to all data provided by this organisation, and which should be made available alongside that data
corporateEmailDomains	**corporateEmailDomains:** **Optional** Semi-colon delimited string of email domains associated with this organisation (e.g. “nuar.co.uk;nuar.com;nuar.uk”).
disclaimerText	**disclaimerText:** **Optional** Any disclaimer text that applies to all data provided by this organisation, and which should be made available alongside that data
displayName	**displayName:** **Optional** The name that should be displayed for this organisation when presented to end users. Multiple subsidiary organisations may have the same display name if this is the name that has most meaning to end users.
name	**name:** **Optional** The full unique name of the legal entity represented by this NUAR Actor record.
organisationType	**organisationType:** **Optional** The role that this organisation fulfils in the NUAR platform. Values for organisationType are defined in the **<OrganisationTypeValue>** codelist.
parentOrganisationID	**parentOrganisationID:**

	Optional The systemID of any parent organisation for this subsidiary organisation.
parentOrganisationName	**parentOrganisationName:** **Optional** The name of any parent organisation for this subsidiary organisation. Should match a **name** value in **<NUARActor>**.
reference	**reference:** **Optional** Representation of any reference assigned when the organisation is first included in an artefact tracking the organisation onboarding journey.
shortName	**shortName:** **Optional** A short or abbreviated name for the organisation which may be used for internal functions that, for example, do not allow spaces
standardGuidance	**standardGuidance:** **Optional** Some organisations may supply general safety guidance information to be displayed alongside organisation-level information, such as disclaimers and copyright information.
swaCode	**swaCode:** **Optional** The value in the Street Works Act (SWA) Code list associated with this organisation. See: https://www.geoplace.co.uk/local-authority-resources/street-works-managers/view-swa-codes

websiteURL	**websiteURL:** **Optional** The URL for this organisation's corporate website
Feature Type	**Description**
NUARAddressType	**NUARAddressType:** ***<<DataType>>*** A Data Type allowing addresses to be represented in the NUAR database
buildingName	**buildingName:** **Optional** A description applied to a single building or group of buildings (e.g. "Highfield House")
buildingNumber	**buildingNumber:** **Optional** A number given to a single building or group of buildings (e.g. "44")
locality	**locality:** **Optional** An area or geographical identifier within a town, village or hamlet
postcode	**postcode:** **Optional** The postcode of the address
singleLineAddress	**singleLineAddress:** **Optional** All elements of the address combined in a single human-readable string

streetName	**streetName:** **Optional** The street name of the address
subBuilding	**subBuilding:** **Optional** An identifier for a subdivision of a property (e.g. “Flat 3”)
townName	**townName:** **Optional** The name of the town the address is within
uprn	**uprn:** **Optional** The Unique Property Reference Number associated with the address
Feature Type	**Description**
NUARActivityProximityRule	**NUARActivityProximityRule:** ***<<FeatureType>>*** A Feature Type allowing a rule to be specified which will be triggered by a given Activity Type being carried out in a given proximity to an asset or type of asset.
activityType	**activityType:** **Mandatory** The Activity Type which triggers the rule. Values for activityType are defined in the **<ActivityTypeValue>** codelist
proximity	**proximity:** **Mandatory** The proximity to an asset or type of asset for the Activity Type

	to trigger the rule.
Feature Type	**Description**
NUARContactDetails	**NUARContactDetails:** ***<<FeatureType>>*** Feature Type representing contact details which may be associated with organisations (NUARActors) or features in the NUAR database
address	**address:** **Optional** The physical Address element of the contact details
contactDetailsType	**contactDetailsType:** **Optional** The type of Contact Details represented. Values for contactDetailsType are defined in the **<ContactDetailsTypeValue>** codelist
departmentName	**departmentName:** **Optional** The Department Name element of the contact details
emailAddress	**emailAddress:** **Optional** The Email Address element of the contact details
organisationName	**organisationName:** **Optional** The name of the organisation for which the Contact Details apply. Should match a **name** value in **<NUARActor>**.
telephoneNumber	**telephoneNumber:**

	Optional The Telephone Number element of the contact details
webForm	**webForm:** **Optional** A link to a web form which can be used as a means of contact.
Feature Type	**Description**
MUDDIObject	**MUDDIObject:** **<<FeatureType>>** Parent Feature Type for all entities in the MUDDI model. Its attributes are inherited by all more specialised classes in the MUDDI model and derived profiles. Mandatory attributes (by convention): dataProviderAssignedUniqueID dataProviderAssignedUniqueIDAutoAssigned geometry horizontalCRS sourceFeatureClass
additionalInformation	**additionalInformation:** **Optional** Any additional information associated with the object.
certification	**certification:** **Optional** Name and credentials of the party (if any) that certified the data as meeting positional accuracy and attribute data requirements as agreed for data exchange purposes.
dataOwner	**dataOwner:** **Optional**

	Name of the data owner. Should match a **name** value of a record with **actorType = Data Owner** in **<NUARActor>**. This should only be specified if the Data Owner is different from the Asset (Object) Owner.
dataOwnerAssignedUniqueID	**dataOwnerAssignedUniqueID:** **Optional** An identifier assigned by the owner of a data record relating to an asset or object, as represented by a feature in the NUAR database. If this is certified by the data owner as unique and persistent for a single asset or object within a source dataset, this can be used to form part of the composite Data Provider Assigned Unique ID and provide persistence for the lifetime of the asset or object representation within NUAR. If this is not possible, this ID will be used simply as an attribute to be presented to end users. This should only be assigned if the ownership of data is different from the ownership of the physical asset or object (e.g. in the case of a Local Authority effectively being the data "custodian" for NRSWA Section 50, without ownership of the installed assets, and may have their own ID strategy distinct from the asset owner).
dataProvenance	**dataProvenance:** **Mandatory** **Default = "Asset Owner Records"** An indication of where the data for this item originated. Values for this attribute are defined in the <**DataProvenanceValue**> codelist.
dataProviderAssignedUniqueID	**dataProviderAssignedUniqueID:** **Mandatory (by convention)**

	A mandatory identifier for a feature which is persistent over the managed lifecycle of that feature. The Data Provider Assigned Unique ID may be assigned by the provider of that feature to the NUAR platform. It is the Data Providers's responsibility to manage the feature lifecycle. If the data provider is able to supply comprehensive, unique and persistent IDs within the scope of a source dataset, in the NUAR database Data Provider Assigned Unique ID will consist of a composite ID with the following elements: ● NUARActor:systemID - the ID of the organisation responsible for feature lifecycle management (typically the asset owner, but may be a third party service provider or a data custodian) ● The unique, persistent ID value as supplied ● MUDDIObject:sourceFeatureClass - the name of the source dataset Each element of the composite ID will be separated by a ":" character. This composite ID will be globally unique within the NUAR database and will persist for the lifetime of the feature within the database. This composite ID may persist for the lifetime of the associated asset/object depending on the ID policy of the data provider.
dataProviderAssignedUniqueIDAutoAssigned	**dataProviderAssignedUniqueIDAutoAssigned:** **Mandatory (by convention)** **Default = TRUE** Boolean flag that will be set to "True" if the **dataProviderAssignedUniqueID** is automatically assigned by the platform on ingestion. If the Data Provider supplies a unique ID, this flag will be set to "False".
dataSensitivityLevel	**dataSensitivityLevel:** **Optional** Indicator of the sensitivity level of the data recorded for a feature.

dateDataCollected	**dateDataCollected:** **Optional** Date when a network asset was last surveyed in the field. If this survey was carried out according to the PAS128 standard, the Quality Level assigned to the feature should be recorded in the **MUDDIAsset:qualityLevel** field. If the survey on this date was not carried out according to PAS128, the **MUDDIAsset:qualityLevel** field must be left unpopulated.
dateOfExtract	**dateOfExtract** **Optional** The value for **dateOfExtract** should be derived, where available, from the extract date for the dataset, i.e. features belonging to a given dataset should have the same date of extract as that dataset as included in the relevant submission. In the absence of this information it should default to the same value as **datelastupdated** (representing the date of submission to NUAR).
dateOfLastStatusChange	**dateOfLastStatusChange:** **Optional** The data upon which the operational status of the feature was last changed. E.g. if a "Date Abandoned" attribute is provided for an abandoned asset, this value should be assigned.
description	**description:** **Optional** Descriptive text for the feature.
enhancedMeasures	**enhancedMeasures:** **Optional** Indicates any additional or enhanced measures a third party should undertake before commencing works in order that they should be carried out safely. Values for this attribute are defined in the **<EnhancedMeasuresTypeValue>** codelist.

enhancedMeasuresProximity	**enhancedMeasuresProximity:** **Optional** The proximity to the feature, in **unitofMeasure**, at which any enhanced measure specified in the **enhancedMeasures** attribute is activated.
expectedRefreshPeriod	**expectedRefreshPeriod:** **Optional** The time period within which a refresh of the feature data would be expected. Represented by the **<TimePeriodType>** Data Type.
featureType	**featureType:** **Optional** Category of feature based on feature function and configuration. Values for this attribute are defined in the **<FeatureTypeValue>** codelist.
geometry	**geometry:** **Mandatory (by convention)** The geometry of the feature
horizontalCRS	**horizontalCRS:** **Mandatory (by convention)** Coordinate system, datum, and epoch date (if applicable) associated with the X and Y coordinates (e.g. “EPSG:27700” for British National Grid)
localeReference	**localeReference:** **Optional** An identifier for the general locale of the object. E.g. a street reference such as a USRN, or a land parcel id.

localeReferenceType	**localeReferenceType:** **Optional** The type of the reference specified in the **localeReference** attribute. Values for this attribute are defined in the **<LocaleReferenceTypeValue>** codelist.
objectName	**objectName:** **Optional** Any name assigned to the object by the asset owner
objectOwner	**objectOwner:** **Optional** Name of the owner of the physical object. Should match a **name** value of a record with **actorType = Object Owner** in **<NUARActor>**.
objectOwnerAssignedUniqueID	**objectOwnerAssignedUniqueID:** **Optional** An identifier assigned by the owner of an asset or object, as represented by a feature in the NUAR database. If this is certified by the object owner as unique and persistent for a single asset or object within a source dataset, this can be used to form part of the composite Data Provider Assigned Unique ID and provide persistence for the lifetime of the asset or object representation within NUAR. If this is not possible, this ID will be used simply as an attribute to be presented to end users.
operationalStatus	**operationalStatus:** **Optional** Operational status of the object or asset represented by the feature. Values for this attribute are defined in the

	<OperationalStatusValue> codelist.
operator	**operator:** **Optional** Name of the object or asset operator. Should match a **name** value of a record with **actorType = Object Operator** in **<NUARActor>**. This should only be specified if the Operator is different from the Asset (Object) Owner.
operatorAssignedUniqueID	**operatorAssignedUniqueID:** **Optional** An identifier assigned by the operator of an asset or object to a feature in the NUAR database. If this is certified by the operator as unique and persistent for a single asset or object within a source dataset, this can be used to form part of the composite Data Provider Assigned Unique ID and provide persistence for the lifetime of the asset or object representation within NUAR. If this is not possible, this ID will be used simply as an attribute to be presented to end users. This should only be assigned if the operation of a physical asset or object is different from the ownership of that asset or object.
originalDateDataCollected	**originalDateDataCollected:** **Optional** The date upon which this feature was originally captured in the source asset owner system
sourceFeatureClass	**sourceFeatureClass:** **Mandatory (by convention)** The name of the source Feature Class or dataset containing this feature as supplied by the Data Provider

version	**version:** **Optional** The version specifier for the present data record as defined by the Data Provider
verticalCRS	**verticalCRS:** **Optional** Coordinate system, datum, and epoch date (if applicable) for the Z coordinate. This is the absolute Z coordinate, not the depth from grade. E.g. “EPSG:5101” for Ordnance Datum Newlyn.
Feature Type	**Description**
MUDDIAsset	**MUDDIAsset:** **<<FeatureType>>** Representation of a physical object
azimuth	**azimuth:** **Optional** Horizontal angle (measured clockwise) of the length dimension of a feature with respect to a north base line.
azimuthMeasurementUnits	**azimuthMeasurementUnits:** **Optional** The unit of measure for the value in the **azimuth** attribute. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist (typically **Degrees** or **Radians**)
azimuthType	**azimuthType:** **Optional** **Default = ‘Geographic’** Defines the correct interpretation of the angle specified in

	azimuth. **Geographic** means that the angle is the rotation from north in a clockwise direction. Arithmetic means that the angle is the rotation from east in a counter-clockwise direction. Values for this attribute are defined in the **<OrientationTypeValue>** codelist (**Arithmetic** or **Geographic**).
centroidXYZ	**centroidXYZ:** **Optional** X-Y-Z coordinates representing the centre of the feature for data exchange purposes. For non-linear structures, XYZ represents an anchor point used for 3D representations, which may or not coincide with the feature's centroid. In many cases, XYZ coincides with the observed location in the field (e.g., centre of manhole lid). For proper orientation in a 3D space, the **azimuth** attribute is also necessary.
colour	**colour:** **Optional** A description of the colour of the object as supplied by the Data Provider
depth	**depth:** **Optional** Numerical value in **unitOfMeasure** of the depth from grade at time of survey to the top of the asset. This attribute should be used for a single approximation of asset depth according to **depthMethod**. Absolute vertical positioning information should be represented in the **geometry** attribute. Represented by the **<DepthType>** Data Type.
depthMethod	**depthMethod:** **Optional**

	The method by which the value for depth was determined. Values for this attribute are defined in the **<DepthMethodValue>** codelist
horizontalAccuracy	**horizontalAccuracy:** **Optional** If the last survey of the feature was carried out according to PAS128, this field should represent the horizontal 'Location accuracy' associated with the Quality Level assigned to this feature, expressed as a **LengthType**. If the last survey was not carried out according to PAS128, this field should represent the worst-case 'margin of error' reported by the surveying equipment used at the time, expressed as a **LengthType**. This field should only be populated if objective data about horizontal accuracy is available.
horizontalMeasurementMethod	**horizontalMeasurementMethod:** **Optional** The method by which the horizontal position of the feature was captured. Values for this attribute are defined in the **<HorizontalMeasurementMethodValue>** codelist.
installationMethod	**installationMethod:** **Optional** The method used to install the asset, knowledge of which can be useful for reducing risk in some scenarios. Values for this attribute are defined in the **<InstallationMethodTypeValue>** codelist.
installationMethodSubType	**installationMethodSubType:** **Optional** Text string allowing data providers to add more detail than can be captured in ***installationMethod***.
intendedPermanence	**intendedPermanence:**

	Optional Intended longevity of the object represented by the feature. Values for this attribute are defined in the **<IntendedPermanenceValue>** codelist.
locationType	**locationType:** **Optional** An indication of the location of the object (e.g. carriageway, verge etc). Values for this attribute are defined in the **<LocationTypeValue>** codelist.
material	**material:** **Optional** Predominant or conveying material of which the object is constructed. For features that transmit a signal or electrical power, material refers to the conductor material. Values for this attribute are defined in the **<MaterialTypeValue>** codelist.
materialSubType	**materialSubType:** **Optional** A free-text equivalent of the **material** attribute value which may be used to reflect a source data value which is not precisely represented in the **<MaterialTypeValue>** codelist
qualityLevel	**qualityLevel:** **Optional** Quality level in accordance with PAS128:2022. This field should only be populated if the **MUDDIObject:dateDataCollected** attribute is populated with the date of a PAS128-compliant utility survey, and **qualityLevel** should reflect the Quality Level assigned during that survey. Values for this attribute are defined in the **<QualityLevelValue>** codelist.

undergroundStatus	**undergroundStatus:** **Optional** Indicator of whether the feature is partially or completely underground. The values for this attribute are defined in the **<UndergroundStatusValue>** codelist.
verticalAccuracy	**verticalAccuracy:** **Optional** If the last survey of the feature was carried out according to PAS128, this field should represent the vertical 'Location accuracy' associated with the Quality Level assigned to this feature, expressed as a **LengthType**. If the last survey was not carried out according to PAS128, this field should represent the worst-case 'margin of error' reported by the surveying equipment used at the time, expressed as a **LengthType**. This field should only be populated if objective data about vertical accuracy is available.
Feature Type	**Description**
NetworkAsset	**NetworkAsset:** **<<FeatureType>>** Asset that has a role in a utility network.
container	**container:** **Optional** The **dataProviderAssignedUniqueID** of any container object that directly encloses this Network Asset
dateOfInstallation	**dateOfInstallation:** **Optional** The date upon which the asset was installed, as specified by the Data Provider

insideHeight	**insideHeight:** **Optional** For circular shaped segments, not applicable. For non-circular shaped segments, the maximum inside height of the cross-sectional shape. For features other than segments, the maximum inside height of the feature. Units are always defined by **unitOfMeasure**.
insideLength	**insideLength:** **Optional** For segments, not applicable. For features other than segments, the maximum inside length of the feature (measured in the horizontal plane, perpendicular to the width). Units are always defined by **unitOfMeasure**.
insideWidth	**insideWidth:** **Optional** For circular shaped segments, if the Data Provider supplies a single diameter value, this value should be stored in **insideWidth**. If an inside and outside diameter are supplied, this attribute should represent the inside diameter. For non-circular shaped segments, the maximum inside width of the cross-sectional shape. For features other than segments, the maximum inside width of the feature. Units are always defined by **unitOfMeasure**.
isAuxiliary	**isAuxiliary:** **Optional** An indication that this asset is part of an auxiliary network providing supporting services for the main network

isCathodicProtected	**isCathodicProtected:** **Optional** Indicator of the presence of cathodic protection on the asset
isEncased	**isEncased:** **Optional** Indicator of the presence of encasement to insulate or protect the asset. Where the conveyance asset is contained within a “carrier” asset (e.g. as a result of replacement of metal with plastic pipes), and there is a requirement to represent the diameter of the carrier asset (see **outsideDiameter** below) this may be set to “True”.
isNPS	**isNPS:** **Optional** Indicator that the provided outside Width is a "Nominal Pipe Size" rather than a true measure. This may correspond to known inside and outside dimensions for well-known types of pipes or other network elements. If isNPS is true and both outside and inside width are set to the same value, then it is not known to what dimension the value applies.
outsideHeight	**outsideHeight:** **Optional** For circular shaped segments, not applicable. For non-circular shaped segments, the maximum outside height of the cross-sectional shape. For features other than segments, the maximum outside height of the feature. Units are always defined by **unitOfMeasure**.
outsideLength	**outsideLength:** **Optional**

	For segments, not applicable. For features other than segments, the maximum outside length of the feature (measured in the horizontal plane, perpendicular to the width). Units are always defined by **unitOfMeasure**.
outsideWidth	**outsideWidth:** **Optional** For circular shaped segments, if the Data Provider supplies an explicit outside diameter value, this value should be stored in **outsideWidth**. If a single diameter value is supplied, **insidewidth** should be used (see above). Where the conveyance asset is contained within a "carrier" asset (e.g. as a result of replacement of metal with plastic pipes), and there is a requirement to represent the diameter of the carrier asset, **outsideDiameter** should represent the supplied diameter of the carrier asset and **isEncased** be set to "True". For non-circular shaped segments, the maximum outside width of the cross-sectional shape. For features other than segments, the maximum outside width of the feature. Units are always defined by **unitOfMeasure**.
protectiveMaterial	**protectiveMaterial:** **Optional** Material from which protective layers or elements of the object are constructed. Values for this attribute are defined in the **<MaterialValue>** codelist.
protectiveMaterialSubType	**protectiveMaterialSubType:** **Optional** A free-text equivalent of the **protectiveMaterial** attribute value which may be useful to reflect a source data value which is not precisely represented in the **<MaterialValue>** codelist.

utilitySubType	**utilitySubType:** **Optional** Type of utility service at a finer level of classification than **utilityType**. Values for this attribute are defined in the **<UtilitySubTypeValue>** codelist.
utilityType	**utilityType:** **Mandatory (by convention)** Type of utility service that a utility feature carries. The values for this attribute are defined in the **<UtilityTypeValue>** codelist.
wallThickness	**wallThickness:** **Optional** Maximum wall thickness. Units are always defined by **unitOfMeasure**.
Feature Type	**Description**
NetworkConveyance	**NetworkConveyance:** **<<FeatureType>>** Asset that has a role in the conveyance of a commodity in a utility network.
conveyanceCategory	**conveyanceCategory:** **Optional** Primary category or purpose of service of the asset. Included in each category is the supporting infrastructure, such as alarm and ventilation, needed to provide the corresponding utility service. Values for this attribute are defined in the **<ConveyanceCategoryValue>** codelist.

conveyanceMethod	**conveyanceMethod:** **Optional** Method to move or convey matter (the utility commodity) through the asset (e.g. Pressure, Voltage, Gravity). Values for this attribute are defined in the **<ConveyanceMethodValue>** codelist.
fillMaterial	**fillMaterial:** **Optional** Material used to fill the space between a utility feature and its encasement or an out-of-service “carrier” feature. Values for this attribute are defined in the **<MaterialTypeValue>** codelist.
isFilled	**isFilled:** **Optional** Indicator of the presence of interstitial material being used to fill the space between a utility feature and its encasement or an out-of-service “carrier” feature.
operatingConveyanceLevel	**operatingConveyanceLevel:** **Optional** A specific value supplied by the Data Provider that represents the “level” at which the commodity is conveyed in this network object (e.g. if a specific voltage level is supplied for an electricity cable above and beyond the **conveyanceMethod**).
operatingConveyanceLevelType	**operatingConveyanceLevelType:** **Optional** The type of the conveyance level for this network object (e.g. pressure, voltage level). Values for this attribute are defined in the **<OperatingConveyanceLevelTypeValue>** codelist.
operatingConveyanceLevelUn	**operatingConveyanceLevelUnits:**

its	**Optional** The units associated with the operating conveyance level value. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist.
operatingTemperature	**operatingTemperature:** **Optional** A specific value supplied by the Data Provider that represents the temperature of the commodity conveyed by this network object
operatingTemperatureRange	**operatingTemperatureRange:** **Optional** An indication of the range of temperatures of the commodity conveyed by this network object if supplied by the Data Provider. Values for this attribute are defined in the **<TemperatureRangeValue>** codelist.
operatingTemperatureUnits	**operatingTemperatureUnits:** **Optional** The units associated with the operating temperature value. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist.
outerMaterial	**outerMaterial:** **Optional** Material from which the outer covering, carrier pipe, insulation, etc. is constructed. Values for this attribute are defined in the **<MaterialTypeValue>** codelist.
outerMaterialSubType	**outerMaterialSubType:** **Optional**

	A free-text equivalent of the **outerMaterial** attribute value which may be useful to reflect a source data value which is not precisely represented in the **<MaterialValue>** codelist.
Feature Type	**Description**
NetworkConveyanceLink	**NetworkConveyanceLink:** **<<FeatureType>>** Linear utility feature that serves as a link or edge in a network graph
componentType	**componentType:** **Mandatory (by convention)** A component is an element of a system which corresponds to the lowest level of detail or feature disaggregation for data exchange purposes. Values for this attribute are defined in the <**NetworkLinkComponentValue**> codelist.
componentSubType	**componentSubType:** **Optional** A free-text equivalent of the **componentType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<NetworkLinkComponentValue>** codelist
downstreamDepth	**downstreamDepth:** **Optional** Numerical value in **unitOfMeasure** of the depth from grade at time of survey or other determination method to the top of the downstream end of the asset. If this attribute is provided for a NetworkLink feature, then the **depth** attribute should be understood as upstreamDepth. This attribute should be used for a single approximation of asset depth according to **depthMethod**. Absolute vertical positioning information should be

	represented in the **geometry** attribute.
startNodeID	**startNodeID:** **Optional** Holds the **dataProviderAssignedUniqueID** of the start node of the link, allowing representation of a topological network
endNodeID	**endNodeID:** **Optional** Holds the **dataProviderAssignedUniqueID** of the end node of the link, allowing representation of a topological network
Feature Type	**Description**
NetworkConveyanceLinkZone OfInterest	**NetworkLinkZoneOfInterest:** **<<FeatureType>>** A zone of interest which emanates from a Network Link
parentFeatureID	**parentFeatureID:** **Optional** The **dataProviderAssignedUniqueID** value of the feature from which the Zone of Interest polygon is derived
Feature Type	**Description**
NetworkConveyanceNode	**NetworkConveyanceNode:** **<<FeatureType>>** Discrete utility feature that is directly involved with the conveyance, control, or distribution of a particular utility service and serves as a node in a network graph
componentType	**componentType:** **Mandatory (by convention)** A component is an element of a system which corresponds to the lowest level of detail or feature disaggregation for data

	exchange purposes. Values for this attribute are defined in the <**NetworkNodeComponentValue**> codelist.
componentSubType	**componentSubType:** **Optional** A free-text equivalent of the **componentType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<NetworkNodeComponentValue>** codelist
Feature Type	**Description**
NetworkConveyanceNodeZoneOfInterest	**NetworkNodeZoneOfInterest:** **<<FeatureType>>** A zone of interest which emanates from a Network Node.
parentFeatureID	**parentFeatureID:** **Optional** The **dataProviderAssignedUniqueID** value of the feature from which the Zone of Interest polygon is derived
Feature Type	**Description**
NetworkAccessory	**NetworkAccessory:** **<<FeatureType>>** Asset that has a role in the support, containment, access or physical protection of a conveyance object in a utility network
accessoryType	**accessoryType** **Mandatory (by convention)** The type of the Network Accessory. The values for this attribute are defined in the **<NetworkAccessoryTypeValue>** codelist.

Feature Type	Description
Access	**Access:** **<<FeatureType>>** Object that has a role in providing access to an asset in a utility network
accessType	**accessType:** **Mandatory (by convention)** The type of the access object. The values for this attribute are defined in the **<AccessTypeValue>** codelist.
accessSubType	**accessSubType:** **Optional** A free-text equivalent of the **accessType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<AccessTypeValue>** codelist
numberOfCovers	**numberOfCovers:** **Optional** The number of covers exposed by the access object
Feature Type	**Description**
Container	**Container:** **<<FeatureType>>** Object that serves primarily as a container for other assets in a network. E.g. a duct, conduit or vault.
containerType	**containerType:** **Mandatory (by convention)** The type of the container object. The values for this attribute are defined in the

	<ContainerTypeValue> codelist.
containerSubType	**containerSubType:** **Optional** A free-text equivalent of the **containerType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<ContainerTypeValue>** codelist
Feature Type	**Description**
PhysicalProtection	**PhysicalProtection:** **<<FeatureType>>** Object that has a role in the physical protection of an asset in a utility network.
physicalProtectionType	**physicalProtectionType:** **Mandatory (by convention)** The type of the protection object. The values for this attribute are defined in the **<PhysicalProtectionTypeValue>** codelist.
physicalProtectionSubType	**physicalProtectionSubType:** **Optional** A free-text equivalent of the **physicalProtectionType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<PhysicalProtectionTypeValue>** codelist
Feature Type	**Description**
Support	**SupportObject:** **<<FeatureType>>** Structure serving primarily as a support, platform or foundation for another infrastructure component

supportType	**supportType:** **Mandatory (by convention)** The type of the support object. The values for this attribute are defined in the **<SupportTypeValue>** codelist.
supportSubType	**supportSubType:** **Optional** A free-text equivalent of the **supportType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<SupportTypeValue>** codelist
Feature Type	**Description**
NetworkDescriptionObject	**NetworkDescriptionObject:** **<<FeatureType>>** An artefact that describes an element of a network and may be visualised as a descriptive element on a map
associatedAssets	**associatedAssets:** **Optional** **dataProviderAssignedUniqueID** values of any assets with which this description object is associated
associatedText	**associatedText:** **Optional** Any text associated with the description object. E.g. the depth value associated with a depth marker, the text of an annotation element or the reference number associated with a cross-section drawing.
descriptionType	**descriptionType:** **Optional** The type of the description object. The values for this attribute are defined in the

	<NetworkDescriptionTypeValue> codelist.
isQueryable	**isQueryable:** **Optional** **Default=FALSE** Indication of whether the element is queryable on the map. E.g. a cross-section marker would be queryable, whereas an annotation element is unlikely to be.
orientation	**orientation:** **Optional** **Default=0** The rotation angle for the display of the symbol associated with description object
orientationMeasurementUnits	**orientationMeasurementUnits:** **Optional** **Default='Degrees'** The unit of measure for the value in the **orientation** attribute. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist (typically **Degrees** or **Radians**)
orientationType	**orientationType:** **Optional** **Default = 'Geographic'** Defines the correct interpretation of the angle specified in **orientation**. **Geographic** means that the angle is the rotation from north in a clockwise direction. Arithmetic means that the angle is the rotation from east in a counter-clockwise direction. Values for this attribute are defined in the **<OrientationTypeValue>** codelist (**Arithmetic** or **Geographic**).

referenceScale	**referenceScale:** **Optional** **Default=800** The scale in which an annotation appears on screen at its symbol size. At smaller scales it will be smaller than the onscreen symbol size, at larger scales it will be larger
textColour	**textColour:** **Mandatory** **Default=#000000 (Black)** A hex colour code giving the colour of the description text if displayed on a map.
textPlacementX	**textPlacementX:** **Optional** The x-coordinate of the anchor point indicating the text placement.
textPlacementY	**textPlacementY:** **Optional** The y-coordinate of the anchor point indicating the text placement.
utilitySubType	**utilitySubType:** **Optional** Type of utility service at a finer level of classification than **utilityType**. Values for this attribute are defined in the **<UtilitySubTypeValue>** codelist.
utilityType	**utilityType:** **Mandatory (by convention)** Type of utility service that a utility feature carries. The values for this attribute are defined in the **<UtilityTypeValue>** codelist.

Feature Type	Description
NetworkAnnotation	**NetworkAnnotation:** **<<FeatureType>>** A textual description of an element of a network
bold	**bold:** **Optional** **Default=FALSE** Is the text bold?
characterSpacing	**characterSpacing:** **Optional** **Default=0** The additional space that is added to each character beyond what is defined by its character box in its font. Character spacing is a percentage of the original character's length.
characterWidth	**characterWidth:** **Optional** **Default=0** The width that is added to each character beyond what is defined by its character box in its font. Character width is a percentage of the original character.
flipAngle	**flipAngle:** **Optional** **Default=0** The angle (in **orientationMeasurementUnits** from the vertical) at which point rotated text is flipped (mirrored) in place.
fontLeading	**fontLeading:** **Optional**

	Default=0 The adjustment to regular spacing between lines. 0 units means no adjustment to regular line spacing. Generally equal to or greater than the text size.
fontName	**fontName:** **Optional** **Default='Arial'** The name of the font, e.g. "Arial"
fontSize	**fontSize:** **Optional** **Default=8** The size of the font in points (approximately 1/72 inch)
fontStyle	**fontStyle:** **Optional** **Default='Regular'** The name of the font style, e.g. "Regular"
geometryVisible	**geometryVisible:** **Optional** **Default=FALSE** Should the geometry associated with the annotation object be visualised?
horizontalAlignment	**horizontalAlignment:** **Optional** **Default='Left'** The horizontal alignment that will be applied to text that contains multiple lines. The values for this attribute are defined in the **<AnnotationHorizontalAlignmentValue>** codelist.

italic	**italic:** **Optional** **Default=FALSE** Is the text italic?
underline	**underline:** **Optional** **Default=FALSE** Is the text underlined?
verticalAlignment	**verticalAlignment:** **Optional** **Default='Bottom'** Defines how text is vertically aligned. The values for this attribute are defined in the **<AnnotationVerticalAlignmentValue>** codelist.
wordSpacing	**wordSpacing:** **Optional** **Default=0** The additional space that is added between words of the text string. Word spacing is a percentage of the original.
xOffset	**xOffset:** **Optional** **Default=0** Shifts the text position right or left
yOffset	**yOffset:** **Optional** **Default=0** Shifts the text position up or down

Feature Type	Description
NetworkDimension	**NetworkDimension:** **<<FeatureType>>** A descriptive element that describes a measurement of a network, or its position relative to another feature. For information on Dimension elements, see ISO 129-1:2018.
dimensionLine	**dimensionLine:** **Optional** Straight or curved line with terminators at each end or origin and terminator at each end, indicating the size of a feature or the extent of a feature or between two features, or between a feature and an extension line, or between two extension lines
dimensionValue	**dimensionValue:** **Optional** Nominal numerical value expressed in a specific unit relevant to a linear or angular dimension
endDimensionLineExtension	**endDimensionLineExtension:** **Optional** Dimension line extension at the end dimension point. Where space is limited, dimension lines may be extended past the extension lines and the arrowheads placed outside of the extension lines and reversed
endDimensionPoint	**endDimensionPoint:** **Optional** Last point of the dimension line
endExtensionLine	**endExtensionLine:** **Optional** Extension line at the end dimension point

fontName	**fontName:** **Mandatory** **Default='Arial'** The name of the font to be used for displaying the text element of the dimension.
fontSize	**fontSize:** **Mandatory** **Default=8** The font point size to be used for displaying the text element of the dimension**.**
propertyIndicator	**propertyIndicator:** **Optional** Symbol or character used to define the shape of a feature or property of an entity composed of several features. Prepended to the dimensionValue.
startDimensionLineExtention	**startDimensionLineExtention:** **Optional** Dimension line extension at the start dimension point. Where space is limited, dimension lines may be extended past the extension lines and the arrowheads placed outside of the extension lines and reversed.
startDimensionPoint	**startDimensionPoint:** **Optional** First point of the dimension line
startExtensionLine	**startExtensionLine:** **Optional** Extension line at the start dimension point
Feature Type	**Description**
ServiceArea	**ServiceArea:**

	<<FeatureType>> Representation of the geographical coverage of a whole or partial infrastructure network
buffered	**buffered:** **Optional** **Default=FALSE** Indication of whether this service area geometry has been generated by buffering a source geometry
bufferSize	**bufferSize:** **Optional** If **buffered = TRUE**, a value indicating the size of the buffer applied (with units)
nationalOrRegionalCoverage	**nationalOrRegionalCoverage:** **Mandatory** **Default = "N/A"** If the geometry of this service area is represented by one of the standard regional or national boundary geometries, this field contains the name of this boundary. The values for this attribute are defined in the **<NationalOrRegionalCoverageValue>** codelist.
originalServiceAreaID	**originalServiceAreaID:** **Optional** For a Service Area whose geometry or extent has been derived from another Service Area geometry (e.g. via buffering), this attribute represents the dataProviderAssignedUniqueID of the original Service Area feature.
serviceAreaSubType	**serviceAreaSubType:** **Optional** A free-text equivalent of the **serviceAreaType** attribute value which may be used to reflect a source data value which is not

	precisely represented in the **<ServiceAreaTypeValue>** codelist
serviceAreaType	**serviceAreaType:** **Mandatory (by convention)** The type of the Service Area. The values for this attribute are defined in the **<ServiceAreaTypeValue>** codelist.
Feature Type	**Description**
Site	**Site:** **<<FeatureType>>** Representation of a specific site within a utility network
siteType	**SiteType:** **Optional** The type of the Site. The values for this attribute are defined in the **<SiteTypeValue>** codelist.
siteSubType	**siteSubType:** **Optional** A free-text equivalent of the **siteType** attribute value which may be used to reflect a source data value which is not precisely represented in the **<SiteTypeValue>** codelist
Feature Type	**Description**
SiteZoneOfInterest	**SiteZoneOfInterest:** **<<FeatureType>>** A zone of interest which emanates from a Site.
parentFeatureID	**parentFeatureID:** **Optional**

	The **dataProviderAssignedUniqueID** value of the feature from which the Zone of Interest polygon is derived
Feature Type	**Description**
SupplementalDataCoverage	**SupplementalDataCoverage:** **<<FeatureType>>** Representation of the geographical coverage of information linked to an area which is not defined by a Service Area or a Site. E.g. the coverage of custom backdrop data or supplemental information such as area-linked enlargement maps.
coverageDataServiceType	**coverageDataServiceType:** **Optional** If a data service is associated with this coverage, this value specifies the type of the service. The values for this attribute are defined in the **<DataServiceTypeValue>** codelist.
coverageDataServiceURI	**coverageDataServiceURI:** **Optional** If a data service is associated with this coverage, this value specifies the URI used to access the service.
coverageType	**coverageType:** **Optional** The type of the coverage. The values for this attribute are defined in the **<CoverageTypeValue>** codelist.
drawingPriority	**drawingPriority:** **Optional** **Default=0** An indication of the z-order used to display coverage

	geometries.
Feature Type	**Description**
Network	**Network:** **<<FeatureType>>** Representation of an infrastructure network. This may be a conceptual (non-spatial) representation of a full network or a network "tier" containing entities linked by common attribution and not primarily spatially (a "Subordinate Network"). A Network feature may also represent a geographical subnetwork of the main network. The "parent" network for a given asset owner is related to Service Areas, Subnetworks and Subordinate Networks via relationship tables.
Feature Type	**Description**
NUARSubordinateNetworkDefinition	**NUARSubordinateNetworkDefinition:** **<<FeatureType>>** Defined area with characteristics or constraints relevant to excavation planning
linkedNetworkID	**linkedNetworkID:** **Mandatory** dataproviderassigneduniqueid in the specified network table of the record representing the subordinate network.
linkedNetworkTable	**linkedNetworkTable:** **Mandatory** The name of the table - qualified by a schema name - containing the subordinate network record.
memberFeaturesTable	**memberFeaturesTable:** **Mandatory**

	The name of the table - qualified by a schema name - containing features which may be members of the subordinate network, depending on the membership criteria.
membershipCriteria	**membershipCriteria:** **Optional** The criteria which dictate which records in the specified table are members of the subordinate network. The string should equate to a SQL WHERE clause (not including the WHERE command) that causes features that belong to the subordinate network to be returned by a suitable SELECT query.
Feature Type	**Description**
PlanningArea	**PlanningArea:** **<<FeatureType>>** Defined area with characteristics or constraints relevant to excavation planning
directive	**directive:** **Optional** The name of the Directive or Legislation which defines the status of the Planning Area
planningAreaType	**planningAreaType:** **Optional** The type of the Planning Area. The values for this attribute are defined in the **<PlanningAreaTypeValue>** codelist.
policyDocumentation	**policyDocumentation:** **Optional** A link to a file or website, or a copy of the text, which provides details of the policy documentation or guidance relating to this Planning Area
policyName	**policyName:**

	Optional The name of the policy with which this Planning Area is associated, e.g. “Wildlife and Countryside Act 1981“
Feature Type	**Description**
Relationship_ActorToContact Details	**Relationship_ActorToContactDetails:** **<<FeatureType>>** Representation of the relationship between an organisation and contact details for the organisation.
linkedActorID	**linkedActorID:** **Mandatory** The systemID of the **<NUARActor>** record in the relationship
linkedContactDetailsID	**linkedContactDetailsID:** **Mandatory** The systemID of the **<NUARContactDetails>** record in the relationship.
Feature Type	**Description**
Relationship_ActorToService Area	**Relationship_ActorToServiceArea:** **<<FeatureType>>** Representation of the relationship between an organisation and a Service Area, and the purpose that the Service Area serves for that organisation
actorID	**actorID:** **Mandatory** The systemID of the **<NUARActor>** record in the relationship
serviceAreaID	**serviceAreaID:** **Mandatory** The dataProviderAssignedUniqueID of the **<ServiceArea>**

	record in the relationship
serviceAreaName	**serviceAreaName:** **Optional** The name of the Service Area in the as used by the related organisation
serviceAreaPurpose	**serviceAreaPurpose:** **Mandatory** The purpose for which this service area is used by the related organisation. The values for this attribute are defined in the **<ServiceAreaPurposeValue>** codelist.
utilityType	**utilityType:** **Optional** Type of utility service associated with the related Service Area.
Feature Type	**Description**
Relationship_ServiceProviderToOrganisation	**Relationship_ServiceProviderToOrganisation:** **<<FeatureType>>** Representation of the relationship between a Service Provider organisation and an organisation to which those services are provided (e.g. a provider of data transformation services being related to an Asset Owner organisation whose data it transforms).
linkedOrganisationID	**linkedOrganisationID:** **Mandatory** The systemID of the **<NUARActor>** record for the Organisation on whose behalf the service is being provided.
linkedServiceProviderOrganisationID	**linkedServiceProviderOrganisationID:** **Mandatory**

	The systemID of the **<NUARActor>** record for the Service Provider organisation.
serviceType	**serviceType:** **Optional** The type of service provided by the Service Provider to the Organisation. The values for this attribute are defined in the **<ServiceProviderTypeValue>** codelist.
Feature Type	**Description**
Relationship_ObjectToEnclosingObject	**Relationship_ObjectToEnclosingObject** ***<<FeatureType>>*** Table of relationships between objects which respectively enclose and are enclosed by each other.
linkedEnclosedObjectID	**linkedEnclosedObjectID:** **Mandatory** The dataProviderAssignedUniqueID of the object which is enclosed.
linkedEnclosedObjectTable	**linkedEnclosedObjectTable:** **Mandatory** The name of the FeatureType (or table in a physical implementation) containing the enclosed object.
linkedEnclosingObjectID	**linkedEnclosingObjectID:** **Mandatory** The dataProviderAssignedUniqueID of the object which is enclosing another object.
linkedEnclosingObjectTable	**linkedEnclosingObjectTable:** **Mandatory** The name of the FeatureType (or table in a physical

	implementation) containing the enclosing object.
Feature Type	**Description**
Observation	**Observation:** **<<FeatureType>>** An Observation recorded by a NUAR user related to the data, or more generally to the location at which they are located
dateOfLastVisibilityScopeChange	**dateOfLastVisibilityScopeChange:** **Optional** The date upon which the visibility scope of the Observation was last changed
estimatedBackfillDate	**estimatedBackfillDate:** **Optional** If available, an estimate of the date upon which any excavation exposing assets to which the Observation relates will be backfilled
expiryDate	**expiryDate:** **Optional** A date beyond which the observation should no longer be displayed. E.g. for reporting temporary conditions.
impactOnWorks	**impactOnWorks:** **Optional** An indication of the impact of the conditions observed upon the works being undertaken. The values for this attribute are defined in the **<ObservationImpactValue>** codelist.
notes	**notes:** **Optional** Any additional notes or commentary pertaining to the Observation. May include links to external files and resources

	as required.
observationCategory	**observationCategory:** **Optional** The category to which the Observation belongs. The values for this attribute are defined in the **<ObservationCategoryValue>** codelist.
onBehalfOfOrganisationID	**originatingOrganisationID:** **Mandatory** The systemID in **<NUARActor>** of the organisation the raising user is acting on behalf of. For non-supply chain organisations this will be the same as **originatingOrganisationID**.
originatingOrganisationID	**originatingOrganisationID:** **Mandatory** The systemID in **<NUARActor>** of the organisation the raising user is directly associated with. The Foreign Key to the **<NUARActor>** table doesn't work for supply chain organisations as these are only represented in the platform database not the asset database.
originatingOrganisationName	**originatingOrganisationName:** **Optional** The name of the organisation the raising user is directly associated with.
potentialSensitivity	**potentialSensitivity:** **Mandatory** **Default=FALSE**
scopeOfSharing	**scopeOfSharing:** **Mandatory** Defines the extent to which an Observation is shared (visible) across the user base and organisation hierarchies. The values for this attribute are defined in the

	<ObservationSharingScopePrimaryValue> codelist.
status	**status:** **Optional** The current status of the Observation. The values for this attribute are defined in the **<ObservationStatusValue>** codelist.
title	**title:** **Optional** The Title of the Observation.
userID	**userID:** **Mandatory** The identifier of the user that created the Observation.
userReference	**userReference:** **Optional** A reference for the Observation, e.g. a scheme or job name.
visibilityStatus	**visibilityStatus:** **Mandatory** Defines the overall state of visibility of the Observation, independently of the sharing scope. The values for this attribute are defined in the **<ObservationVisibilityStatusValue>** codelist.
Feature Type	**Description**
ObservationFeedback	**ObservationFeedback:** **<<FeatureType>>** Feedback provided by users on the nature or usefulness of an Observation.

feedbackPercentage	**feedbackPercentage:** **Mandatory** An indication of the usefulness of the Observation as a percentage.
feedbackRating	**feedbackrating:** **Optional** A general rating for the Observation. The values for this attribute are defined in the **<ObservationFeedbackRatingValue>** codelist.
feedbackUserID	**feedbackUserID:** **Mandatory** The User ID of the user leaving the feedback.
notes	**notes:** **Mandatory** Free text feedback on the Observation.
observationID	**observationID:** **Mandatory** The system ID of the Observation for which feedback is being provided.
observationReported	**observationReported:** **Mandatory** **Default=FALSE** An indication as to whether the Observation has been reported for inappropriate content.
Feature Type	**Description**
ObservationOrganisationVisibilityScope	**ObservationFeedback:** **<<FeatureType>>**

	Representation of the Visibility Scope of an Observation for a specified Organisation.
nuarActorID	**nuarActorID:** **Mandatory** The system ID of the **<NUARActor>** record for the organisation whose visibility scope is being specified for the Observation.
observationID	**observationID:** **Mandatory** The system ID of the **<Observation>** record whose visibility scope is being specified for the Organisation.
potentialSensitivity	**potentialSensitivity:** **Mandatory** **Default=FALSE**
scopeOfSharing	**scopeOfSharing:** **Mandatory** Defines the extent to which an Observation is shared (visible) for the Organisation in question. The values for this attribute are defined in the **<ObservationSharingScopeSecondaryValue>** codelist.
Feature Type	**Description**
WronglyRecordedObject	**WronglyRecordedObject:** **<<FeatureType>>** From PAS256:2017: "[An] object recorded in the plans supplied by the asset owner that does not match the location or description of the asset. NOTE WROs could be, for example, pipes or cables for which the depth, location or materials differ from the information provided in the supplied plans."

Feature Type	Description
UnidentifiedBuriedObject	**UnidentifiedBuriedObject:** **<<FeatureType>>** From PAS256:2017: "[A] buried asset at a given location, which is not recorded on any plans supplied by undertaker, local highway or roads authority or any other asset owner". A discovered object whose function, nature and/or ownership is unknown at the time of discovery.
colourDescription	**colourDescription:** **Optional** A description of the colour of, and any markings on, the object
componentTypeDescription	**componentTypeDescription:** **Optional** A description of the discovered object.
estimatedDepth	**estimatedDepth:** **Optional** An estimate of the depth below the surface of the discovered object in **unitOfMeasure**.
estimatedUtilityType	**estimatedUtilityType:** **Optional** An estimate of the utility type of the discovered object if applicable. The values for this attribute are defined in the **<UtilityTypeValue>** codelist.
materialDescription	**materialDescription:** **Optional** A description of the material of which the discovered object is

	primarily constructed.
Feature Type	**Description**
Structure	**Structure:** **<<FeatureType>>** Representation of a structure that has a role in a utility network.
container	**container:** **Optional** The **dataProviderAssignedUniqueID** of any container object that directly encloses this Network Asset
dateOfInstallation	**dateOfInstallation:** **Optional** The date upon which the asset was installed, as specified by the Data Provider
insideHeight	**insideHeight:** **Optional** For circular shaped segments, not applicable. For non-circular shaped segments, the maximum inside height of the cross-sectional shape. For features other than segments, the maximum inside height of the feature. Units are always defined by **unitOfMeasure**.
insideLength	**insideLength:** **Optional** For segments, not applicable. For features other than segments, the maximum inside length of the feature (measured in the horizontal plane, perpendicular to the width).

	Units are always defined by **unitOfMeasure**.
insideWidth	**insideWidth:** **Optional** For circular shaped segments, if the Data Provider supplies a single diameter value, this value should be stored in **insideWidth**. If an inside and outside diameter are supplied, this attribute should represent the inside diameter. For non-circular shaped segments, the maximum inside width of the cross-sectional shape. For features other than segments, the maximum inside width of the feature. Units are always defined by **unitOfMeasure**.
isEncased	**isEncased:** **Optional** Indicator of the presence of encasement to insulate or protect the asset. Where the conveyance asset is contained within a "carrier" asset (e.g. as a result of replacement of metal with plastic pipes), and there is a requirement to represent the diameter of the carrier asset (see **outsideDiameter** below) this may be set to "True".
outsideHeight	**outsideHeight:** **Optional** For circular shaped segments, not applicable. For non-circular shaped segments, the maximum outside height of the cross-sectional shape. For features other than segments, the maximum outside height of the feature. Units are always defined by **unitOfMeasure**.
outsideLength	**outsideLength:** **Optional**

	For segments, not applicable. For features other than segments, the maximum outside length of the feature (measured in the horizontal plane, perpendicular to the width). Units are always defined by **unitOfMeasure**.
outsideWidth	**outsideWidth:** **Optional** For circular shaped segments, if the Data Provider supplies an explicit outside diameter value, this value should be stored in **outsideWidth**. If a single diameter value is supplied, **insidewidth** should be used (see above). Where the conveyance asset is contained within a "carrier" asset (e.g. as a result of replacement of metal with plastic pipes), and there is a requirement to represent the diameter of the carrier asset, **outsideDiameter** should represent the supplied diameter of the carrier asset and **isEncased** be set to "True". For non-circular shaped segments, the maximum outside width of the cross-sectional shape. For features other than segments, the maximum outside width of the feature. Units are always defined by **unitOfMeasure**.
Feature Type	**Description**
NonUtilityObject	**NonUtilityObject:** **<<FeatureType>>** An underground object which is not part of a utility network, but which may have an impact on planning or excavation activities.
type	**type:** **Optional** The type of the non-utility object. The values for this attribute are defined in the

	<NonUtilityObjectTypeValue> codelist.
subType	**subType:** **Optional** A free-text equivalent of the **type** attribute value which may be useful to reflect a source data value which is not precisely represented in the **<NonUtilityObjectTypeValue>** codelist.
Feature Type	**Description**
NUARLinkedFile	**NUARLinkedFile:** **<<FeatureType>>** Representation of a file linked to another entity in the NUAR database. Features contain links to files held externally to the NUAR database (although possibly within the NUAR environment more broadly).
checksum	**checksum:** **Optional** Checksum for the file to allow data integrity to be maintained across environments.
fullPath	**fullPath:** **Optional** The URI of the file, qualified sufficiently to allow it to be accessed by NUAR. For external resources, a full path will be required. For resources within the NUAR infrastructure a partial path may be sufficient, with further qualification provided in platform configuration (for example).
lastScanDate	**lastScanDate:** **Optional** The date and time at which the last malware scan was carried out on the file associated with the record.

mimeType	**mimeType:** **Optional** The type of the file according to the MIME standard used for various communication protocols (e.g. “application/pdf”)
name	**name:** **Optional** A name for the file which may be displayed to users.
scanStatus	**scanStatus:** **Mandatory** **Default=’Pending’** The current status of the file associated with the record with regards to malware scanning. Values for this attribute are defined in the **<FileScanStatusValue>** codelist.
typeDescription	**typeDescription:** **Optional** A meaningful description of the file type (e.g. “PDF”)
Feature Type	**Description**
NUARGuidance	**NUARGuidance:** **<<FeatureType>>** A representation of a guidance or process document, which may have a file associated with it.
name	**name:** **Optional** A name for the guidance which may be displayed to users.
Feature Type	**Description**

VariableObjectValue	**VariableObjectValue:** **<<FeatureType>>** A means of specifying a point or segment on a linear feature for which a distinct value may be specified
dateOfCapture	**dateOfCapture:** **Optional** Date upon which the value was observed or captured
fromMeasure	**fromMeasure:** **Optional** A value specifying a point on the related linear feature in terms of a measure from the start of that feature. If this feature represents a segment, this value represents the "from" point of the segment. If this feature represents a point, this value represents that point.
toMeasure	**toMeasure:** **Optional** A value specifying a point on the related linear feature in terms of a measure from the start of that feature. If this feature represents a segment, this value represents the "to" point of the segment. If this feature represents a point, this value should be NULL.
Feature Type	**Description**
Depth	**Depth:** **<<FeatureType>>** An indication of the depth and the method of measuring it for a point or segment of a linear feature.
depth	**depth:**

	Optional Numerical value in **measurementUnits** of the depth from grade at time of survey to the top of the associated linear feature as measured for this point or segment.
depthMethod	**depthMethod:** **Optional** The method by which the value for depth was determined for this point or segment. Values for this attribute are defined in the **<DepthMethodValue>** codelist
Feature Type	**Description**
HorizontalMeasurementMethod	**HorizontalMeasurementMethod:** **<<FeatureType>>** An indication of the method of measuring the horizontal position of a point or segment of a linear feature.
horizontalMeasurementMethod	**horizontalMeasurementMethod:** **Optional** The method by which the horizontal position of the point or segment was captured. Values for this attribute are defined in the **<HorizontalMeasurementMethodValue>** codelist.
Feature Type	**Description**
QualityLevel	**QualityLevel:** **<<FeatureType>>** An indication of the Quality Level recorded for a point or segment of a linear feature.
qualityLevel	**qualityLevel:** **Optional**

	Quality level recorded for the point or segment in accordance with PAS128:2022. This field should only be populated if the **dateOfCapture** attribute is populated with the date of a PAS128-compliant utility survey, and **qualityLevel** should reflect the Quality Level assigned to the point or segment during that survey. Values for this attribute are defined in the **<QualityLevelValue>** codelist.
Feature Type	**Description**
DepthType	**DepthType:** **<<DataType>>** A complex type for representing Depth
depth	**depth:** **Optional** The depth value
unitOfMeasure	**unitOfMeasure:** **Optional** The unit of measure for the **depth** value. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist.
Feature Type	**Description**
HeightType	**HeightType:** **<<DataType>>** A complex type for representing Height
height	**height:** **Optional** The height value

unitOfMeasure	**unitOfMeasure:** **Optional** The unit of measure for the **height** value. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist.
Feature Type	**Description**
LengthType	**LengthType:** **<<DataType>>** A complex type for representing Length
length	**length:** **Optional** The length value
unitOfMeasure	**unitOfMeasure:** **Optional** The unit of measure for the **length** value. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist.
Feature Type	**Description**
TimePeriodType	**TimePeriodType:** **<<DataType>>** A complex type for representing a Time Period
period	**period:** **Optional** The time period value
unitOfTime	**unitOfTime:**

	Optional The unit of time for the **period** value. Values for this attribute are defined in the **<UnitOfTimeValue>** codelist.
Feature Type	**Description**
WidthType	**WidthType:** **<<DataType>>** A complex type for representing Width
width	**width:** **Optional** The width value
unitOfMeasure	**unitOfMeasure:** **Optional** The unit of measure for the **width** value. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist.
Feature Type	**Description**
ElectricityNetworkLink	**ElectricityNetworkLink:** **<<FeatureType>>** Type of Network Node that conveys electrical power
operatingVoltage	**operatingVoltage:** **Optional** Standard voltage measure conveyed by this electrical utility asset
Feature Type	**Description**

ElectricityNetworkNode	**ElectricityNetworkNode:** **<<FeatureType>>** Type of Network Node that conveys electrical power
operatingVoltage	**operatingVoltage:** **Optional** Standard voltage measure conveyed by this electrical utility asset
Feature Type	**Description**
FuelAndChemicalsNetworkLink	**FuelAndChemicalsNetworkLink:** **<<FeatureType>>** Pipeline network link for the conveyance of fuel or chemicals.
mahp	**mahp:** **Optional** Is this asset classified as a Major Accident Hazard Pipeline?
materialGrade	**materialGrade:** **Optional** What is the material grade for this asset? Values for this attribute are defined in the **<MaterialGradeValue>** codelist.
slabbing	**slabbing:** **Optional** Is this asset protected by slabbing?
tape	**tape:** **Optional** Is tape present above this asset?

Feature Type	Description
GasNetworkLink	**GasNetworkLink:** **<<FeatureType>>** Gas network link that may consist of a liner "conveying" pipe running within an older, now "carrier" pipe. The network asset dimensions pertain to whichever pipe directly conveys gas.
mahp	**mahp:** **Optional** Is this asset classified as a Major Accident Hazard Pipeline?
materialGrade	**materialGrade:** **Optional** What is the material grade for this asset? Values for this attribute are defined in the **<MaterialGradeValue>** codelist.
slabbing	**slabbing:** **Optional** Is this asset protected by slabbing?
tape	**tape:** **Optional** Is tape present above this asset?
Feature Type	**Description**
SewerNetworkLink	**SewerNetworkLink:** **<<FeatureType>>** Sewer network links conveying sewage between nodes.
backdrop	**backdrop:** **Optional**

	Indicates whether the start of the pipe is lower than the end.
endingDepthType	**endingDepthType:** **Optional** Indicates whether the ending pipe depth refers to the invert rather than the top-of-asset depth.
startingDepthType	**startingDepthType:** **Optional** Indicates whether the starting pipe depth refers to the invert rather than the top-of-asset depth.
Feature Type	**Description**
GeneralPlanningArea	**GeneralPlanningArea:** **<<FeatureType>>** Defined area with characteristics relevant to excavation planning
Feature Type	**Description**
SiteOfPreviousIndustrialUse	**SiteOfPreviousIndustrialUse:** **<<FeatureType>>** Planning Area with a history and possible artefacts or effects of industrial use
endDate	**endDate:** **Optional** Date upon which the previous use ceased
previousUse	**previousUse:** **Optional** Description of the previous use of the site
Feature Type	**Description**

ArchaeologicalSite	**Archaeological Site:** **<<FeatureType>>** Planning Area with defined archaeological value or sensitivity
grade	**grade:** **Optional** Tier number of Archaeological Priority Areas
Feature Type	**Description**
ConservationArea	**ConservationArea:** **<<FeatureType>>** Planning Area with a designated conservation purpose and sensitivity
designationPurpose	**designationPurpose:** **Optional** Purpose of the designation. Values for this attribute are defined in the **<DesignationPurposeValue>** codelist
Feature Type	**Description**
TreeLocation	**TreeLocation:** **<<FeatureType>>** Planning Area designated to indicate the presence of a tree that would be of interest for the planning of excavation works.
species	**species:** **Optional** The species of the tree.
treePreservationOrder	**treePreservationOrder:** **Mandatory**

	Default=TRUE A flag indicating whether this feature represents a Tree Preservation Order.
Feature Type	**Description**
RestrictedPlanningArea	**RestrictedPlanningArea:** **<<FeatureType>>** Representation of an area of zone within which various levels of restriction may be applied to proposed works for reasons of security, disruption etc.
Feature Type	**Description**
NUARBackdropObject	**NUARBackdropObject:** **<<FeatureType>>** Parent Feature Type for all tables in the **<NUARCustomBackdrop>** schema.
description	**description:** **Optional** Description of the feature.
name	**name:** **Optional** Name of the feature.
Feature Type	**Description**
NUARBackdropArea	**NUARBackdropArea:** **<<FeatureType>>** Representation of area (polygon) custom backdrop features.
Feature Type	**Description**

NUARBackdropLine	**NUARBackdropLine:** **<<FeatureType>>** Representation of line custom backdrop features.
Feature Type	**Description**
NUARBackdropPoint	**NUARBackdropPoint:** **<<FeatureType>>** Representation of point custom backdrop features.
Feature Type	**Description**
NUARBackdropText	**NUARBackdropText:** **<<FeatureType>>** Representation of text/annotation custom backdrop features.
orientation	**orientation:** **Mandatory** **Default=0** The rotation angle for the display of the text.
orientationMeasurementUnits	**orientationMeasurementUnits:** **Mandatory** **Default='Degrees'** The unit of measure for the value in the **orientation** attribute. Values for this attribute are defined in the **<MeasurementUnitsValue>** codelist (typically **Degrees** or **Radians**).
orientationType	**orientationType:** **Optional** **Default = 'Geographic'** Defines the correct interpretation of the angle specified in

	orientation. **Geographic** means that the angle is the rotation from north in a clockwise direction. Arithmetic means that the angle is the rotation from east in a counter-clockwise direction. Values for this attribute are defined in the **<OrientationTypeValue>** codelist (**Arithmetic** or **Geographic**).
textString	**textString:** **Mandatory** The text to be displayed.
Feature Type	**Description**
NUARBackdropRaster	**NUARBackdropRaster:** **<<FeatureType>>** Representation of raster custom backdrop features.
extent	**extent:** **Mandatory** The real-world extent of the raster.
fullPath	**fullPath:** **Mandatory** The full path to the raster file.
mimeType	**mimeType:** **Mandatory** The MIME Type of the raster file.
Feature Type	**Description**
NUARDataModelVersion	**NUARDataModelVersion:** **<<FeatureType>>**

	Version information about the overall NUAR Data Model.
versionDate	**versionDate:** **Mandatory** The date of the NUAR Data Model version.
versionNumber	**versionNumber:** **Mandatory** The version number of the NUAR Data Model version.
Feature Type	**Description**
NUARSchemaVersion	**NUARSchemaVersion:** **<<FeatureType>>** Version information about a specific schema in the NUAR Data Model.
schemaName	**schemaName:** **Mandatory** The name of the schema in the NUAR Data Model.
versionDate	**versionDate:** **Mandatory** The date of the schema version.
versionNumber	**versionNumber:** **Mandatory** The version number of the schema version.
Feature Type	**Description**
NUARDataModelSchemaVersions	**NUARDataModelSchemaVersions:** **<<FeatureType>>** Relationship between individual schema versions and the

	version of the overall NUAR Data Model.
dataModelVersion	**dataModelVersion:** **Mandatory** The version number of the overall NUAR Data Model version.
schemaName	**schemaName:** **Mandatory** The name of the schema in the NUAR Data Model.
schemaVersion	**schemaVersion:** **Mandatory** The version number of the schema version.
Feature Type	**Description**
NUARDataModelChangelog	**NUARDataModelChangelog:** **<<FeatureType>>** A record of changes that are part of the specified NUAR Data Model version
changeDescription	**changeDescription:** **Mandatory** A textual description of a change which has contributed to this version of the NUAR Data Model.
proposalReference	**proposalReference:** **Mandatory** The reference of the Data Model Proposal which describes the change.
schemaName	**schemaName:** **Mandatory** **Default='nuardata'**

	The name of the schema in the NUAR Data Model to which the change applies.
schemaVersion	**schemaVersion:** **Mandatory** The version of the schema in the NUAR Data Model to which the change applies.
versionNumber	**versionNumber:** **Mandatory** The version number of the NUAR Data Model version.
Feature Type	**Description**
NUARDataModelMigrationHistory	**NUARDataModelMigrationHistory:** **<<FeatureType>>** A record of migrations of a given encoding of the NUAR Data Model from one version to another.
appliedBy	**appliedBy:** **Optional** Name of the person who performed the migration.
dateOfMigration	**dateOfMigration:** **Mandatory** The date and time at which the migration was completed.
fromVersionNumber	**fromVersionNumber:** **Mandatory** The version number of the NUAR Data Model which was migrated from.
toVersionNumber	**toVersionNumber:** **Mandatory**

	The version number of the NUAR Data Model which was migrated to.