Schema **LandXML-1.2.xsd**

schema location: **http://www.landxml.org/schema/LandXML-1.2/LandXML-1.2.xsd**
attribute form default:
element form default:
targetNamespace: **http://www.landxml.org/schema/LandXML-1.2**

Elements

AddressPoint
AdministrativeArea
AdministrativeDate
AdverseSE
Alignment
Alignments
AlignPI
AlignPIs
Amendment
AmendmentItem
Annotation
Application
Author
Backsight
BacksightPoint
BeginRunoffSta
BeginRunoutSta
BikeFacilities
Boundaries
Boundary
Breakline
Breaklines
BridgeElement
Cant
CantStation
Center
CgPoint
CgPoints
Chain
Channel
CircCurve
CircPipe
CircStruct
Classification
ClimbLane
ComplexName
Connection
ConnSpiral
Contour
Contours
ControlChecks
CoordGeom
CoordinateSystem
Corner
Corrections
CrashData
CrashHistory
CrossSect
CrossSectPnt

Complex types

PointType
PointType3dReq
RawObservationType

Simple types

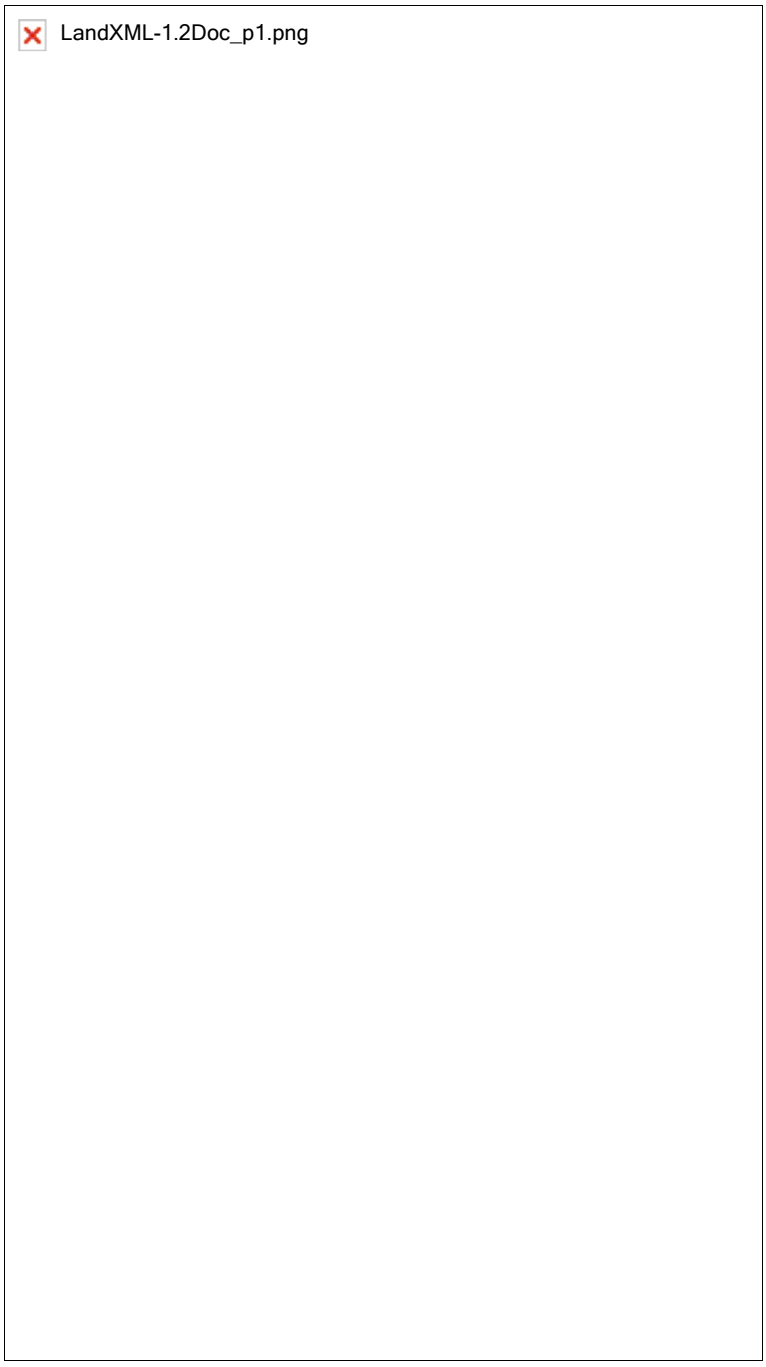
addressPointTypeType
addressTypeType
adminAreaTypeType
adminDateTypeType
adverseSEType
alignmentNameRef
alignmentNameRefs
angle
angularType
annotationType
area
beaconProtectionType
beaconType
breakLineType
bridgeProjectType
cgPointsNameRef
cgPointsNameRefs
ChainType
clockwise
connectionType
coordGeomNameRef
coordGeomNameRefs
cornerType
crashIntersectionRelation
crashSeverityType
crossSectionPnt
crossSectSurfaceArea
crossSectSurfaceVolume
crossSlope
curbType
curveType
dataFormatType
designLocationType
direction
ditchBottomShape
documentStatusType
drivewayDensity
DTMAttributeType
elevationType
ellipsoidHeightType
equipmentType
exclusType
FaceType
featureNameRef
flatTypeType
floorLevelTypeType
functionalClassType
GPSSolutionFrequencyEnum
GPSSolutionTypeEnum

CrossSects
CrossSectSurf
Curb
Curve
Curve1
Curve2
DailyTrafficVolume
DataPoints
DecisionSightDistance
Definition
DesignCrossSectSurf
DesignHour
DesignSpeed
DesignSpeed85th
Ditch
DocFileRef
DrivewayDensity
EggPipe
ElliPipe
End
EndofRunoutSta
Equipment
Exclusions
F
Faces
Feature
FeatureDictionary
FieldNote
FullSuperelev
FullSuperSta
GPSAntennaDetails
GPSPosition
GPSQCInfoLevel1
GPSQCInfoLevel2
GPSReceiverDetails
GPSSetup
GPSVector
GradeModel
GradeSurface
HazardRating
HeadOfPower
Imperial
InletStruct
InSpiral
InstrumentDetails
InstrumentPoint
InstrumentSetup
Intersection
Intersections
Invert
IrregularLine
LandXML
Lanes
LaserDetails
LaserSetup
Line
Location
LocationAddress
MapPoint
GPSTime
gradeModelNameRef
gradeModelNameRefs
headOfPowerType
impArea
impDiameter
impFlow
impHeight
impLinear
impPressure
impTemperature
impVelocity
impVolume
impWidth
inOut
intersectionConstructionType
jurisdictionType
laneTaperType
latLongAngle
latLongAngularType
maneuverType
metArea
metDiameter
metFlow
metHeight
metLinear
metPressure
metTemperature
metVelocity
metVolume
metWidth
monumentCategory
monumentCondition
monumentNameRef
monumentPurpose
monumentState
monumentType
observationStatusType
observationType
offsetDistance
offsetElevation
parcelClass
parcelFormat
parcelNameRef
parcelNameRefs
parcelStateType
pavementSurfaceType
pipeNameRef
pipeNameRefs
pipeNetworkType
planFeatureNameRef
planFeatureNameRefs
Point
Point2dReq
Point3dOpt
Point3dReq
pointGeometryType
pointNameRef
pointNameRefs

Metric
Monument
Monuments
NoPassingZone
ObservationGroup
ObstructionOffset
OffsetLane
OffsetVals
Outlet
OutletStruct
OutSpiral
P
ParaCurve
Parcel
Parcels
PassingLane
PeakHour
Personnel
PI
Pipe
PipeFlow
PipeNetwork
PipeNetworks
Pipes
PlanFeature
PlanFeatures
PntList2D
PntList3D
Pnts
PointFile
PointFiles
PointResults
PostedSpeed
ProfAlign
Profile
ProfSurf
Project
Property
PurposeOfSurvey
PVI
RawObservation
RectPipe
RectStruct
RedHorizontalPosition
ReducedArcObservation
ReducedObservation
RedVerticalObservation
RetWall
RetWallPnt
RoadName
Roadside
RoadSign
Roadway
Roadways
RunoffSta
SourceData
Speeds
SpeedStation
Spiral
purposeType
purpSurvType
registrationType
roadNameSuffixType
roadNameTypeType
roadSignType
roadTerrainType
roadTypeType
roadwayNameRef
roadwayNameRefs
shoulderCategoryType
shoulderMaterialType
sideofRoadType
sideType
slope
speed
spiralType
stateType
station
stationIncrementDirectionType
structNameRef
structNameRefs
surfaceNameRef
surfaceNameRefs
surfBndType
surfFaceType
surfTypeEnum
surfVolCMethodType
surveyFormatType
surveyorRoleType
surveyRoleType
surveyStatusType
surveyType
survPntType
titleTypeType
trafficControlPosition
trafficControlType
trafficTurnRestriction
turnLaneType
useOfParcelType
volume
waterShedNameRef
xsVolCalcMethodType
zenithAngle
zoneCategoryType
zoneHingeType
zoneMaterialType
zoneNumberType
zoneOffsetType
zonePlacementType
zoneSurfaceType
zoneTransitionType
zoneVertType

StaEquation
Start
StartofRunoutSta
Station
Struct
StructFlow
Structs
Superelevation
Surface
Surfaces
SurfVolume
SurfVolumes
Survey
SurveyHeader
SurveyMonument
SurveyorCertificate
TargetPoint
TargetSetup
TestObservation
ThruLane
Timing
Title
TrafficControl
TrafficVolume
TurnLane
TurnRestriction
TurnSpeed
TwoWayLeftTurnLane
Units
UnsymParaCurve
Volume
VolumeGeom
Watershed
Watersheds
WideningLane
Zone
ZoneCrossSectStructure
ZoneCutFill
ZoneHinge
ZoneMaterial
Zones
ZoneSlope
ZoneWidth

element **AddressPoint**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **PointType**
properties	content complex
used by	element **LocationAddress**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				

	pntRef	**pointNameRef**	
	featureRef	**featureNameRef**	optional
	pointGeometry	**pointGeometryType**	
	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
	addressPointType	**addressPointTypeType**	
annotation	documentation Represents a 2D or 3D Address Point. The Address Point is the geocoded point with which to reference an address		

source

```
<xs:element name="AddressPoint">
  <xs:annotation>
    <xs:documentation>Represents a 2D or 3D Address Point. The Address Point is the geocoded point with which to reference an address</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="PointType">
        <xs:attribute name="addressPointType" type="addressPointTypeType"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

attribute **AddressPoint/@addressPointType**

type	**addressPointTypeType**
properties	isRef 0
source	`<xs:attribute name="addressPointType" type="addressPointTypeType"/>`

element **AdministrativeArea**

diagram	LandXML-1.2Doc_p2.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	elements **LocationAddress** **SurveyHeader**

attributes	Name	Type	Use	Default	Fixed	annotation
	adminAreaType	**adminAreaTypeType**	required			
	adminAreaName	**xs:string**				
	adminAreaCode	**xs:string**				
	pclRef	**parcelNameRefs**				
annotation	documentation This element stores the administrative boundaries for a survey					

source

```
<xs:element name="AdministrativeArea">
  <xs:annotation>
    <xs:documentation>This element stores the administrative boundaries for a
survey</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="adminAreaType" type="adminAreaTypeType" use="required"/>
    <xs:attribute name="adminAreaName" type="xs:string"/>
    <xs:attribute name="adminAreaCode" type="xs:string"/>
    <xs:attribute name="pclRef" type="parcelNameRefs"/>
  </xs:complexType>
</xs:element>
```

attribute **AdministrativeArea/@adminAreaType**

type	**adminAreaTypeType**
properties	isRef 0 use required
source	<xs:attribute name="adminAreaType" type="adminAreaTypeType" use="required"/>

attribute **AdministrativeArea/@adminAreaName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="adminAreaName" type="xs:string"/>

attribute **AdministrativeArea/@adminAreaCode**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="adminAreaCode" type="xs:string"/>

attribute **AdministrativeArea/@pclRef**

type	**parcelNameRefs**
properties	isRef 0
source	<xs:attribute name="pclRef" type="parcelNameRefs"/>

element **AdministrativeDate**

diagram	LandXML-1.2Doc_p3.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **SurveyHeader**

attributes

Name	Type	Use	Default	Fixed	annotation
adminDateType	**adminDateTypeType**	required			
adminDate	**xs:date**	required			

annotation

documentation

This element stores a range of Administrative dates which may vary from jurisdiction to jurisdiction.

source

```
<xs:element name="AdministrativeDate">
  <xs:annotation>
    <xs:documentation>This element stores a range of Administrative dates which may vary from jurisdiction to jurisdiction.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="adminDateType" type="adminDateTypeType" use="required"/>
    <xs:attribute name="adminDate" type="xs:date" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **AdministrativeDate/@adminDateType**

type	**adminDateTypeType**
properties	isRef 0 use required
source	`<xs:attribute name="adminDateType" type="adminDateTypeType" use="required"/>`

attribute **AdministrativeDate/@adminDate**

type	**xs:date**
properties	isRef 0 use required
source	`<xs:attribute name="adminDate" type="xs:date" use="required"/>`

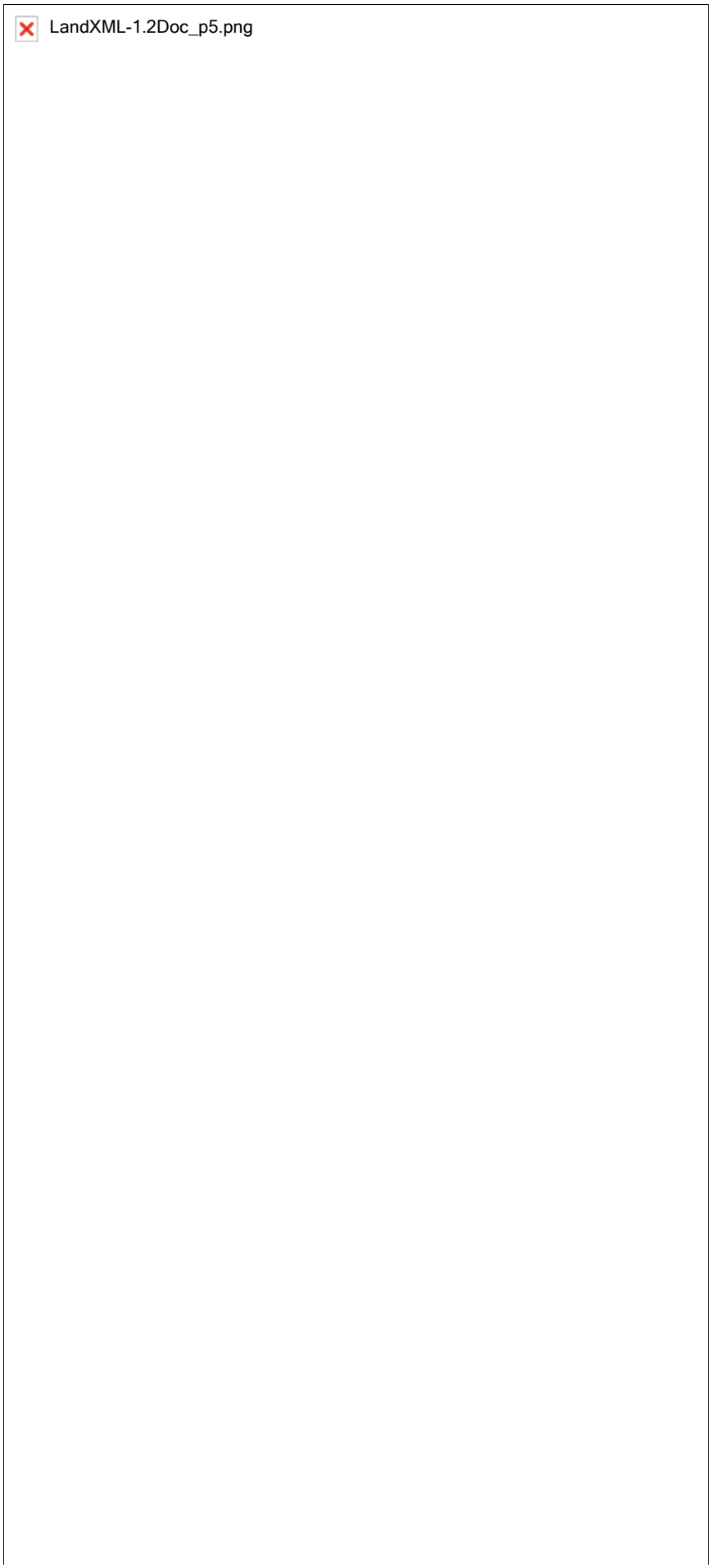
element **AdverseSE**

diagram	LandXML-1.2D
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**adverseSEType**
properties	content simple

used by	element **Superelevation**
facets	enumeration non-adverse enumeration adverse
source	<xs:element name="AdverseSE" type="adverseSEType"/>

element **Alignment**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Start CoordGeom AlignPIs Cant StaEquation Profile CrossSects Superelevation Feature**
used by	element **Alignments**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
length	**xs:double**	required			
staStart	**xs:double**	required			
desc	**xs:string**				
oID	**xs:string**				
state	**stateType**				

annotation

documentation

geometric horizontal alignment, PGL or chain typically representing a road design center line

source

```
<xs:element name="Alignment">
  <xs:annotation>
    <xs:documentation>geometric horizontal alignment, PGL or chain typically representing a road design center line</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:choice>
        <xs:element ref="Start" minOccurs="0"/>
        <xs:element ref="CoordGeom"/>
        <xs:element ref="AlignPIs" minOccurs="0"/>
        <xs:element ref="Cant" minOccurs="0"/>
      </xs:choice>
      <xs:element ref="StaEquation" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Profile" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="CrossSects" minOccurs="0"/>
      <xs:element ref="Superelevation" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="length" type="xs:double" use="required"/>
    <xs:attribute name="staStart" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Alignment/@name**

type	**xs:string**
properties	isRef 0 use required
source	`<xs:attribute name="name" type="xs:string" use="required"/>`

attribute **Alignment/@length**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="length" type="xs:double" use="required"/>

attribute **Alignment/@staStart**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="staStart" type="xs:double" use="required"/>

attribute **Alignment/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

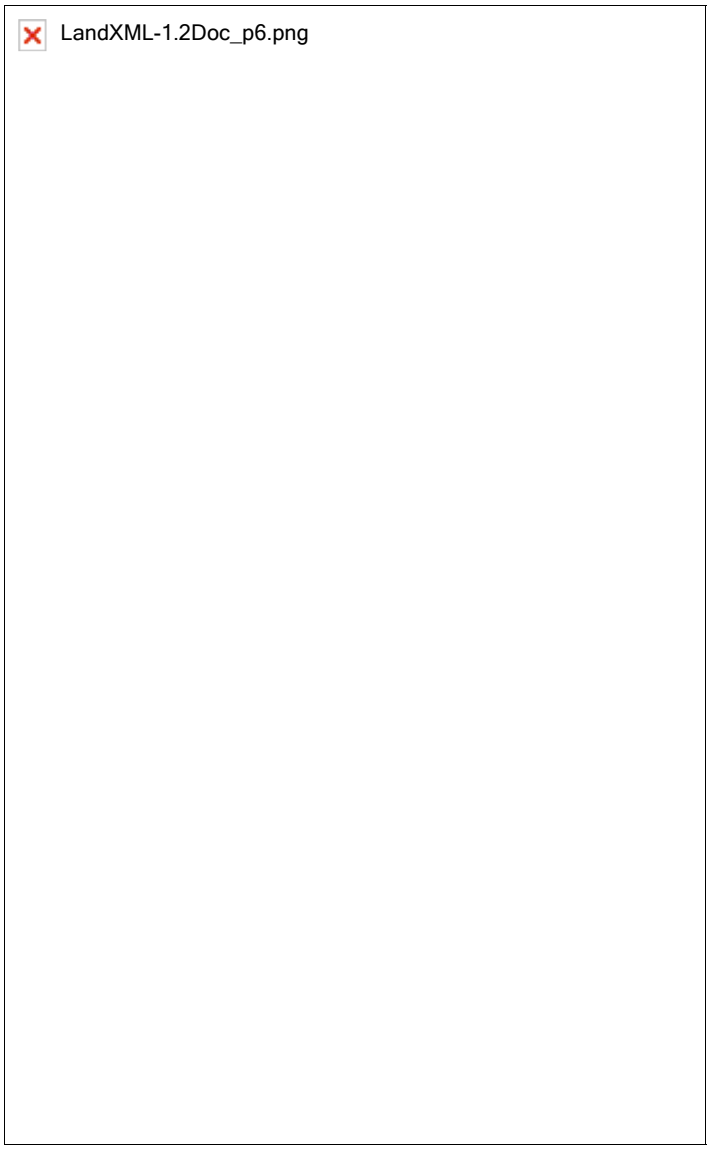
attribute **Alignment/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **Alignment/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Alignments**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Alignment** **Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

identity constraints

	Name	Refer	Selector	Field(s)
unique	uAlnName		Alignment	@name

annotation

documentation
A collection of horizontal Alignments

source

```
<xs:element name="Alignments">
  <xs:annotation>
    <xs:documentation>A collection of horizontal Alignments</xs:documentation>
  </xs:annotation>
```

```
<xs:complexType>
  <xs:sequence>
    <xs:element ref="Alignment" maxOccurs="unbounded"/>
    <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="desc" type="xs:string"/>
  <xs:attribute name="name" type="xs:string"/>
  <xs:attribute name="state" type="stateType"/>
</xs:complexType>
<xs:unique name="uAlnName">
  <xs:selector xpath="Alignment"/>
  <xs:field xpath="@name"/>
</xs:unique>
</xs:element>
```

attribute **Alignments/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Alignments/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Alignments/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **AlignPI**

diagram	LandXML-1.2Doc_p7.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Station PI InSpiral Curve1 ConnSpiral Curve2 OutSpiral**
used by	element **AlignPIs**
annotation	documentation A Single Alignment PI Definition

source

```
<xs:element name="AlignPI">
  <xs:annotation>
    <xs:documentation>A Single Alignment PI Definition</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="Station"/>
      <xs:element ref="PI"/>
      <xs:element ref="InSpiral" minOccurs="0"/>
      <xs:element ref="Curve1" minOccurs="0"/>
      <xs:element ref="ConnSpiral" minOccurs="0"/>
      <xs:element ref="Curve2" minOccurs="0"/>
      <xs:element ref="OutSpiral" minOccurs="0"/>
    </xs:choice>
  </xs:complexType>
</xs:element>
```

element **AlignPIs**

diagram	LandXML-1.2Doc_p8.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
children	**AlignPI**
used by	element **Alignment**
annotation	documentation A sequential list of Alignment PI Definitions
source	<xs:element name="AlignPIs"> <xs:annotation> <xs:documentation>A sequential list of Alignment PI Definitions</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence minOccurs="2" maxOccurs="unbounded"> <xs:element ref="AlignPI"/> </xs:sequence> </xs:complexType> </xs:element>

element **Amendment**

diagram	LandXML-1.2Doc_p9.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**AmendmentItem**
used by	element **LandXML**
attributes	Name Type Use Default Fixed annotation dealingNumber **xs:string** amendmentDate **xs:date** comments **xs:string**
annotation	documentation Records the dealing information to allow audit trail between the survey document and the titling system
source	<xs:element name="Amendment"> <xs:annotation> <xs:documentation>Records the dealing information to allow audit trail between the survey document and the titling system</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="AmendmentItem" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="dealingNumber" type="xs:string"/>

```
    <xs:attribute name="amendmentDate" type="xs:date"/>
    <xs:attribute name="comments" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Amendment/@dealingNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="dealingNumber" type="xs:string"/>

attribute **Amendment/@amendmentDate**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="amendmentDate" type="xs:date"/>

attribute **Amendment/@comments**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="comments" type="xs:string"/>

element **AmendmentItem**

diagram	LandXML-1.2Doc_p10.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **Amendment**
attributes	Name Type Use Default Fixed annotation elementName **xs:string** oldName **xs:string** newName **xs:string**
source	<xs:element name="AmendmentItem"> <xs:complexType> <xs:attribute name="elementName" type="xs:string"/> <xs:attribute name="oldName" type="xs:string"/> <xs:attribute name="newName" type="xs:string"/> </xs:complexType> </xs:element>

attribute **AmendmentItem/@elementName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="elementName" type="xs:string"/>

attribute **AmendmentItem/@oldName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oldName" type="xs:string"/>

attribute **AmendmentItem/@newName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="newName" type="xs:string"/>

element **Annotation**

diagram	LandXML-1.2Doc_p11.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **SurveyHeader**

attributes

Name	Type	Use	Default	Fixed	annotation
type	**annotationType**	required			
name	**xs:string**				
desc	**xs:string**				
pclRef	**parcelNameRefs**				

annotation

documentation

Annotation is a descriptive string use to describe an action on survey

source

```
<xs:element name="Annotation">
  <xs:annotation>
    <xs:documentation>Annotation is a descriptive string use to describe an action on
survey</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="type" type="annotationType" use="required"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="pclRef" type="parcelNameRefs"/>
```

```
  </xs:complexType>
</xs:element>
```

attribute **Annotation/@type**

type	**annotationType**
properties	isRef 0 use required
source	<xs:attribute name="type" type="annotationType" use="required"/>

attribute **Annotation/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Annotation/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Annotation/@pclRef**

type	**parcelNameRefs**
properties	isRef 0
source	<xs:attribute name="pclRef" type="parcelNameRefs"/>

element **Application**

diagram	LandXML-1.2Doc_p12.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
children	**Author**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
manufacturer	**xs:string**				
version	**xs:string**				
manufacturerURL	**xs:string**				
timeStamp	**xs:dateTime**	optional			

annotation

documentation

Optional element to identify the software that was used to create the file.

source

```
<xs:element name="Application">
  <xs:annotation>
    <xs:documentation>Optional element to identify the software that was used to create the
file.</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:sequence>
      <xs:choice>
        <xs:element ref="Author" minOccurs="0" maxOccurs="unbounded"/>
        <xs:any namespace="##other" processContents="skip" minOccurs="0"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="manufacturer" type="xs:string"/>
    <xs:attribute name="version" type="xs:string"/>
    <xs:attribute name="manufacturerURL" type="xs:string"/>
    <xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>
    <xs:anyAttribute/>
  </xs:complexType>
</xs:element>
```

attribute **Application/@name**

type	**xs:string**
properties	isRef 0 use required
source	`<xs:attribute name="name" type="xs:string" use="required"/>`

attribute **Application/@desc**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="desc" type="xs:string"/>`

attribute **Application/@manufacturer**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="manufacturer" type="xs:string"/>

attribute **Application/@version**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="version" type="xs:string"/>

attribute **Application/@manufacturerURL**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="manufacturerURL" type="xs:string"/>

attribute **Application/@timeStamp**

type	**xs:dateTime**
properties	isRef 0 use optional
source	<xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>

element **Author**

diagram	LandXML-1.2Doc_p13.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
used by	element **Application**
attributes	Name Type Use Default Fixed annotation createdBy **xs:string**

	createdByEmail **xs:string** company **xs:string** companyURL **xs:string** timeStamp **xs:dateTime** optional
annotation	documentation Optional element to identify the source of the file.
source	<xs:element name="Author"> <xs:annotation> <xs:documentation>Optional element to identify the source of the file.</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:sequence> <xs:any namespace="##other" processContents="skip" minOccurs="0"/> </xs:sequence> <xs:attribute name="createdBy" type="xs:string"/> <xs:attribute name="createdByEmail" type="xs:string"/> <xs:attribute name="company" type="xs:string"/> <xs:attribute name="companyURL" type="xs:string"/> <xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/> <xs:anyAttribute/> </xs:complexType> </xs:element>

attribute **Author/@createdBy**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="createdBy" type="xs:string"/>

attribute **Author/@createdByEmail**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="createdByEmail" type="xs:string"/>

attribute **Author/@company**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="company" type="xs:string"/>

attribute **Author/@companyURL**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="companyURL" type="xs:string"/>

attribute **Author/@timeStamp**

type	**xs:dateTime**

properties	isRef 0 use optional
source	<xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>

element **Backsight**

diagram	LandXML-1.2Doc_p14.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**BacksightPoint** **FieldNote** **Feature**
used by	elements **InstrumentSetup** **LaserSetup** **ObservationGroup**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**				
azimuth	**direction**				
targetHeight	**xs:double**				
circle	**angle**	required			
setupID	**xs:IDREF**				

source

```
<xs:element name="Backsight">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="BacksightPoint" minOccurs="0"/>
      <xs:choice>
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID"/>
    <xs:attribute name="azimuth" type="direction"/>
    <xs:attribute name="targetHeight" type="xs:double"/>
    <xs:attribute name="circle" type="angle" use="required"/>
    <xs:attribute name="setupID" type="xs:IDREF"/>
  </xs:complexType>
</xs:element>
```

attribute **Backsight/@id**

type	**xs:ID**
properties	isRef 0
source	<xs:attribute name="id" type="xs:ID"/>

attribute **Backsight/@azimuth**

type	**direction**
properties	isRef 0
source	<xs:attribute name="azimuth" type="direction"/>

attribute **Backsight/@targetHeight**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="targetHeight" type="xs:double"/>

attribute **Backsight/@circle**

type	**angle**
properties	isRef 0 use required
source	<xs:attribute name="circle" type="angle" use="required"/>

attribute **Backsight/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

element **BacksightPoint**

diagram	LandXML-1.2Doc_p15.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	element **Backsight**
facets	minLength 0 maxLength 3
attributes	Name Type Use Default Fixed annotation

	name	**xs:string**	
	desc	**xs:string**	
	code	**xs:string**	
	state	**stateType**	
	pntRef	**pointNameRef**	
	featureRef	**featureNameRef**	optional
	pointGeometry	**pointGeometryType**	
	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional

annotation

documentation

Represents a 2D or 3D location for the backsight

documentation

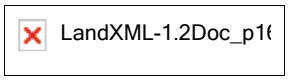
It is defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.

source

```
<xs:element name="BacksightPoint" type="PointType">
  <xs:annotation>
    <xs:documentation>Represents a 2D or 3D location for the backsight</xs:documentation>
    <xs:documentation>It is defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation>
  </xs:annotation>
</xs:element>
```

element **BeginRunoffSta**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

type **station**

properties content simple
nillable true

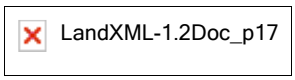
used by element **Superelevation**

source

```
<xs:element name="BeginRunoffSta" type="station" nillable="true"/>
```

element **BeginRunoutSta**

diagram

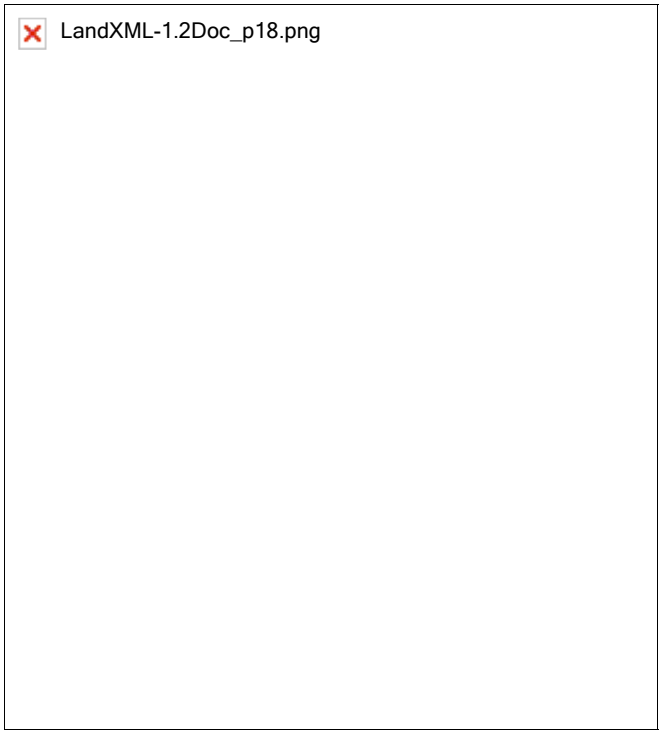


namespace http://www.landxml.org/schema/LandXML-1.2

type **station**

properties	content simple nillable true
used by	element **Superelevation**
source	<xs:element name="BeginRunoutSta" type="station" nillable="true"/>

element **BikeFacilities**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadside**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="BikeFacilities">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **BikeFacilities/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **BikeFacilities/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **BikeFacilities/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **BikeFacilities/@sideofRoad**

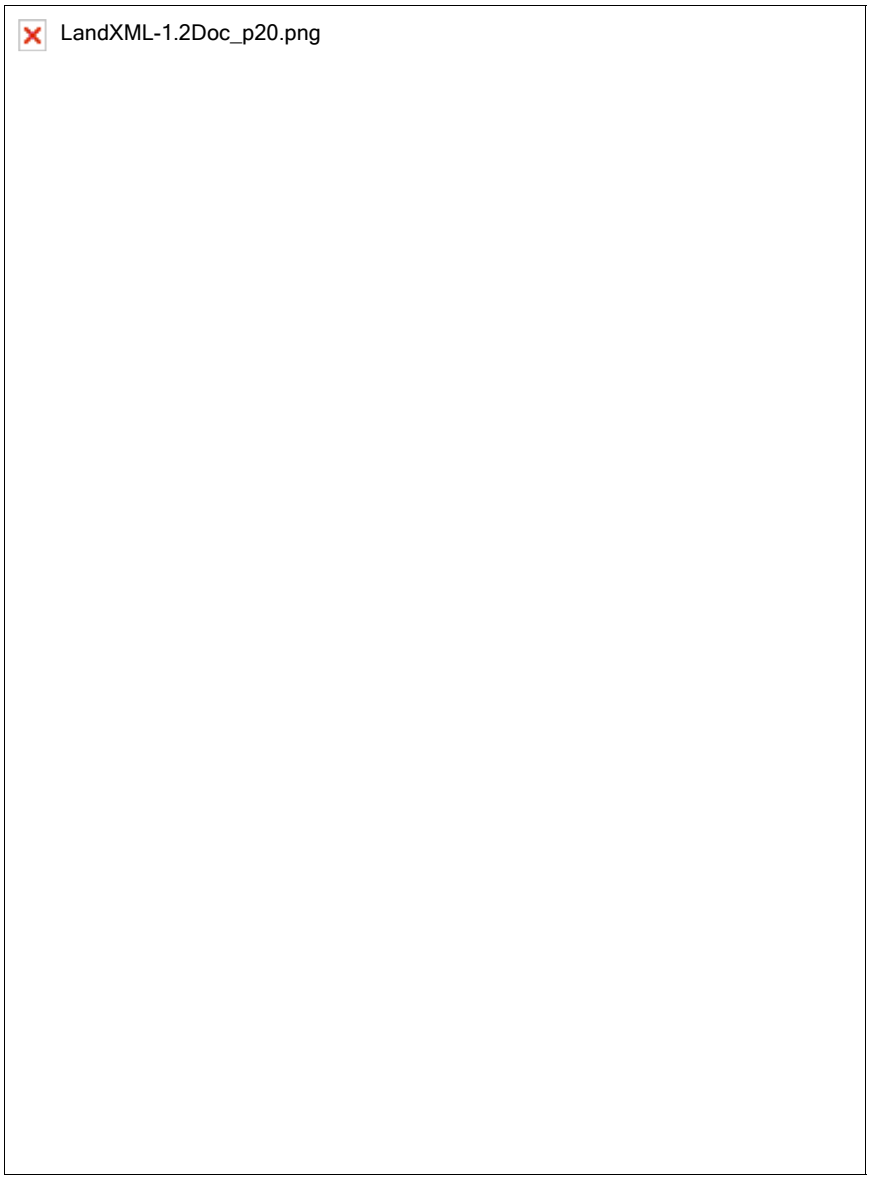
type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **Boundaries**

diagram	LandXML-1.2Doc_p19.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**Boundary** **Feature**
used by	element **SourceData**
annotation	documentation The collection of boundaries that were used to define the surface. documentation Use is optional.
source	<xs:element name="Boundaries"> <xs:annotation> <xs:documentation>The collection of boundaries that were used to define the surface.</xs:documentation> <xs:documentation>Use is optional.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Boundary" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **Boundary**

diagram	 LandXML-1.2Doc_p20.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **PntList3D** **Feature**
used by	element **Boundaries**

attributes

Name	Type	Use	Default	Fixed	annotation
bndType	**surfBndType**	required			
edgeTrim	**xs:boolean**	required			
area	**xs:double**				
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

annotation

documentation
The boundary region contains a 2D north/east or 3D north/east/elev list of points that define the geometry.
documentation
is identified by the "name" attribute.
documentation
If the "edgeTrim" attribute is true the faces are trimmed at the boundary edge, otherwise faces are not trimmed

	documentation and must exist entirely within the boundary.
source	<xs:element name="Boundary"> <xs:annotation> <xs:documentation>The boundary region contains a 2D north/east or 3D north/east/elev list of points that define the geometry.</xs:documentation> <xs:documentation>is identified by the "name" attribute.</xs:documentation> <xs:documentation>If the "edgeTrim" attribute is true the faces are trimmed at the boundary edge, otherwise faces are not trimmed</xs:documentation> <xs:documentation>and must exist entirely within the boundary.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice> <xs:element ref="PntList2D"/> <xs:element ref="PntList3D"/> <!-- Here PntList2D represents 2D planametric coordinate pairs expressed as space delimited Northing Easting pairs. --> </xs:choice> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="bndType" type="surfBndType" use="required"/> <xs:attribute name="edgeTrim" type="xs:boolean" use="required"/> <xs:attribute name="area" type="xs:double"/> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="name" type="xs:string"/> <xs:attribute name="state" type="stateType"/> </xs:complexType> </xs:element>

attribute **Boundary/@bndType**

type	**surfBndType**
properties	isRef 0 use required
facets	enumeration outer enumeration void enumeration island
source	<xs:attribute name="bndType" type="surfBndType" use="required"/>

attribute **Boundary/@edgeTrim**

type	**xs:boolean**
properties	isRef 0 use required
source	<xs:attribute name="edgeTrim" type="xs:boolean" use="required"/>

attribute **Boundary/@area**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="area" type="xs:double"/>

attribute **Boundary/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

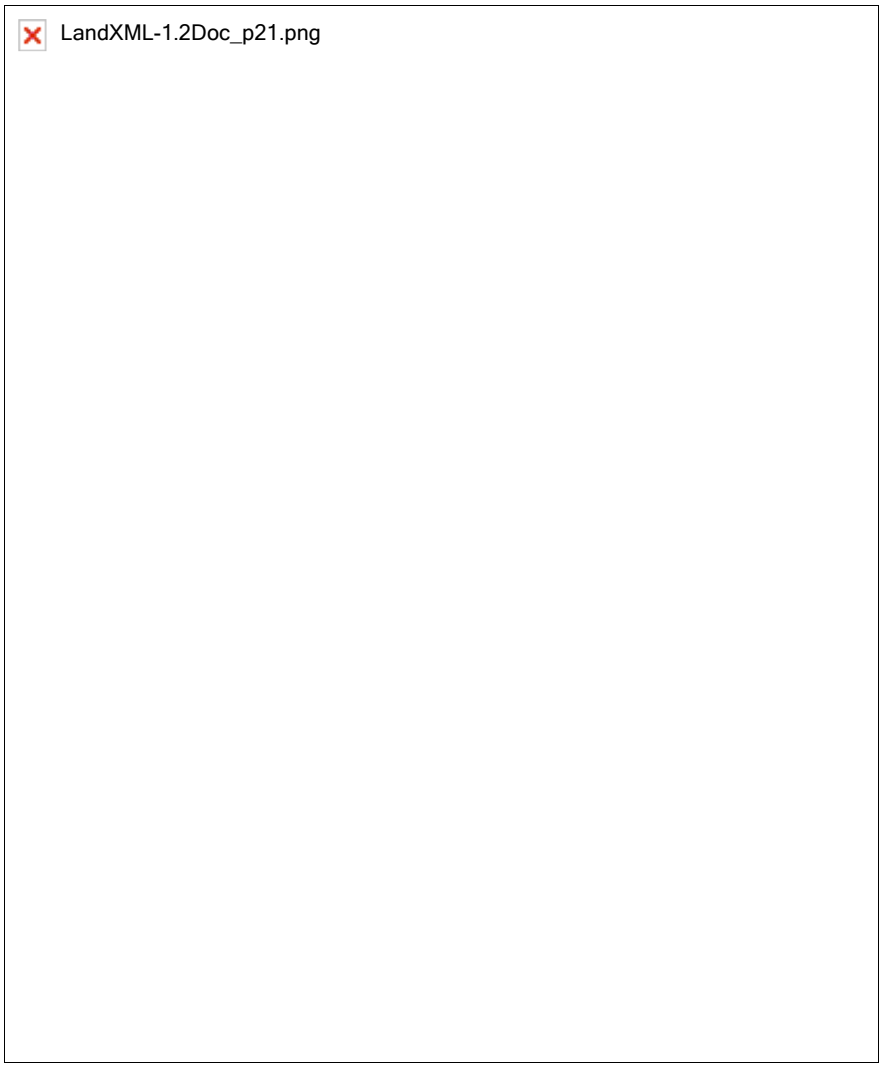
attribute **Boundary/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Boundary/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Breakline**

diagram	 LandXML-1.2Doc_p21.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **PntList3D** **Feature**
used by	element **Breaklines**

attributes

Name	Type	Use	Default	Fixed	annotation
brkType	**breakLineType**				
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

annotation

documentation

The breakline is defined by a 2D north/east or 3D north/east/elev list of points that define the geometry.

documentation

is identified by the "name" attribute.

source

```
<xs:element name="Breakline">
  <xs:annotation>
    <xs:documentation>The breakline is defined by a 2D north/east or 3D north/east/elev list of points that define the geometry.</xs:documentation>
    <xs:documentation>is identified by the "name" attribute.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
```

```
    <xs:sequence>
      <xs:choice>
        <xs:element ref="PntList2D"/>
        <xs:element ref="PntList3D"/>
        <!-- Here PntList2D represents 2D planametric coordinate pairs expressed as space delimited
Northing Easting pairs. -->
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="brkType" type="breakLineType"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Breakline/@brkType**

type	**breakLineType**
properties	isRef 0
facets	enumeration standard enumeration wall enumeration proximity enumeration nondestructive
source	<xs:attribute name="brkType" type="breakLineType"/>

attribute **Breakline/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Breakline/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

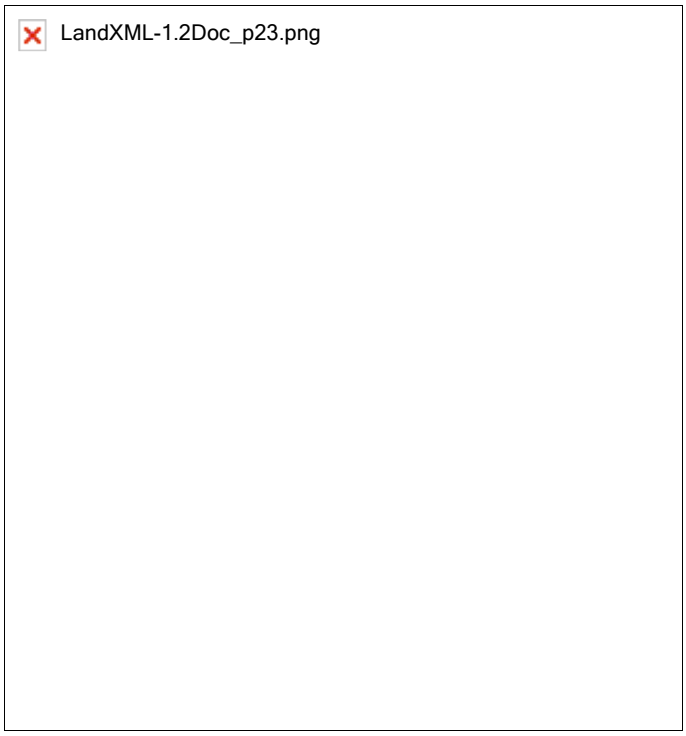
attribute **Breakline/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Breaklines**

diagram	LandXML-1.2Doc_p22.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Breakline** **RetWall** **Feature**
used by	element **SourceData**
annotation	documentation The collection of breaklines that were used to define the surface. documentation Use is optional.
source	<xs:element name="Breaklines"> <xs:annotation> <xs:documentation>The collection of breaklines that were used to define the surface.</xs:documentation> <xs:documentation>Use is optional.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Breakline" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="RetWall" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **BridgeElement**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadway**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
width	**xs:double**				
projectType	**bridgeProjectType**				

source

```
<xs:element name="BridgeElement">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="projectType" type="bridgeProjectType"/>
  </xs:complexType>
</xs:element>
```

attribute **BridgeElement/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **BridgeElement/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **BridgeElement/@width**

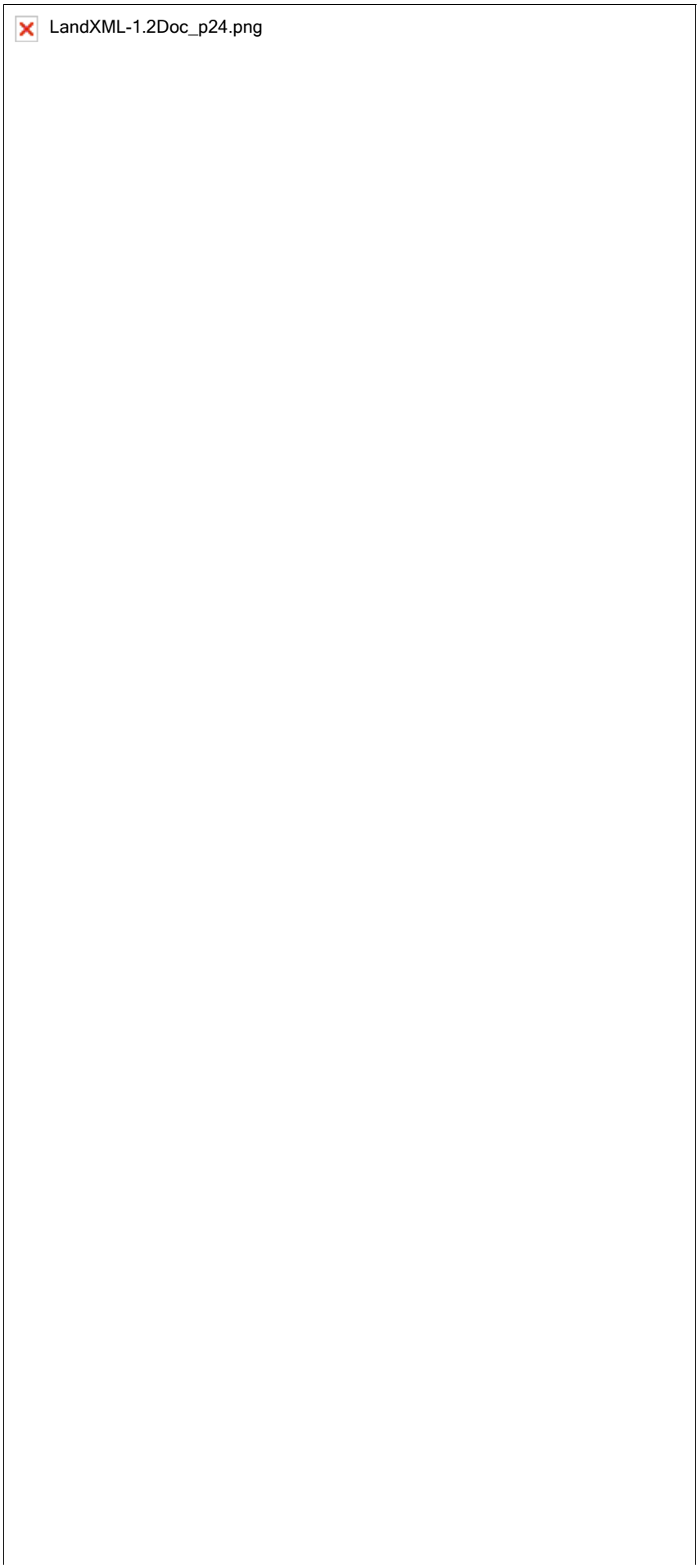
type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **BridgeElement/@projectType**

type	**bridgeProjectType**
properties	isRef 0
facets	enumeration new enumeration existing
source	<xs:attribute name="projectType" type="bridgeProjectType"/>

element **Cant**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CantStation** **SpeedStation** **Feature**
used by	element **Alignment**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**	optional			
state	**stateType**	optional			
equilibriumConstant	**xs:double**	optional			
appliedCantConstant	**xs:double**	optional			
gauge	**xs:double**	required			
rotationPoint	**xs:string**	optional			

annotation

documentation

The "Cant" element will typically represent a proposed railway cant / superelevation alignment.

documentation

It is defined by a sequential series of any combination of the cant stations and speed-only stations.

The “name”, “desc” and “state” attributes are typical LandXML “alignment” attributes.

The “equilibriumConstant” is a unitless optional double that is used as the equilibrium constant in the cant equilibrium equation (cant = constant * speed * speed / radius).

The “appliedCantConstant” is a unitless optional double that is used as the applied cant constant in the cant equilibrium equation (cant = constant * speed * speed / radius).

The “gauge” is a required double that is the rail to rail distance. This value is expressed in meters or feet depending upon the

	units. The "rotationPoint" is an optional string that defines the rotation point. Valid values are "insideRail", "outsideRail", "center", "leftRail" and "rightRail".
source	<xs:element name="Cant"> <xs:annotation> <xs:documentation>The "Cant" element will typically represent a proposed railway cant / superelevation alignment.</xs:documentation> <xs:documentation>It is defined by a sequential series of any combination of the cant stations and speed-only stations. The "name", "desc" and "state" attributes are typical LandXML "alignment" attributes. The "equilibriumConstant" is a unitless optional double that is used as the equilibrium constant in the cant equilibrium equation (cant = constant * speed * speed / radius). The "appliedCantConstant" is a unitless optional double that is used as the applied cant constant in the cant equilibrium equation (cant = constant * speed * speed / radius). The "gauge" is a required double that is the rail to rail distance. This value is expressed in meters or feet depending upon the units. The "rotationPoint" is an optional string that defines the rotation point. Valid values are "insideRail", "outsideRail", "center", "leftRail" and "rightRail". </xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice maxOccurs="unbounded"> <xs:element ref="CantStation" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="SpeedStation" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="name" type="xs:string" use="required"/> <xs:attribute name="desc" type="xs:string" use="optional"/> <xs:attribute name="state" type="stateType" use="optional"/> <xs:attribute name="equilibriumConstant" type="xs:double" use="optional"/> <xs:attribute name="appliedCantConstant" type="xs:double" use="optional"/> <xs:attribute name="gauge" type="xs:double" use="required"/> <xs:attribute name="rotationPoint" type="xs:string" use="optional"/> </xs:complexType> </xs:element>

attribute **Cant/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Cant/@desc**

type	**xs:string**
properties	isRef 0 use optional
source	<xs:attribute name="desc" type="xs:string" use="optional"/>

attribute **Cant/@state**

type	**stateType**
properties	isRef 0 use optional
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType" use="optional"/>

attribute **Cant/@equilibriumConstant**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="equilibriumConstant" type="xs:double" use="optional"/>

attribute **Cant/@appliedCantConstant**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="appliedCantConstant" type="xs:double" use="optional"/>

attribute **Cant/@gauge**

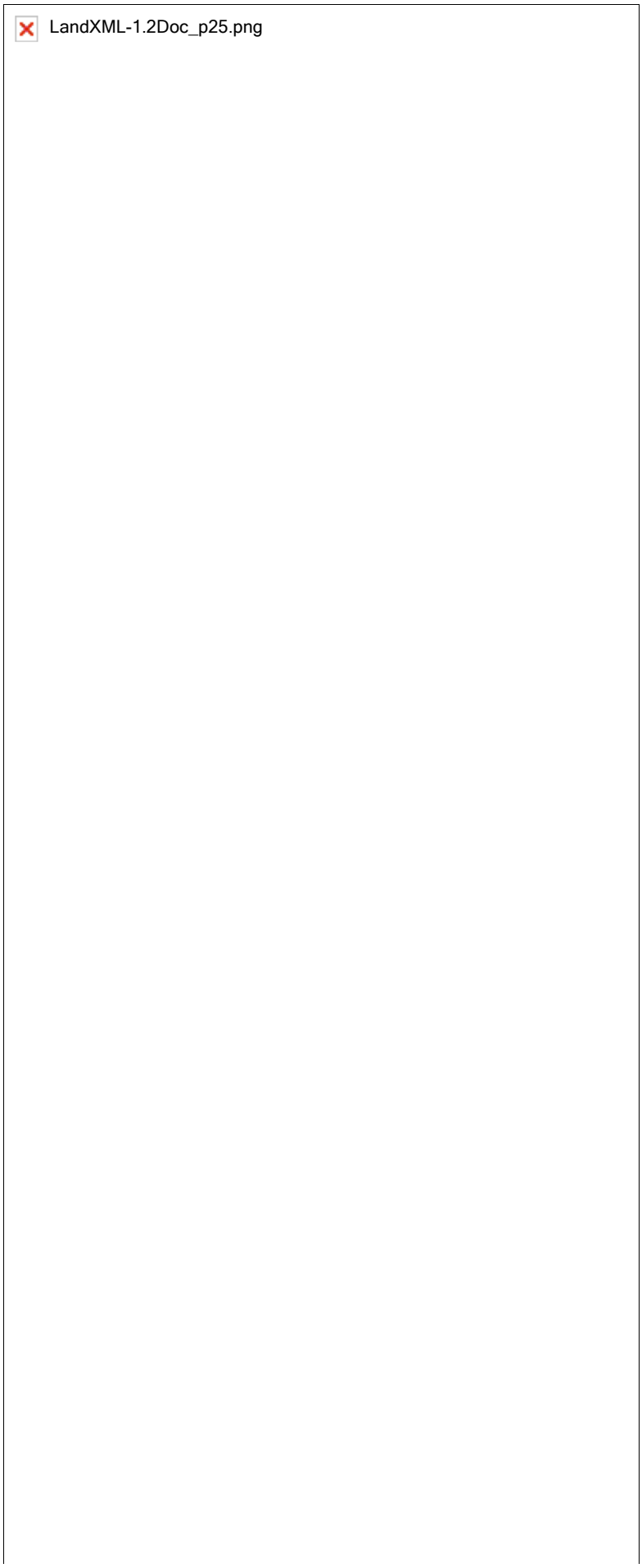
type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="gauge" type="xs:double" use="required"/>

attribute **Cant/@rotationPoint**

type	**xs:string**
properties	isRef 0 use optional
source	<xs:attribute name="rotationPoint" type="xs:string" use="optional"/>

element **CantStation**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **Cant**

attributes

Name	Type	Use	Default	Fixed	annotation
station	**xs:double**	required			
equilibriumCant	**xs:double**	optional			
appliedCant	**xs:double**	required			
cantDeficiency	**xs:double**	optional			
cantExcess	**xs:double**	optional			
rateOfChangeOfAppliedCantOverTime	**xs:double**	optional			
rateOfChangeOfAppliedCantOverLength	**xs:double**	optional			
rateOfChangeOfCantDeficiencyOverTime	**xs:double**	optional			
cantGradient	**xs:double**	optional			
speed	**xs:double**	optional			
transitionType	**spiralType**	optional			
curvature	**clockwise**	required			
adverse	**xs:boolean**	optional			

annotation

documentation

A cant station.

The "station" is a required double that is internal station value.

The "equilibriumCant" is an optional double that is the equilibrium cant. This value is expressed in millimeters or inches depending upon the units

The "appliedCant" is a required double that is the applied cant. This value is expressed in millimeters or inches depending upon the units.

The "deficiencyCant" is an optional double that is the cant deficiency. This value is expressed in millimeters or inches depending upon the units.

The "cantExcess" is an optional double that is the cant excess. This value is expressed in millimeters or inches upon the units.

The "rateOfChangeOfAppliedCantOverTime" is an optional double that is the rate of change of applied cant as a function of time. This value is in millimeters /seconds or inches/seconds depending upon the units.

The "rateOfChangeOfAppliedCantOverLength" is an optional double that is the rate of change of applied cant as a function of length. This value is in millimeters /meters or inches/feet depending upon the units.

The "rateOfChangeOfCantDeficiencyOverTime" is an optional double that is the rate of change of cant deficiency as a function of time. This value is in millimeters /seconds or inches/seconds depending upon the units.

The "cantGradient" is an optional double that is the cant gradient. This value is unitless.

The "speed" is an optional double that is the design speed. This value is in kmph or mph depending upon the units.

The "transitionType" is an optional enumerated type.

The "curvature" is a required enumerated type.

The "adverse" is an optional Boolean that indicates whether the cant is adverse.

source

```
<xs:element name="CantStation">
  <xs:annotation>
    <xs:documentation>A cant station.
          The "station" is a required double that is internal station value.
The "equilibriumCant" is an optional double that is the equilibrium cant. This value is expressed in millimeters or inches depending upon the units
The "appliedCant" is a required double that is the applied cant. This value is expressed in millimeters or inches depending upon the units.
The "deficiencyCant" is an optional double that is the cant deficiency. This value is expressed in millimeters or inches depending upon the units.
```

	The "cantExcess" is an optional double that is the cant excess. This value is expressed in millimeters or inches upon the units. The "rateOfChangeOfAppliedCantOverTime" is an optional double that is the rate of change of applied cant as a function of time. This value is in millimeters /seconds or inches/seconds depending upon the units. The "rateOfChangeOfAppliedCantOverLength" is an optional double that is the rate of change of applied cant as a function of length. This value is in millimeters /meters or inches/feet depending upon the units. The "rateOfChangeOfCantDeficiencyOverTime" is an optional double that is the rate of change of cant deficiency as a function of time. This value is in millimeters /seconds or inches/seconds depending upon the units. The "cantGradient" is an optional double that is the cant gradient. This value is unitless. The "speed" is an optional double that is the design speed. This value is in kmph or mph depending upon the units. The "transitionType" is an optional enumerated type. The "curvature" is a required enumerated type. The "adverse" is an optional Boolean that indicates whether the cant is adverse. </xs:documentation> </xs:annotation> <xs:complexType> <xs:attribute name="station" type="xs:double" use="required"/> <xs:attribute name="equilibriumCant" type="xs:double" use="optional"/> <xs:attribute name="appliedCant" type="xs:double" use="required"/> <xs:attribute name="cantDeficiency" type="xs:double" use="optional"/> <xs:attribute name="cantExcess" type="xs:double" use="optional"/> <xs:attribute name="rateOfChangeOfAppliedCantOverTime" type="xs:double" use="optional"/> <xs:attribute name="rateOfChangeOfAppliedCantOverLength" type="xs:double" use="optional"/> <xs:attribute name="rateOfChangeOfCantDeficiencyOverTime" type="xs:double" use="optional"/> <xs:attribute name="cantGradient" type="xs:double" use="optional"/> <xs:attribute name="speed" type="xs:double" use="optional"/> <xs:attribute name="transitionType" type="spiralType" use="optional"/> <xs:attribute name="curvature" type="clockwise" use="required"/> <xs:attribute name="adverse" type="xs:boolean" use="optional"/> </xs:complexType> </xs:element>

attribute **CantStation/@station**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="station" type="xs:double" use="required"/>

attribute **CantStation/@equilibriumCant**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="equilibriumCant" type="xs:double" use="optional"/>

attribute **CantStation/@appliedCant**

type	**xs:double**
properties	isRef 0

	use required
source	<xs:attribute name="appliedCant" type="xs:double" use="required"/>

attribute **CantStation/@cantDeficiency**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="cantDeficiency" type="xs:double" use="optional"/>

attribute **CantStation/@cantExcess**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="cantExcess" type="xs:double" use="optional"/>

attribute **CantStation/@rateOfChangeOfAppliedCantOverTime**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="rateOfChangeOfAppliedCantOverTime" type="xs:double" use="optional"/>

attribute **CantStation/@rateOfChangeOfAppliedCantOverLength**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="rateOfChangeOfAppliedCantOverLength" type="xs:double" use="optional"/>

attribute **CantStation/@rateOfChangeOfCantDeficiencyOverTime**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="rateOfChangeOfCantDeficiencyOverTime" type="xs:double" use="optional"/>

attribute **CantStation/@cantGradient**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="cantGradient" type="xs:double" use="optional"/>

attribute **CantStation/@speed**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="speed" type="xs:double" use="optional"/>

attribute **CantStation/@transitionType**

type	**spiralType**
properties	isRef 0 use optional
facets	enumeration biquadratic enumeration bloss enumeration clothoid enumeration cosine enumeration cubic enumeration sinusoid enumeration revBiquadratic enumeration revBloss enumeration revCosine enumeration revSinusoid enumeration sineHalfWave enumeration biquadraticParabola enumeration cubicParabola enumeration japaneseCubic enumeration radioid enumeration weinerBogen
source	<xs:attribute name="transitionType" type="spiralType" use="optional"/>

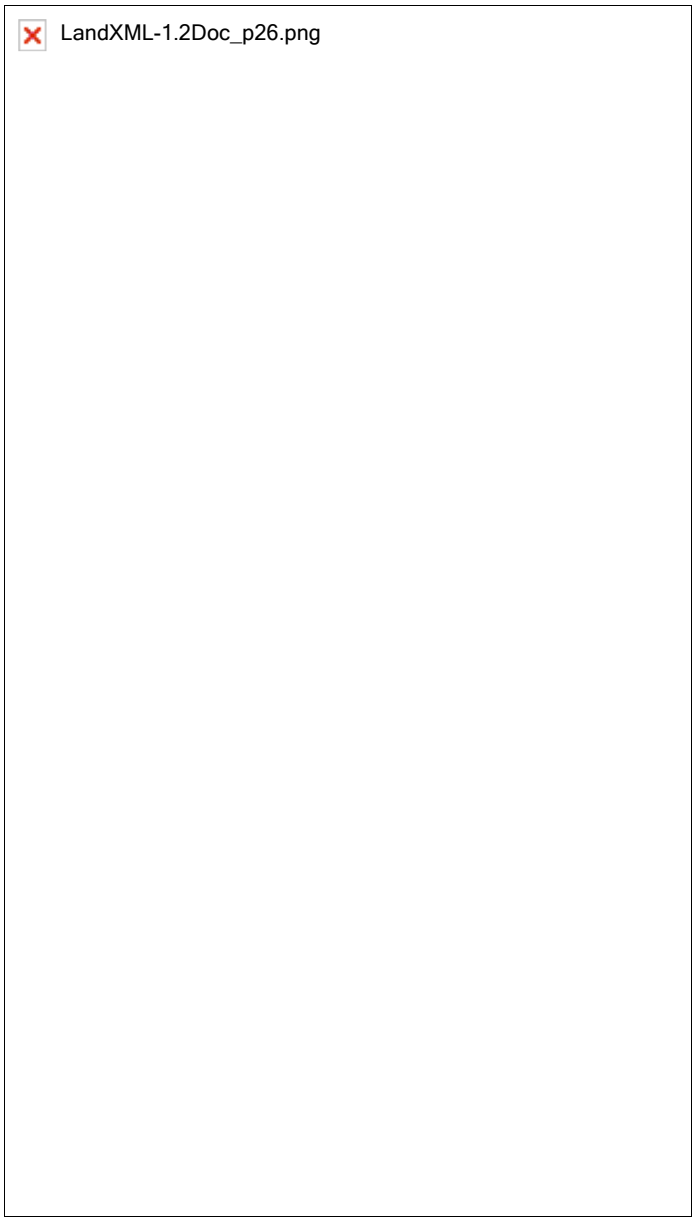
attribute **CantStation/@curvature**

type	**clockwise**
properties	isRef 0 use required
facets	enumeration cw enumeration ccw
source	<xs:attribute name="curvature" type="clockwise" use="required"/>

attribute **CantStation/@adverse**

type	**xs:boolean**
properties	isRef 0 use optional
source	<xs:attribute name="adverse" type="xs:boolean" use="optional"/>

element **Center**

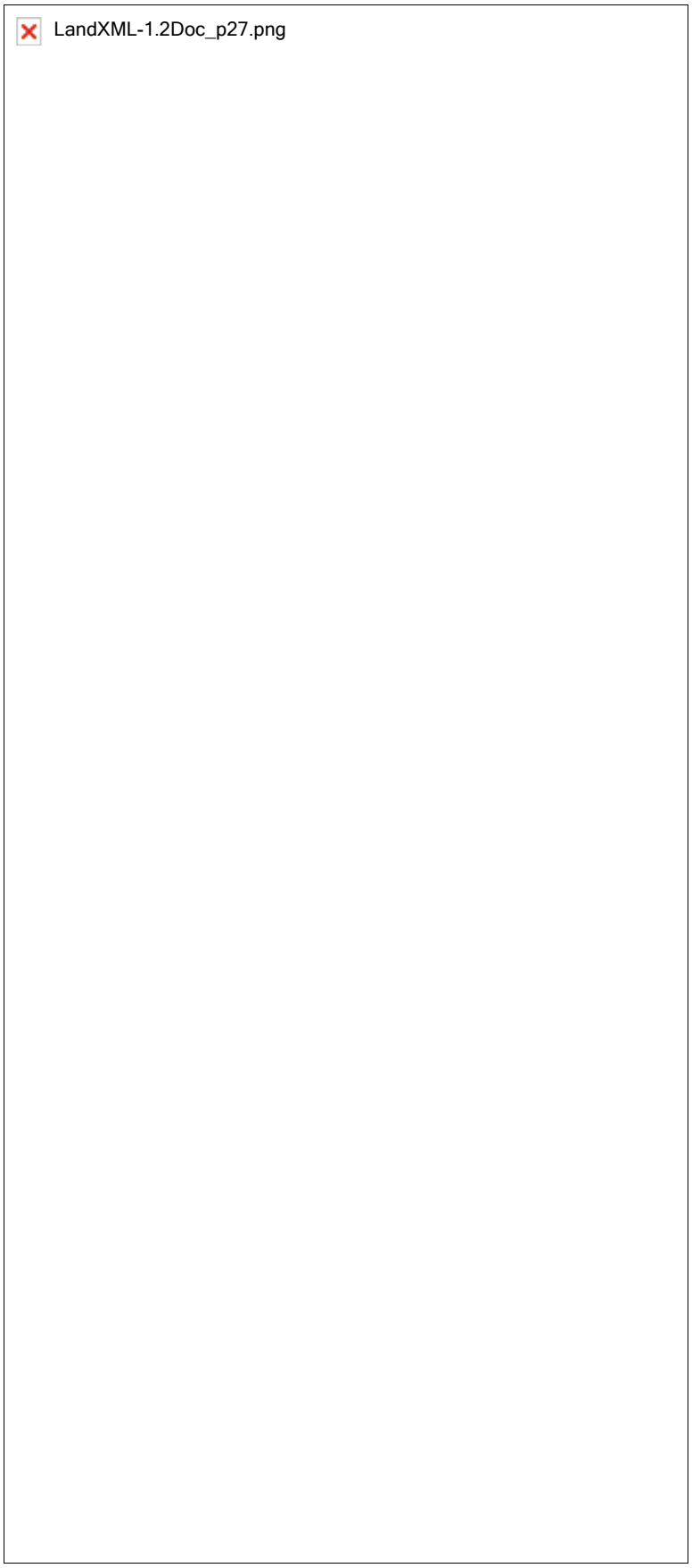
diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	elements **Curve** **Parcel** **Pipe** **Struct**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				

	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
annotation	documentation Represents a 2D or 3D Center Point documentation Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.		
source	<xs:element name="Center" type="PointType"> <xs:annotation> <xs:documentation>Represents a 2D or 3D Center Point</xs:documentation> <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation> </xs:annotation> </xs:element>		

element **CgPoint**

diagram	 LandXML-1.2Doc_p27.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **PointType**

properties	content complex mixed true
used by	element **CgPoints**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			
determinedTimeStamp	**xs:dateTime**	optional			
ellipsoidHeight	**ellipsoidHeightType**	optional			
latitude	**latLongAngle**	optional			
longitude	**latLongAngle**	optional			
zone	**xs:string**	optional			
northingStdError	**xs:double**	optional			
eastingStdError	**xs:double**	optional			
elevationStdError	**xs:double**	optional			
oID	**xs:string**				
surveyOrder	**xs:string**				
pntSurv	**survPntType**				
zoneNumber	**zoneNumberType**				
surveyHorizontalOrder	**xs:string**				
surveyVerticalOrder	**xs:string**				
localUncertainity	**xs:double**				
positionalUncertainity	**xs:double**				

annotation

documentation

Represents a COrdinate GeOmetry Point. The Point is identified by the "name" attr and the data value will be a sequence of space delimented, two or three double numberic values: (Northing Easting) or (Northing Easting Elevation).

source

```
<xs:element name="CgPoint">
 <xs:annotation>
  <xs:documentation>Represents a COrdinate GeOmetry Point. The Point is identified by the "name" attr and the data value will be a sequence of space delimented, two or three double numberic values: (Northing Easting) or (Northing Easting Elevation).</xs:documentation>
 </xs:annotation>
 <xs:complexType mixed="true">
  <xs:simpleContent>
   <xs:extension base="PointType">
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="surveyOrder" type="xs:string"/>
    <xs:attribute name="pntSurv" type="survPntType"/>
    <xs:attribute name="zoneNumber" type="zoneNumberType"/>
    <xs:attribute name="surveyHorizontalOrder" type="xs:string"/>
    <xs:attribute name="surveyVerticalOrder" type="xs:string"/>
    <xs:attribute name="localUncertainity" type="xs:double"/>
    <xs:attribute name="positionalUncertainity" type="xs:double"/>
   </xs:extension>
```

```
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

attribute **CgPoint/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **CgPoint/@surveyOrder**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyOrder" type="xs:string"/>

attribute **CgPoint/@pntSurv**

type	**survPntType**
properties	isRef 0
facets	enumeration monument enumeration control enumeration sideshot enumeration boundary enumeration natural boundary enumeration traverse enumeration reference enumeration administrative
source	<xs:attribute name="pntSurv" type="survPntType"/>

attribute **CgPoint/@zoneNumber**

type	**zoneNumberType**
properties	isRef 0
facets	minInclusive 1 maxInclusive 99
source	<xs:attribute name="zoneNumber" type="zoneNumberType"/>

attribute **CgPoint/@surveyHorizontalOrder**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyHorizontalOrder" type="xs:string"/>

attribute **CgPoint/@surveyVerticalOrder**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="surveyVerticalOrder" type="xs:string"/>

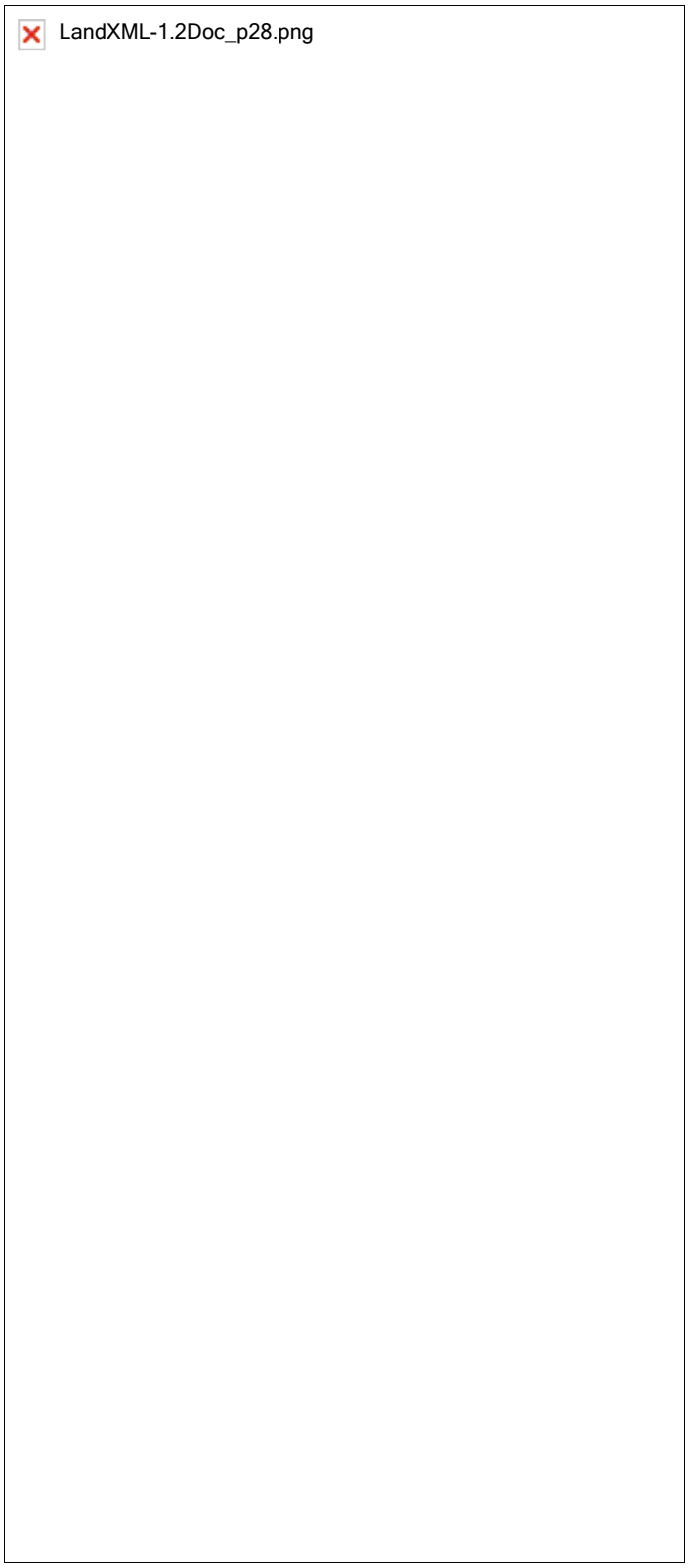
attribute **CgPoint/@localUncertainity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="localUncertainity" type="xs:double"/>

attribute **CgPoint/@positionalUncertainity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="positionalUncertainity" type="xs:double"/>

element **CgPoints**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CgPoint CgPoints Feature**
used by	elements **CgPoints LandXML Survey**
attributes	Name Type Use Default Fixed annotation

	desc **xs:string** name **xs:string** state **stateType** code **xs:string** zoneNumber **zoneNumberType** DTMAttribute **DTMAttributeType**
identity constraints	Name: unique — Refer: — Selector: CgPoint — Field(s): @name
annotation	documentation A collection of COGO points. (Cg = COGO = Cordinate Geometry)

source

```
<xs:element name="CgPoints">
  <xs:annotation>
    <xs:documentation>A collection of COGO points. (Cg = COGO = Cordinate Geometry)
</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="CgPoint" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="CgPoints" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      <!-- Allow nested CgPoints collections -->
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="code" type="xs:string"/>
    <xs:attribute name="zoneNumber" type="zoneNumberType"/>
    <xs:attribute name="DTMAttribute" type="DTMAttributeType"/>
  </xs:complexType>
  <xs:unique name="uPntName">
    <xs:selector xpath="CgPoint"/>
    <xs:field xpath="@name"/>
  </xs:unique>
</xs:element>
```

attribute **CgPoints/@desc**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="desc" type="xs:string"/>`

attribute **CgPoints/@name**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="name" type="xs:string"/>`

attribute **CgPoints/@state**

type	**stateType**
properties	isRef 0

facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **CgPoints/@code**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="code" type="xs:string"/>

attribute **CgPoints/@zoneNumber**

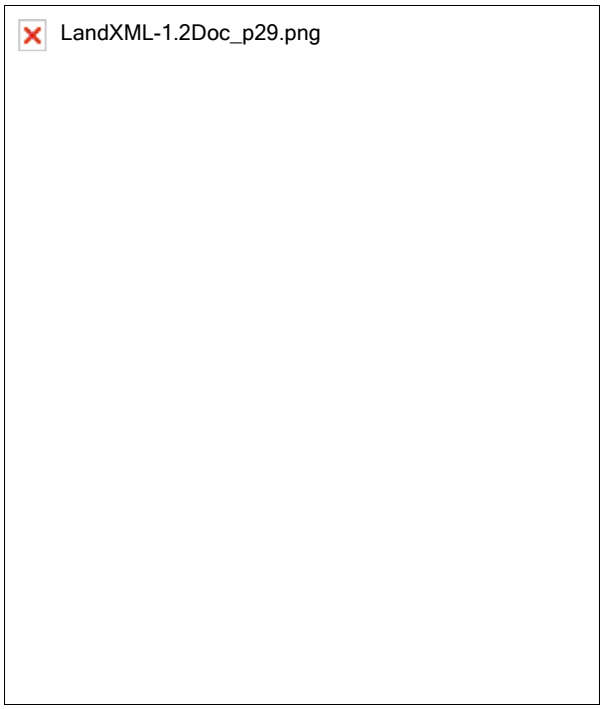
type	**zoneNumberType**
properties	isRef 0
facets	minInclusive 1 maxInclusive 99
source	<xs:attribute name="zoneNumber" type="zoneNumberType"/>

attribute **CgPoints/@DTMAttribute**

type	**DTMAttributeType**
properties	isRef 0
facets	enumeration determinebyfeature enumeration donotinclude enumeration spot enumeration spotandbreak enumeration void enumeration drapevoid enumeration breakvoid enumeration island enumeration boundary enumeration contour enumeration feature enumeration ground enumeration xsection enumeration user
source	<xs:attribute name="DTMAttribute" type="DTMAttributeType"/>

element **Chain**

diagram



namespace: http://www.landxml.org/schema/LandXML-1.2

type: extension of **ChainType**

properties:
content complex
mixed true

used by: elements **CoordGeom** **SourceData**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			
station	**station**				
zone	**xs:string**				
status	**observationStatusType**				

annotation

documentation
A text value that is a space delimited list of CgPoint names that form a linear connected chain.
example: <Chain>1 23 45 34</Chain>
represents a linear connection between CgPoint name 1, 23, 45 and 34.

source

```
<xs:element name="Chain">
  <xs:annotation>
    <xs:documentation>A text value that is a space delimited list of CgPoint names that form a linear
connected chain.
example: <Chain>1 23 45 34</Chain>
represents a linear connection between CgPoint name 1, 23, 45 and 34.
</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
```

```
    <xs:simpleContent>
      <xs:extension base="ChainType">
        <xs:attribute name="name" type="xs:string"/>
        <xs:attribute name="desc" type="xs:string"/>
        <xs:attribute name="code" type="xs:string"/>
        <xs:attribute name="state" type="stateType"/>
        <xs:attribute name="pointGeometry" type="pointGeometryType"/>
        <xs:attribute name="DTMAttribute" type="DTMAttributeType"/>
        <xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>
        <xs:attribute name="role" type="surveyRoleType" use="optional"/>
        <xs:attribute name="station" type="station"/>
        <xs:attribute name="zone" type="xs:string"/>
        <xs:attribute name="status" type="observationStatusType"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

attribute **Chain/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Chain/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Chain/@code**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="code" type="xs:string"/>

attribute **Chain/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **Chain/@pointGeometry**

type	**pointGeometryType**
properties	isRef 0

facets	enumeration point enumeration curve
source	<xs:attribute name="pointGeometry" type="pointGeometryType"/>

attribute **Chain/@DTMAttribute**

type	**DTMAttributeType**
properties	isRef 0
facets	enumeration determinebyfeature enumeration donotinclude enumeration spot enumeration spotandbreak enumeration void enumeration drapevoid enumeration breakvoid enumeration island enumeration boundary enumeration contour enumeration feature enumeration ground enumeration xsection enumeration user
source	<xs:attribute name="DTMAttribute" type="DTMAttributeType"/>

attribute **Chain/@timeStamp**

type	**xs:dateTime**
properties	isRef 0 use optional
source	<xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>

attribute **Chain/@role**

type	**surveyRoleType**
properties	isRef 0 use optional
facets	enumeration measured enumeration to stake out enumeration staked out enumeration calculated enumeration assistance point enumeration user entered point enumeration control point
source	<xs:attribute name="role" type="surveyRoleType" use="optional"/>

attribute **Chain/@station**

type	**station**

properties	isRef 0
source	<xs:attribute name="station" type="station"/>

attribute **Chain/@zone**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="zone" type="xs:string"/>

attribute **Chain/@status**

type	**observationStatusType**
properties	isRef 0
facets	enumeration modified enumeration deleted
source	<xs:attribute name="status" type="observationStatusType"/>

element **Channel**

diagram	LandXML-1.2Doc_p30.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**Feature**
used by	element **Pipe**

attributes

Name	Type	Use	Default	Fixed	annotation
height	**xs:double**	required			
widthTop	**xs:double**	required			
widthBottom	**xs:double**	required			
desc	**xs:string**				
hazenWilliams	**xs:double**				
mannings	**xs:double**				
material					
thickness	**xs:double**				

source

```
<xs:element name="Channel">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="height" type="xs:double" use="required"/>
    <xs:attribute name="widthTop" type="xs:double" use="required"/>
    <xs:attribute name="widthBottom" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="hazenWilliams" type="xs:double"/>
    <xs:attribute name="mannings" type="xs:double"/>
    <xs:attribute name="material"/>
    <xs:attribute name="thickness" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **Channel/@height**

type	**xs:double**
properties	isRef 0 use required
source	`<xs:attribute name="height" type="xs:double" use="required"/>`

attribute **Channel/@widthTop**

type	**xs:double**
properties	isRef 0 use required
source	`<xs:attribute name="widthTop" type="xs:double" use="required"/>`

attribute **Channel/@widthBottom**

type	**xs:double**
properties	isRef 0 use required
source	`<xs:attribute name="widthBottom" type="xs:double" use="required"/>`

attribute **Channel/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Channel/@hazenWilliams**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hazenWilliams" type="xs:double"/>

attribute **Channel/@mannings**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="mannings" type="xs:double"/>

attribute **Channel/@material**

properties	isRef 0
source	<xs:attribute name="material"/>

attribute **Channel/@thickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **CircCurve**

diagram	LandXML-1.2Doc_p31.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **Point**
properties	content complex mixed true
used by	element **ProfAlign**
attributes	Name Type Use Default Fixed annotation length **xs:double** required

	radius **xs:double** required desc **xs:string**
annotation	documentation A Point of Vertical Intersection with a space delimited "station elevation" text value documentation with a circular vertical curve defined by "length and "radius" attributes.
source	<xs:element name="CircCurve"> <xs:annotation> <xs:documentation>A Point of Vertical Intersection with a space delimited "station elevation" text value</xs:documentation> <xs:documentation>with a circular vertical curve defined by "length and "radius" attributes.</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:simpleContent> <xs:extension base="Point"> <xs:attribute name="length" type="xs:double" use="required"/> <xs:attribute name="radius" type="xs:double" use="required"/> <xs:attribute name="desc" type="xs:string"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element>

attribute **CircCurve/@length**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="length" type="xs:double" use="required"/>

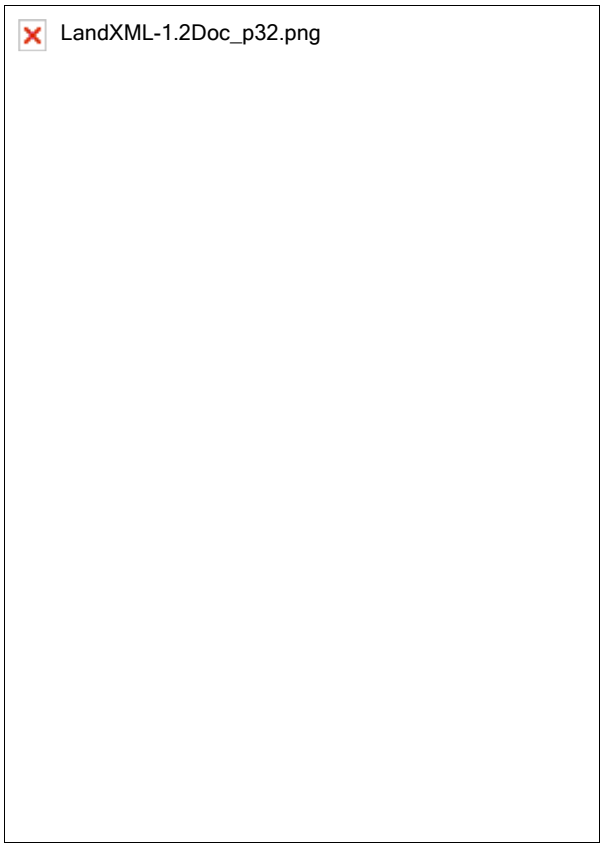
attribute **CircCurve/@radius**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="radius" type="xs:double" use="required"/>

attribute **CircCurve/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

element **CircPipe**

diagram	 LandXML-1.2Doc_p32.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Pipe**

attributes

Name	Type	Use	Default	Fixed	annotation
diameter	**xs:double**	required			
desc	**xs:string**				
hazenWilliams	**xs:double**				
mannings	**xs:double**				
material					
thickness	**xs:double**				

source

```
<xs:element name="CircPipe">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="diameter" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="hazenWilliams" type="xs:double"/>
    <xs:attribute name="mannings" type="xs:double"/>
    <xs:attribute name="material"/>
    <xs:attribute name="thickness" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **CircPipe/@diameter**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="diameter" type="xs:double" use="required"/>

attribute **CircPipe/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **CircPipe/@hazenWilliams**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hazenWilliams" type="xs:double"/>

attribute **CircPipe/@mannings**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="mannings" type="xs:double"/>

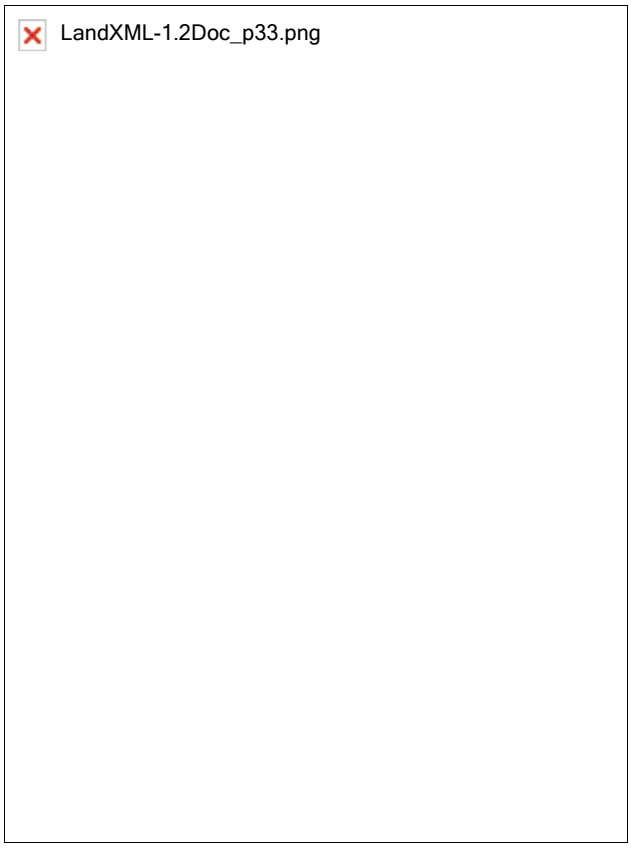
attribute **CircPipe/@material**

properties	isRef 0
source	<xs:attribute name="material"/>

attribute **CircPipe/@thickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **CircStruct**

diagram	 LandXML-1.2Doc_p33.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Struct**

attributes

Name	Type	Use	Default	Fixed	annotation
diameter	**xs:double**	required			
desc	**xs:string**				
inletCase					
lossCoeff	**xs:double**				
material					
thickness	**xs:double**				

source

```
<xs:element name="CircStruct">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="diameter" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="inletCase"/>
    <xs:attribute name="lossCoeff" type="xs:double"/>
    <xs:attribute name="material"/>
    <xs:attribute name="thickness" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **CircStruct/@diameter**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="diameter" type="xs:double" use="required"/>

attribute **CircStruct/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **CircStruct/@inletCase**

properties	isRef 0
source	<xs:attribute name="inletCase"/>

attribute **CircStruct/@lossCoeff**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="lossCoeff" type="xs:double"/>

attribute **CircStruct/@material**

properties	isRef 0
source	<xs:attribute name="material"/>

attribute **CircStruct/@thickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **Classification**

diagram	LandXML-1.2Doc_p34.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadway**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
functionalClass	**functionalClassType**				

source

```
<xs:element name="Classification">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="functionalClass" type="functionalClassType"/>
  </xs:complexType>
</xs:element>
```

attribute **Classification/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **Classification/@staEnd**

type	**station**
properties	isRef 0

source	<xs:attribute name="staEnd" type="station"/>

attribute **Classification/@functionalClass**

type	**functionalClassType**
properties	isRef 0
facets	enumeration arterial enumeration collector enumeration local
source	<xs:attribute name="functionalClass" type="functionalClassType"/>

element **ClimbLane**

diagram	LandXML-1.2Doc_p35.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Lanes**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
beginFullWidthSta	**station**				
endFullWidthSta	**station**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				

source	<xs:element name="ClimbLane"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="staStart" type="station"/> <xs:attribute name="staEnd" type="station"/> <xs:attribute name="beginFullWidthSta" type="station"/> <xs:attribute name="endFullWidthSta" type="station"/> <xs:attribute name="width" type="xs:double"/> <xs:attribute name="sideofRoad" type="sideofRoadType"/> </xs:complexType> </xs:element>

attribute **ClimbLane/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **ClimbLane/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **ClimbLane/@beginFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="beginFullWidthSta" type="station"/>

attribute **ClimbLane/@endFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="endFullWidthSta" type="station"/>

attribute **ClimbLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **ClimbLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0

facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **ComplexName**

diagram	LandXML-1.2Doc_p36.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **LocationAddress**
attributes	Name Type Use Default Fixed annotation desc **xs:string** priority **xs:int**
source	<xs:element name="ComplexName"> <xs:complexType> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="priority" type="xs:int"/> </xs:complexType> </xs:element>

attribute **ComplexName/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **ComplexName/@priority**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="priority" type="xs:int"/>

element **Connection**

diagram	LandXML-1.2Doc_p37.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Struct**
source	<xs:element name="Connection"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **ConnSpiral**

diagram	LandXML-1.2Doc_p38.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Spiral**
used by	element **AlignPI**
annotation	documentation Connecting Spiral Definition
source	<xs:element name="ConnSpiral"> <xs:annotation> <xs:documentation>Connecting Spiral Definition</xs:documentation> </xs:annotation> <xs:complexType> <xs:all> <xs:element ref="Spiral"/> </xs:all> </xs:complexType> </xs:element>

element **Contour**

diagram	LandXML-1.2Doc_p39.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **Feature**
used by	element **Contours**

attributes	Name	Type	Use	Default	Fixed	annotation
	elev	**xs:double**	required			

annotation	documentation The contour is defined by an elevation attribute and a 2D north/east list of points that define the geometry. documentation is identified by the "name" attribute.

source

```
<xs:element name="Contour">
  <xs:annotation>
    <xs:documentation>The contour is defined by an elevation attribute and a 2D north/east list of points that define the geometry.</xs:documentation>
    <xs:documentation>is identified by the "name" attribute.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="PntList2D"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      <!-- Here PntList2D represents 2D planametric coordinate pairs expressed as space delimited Northing Easting pairs. -->
    </xs:sequence>
    <xs:attribute name="elev" type="xs:double" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **Contour/@elev**

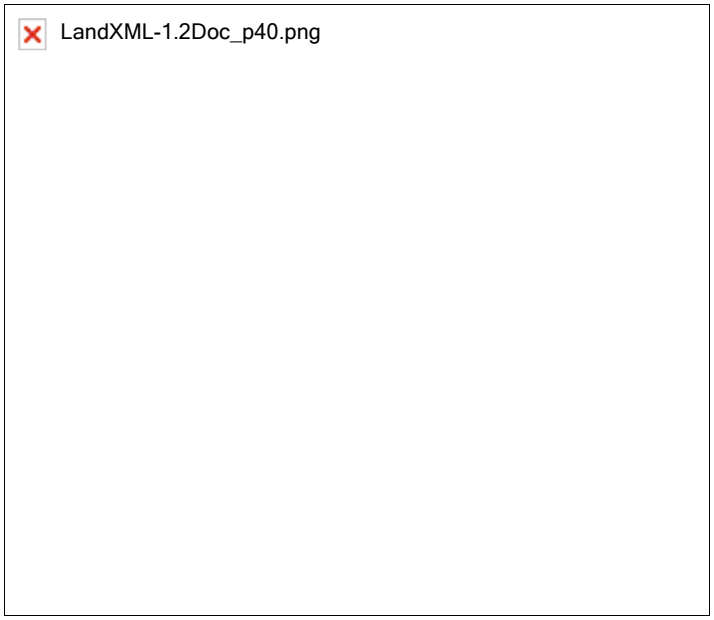
type	**xs:double**
properties	isRef 0 use required

source

```
<xs:attribute name="elev" type="xs:double" use="required"/>
```

element **Contours**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**Contour** **Feature**
used by	element **SourceData**
annotation	documentation The collection of contours that were used to define the surface.
source	<xs:element name="Contours"> <xs:annotation> <xs:documentation>The collection of contours that were used to define the surface.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Contour" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

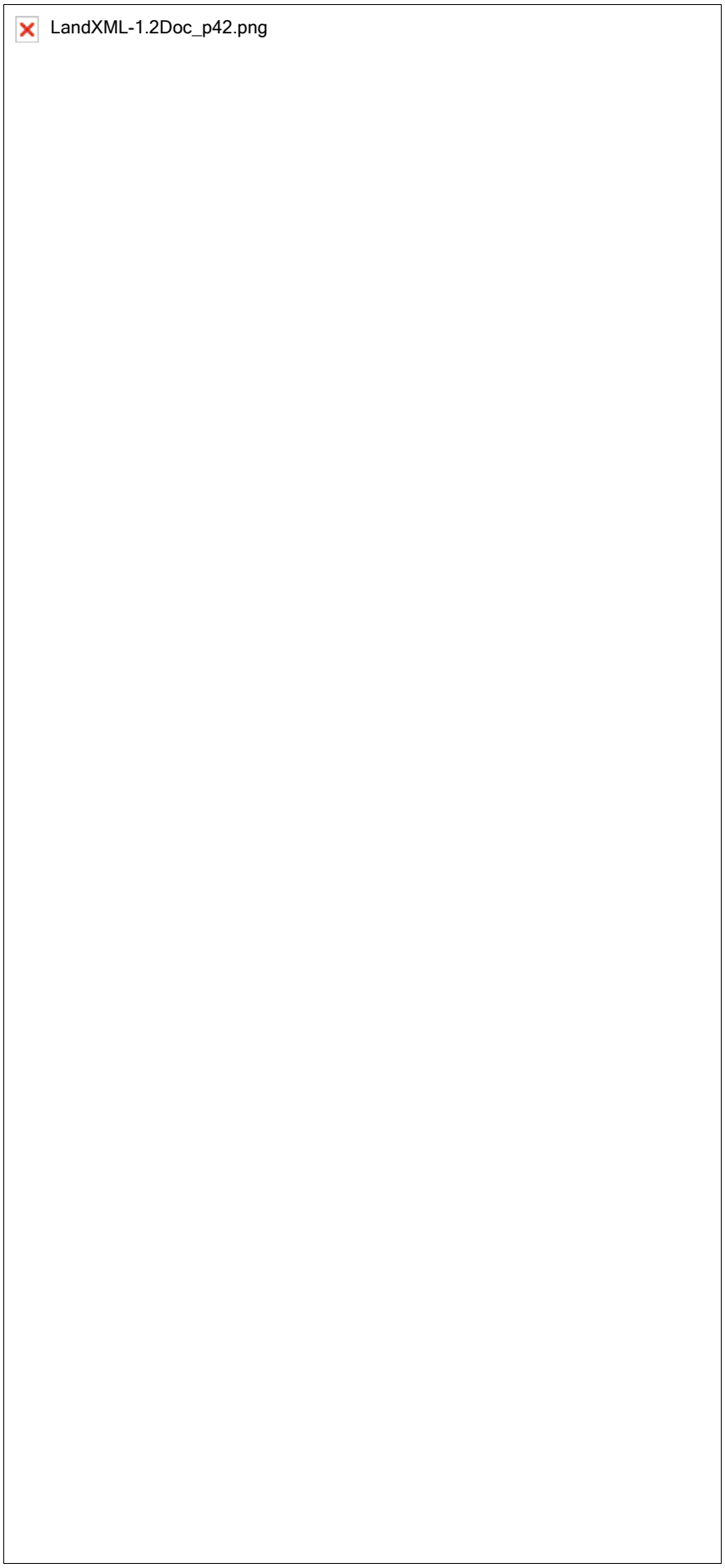
element **ControlChecks**

diagram	LandXML-1.2Doc_p41.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
children	**TestObservation ObservationGroup PointResults FieldNote Feature**
used by	elements **InstrumentSetup Survey**
annotation	documentation Records check shots to known locations during field observations
source	<xs:element name="ControlChecks"> <xs:annotation> <xs:documentation>Records check shots to known locations during field observations</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="TestObservation" minOccurs="0" maxOccurs="unbounded"/> <!-- LandXML-1.2 schema note: Use of ObservationGroup is depricated and used for backward compatibility, use multiple TestObservation elements --> <xs:element ref="ObservationGroup" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="PointResults" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:sequence> </xs:complexType> </xs:element>

element **CoordGeom**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Line IrregularLine Curve Spiral Chain Feature**
used by	elements **Alignment Parcel PlanFeature VolumeGeom**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				
oID	**xs:string**				

annotation

documentation

A sequential list of Line and/or Curve and/or Spiral elements.

documentation

After the sequential list of elements an optional vertical geometry may be defined as a profile, which may be as simple as a list of PVIs (point to point 3D line string).

source

```
<xs:element name="CoordGeom">
  <xs:annotation>
    <xs:documentation>A sequential list of Line and/or Curve and/or Spiral elements.</xs:documentation>
    <xs:documentation>After the sequential list of elements an optional vertical geometry may be defined as a profile, which may be as simple as a list of PVIs (point to point 3D line string).</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice maxOccurs="unbounded">
        <xs:element ref="Line" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="IrregularLine" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Curve" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Spiral" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Chain" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="oID" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **CoordGeom/@desc**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="desc" type="xs:string"/>`

attribute **CoordGeom/@name**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="name" type="xs:string"/>

attribute **CoordGeom/@state**

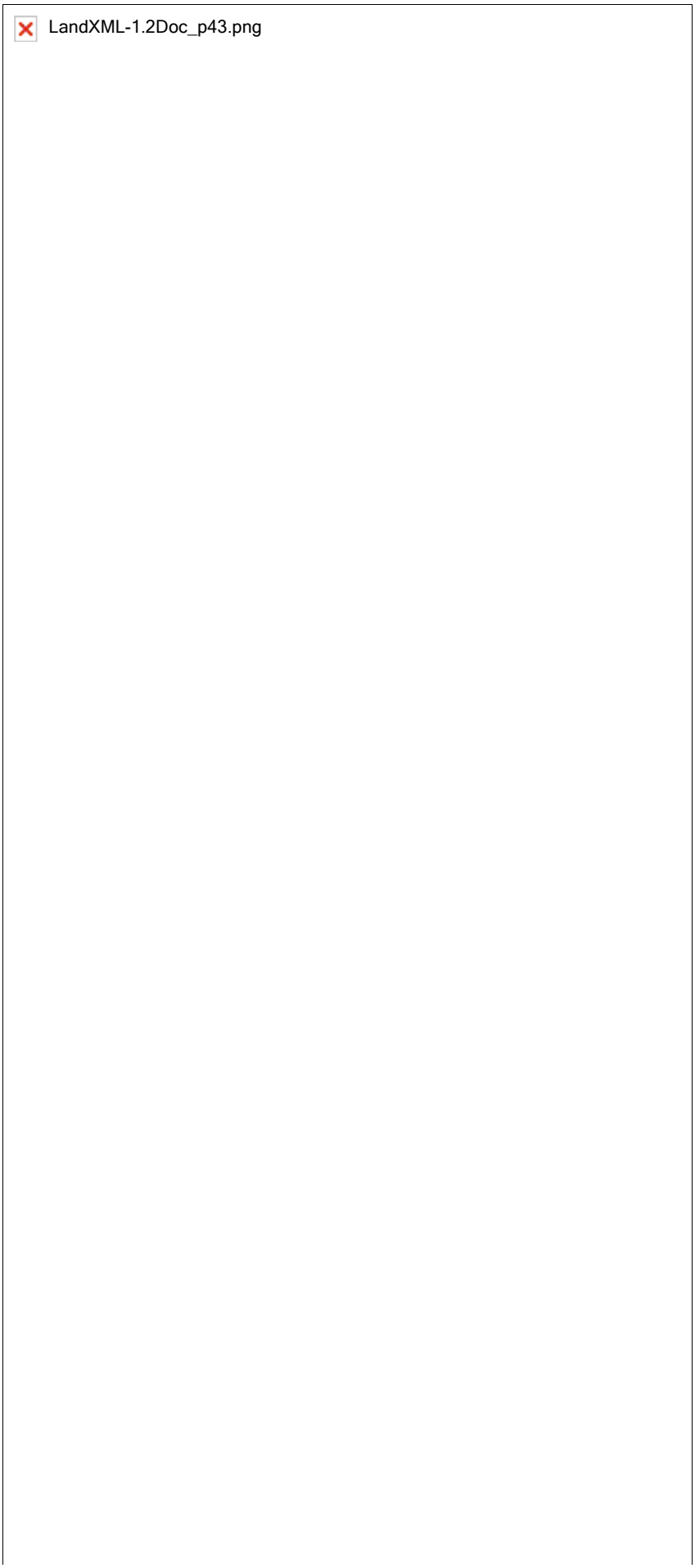
type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **CoordGeom/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

element **CoordinateSystem**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Start FieldNote Feature**
used by	elements **LandXML SurveyHeader**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
epsgCode	**xs:string**				
ogcWktCode	**xs:string**				
horizontalDatum	**xs:string**				
verticalDatum	**xs:string**				
ellipsoidName	**xs:string**				
horizontalCoordinateSystemName	**xs:string**				
geocentricCoordinateSystemName	**xs:string**				
fileLocation	**xs:anyURI**				
rotationAngle	**angle**				
datum	**xs:string**				
fittedCoordinateSystemName	**xs:string**				
compoundCoordinateSystemName	**xs:string**				
localCoordinateSystemName	**xs:string**				
geographicCoordinateSystemName	**xs:string**				
projectedCoordinateSystemName	**xs:string**				
verticalCoordinateSystemName	**xs:string**				

annotation

documentation

Simplified coordinate systems definitions to reuse work done by
EPSG (European Petroleum Survey Group)
EPSG Code: EPSG has reserved the integer range 0 to 32767 for use as codes for coordinate systems.
Example: Represents Australian Map Grid Zone 52
name="AGD66 - AMG Zone 52" , epsgCode="20252"

Example: Represents Colorado CS27 South Zone
name="NAD27-Colorado South" , epsgCode="26755"

source

```
<xs:element name="CoordinateSystem">
  <xs:annotation>
    <xs:documentation>
   Simplified coordinate systems definitions to reuse work done by
EPSG (European Petroleum Survey Group)
EPSG Code: EPSG has reserved the integer range 0 to 32767 for use as codes for coordinate systems.
                Example: Represents Australian Map Grid Zone 52
                 name="AGD66 - AMG Zone 52" , epsgCode="20252"

                Example: Represents Colorado CS27 South Zone
                 name="NAD27-Colorado South" , epsgCode="26755"
</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Start" minOccurs="0"/>
      <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
```

```
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      <xs:any namespace="##other" processContents="skip" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="epsgCode" type="xs:string"/>
    <xs:attribute name="ogcWktCode" type="xs:string"/>
    <xs:attribute name="horizontalDatum" type="xs:string"/>
    <xs:attribute name="verticalDatum" type="xs:string"/>
    <xs:attribute name="ellipsoidName" type="xs:string"/>
    <xs:attribute name="horizontalCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="geocentricCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="fileLocation" type="xs:anyURI"/>
    <xs:attribute name="rotationAngle" type="angle"/>
    <xs:attribute name="datum" type="xs:string"/>
    <xs:attribute name="fittedCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="compoundCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="localCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="geographicCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="projectedCoordinateSystemName" type="xs:string"/>
    <xs:attribute name="verticalCoordinateSystemName" type="xs:string"/>
    <!--  The attributes below are provided for backward compatibility only and should no longer be used.
-->
  </xs:complexType>
</xs:element>
```

attribute **CoordinateSystem/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **CoordinateSystem/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **CoordinateSystem/@epsgCode**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="epsgCode" type="xs:string"/>

attribute **CoordinateSystem/@ogcWktCode**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="ogcWktCode" type="xs:string"/>

attribute **CoordinateSystem/@horizontalDatum**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="horizontalDatum" type="xs:string"/>

attribute **CoordinateSystem/@verticalDatum**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="verticalDatum" type="xs:string"/>

attribute **CoordinateSystem/@ellipsoidName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="ellipsoidName" type="xs:string"/>

attribute **CoordinateSystem/@horizontalCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="horizontalCoordinateSystemName" type="xs:string"/>

attribute **CoordinateSystem/@geocentricCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="geocentricCoordinateSystemName" type="xs:string"/>

attribute **CoordinateSystem/@fileLocation**

type	**xs:anyURI**
properties	isRef 0
source	<xs:attribute name="fileLocation" type="xs:anyURI"/>

attribute **CoordinateSystem/@rotationAngle**

type	**angle**
properties	isRef 0
source	<xs:attribute name="rotationAngle" type="angle"/>

attribute **CoordinateSystem/@datum**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="datum" type="xs:string"/>

attribute **CoordinateSystem/@fittedCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="fittedCoordinateSystemName" type="xs:string"/>

attribute **CoordinateSystem/@compoundCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="compoundCoordinateSystemName" type="xs:string"/>

attribute **CoordinateSystem/@localCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="localCoordinateSystemName" type="xs:string"/>

attribute **CoordinateSystem/@geographicCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="geographicCoordinateSystemName" type="xs:string"/>

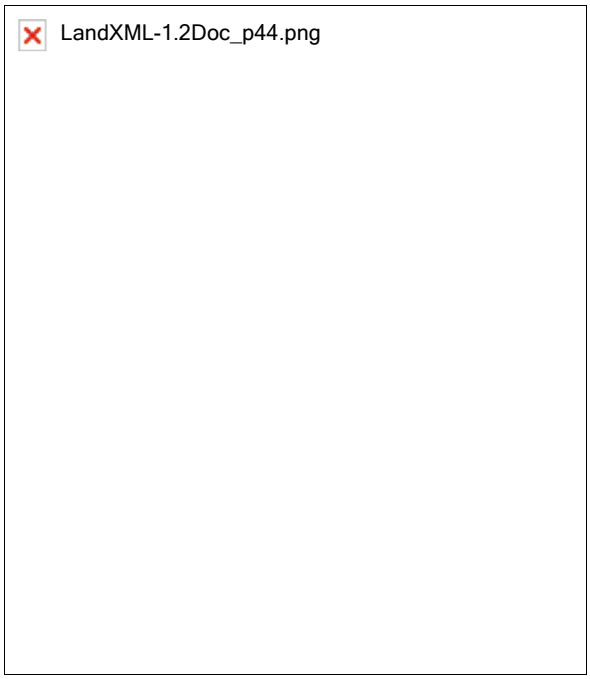
attribute **CoordinateSystem/@projectedCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="projectedCoordinateSystemName" type="xs:string"/>

attribute **CoordinateSystem/@verticalCoordinateSystemName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="verticalCoordinateSystemName" type="xs:string"/>

element **Corner**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Intersection**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
type	**cornerType**				

source

```
<xs:element name="Corner">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="type" type="cornerType"/>
  </xs:complexType>
</xs:element>
```

attribute **Corner/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **Corner/@staEnd**

type	**station**
properties	isRef 0

source	<xs:attribute name="staEnd" type="station"/>

attribute **Corner/@type**

type	**cornerType**
properties	isRef 0
facets	enumeration unknown
source	<xs:attribute name="type" type="cornerType"/>

element **Corrections**

diagram	LandXML-1.2Doc_p45.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**FieldNote** **Feature**
used by	element **InstrumentDetails**

attributes

Name	Type	Use	Default	Fixed	annotation
refractionCoefficient	**xs:double**				
applyRefractionCoefficient	**xs:boolean**				
sphericity	**xs:double**				
prismEccentricity	**xs:double**				

source	<xs:element name="Corrections"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:sequence> <xs:attribute name="refractionCoefficient" type="xs:double"/> <xs:attribute name="applyRefractionCoefficient" type="xs:boolean"/> <xs:attribute name="sphericity" type="xs:double"/> <xs:attribute name="prismEccentricity" type="xs:double"/> <!-- if 'true' then atmospheric corrections are to be applied to the measured distances read from the file --> <!-- if 'true' then sea level corrections are to be applied to the measured distances read from the file --> <!-- this is for recording the refraction coefficient used in the curvature and refraction correction of zenith angles --> <!-- if 'true' then RefractionCoefficient should be applied to the measured zenith angles read from the file --> </xs:complexType> </xs:element>

attribute **Corrections/@refractionCoefficient**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="refractionCoefficient" type="xs:double"/>

attribute **Corrections/@applyRefractionCoefficient**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="applyRefractionCoefficient" type="xs:boolean"/>

attribute **Corrections/@sphericity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="sphericity" type="xs:double"/>

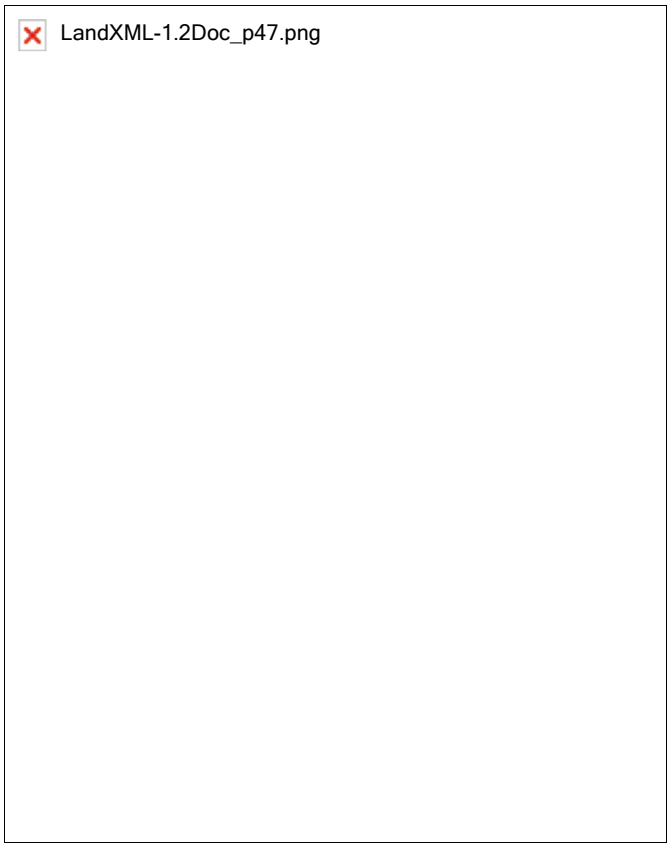
attribute **Corrections/@prismEccentricity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="prismEccentricity" type="xs:double"/>

element **CrashData**

diagram	LandXML-1.2Doc_p46.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CrashHistory** **Feature**
used by	element **Roadway**
source	<xs:element name="CrashData"> <xs:complexType> <xs:choice maxOccurs="unbounded"> <xs:element ref="CrashHistory" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:complexType> </xs:element>

element **CrashHistory**

diagram	 LandXML-1.2Doc_p47.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **CrashData**

attributes

Name	Type	Use	Default	Fixed	annotation
year	**xs:date**				
location-1	**station**				
location-2	**station**				
severity	**crashSeverityType**				
intersectionRelation	**crashIntersectionRelation**				
intersectionLocation	**station**				

source

```
<xs:element name="CrashHistory">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="year" type="xs:date"/>
    <xs:attribute name="location-1" type="station"/>
    <xs:attribute name="location-2" type="station"/>
    <xs:attribute name="severity" type="crashSeverityType"/>
    <xs:attribute name="intersectionRelation" type="crashIntersectionRelation"/>
    <xs:attribute name="intersectionLocation" type="station"/>
  </xs:complexType>
</xs:element>
```

attribute **CrashHistory/@year**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="year" type="xs:date"/>

attribute **CrashHistory/@location-1**

type	**station**
properties	isRef 0
source	<xs:attribute name="location-1" type="station"/>

attribute **CrashHistory/@location-2**

type	**station**
properties	isRef 0
source	<xs:attribute name="location-2" type="station"/>

attribute **CrashHistory/@severity**

type	**crashSeverityType**
properties	isRef 0
facets	enumeration fatal enumeration nonfatal enumeration propery-damage-only
source	<xs:attribute name="severity" type="crashSeverityType"/>

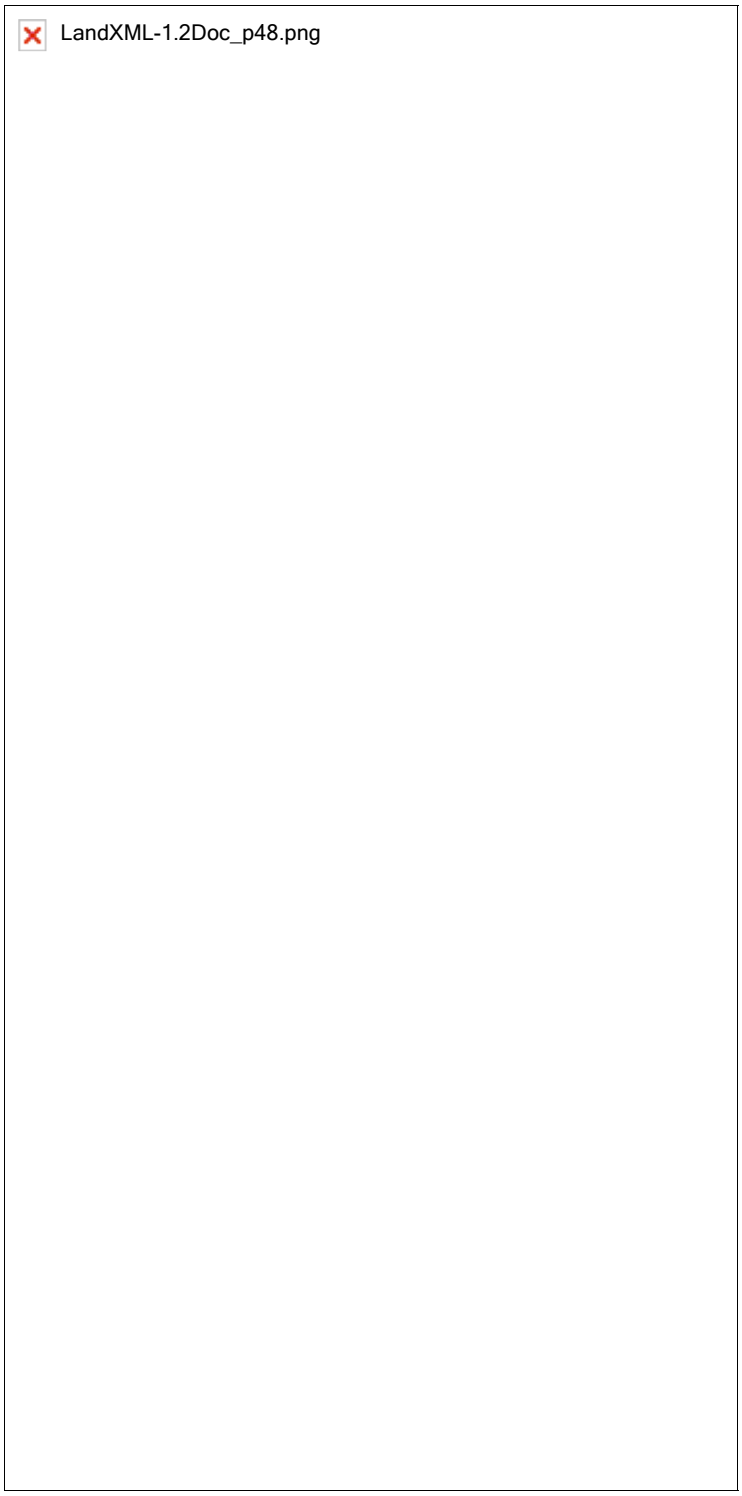
attribute **CrashHistory/@intersectionRelation**

type	**crashIntersectionRelation**
properties	isRef 0
facets	enumeration unknown enumeration non-intersection-related enumeration intersection-related
source	<xs:attribute name="intersectionRelation" type="crashIntersectionRelation"/>

attribute **CrashHistory/@intersectionLocation**

type	**station**
properties	isRef 0
source	<xs:attribute name="intersectionLocation" type="station"/>

element **CrossSect**

diagram	 LandXML-1.2Doc_p48.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CrossSectSurf** **DesignCrossSectSurf** **Feature**
used by	element **CrossSects**

attributes

Name	Type	Use	Default	Fixed	annotation
sta	**xs:double**	required			
name	**xs:string**				
desc	**xs:string**				

	angleSkew **angle** areaCut **crossSectSurfaceArea** areaFill **crossSectSurfaceArea** centroidCut **xs:double** centroidFill **xs:double** sectType **xs:string** volumeCut **crossSectSurfaceVolume** volumeFill **crossSectSurfaceVolume**
source	<xs:element name="CrossSect"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="CrossSectSurf" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="DesignCrossSectSurf" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="sta" type="xs:double" use="required"/> <xs:attribute name="name" type="xs:string"/> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="angleSkew" type="angle"/> <xs:attribute name="areaCut" type="crossSectSurfaceArea"/> <xs:attribute name="areaFill" type="crossSectSurfaceArea"/> <xs:attribute name="centroidCut" type="xs:double"/> <xs:attribute name="centroidFill" type="xs:double"/> <xs:attribute name="sectType" type="xs:string"/> <xs:attribute name="volumeCut" type="crossSectSurfaceVolume"/> <xs:attribute name="volumeFill" type="crossSectSurfaceVolume"/> </xs:complexType> </xs:element>

attribute **CrossSect/@sta**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="sta" type="xs:double" use="required"/>

attribute **CrossSect/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **CrossSect/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **CrossSect/@angleSkew**

type	**angle**
properties	isRef 0
source	<xs:attribute name="angleSkew" type="angle"/>

attribute **CrossSect/@areaCut**

type	**crossSectSurfaceArea**
properties	isRef 0
source	<xs:attribute name="areaCut" type="crossSectSurfaceArea"/>

attribute **CrossSect/@areaFill**

type	**crossSectSurfaceArea**
properties	isRef 0
source	<xs:attribute name="areaFill" type="crossSectSurfaceArea"/>

attribute **CrossSect/@centroidCut**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="centroidCut" type="xs:double"/>

attribute **CrossSect/@centroidFill**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="centroidFill" type="xs:double"/>

attribute **CrossSect/@sectType**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="sectType" type="xs:string"/>

attribute **CrossSect/@volumeCut**

type	**crossSectSurfaceVolume**
properties	isRef 0
source	<xs:attribute name="volumeCut" type="crossSectSurfaceVolume"/>

attribute **CrossSect/@volumeFill**

type	**crossSectSurfaceVolume**
properties	isRef 0

source	<xs:attribute name="volumeFill" type="crossSectSurfaceVolume"/>

element **CrossSectPnt**

diagram	LandXML-1.2Doc_p49.png
namespace	http://www.landxml.org/schema/LandXML-1.2

type	extension of **PointType**
properties	content complex mixed true
used by	element **DesignCrossSectSurf**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			
determinedTimeStamp	**xs:dateTime**	optional			
ellipsoidHeight	**ellipsoidHeightType**	optional			
latitude	**latLongAngle**	optional			
longitude	**latLongAngle**	optional			
zone	**xs:string**	optional			
northingStdError	**xs:double**	optional			
eastingStdError	**xs:double**	optional			
elevationStdError	**xs:double**	optional			
dataFormat	**dataFormatType**		Offset Elevation		
alignRef	**alignmentNameRef**				
alignRefStation	**station**				
planFeatureRef	**planFeatureNameRef**				
planFeatureRefStation	**station**				
parcelRef	**parcelNameRef**				
parcelRefStation	**station**				

source

```
<xs:element name="CrossSectPnt">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:simpleContent>
      <xs:extension base="PointType">
        <xs:attribute name="dataFormat" type="dataFormatType" default="Offset Elevation"/>
        <xs:attribute name="alignRef" type="alignmentNameRef"/>
        <xs:attribute name="alignRefStation" type="station"/>
        <xs:attribute name="planFeatureRef" type="planFeatureNameRef"/>
        <xs:attribute name="planFeatureRefStation" type="station"/>
        <xs:attribute name="parcelRef" type="parcelNameRef"/>
        <xs:attribute name="parcelRefStation" type="station"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

attribute **CrossSectPnt/@dataFormat**

type	**dataFormatType**
properties	isRef 0 default Offset Elevation
facets	enumeration Offset Elevation enumeration Slope Distance
source	<xs:attribute name="dataFormat" type="dataFormatType" default="Offset Elevation"/>

attribute **CrossSectPnt/@alignRef**

type	**alignmentNameRef**
properties	isRef 0
source	<xs:attribute name="alignRef" type="alignmentNameRef"/>

attribute **CrossSectPnt/@alignRefStation**

type	**station**
properties	isRef 0
source	<xs:attribute name="alignRefStation" type="station"/>

attribute **CrossSectPnt/@planFeatureRef**

type	**planFeatureNameRef**
properties	isRef 0
source	<xs:attribute name="planFeatureRef" type="planFeatureNameRef"/>

attribute **CrossSectPnt/@planFeatureRefStation**

type	**station**
properties	isRef 0
source	<xs:attribute name="planFeatureRefStation" type="station"/>

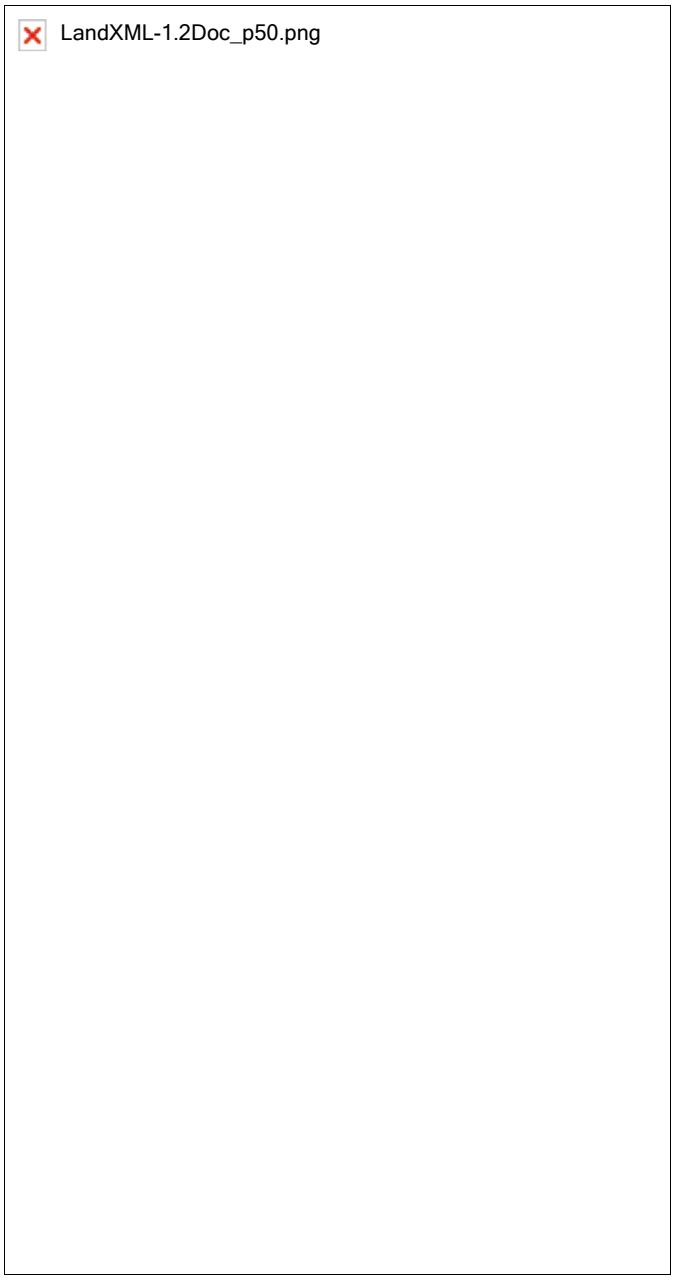
attribute **CrossSectPnt/@parcelRef**

type	**parcelNameRef**
properties	isRef 0
source	<xs:attribute name="parcelRef" type="parcelNameRef"/>

attribute **CrossSectPnt/@parcelRefStation**

type	**station**
properties	isRef 0
source	<xs:attribute name="parcelRefStation" type="station"/>

element **CrossSects**

diagram	 LandXML-1.2Doc_p50.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CrossSect** **Feature**
used by	element **Alignment**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				
calcMethod	**xsVolCalcMethodType**				
curveCorrection	**xs:boolean**				
swellFactor	**xs:double**				
shrinkFactor	**xs:double**				

identity constraints	Name	Refer	Selector	Field(s)
	unique	uCrossSectSta	CrossSect	@sta

source

```
<xs:element name="CrossSects">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="CrossSect" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="calcMethod" type="xsVolCalcMethodType"/>
    <xs:attribute name="curveCorrection" type="xs:boolean"/>
    <xs:attribute name="swellFactor" type="xs:double"/>
    <xs:attribute name="shrinkFactor" type="xs:double"/>
  </xs:complexType>
  <xs:unique name="uCrossSectSta">
    <xs:selector xpath="CrossSect"/>
    <xs:field xpath="@sta"/>
  </xs:unique>
</xs:element>
```

attribute **CrossSects/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **CrossSects/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **CrossSects/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **CrossSects/@calcMethod**

type	**xsVolCalcMethodType**

properties	isRef 0
facets	enumeration AverageEndArea enumeration Prismoidal
source	<xs:attribute name="calcMethod" type="xsVolCalcMethodType"/>

attribute **CrossSects/@curveCorrection**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="curveCorrection" type="xs:boolean"/>

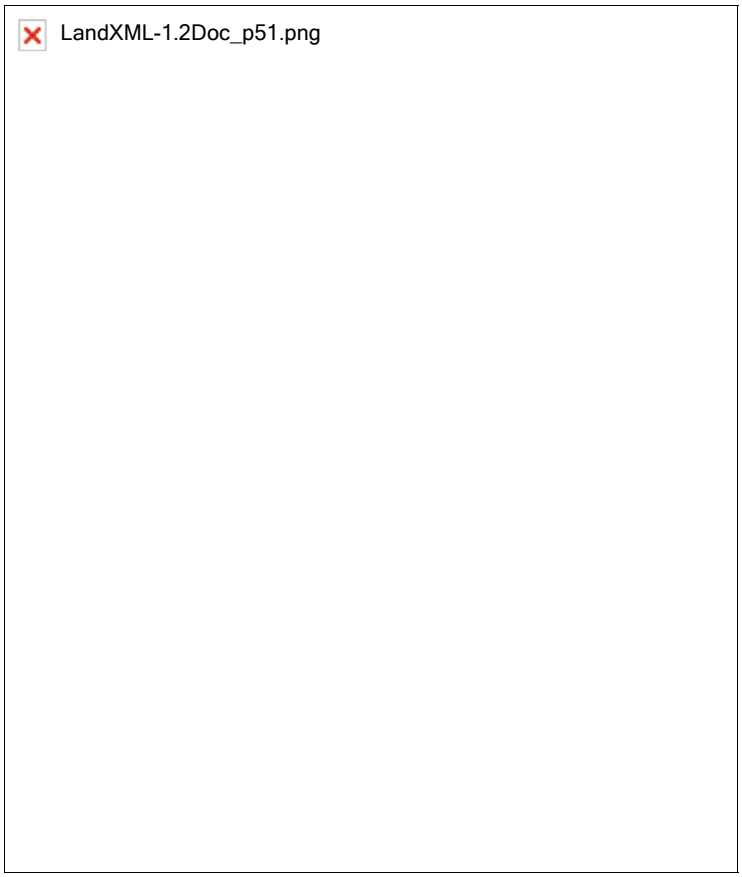
attribute **CrossSects/@swellFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="swellFactor" type="xs:double"/>

attribute **CrossSects/@shrinkFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="shrinkFactor" type="xs:double"/>

element **CrossSectSurf**

diagram	 LandXML-1.2Doc_p51.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **Feature**
used by	element **CrossSect**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
state	**stateType**				

annotation

documentation

Defined as a space delimited PntList2D of offset-distance/offset-elevations from the centerline, also known as the profile grade line. Typically represent existing ground surfaces.

documentation

Example: "-60.00 1.52 -36.26 0.89 12.41 2.01 60.00 1.83"

documentation

Note: Gaps in the surface are handled by having 2 or more PntList2D elements.

source

```
<xs:element name="CrossSectSurf">
  <xs:annotation>
    <xs:documentation>Defined as a space delimited PntList2D of offset-distance/offset-elevations from the centerline, also known as the profile grade line. Typically represent existing ground surfaces.</xs:documentation>
    <xs:documentation>Example: "-60.00 1.52 -36.26 0.89 12.41 2.01 60.00 1.83"</xs:documentation>
    <xs:documentation>Note: Gaps in the surface are handled by having 2 or more PntList2D elements.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
```

```
    <xs:sequence>
      <xs:element ref="PntList2D" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **CrossSectSurf/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

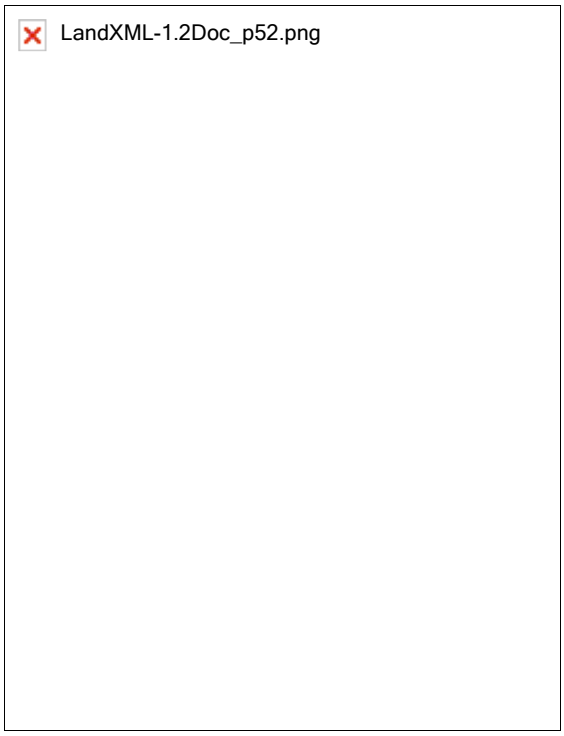
attribute **CrossSectSurf/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **CrossSectSurf/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Curb**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Intersection**

attributes	Name	Type	Use	Default	Fixed	annotation
	staStart	**station**				
	staEnd	**station**				
	sideofRoad	**sideofRoadType**				
	type	**curbType**				

source

```
<xs:element name="Curb">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
    <xs:attribute name="type" type="curbType"/>
  </xs:complexType>
</xs:element>
```

attribute **Curb/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **Curb/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **Curb/@sideofRoad**

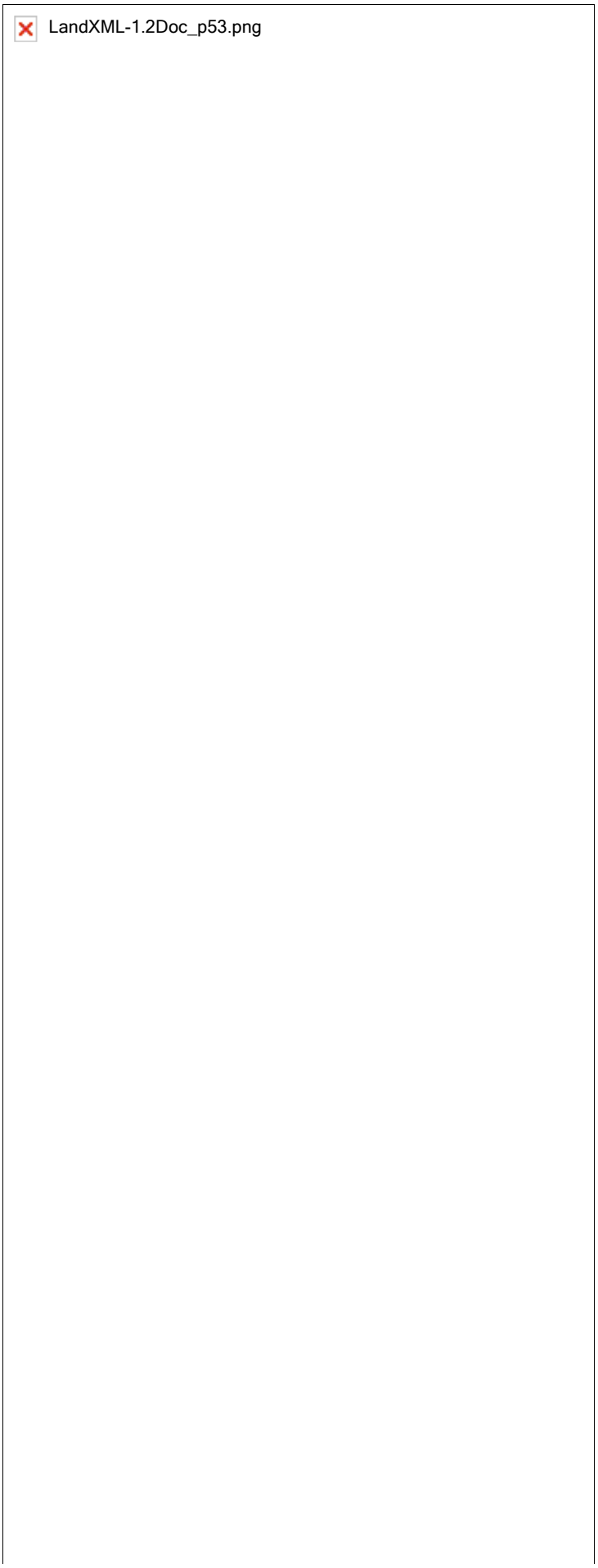
type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

attribute **Curb/@type**

type	**curbType**
properties	isRef 0
facets	enumeration unknown
source	<xs:attribute name="type" type="curbType"/>

element **Curve**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Start Center End PI Feature**
used by	elements **CoordGeom Curve1 Curve2**

attributes

Name	Type	Use	Default	Fixed	annotation
rot	**clockwise**	required			
chord	**xs:double**				
crvType	**curveType**				
delta	**angle**				
desc	**xs:string**				
dirEnd	**direction**				
dirStart	**direction**				
external	**xs:double**				
length	**xs:double**				
midOrd	**xs:double**				
name	**xs:string**				
radius	**xs:double**				
staStart	**xs:double**				
state	**stateType**				
tangent	**xs:double**				
oID	**xs:string**				
note	**xs:string**				

annotation

documentation
The distance from the Start to the Center provides the radius value.
documentation
The rotation attribute "rot" defines whether the arc travels clockwise or counter-clockwise from the Start to End point.

source

```
<xs:element name="Curve">
  <xs:annotation>
    <xs:documentation>The distance from the Start to the Center provides the radius
value.</xs:documentation>
    <xs:documentation>The rotation attribute "rot" defines whether the arc travels clockwise or counter-
clockwise from the Start to End point.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="3" maxOccurs="unbounded">
      <xs:element ref="Start"/>
      <xs:element ref="Center"/>
      <xs:element ref="End"/>
      <xs:element ref="PI" minOccurs="0"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="rot" type="clockwise" use="required"/>
    <xs:attribute name="chord" type="xs:double"/>
    <xs:attribute name="crvType" type="curveType"/>
    <xs:attribute name="delta" type="angle"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="dirEnd" type="direction"/>
    <xs:attribute name="dirStart" type="direction"/>
    <xs:attribute name="external" type="xs:double"/>
    <xs:attribute name="length" type="xs:double"/>
    <xs:attribute name="midOrd" type="xs:double"/>
```

```
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="radius" type="xs:double"/>
    <xs:attribute name="staStart" type="xs:double"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="tangent" type="xs:double"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="note" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Curve/@rot**

type	**clockwise**
properties	isRef 0 use required
facets	enumeration cw enumeration ccw
source	<xs:attribute name="rot" type="clockwise" use="required"/>

attribute **Curve/@chord**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="chord" type="xs:double"/>

attribute **Curve/@crvType**

type	**curveType**
properties	isRef 0
facets	enumeration arc enumeration chord
source	<xs:attribute name="crvType" type="curveType"/>

attribute **Curve/@delta**

type	**angle**
properties	isRef 0
source	<xs:attribute name="delta" type="angle"/>

attribute **Curve/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Curve/@dirEnd**

type	**direction**

properties	isRef 0
source	<xs:attribute name="dirEnd" type="direction"/>

attribute **Curve/@dirStart**

type	**direction**
properties	isRef 0
source	<xs:attribute name="dirStart" type="direction"/>

attribute **Curve/@external**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="external" type="xs:double"/>

attribute **Curve/@length**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="length" type="xs:double"/>

attribute **Curve/@midOrd**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="midOrd" type="xs:double"/>

attribute **Curve/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Curve/@radius**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="radius" type="xs:double"/>

attribute **Curve/@staStart**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="staStart" type="xs:double"/>

attribute **Curve/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **Curve/@tangent**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="tangent" type="xs:double"/>

attribute **Curve/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **Curve/@note**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="note" type="xs:string"/>

element **Curve1**

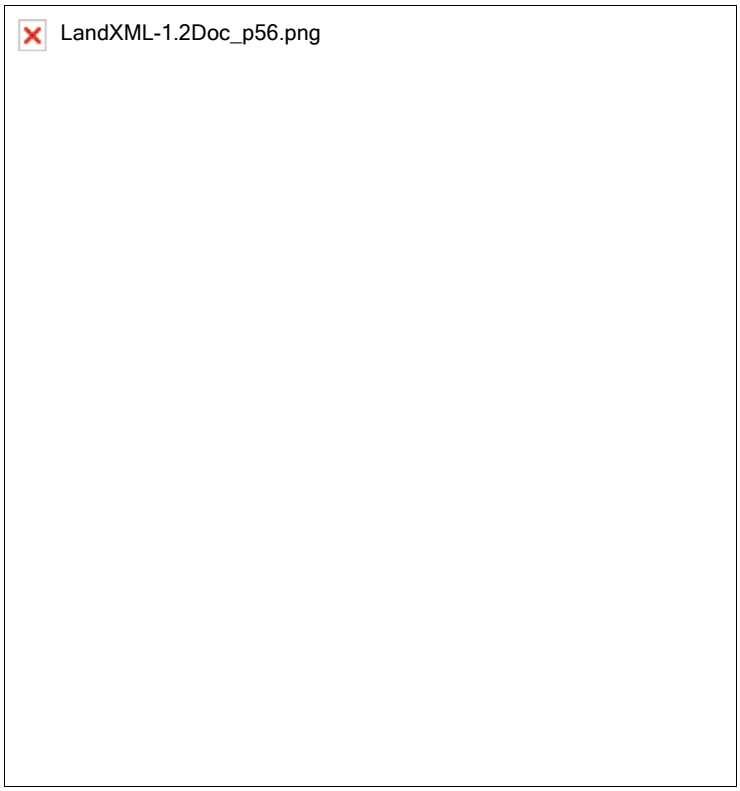
diagram	LandXML-1.2Doc_p54.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Curve**
used by	element **AlignPI**
annotation	documentation First Curve Definition
source	<xs:element name="Curve1"> <xs:annotation> <xs:documentation>First Curve Definition</xs:documentation> </xs:annotation> <xs:complexType>

```
    <xs:all>
      <xs:element ref="Curve"/>
    </xs:all>
  </xs:complexType>
</xs:element>
```

element **Curve2**

diagram	LandXML-1.2Doc_p55.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Curve**
used by	element **AlignPI**
annotation	documentation Second Curve Definition
source	<xs:element name="Curve2"> <xs:annotation> <xs:documentation>Second Curve Definition</xs:documentation> </xs:annotation> <xs:complexType> <xs:all> <xs:element ref="Curve"/> </xs:all> </xs:complexType> </xs:element>

element **DailyTrafficVolume**

diagram	 LandXML-1.2Doc_p56.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **TrafficVolume**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
ADT	**xs:double**				
year	**xs:date**				
escFactor	**xs:double**				

source

```
<xs:element name="DailyTrafficVolume">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="ADT" type="xs:double"/>
    <xs:attribute name="year" type="xs:date"/>
    <xs:attribute name="escFactor" type="xs:double"/>
    <!-- ADT, the average daily traffic for the specified year. This item specifies the average daily traffic for the specified year. No value needs to be specified for this item. The unit of measure for this item is vehicles/day.  -->
    <!-- escFactor is the subsequent year annual traffic volume escalation factor. This item specifies the annual percent increase (or decrease) in traffic volume for subsequent traffic volume years. No value needs to be specified for this item. The unit of measure for this item is percent %. -->
  </xs:complexType>
</xs:element>
```

attribute **DailyTrafficVolume/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **DailyTrafficVolume/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **DailyTrafficVolume/@ADT**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="ADT" type="xs:double"/>

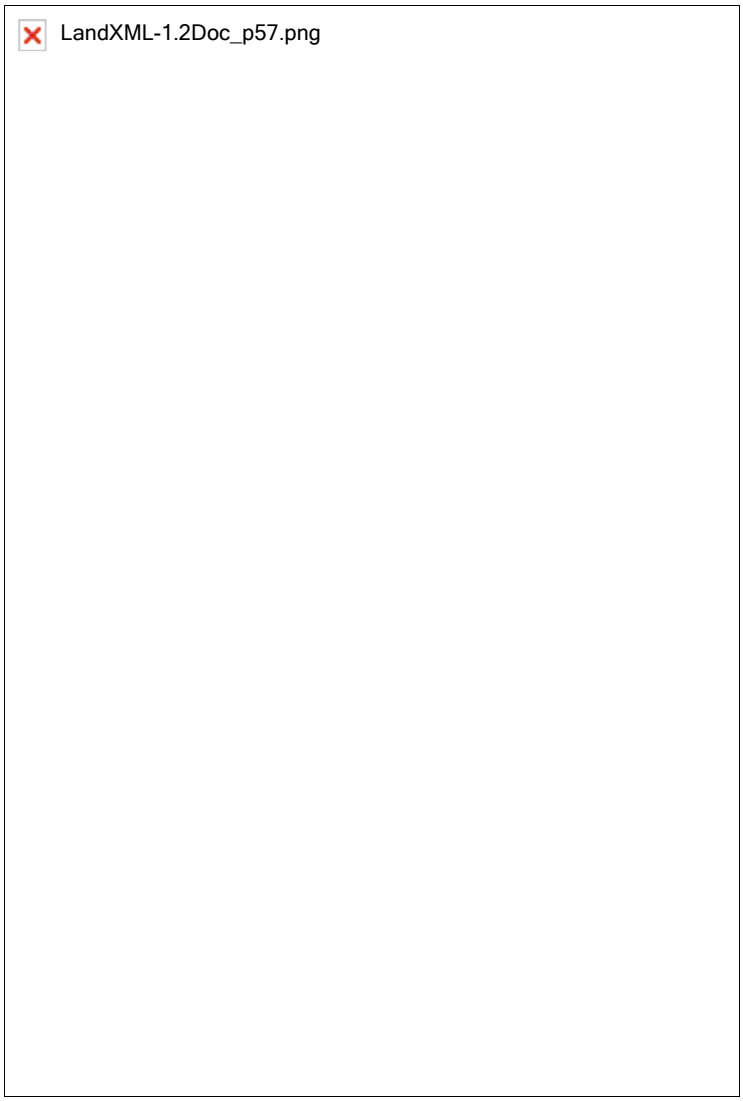
attribute **DailyTrafficVolume/@year**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="year" type="xs:date"/>

attribute **DailyTrafficVolume/@escFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="escFactor" type="xs:double"/>

element **DataPoints**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
children	**PntList3D** **Feature**
used by	element **SourceData**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				

annotation	documentation The sub element PntList3D is group of points is defined by a 3D north/east/elev list of points that define the geometry.
source	<xs:element name="DataPoints"> <xs:annotation>

```
    <xs:documentation>The sub element PntList3D is group of points is defined by a 3D
north/east/elev list of points that define the geometry.</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:sequence maxOccurs="unbounded">
      <xs:element ref="PntList3D" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="code" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="pntRef" type="pointNameRef"/>
    <xs:attribute name="pointGeometry" type="pointGeometryType"/>
    <xs:attribute name="DTMAttribute" type="DTMAttributeType"/>
  </xs:complexType>
</xs:element>
```

attribute **DataPoints/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **DataPoints/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **DataPoints/@code**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="code" type="xs:string"/>

attribute **DataPoints/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **DataPoints/@pntRef**

type	**pointNameRef**
properties	isRef 0

source	<xs:attribute name="pntRef" type="pointNameRef"/>

attribute **DataPoints/@pointGeometry**

type	**pointGeometryType**
properties	isRef 0
facets	enumeration point enumeration curve
source	<xs:attribute name="pointGeometry" type="pointGeometryType"/>

attribute **DataPoints/@DTMAttribute**

type	**DTMAttributeType**
properties	isRef 0
facets	enumeration determinebyfeature enumeration donotinclude enumeration spot enumeration spotandbreak enumeration void enumeration drapevoid enumeration breakvoid enumeration island enumeration boundary enumeration contour enumeration feature enumeration ground enumeration xsection enumeration user
source	<xs:attribute name="DTMAttribute" type="DTMAttributeType"/>

element **DecisionSightDistance**

diagram	LandXML-1.2Doc_p58.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadway**

attributes	Name	Type	Use	Default	Fixed	annotation
	station	**station**				
	maneuver	**maneuverType**				

source

```
<xs:element name="DecisionSightDistance">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="station" type="station"/>
    <xs:attribute name="maneuver" type="maneuverType"/>
  </xs:complexType>
</xs:element>
```

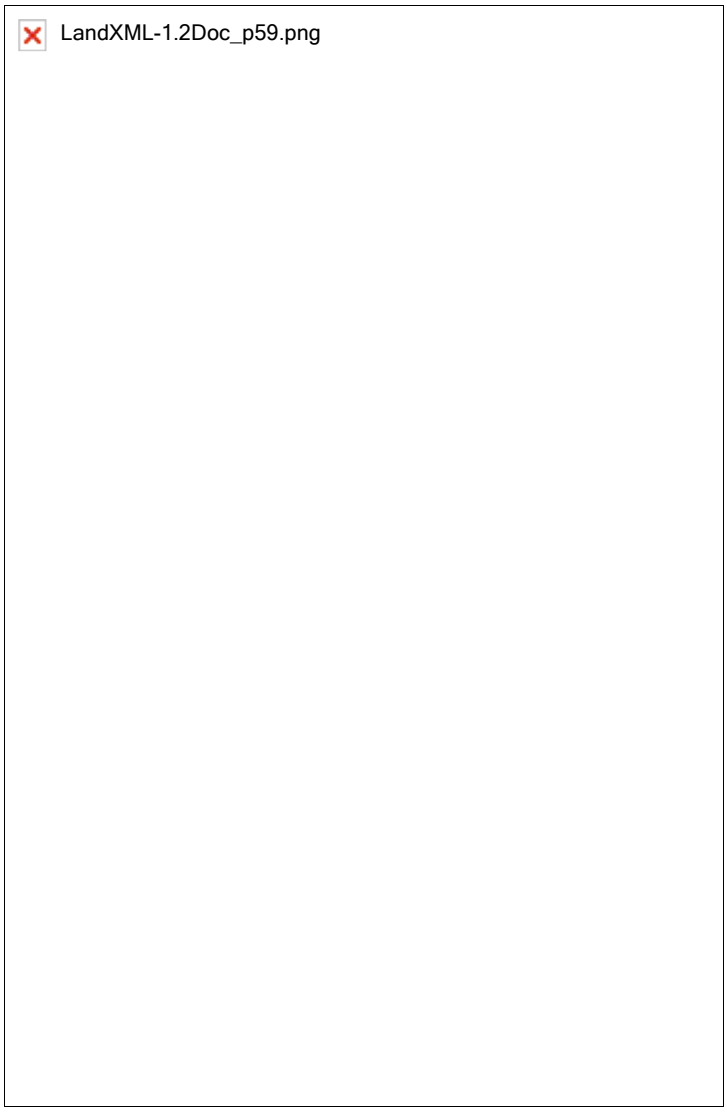
attribute **DecisionSightDistance/@station**

type	**station**
properties	isRef 0
source	`<xs:attribute name="station" type="station"/>`

attribute **DecisionSightDistance/@maneuver**

type	**maneuverType**
properties	isRef 0
facets	enumeration A-stop-on-rural-road enumeration C-speed-path-direction-change-on-rural-road
source	`<xs:attribute name="maneuver" type="maneuverType"/>`

element **Definition**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Pnts** **Faces** **Feature**
used by	element **Surface**

attributes

Name	Type	Use	Default	Fixed	annotation
surfType	**surfTypeEnum**	required			
area2DSurf	**xs:double**				
area3DSurf	**xs:double**				
elevMax	**xs:double**				
elevMin	**xs:double**				

annotation

documentation

The collection of faces and points that defined the surface.

source

```
<xs:element name="Definition">
  <xs:annotation>
    <xs:documentation>The collection of faces and points that defined the surface.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
```

```
      <xs:element ref="Pnts"/>
      <xs:element ref="Faces" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="surfType" type="surfTypeEnum" use="required"/>
    <xs:attribute name="area2DSurf" type="xs:double"/>
    <xs:attribute name="area3DSurf" type="xs:double"/>
    <xs:attribute name="elevMax" type="xs:double"/>
    <xs:attribute name="elevMin" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **Definition/@surfType**

type	**surfTypeEnum**
properties	isRef 0 use required
facets	enumeration TIN enumeration grid
source	<xs:attribute name="surfType" type="surfTypeEnum" use="required"/>

attribute **Definition/@area2DSurf**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="area2DSurf" type="xs:double"/>

attribute **Definition/@area3DSurf**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="area3DSurf" type="xs:double"/>

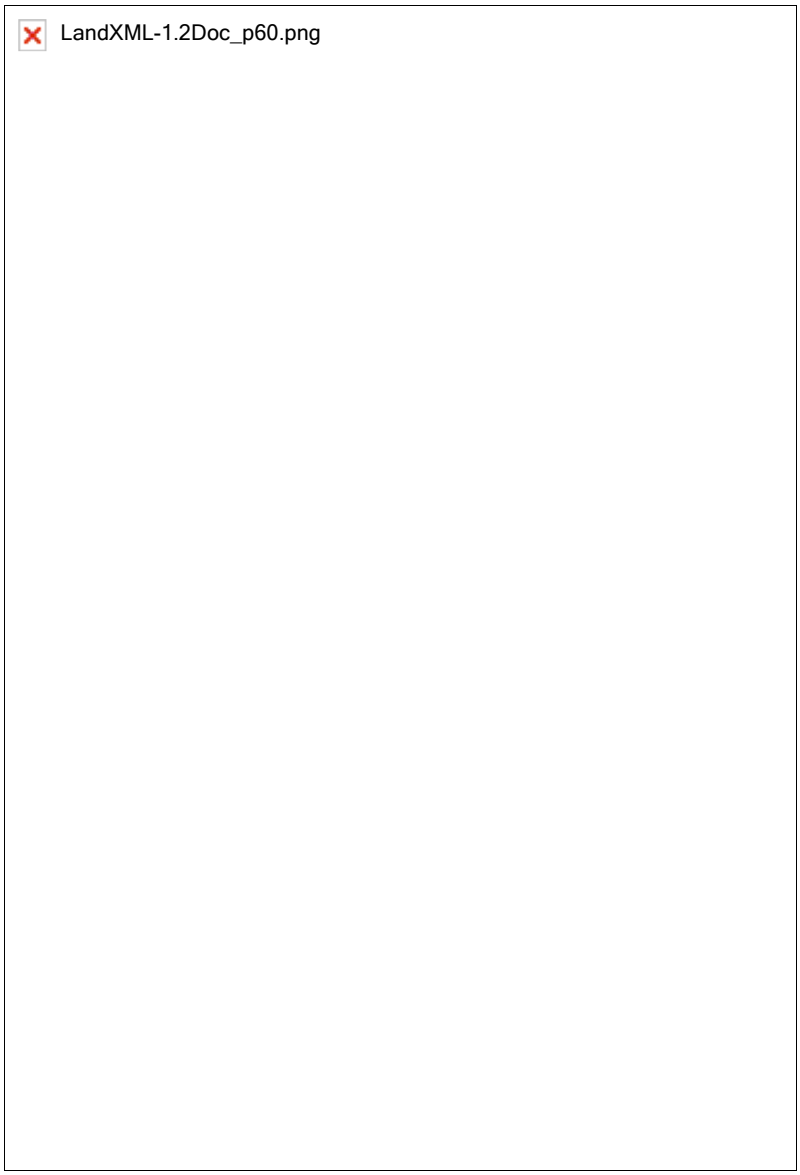
attribute **Definition/@elevMax**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="elevMax" type="xs:double"/>

attribute **Definition/@elevMin**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="elevMin" type="xs:double"/>

element **DesignCrossSectSurf**

diagram	 LandXML-1.2Doc_p60.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CrossSectPnt** **Feature**
used by	element **CrossSect**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
state	**stateType**				
side	**sideofRoadType**				
material	**xs:string**				
closedArea	**xs:boolean**				
typicalThickness	**xs:double**				
typicalWidth	**xs:double**				
area	**crossSectSurfaceArea**				
volume	**crossSectSurfaceVolume**				

source

```
<xs:element name="DesignCrossSectSurf">
  <xs:annotation>
```

```
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="CrossSectPnt" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="side" type="sideofRoadType"/>
    <xs:attribute name="material" type="xs:string"/>
    <xs:attribute name="closedArea" type="xs:boolean"/>
    <xs:attribute name="typicalThickness" type="xs:double"/>
    <xs:attribute name="typicalWidth" type="xs:double"/>
    <xs:attribute name="area" type="crossSectSurfaceArea"/>
    <xs:attribute name="volume" type="crossSectSurfaceVolume"/>
  </xs:complexType>
</xs:element>
```

attribute **DesignCrossSectSurf/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **DesignCrossSectSurf/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **DesignCrossSectSurf/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **DesignCrossSectSurf/@side**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="side" type="sideofRoadType"/>

attribute **DesignCrossSectSurf/@material**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="material" type="xs:string"/>

attribute **DesignCrossSectSurf/@closedArea**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="closedArea" type="xs:boolean"/>

attribute **DesignCrossSectSurf/@typicalThickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="typicalThickness" type="xs:double"/>

attribute **DesignCrossSectSurf/@typicalWidth**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="typicalWidth" type="xs:double"/>

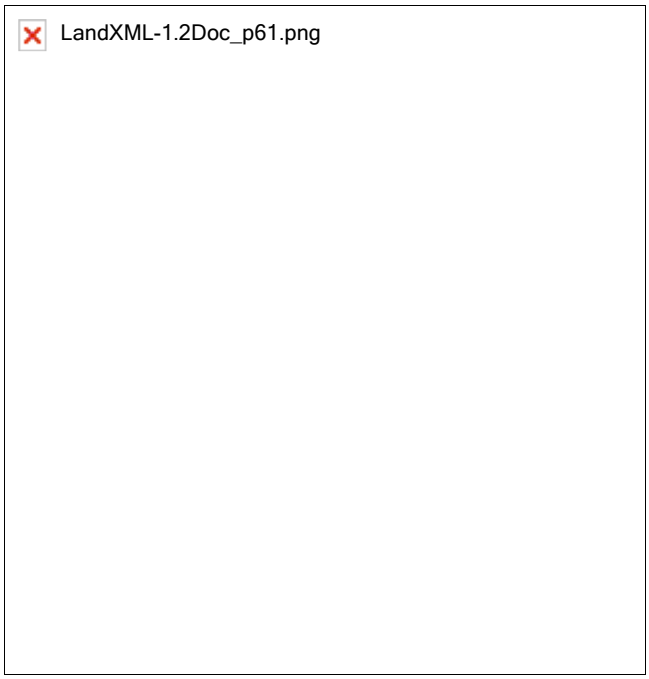
attribute **DesignCrossSectSurf/@area**

type	**crossSectSurfaceArea**
properties	isRef 0
source	<xs:attribute name="area" type="crossSectSurfaceArea"/>

attribute **DesignCrossSectSurf/@volume**

type	**crossSectSurfaceVolume**
properties	isRef 0
source	<xs:attribute name="volume" type="crossSectSurfaceVolume"/>

element **DesignHour**

diagram	 LandXML-1.2Doc_p61.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **TrafficVolume**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
volume	**xs:double**				

source

```
<xs:element name="DesignHour">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="volume" type="xs:double"/>
  </xs:complexType>
  <!-- Design Hour Volume - This item is the design hourly volume (DHV). The 30th highest volume of the year should be used as the DHV, which can be approximated as 15 percent of the average daily traffic (ADT). On two-lane rural highways, the DHV is the total traffic in both directions of travel. The unit of measure for this item is vehicles/hour. -->
</xs:element>
```

attribute **DesignHour/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **DesignHour/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **DesignHour/@volume**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="volume" type="xs:double"/>

element **DesignSpeed**

diagram	LandXML-1.2Doc_p62.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Speeds**
attributes	Name Type Use Default Fixed annotation staStart **station** staEnd **station** speed **speed**
source	<xs:element name="DesignSpeed"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="staStart" type="station"/> <xs:attribute name="staEnd" type="station"/> <xs:attribute name="speed" type="speed"/>

```
  </xs:complexType>
</xs:element>
```

attribute **DesignSpeed/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **DesignSpeed/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **DesignSpeed/@speed**

type	**speed**
properties	isRef 0
source	<xs:attribute name="speed" type="speed"/>

element **DesignSpeed85th**

diagram	LandXML-1.2Doc_p63.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Speeds**

attributes	Name	Type	Use	Default	Fixed	annotation
	staStart	**station**				
	staEnd	**station**				
	sideofRoad	**sideofRoadType**				
	speed	**speed**				

source

```
<xs:element name="DesignSpeed85th">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
    <xs:attribute name="speed" type="speed"/>
  </xs:complexType>
</xs:element>
```

attribute **DesignSpeed85th/@staStart**

type	**station**
properties	isRef 0
source	`<xs:attribute name="staStart" type="station"/>`

attribute **DesignSpeed85th/@staEnd**

type	**station**
properties	isRef 0
source	`<xs:attribute name="staEnd" type="station"/>`

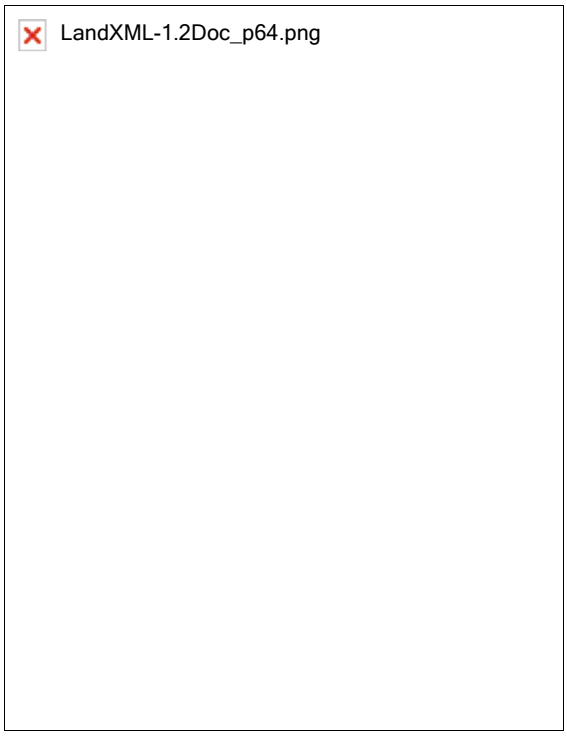
attribute **DesignSpeed85th/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	`<xs:attribute name="sideofRoad" type="sideofRoadType"/>`

attribute **DesignSpeed85th/@speed**

type	**speed**
properties	isRef 0
source	`<xs:attribute name="speed" type="speed"/>`

element **Ditch**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadside**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**	required			
staEnd	**station**	required			
bottomWidth	**xs:double**	required			
bottomShape	**ditchBottomShape**				

source

```
<xs:element name="Ditch">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station" use="required"/>
    <xs:attribute name="staEnd" type="station" use="required"/>
    <xs:attribute name="bottomWidth" type="xs:double" use="required"/>
    <xs:attribute name="bottomShape" type="ditchBottomShape"/>
  </xs:complexType>
</xs:element>
```

attribute **Ditch/@staStart**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staStart" type="station" use="required"/>

attribute **Ditch/@staEnd**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staEnd" type="station" use="required"/>

attribute **Ditch/@bottomWidth**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="bottomWidth" type="xs:double" use="required"/>

attribute **Ditch/@bottomShape**

type	**ditchBottomShape**
properties	isRef 0
facets	enumeration true-V enumeration rounded-V enumeration rounded-trapezoidal enumeration flat-trapezoidal
source	<xs:attribute name="bottomShape" type="ditchBottomShape"/>

element **DocFileRef**

diagram	LandXML-1.2Doc_p65.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	elements **Feature** **FeatureDictionary**

attributes

Name	Type	Use	Default	Fixed	annotation
name		required			
location	**xs:anyURI**	required			
fileType	**xs:string**				
fileFormat	**xs:string**				

annotation

documentation

A reference to any external document file containing related information for the associated element.

source	<xs:element name="DocFileRef"> <xs:annotation> <xs:documentation>A reference to any external document file containing related information for the associated element.</xs:documentation> </xs:annotation> <xs:complexType> <xs:attribute name="name" use="required"/> <xs:attribute name="location" type="xs:anyURI" use="required"/> <xs:attribute name="fileType" type="xs:string"/> <xs:attribute name="fileFormat" type="xs:string"/> </xs:complexType> </xs:element>

attribute **DocFileRef/@name**

properties	isRef 0 use required
source	<xs:attribute name="name" use="required"/>

attribute **DocFileRef/@location**

type	**xs:anyURI**
properties	isRef 0 use required
source	<xs:attribute name="location" type="xs:anyURI" use="required"/>

attribute **DocFileRef/@fileType**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="fileType" type="xs:string"/>

attribute **DocFileRef/@fileFormat**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="fileFormat" type="xs:string"/>

element **DrivewayDensity**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadside**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
density	**xs:int**				

source

```
<xs:element name="DrivewayDensity">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="density" type="xs:int"/>
    <!-- Driveway Density - Unit of measure: integer. The driveway density for both sides of the roadway combined. The unit of measure for this item is driveways/kilometer (driveways/mile). -->
  </xs:complexType>
</xs:element>
```

attribute **DrivewayDensity/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **DrivewayDensity/@staEnd**

type	**station**

properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **DrivewayDensity/@density**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="density" type="xs:int"/>

element **EggPipe**

diagram	LandXML-1.2Doc_p67.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Pipe**

attributes

Name	Type	Use	Default	Fixed	annotation
height	**xs:double**	required			
span	**xs:double**	required			
desc	**xs:string**				
hazenWilliams	**xs:double**				
mannings	**xs:double**				
material					
thickness	**xs:double**				

source

```
<xs:element name="EggPipe">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="height" type="xs:double" use="required"/>
    <xs:attribute name="span" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="hazenWilliams" type="xs:double"/>
    <xs:attribute name="mannings" type="xs:double"/>
    <xs:attribute name="material"/>
    <xs:attribute name="thickness" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **EggPipe/@height**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="height" type="xs:double" use="required"/>

attribute **EggPipe/@span**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="span" type="xs:double" use="required"/>

attribute **EggPipe/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **EggPipe/@hazenWilliams**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hazenWilliams" type="xs:double"/>

attribute **EggPipe/@mannings**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="mannings" type="xs:double"/>

attribute **EggPipe/@material**

properties	isRef 0
source	<xs:attribute name="material"/>

attribute **EggPipe/@thickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **ElliPipe**

diagram	LandXML-1.2Doc_p68.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Pipe**

attributes

Name	Type	Use	Default	Fixed	annotation
height	**xs:double**	required			
span	**xs:double**	required			
desc	**xs:string**				
hazenWilliams	**xs:double**				
mannings	**xs:double**				

	material thickness **xs:double**
source	<xs:element name="ElliPipe"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="height" type="xs:double" use="required"/> <xs:attribute name="span" type="xs:double" use="required"/> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="hazenWilliams" type="xs:double"/> <xs:attribute name="mannings" type="xs:double"/> <xs:attribute name="material"/> <xs:attribute name="thickness" type="xs:double"/> </xs:complexType> </xs:element>

attribute **ElliPipe/@height**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="height" type="xs:double" use="required"/>

attribute **ElliPipe/@span**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="span" type="xs:double" use="required"/>

attribute **ElliPipe/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **ElliPipe/@hazenWilliams**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hazenWilliams" type="xs:double"/>

attribute **ElliPipe/@mannings**

type	**xs:double**
properties	isRef 0

source	<xs:attribute name="mannings" type="xs:double"/>

attribute **ElliPipe/@material**

properties	isRef 0
source	<xs:attribute name="material"/>

attribute **ElliPipe/@thickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **End**

diagram	LandXML-1.2Doc_p69.png
namespace	http://www.landxml.org/schema/LandXML-1.2

type	**PointType**
properties	content complex mixed true
used by	elements **Curve IrregularLine Line Spiral**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			
determinedTimeStamp	**xs:dateTime**	optional			
ellipsoidHeight	**ellipsoidHeightType**	optional			
latitude	**latLongAngle**	optional			
longitude	**latLongAngle**	optional			
zone	**xs:string**	optional			
northingStdError	**xs:double**	optional			
eastingStdError	**xs:double**	optional			
elevationStdError	**xs:double**	optional			

annotation

documentation

Represents a 2D or 3D Ending Point

documentation

Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.

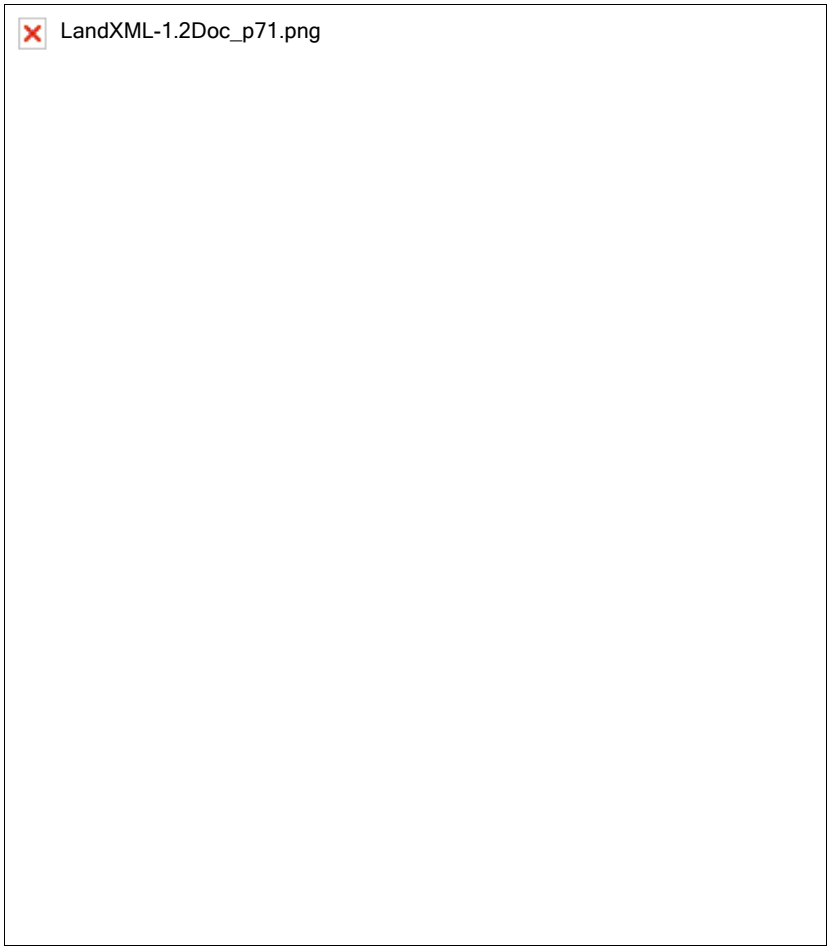
source

```
<xs:element name="End" type="PointType">
  <xs:annotation>
    <xs:documentation>Represents a 2D or 3D Ending Point</xs:documentation>
    <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation>
  </xs:annotation>
</xs:element>
```

element **EndofRunoutSta**

diagram	LandXML-1.2Doc_p70
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**station**
properties	content simple nillable true
used by	element **Superelevation**
source	`<xs:element name="EndofRunoutSta" type="station" nillable="true"/>`

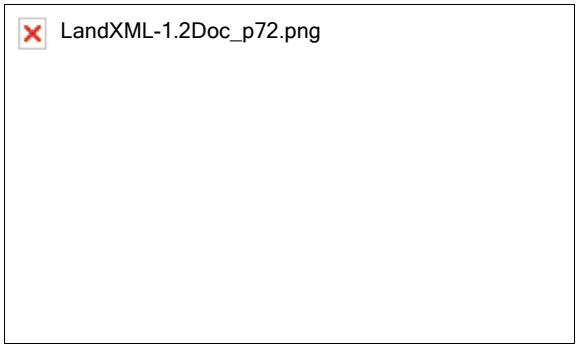
element **Equipment**

diagram	 LandXML-1.2Doc_p71.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**InstrumentDetails** **LaserDetails** **GPSReceiverDetails** **GPSAntennaDetails** **FieldNote** **Feature**
used by	element **Survey**

source

```
<xs:element name="Equipment">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice>
        <xs:element ref="InstrumentDetails"/>
        <xs:element ref="LaserDetails"/>
        <xs:element ref="GPSReceiverDetails"/>
        <xs:element ref="GPSAntennaDetails"/>
      </xs:choice>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

element **Exclusions**

diagram	 LandXML-1.2Doc_p72.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
used by	element **Parcel**

attributes

Name	Type	Use	Default	Fixed	annotation
exclusionType	**exclusType**	required			
area	**xs:double**	required			

annotation

documentation

An Exclusion is an area which has been reserved from a tenure for a specific purpose but may have no defined spatial extent for example 10ha for road. A single parcel could have more than one eclusion for different purposes.

source

```
<xs:element name="Exclusions">
  <xs:annotation>
    <xs:documentation>An Exclusion is an area which has been reserved from a tenure for a specific purpose but may have no defined spatial extent for example 10ha for road. A single parcel could have more than one eclusion for different purposes.</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:attribute name="exclusionType" type="exclusType" use="required"/>
    <xs:attribute name="area" type="xs:double" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **Exclusions/@exclusionType**

type	**exclusType**
properties	isRef 0 use required
source	<xs:attribute name="exclusionType" type="exclusType" use="required"/>

attribute **Exclusions/@area**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="area" type="xs:double" use="required"/>

element **F**

diagram	LandXML-1.2Doc_p73.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **FaceType**
properties	content complex mixed true
used by	element **Faces**

attributes

Name	Type	Use	Default	Fixed	annotation
i	**xs:integer**	optional			
n	**FaceType**	optional			
b	**xs:positiveInteger**	optional			

annotation

documentation
A surface face. It contains a space delimited list of "id" references for 3 (TIN) or 4 (grid) surface "P" points.
documentation
The 3 or 4 numbers represent the vertices on the face. Each number is a reference to the ID value of a surface point "P" for the face coordinates.
documentation

Attribute "i" is optional, where a value of "1" indicating the face is part of the triangulation but is invisible.
Attribute "n" is optional, space delimited face index values indicating the adjacent face index for each face edge, where a value of "0" (an invalid face index value) indicates the edge has NO neighboring face. The face index value is implied and defined from 1 to n number of F elements in a a single Faces collection.
Example:

```
<!--
<Faces>
  <F>5 10 20</F>  Implied face index = 1
  <F>5 10 20</F>  Implied face index = 2
  <F>5 10 20</F>  Implied face index = 3
  <F n="2 0 3" i="1">10 20 30</F>   Implied face index = 4
 ...
</Faces>
-->
```

Where 2 is the neighboring face index for the edge 10 to 20, 0 means no
neighbor between 20 and 30 and 3 is the neighbor index for 30 to 10.

Attribute "b" is used to indicate the edges of the face that coincide with breakline data.

b=an integer bitmask sum of the sides of the face that had breaklines in the original data.
This gives a valid integer range of 0 to 7 for each TIN face:

1 = side 1
2 = side 2
4 = side 3

	For example b="5" has breakline data on TIN face sides 1 and 3.

source

```
<xs:element name="F">
  <xs:annotation>
    <xs:documentation>A surface face. It contains a space delimited list of "id" references for 3 (TIN) or 4 (grid) surface "P" points. </xs:documentation>
    <xs:documentation>The 3 or 4 numbers represent the vertices on the face. Each number is a reference to the ID value of a surface point "P" for the face coordinates.</xs:documentation>
    <xs:documentation>
Attribute "i" is optional, where a value of "1" indicating the face is part of the triangulation but is invisible.
Attribute "n" is optional, space delimited face index values indicating the adjacent face index for each face edge, where a value of "0" (an invalid face index value) indicates the edge has NO neighboring face. The face index value is implied and defined from 1 to n number of F elements in a a single Faces collection.
Example:
<!--
<Faces>
   <F>5 10 20</F>  Implied face index = 1
   <F>5 10 20</F>  Implied face index = 2
   <F>5 10 20</F>  Implied face index = 3
   <F n="2 0 3" i="1">10 20 30</F>   Implied face index = 4
  ...
</Faces>
-->
Where 2 is the neighboring face index for the edge 10 to 20, 0 means no
neighbor between 20 and 30 and 3 is the neighbor index for 30 to 10.

Attribute "b" is used to indicate the edges of the face that coincide with breakline data.

b=an integer bitmask sum of the sides of the face that had breaklines in the original data.
This gives a valid integer range of 0 to 7 for each TIN face:

1 = side 1
2 = side 2
4 = side 3

For example b="5" has breakline data on TIN face sides 1 and 3.

</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:simpleContent>
      <xs:extension base="FaceType">
        <xs:attribute name="i" type="xs:integer" use="optional"/>
        <xs:attribute name="n" type="FaceType" use="optional"/>
        <xs:attribute name="b" type="xs:positiveInteger" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

attribute **F/@i**

type	**xs:integer**
properties	isRef 0

	use optional
source	<xs:attribute name="i" type="xs:integer" use="optional"/>

attribute **F/@n**

type	**FaceType**
properties	isRef 0 use optional
source	<xs:attribute name="n" type="FaceType" use="optional"/>

attribute **F/@b**

type	**xs:positiveInteger**
properties	isRef 0 use optional
source	<xs:attribute name="b" type="xs:positiveInteger" use="optional"/>

element **Faces**

diagram	LandXML-1.2Doc_p74.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**F Feature**
used by	element **Definition**

attributes	Name	Type	Use	Default	Fixed	annotation
	desc	**xs:string**				
	name	**xs:string**				
	state	**stateType**				

annotation

documentation
The collection of faces that defined the surface.
documentation
The faces are defined by either 3 (TIN) or 4 (grid) points, as indicated by the "surfType" attribute
documentation
For the north/east/elev values, each point of the face references a "P"point element point in the SurfPnts collection.

source

```
<xs:element name="Faces">
  <xs:annotation>
    <xs:documentation>The collection of faces that defined the surface.</xs:documentation>
    <xs:documentation>The faces are defined by either 3 (TIN) or 4 (grid) points, as indicated by the
"surfType" attribute</xs:documentation>
    <xs:documentation>For the north/east/elev values, each point of the face references a "P"point
element point in the SurfPnts collection.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="F" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Faces/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

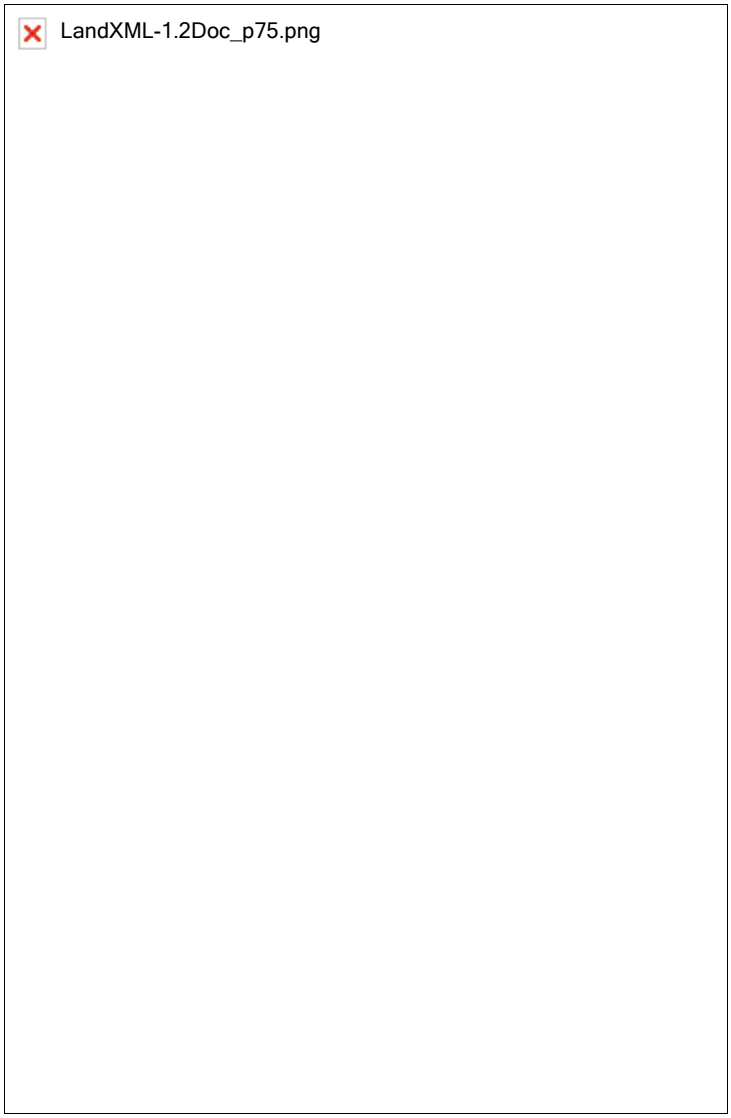
attribute **Faces/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Faces/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Feature**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Property** **DocFileRef** **Feature**
used by	elements **Alignment** **Alignments** **Backsight** **BikeFacilities** **Boundaries** **Boundary** **Breakline** **Breaklines** **BridgeElement** **Cant** **CgPoints** **Channel** **CircPipe** **CircStruct** **Classification** **ClimbLane** **Connection** **Contour** **Contours** **ControlChecks** **CoordGeom** **CoordinateSystem** **Corner** **Corrections** **CrashData** **CrashHistory** **CrossSect** **CrossSects** **CrossSectSurf** **Curb** **Curve** **DailyTrafficVolume** **DataPoints** **DecisionSightDistance** **Definition** **DesignCrossSectSurf** **DesignHour** **DesignSpeed** **DesignSpeed85th** **Ditch** **DrivewayDensity** **EggPipe** **ElliPipe** **Equipment** **Faces** **Feature** **GPSAntennaDetails** **GPSPosition** **GPSReceiverDetails** **GPSSetup** **GPSVector** **GradeModel** **GradeSurface** **HazardRating** **InletStruct** **InstrumentDetails** **InstrumentSetup** **Intersection** **Intersections** **IrregularLine** **Lanes** **LaserDetails** **LaserSetup** **Line** **Monuments** **NoPassingZone** **ObservationGroup** **ObstructionOffset** **OffsetLane** **OutletStruct** **Parcel** **Parcels** **PassingLane** **PeakHour** **Pipe** **PipeFlow** **PipeNetwork** **PipeNetworks** **Pipes** **PlanFeature** **PlanFeatures** **PointFiles** **PointResults** **PostedSpeed** **ProfAlign** **Profile** **ProfSurf** **Project** **RectPipe** **RectStruct** **RedHorizontalPosition** **ReducedArcObservation** **ReducedObservation** **RedVerticalObservation** **RetWall** **Roadside** **RoadSign** **Roadway** **Roadways**

	SourceData **Speeds** **Spiral** **StaEquation** **Struct** **StructFlow** **Structs** **Superelevation** **Surface** **Surfaces** **SurfVolume** **SurfVolumes** **Survey** **SurveyHeader** **SurveyMonument** **TargetSetup** **ThruLane** **Timing** **TrafficControl** **TrafficVolume** **TurnLane** **TurnRestriction** **TurnSpeed** **TwoWayLeftTurnLane** **Volume** **Watershed** **Watersheds** **WideningLane** **Zone** **ZoneCrossSectStructure** **ZoneCutFill** **ZoneHinge** **ZoneMaterial** **Zones** **ZoneSlope** **ZoneWidth** complexType **RawObservationType**

attributes	Name	Type	Use	Default	Fixed	annotation
	name	**xs:string**	optional			
	code	**xs:string**				
	source		optional			

annotation	documentation Used to include additional information that is not explicitly defined by the LandXML schema, Feature may contain one or more Property, DocFileRef or nested Feature elements. NOTE: to allow any valid content, the explicit definitions for Property, DocFileRef and Feature have been commented out, but are still expected in common use. documentation Each Property element defines one piece of data.

source

```
<xs:element name="Feature">
  <xs:annotation>
    <xs:documentation>Used to include additional information that is not explicitly defined by the
LandXML schema, Feature may contain one or more Property, DocFileRef or nested Feature elements.
NOTE: to allow any valid content, the explicit definitions for Property, DocFileRef and Feature have been
commented out, but are still expected in common use.</xs:documentation>
    <xs:documentation>Each Property element defines one piece of data.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Property" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="DocFileRef" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      <!-- <xs:any namespace="##any" processContents="skip" minOccurs="0"
maxOccurs="unbounded"/>
-->
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="optional"/>
    <xs:attribute name="code" type="xs:string"/>
    <xs:attribute name="source" use="optional"/>
  </xs:complexType>
</xs:element>
```

attribute **Feature/@name**

type	**xs:string**
properties	isRef 0 use optional

source

```
<xs:attribute name="name" type="xs:string" use="optional"/>
```

attribute **Feature/@code**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="code" type="xs:string"/>

attribute **Feature/@source**

properties	isRef 0 use optional
source	<xs:attribute name="source" use="optional"/>

element **FeatureDictionary**

diagram	LandXML-1.2Doc_p76.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**DocFileRef**
used by	element **LandXML**
attributes	Name Type Use Default Fixed annotation name **xs:string** required version **xs:string** optional
annotation	documentation Used to describe specific Feature code / property type values. DocFileRef points to reference documentation documentation Each Property element defines one piece of data.

source

```
<xs:element name="FeatureDictionary">
  <xs:annotation>
    <xs:documentation>Used to describe specific Feature code / property type values. DocFileRef points to reference documentation</xs:documentation>
    <xs:documentation>Each Property element defines one piece of data.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="DocFileRef" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="version" type="xs:string" use="optional"/>
  </xs:complexType>
</xs:element>
```

attribute **FeatureDictionary/@name**

type	**xs:string**

properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **FeatureDictionary/@version**

type	**xs:string**
properties	isRef 0 use optional
source	<xs:attribute name="version" type="xs:string" use="optional"/>

element **FieldNote**

diagram	LandXML-1.2Doc_p77.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
used by	elements **Backsight ControlChecks CoordinateSystem Corrections Equipment GPSAntennaDetails GPSPosition GPSReceiverDetails GPSSetup GPSVector InstrumentDetails InstrumentSetup LaserDetails LaserSetup ObservationGroup PlanFeature PointResults RedHorizontalPosition ReducedArcObservation ReducedObservation RedVerticalObservation Survey SurveyHeader TargetSetup** complexType **RawObservationType**
annotation	documentation Place the note as a text value between the FieldNote element tags. You may also place any valid XML structure inside this tag.

source

```
<xs:element name="FieldNote">
  <xs:annotation>
    <xs:documentation>Place the note as a text value between the FieldNote element tags.
You may also place any valid XML structure inside this tag.</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:choice maxOccurs="unbounded">
      <xs:any namespace="##other" processContents="skip" minOccurs="0"/>
    </xs:choice>
  </xs:complexType>
</xs:element>
```

element **FullSuperelev**

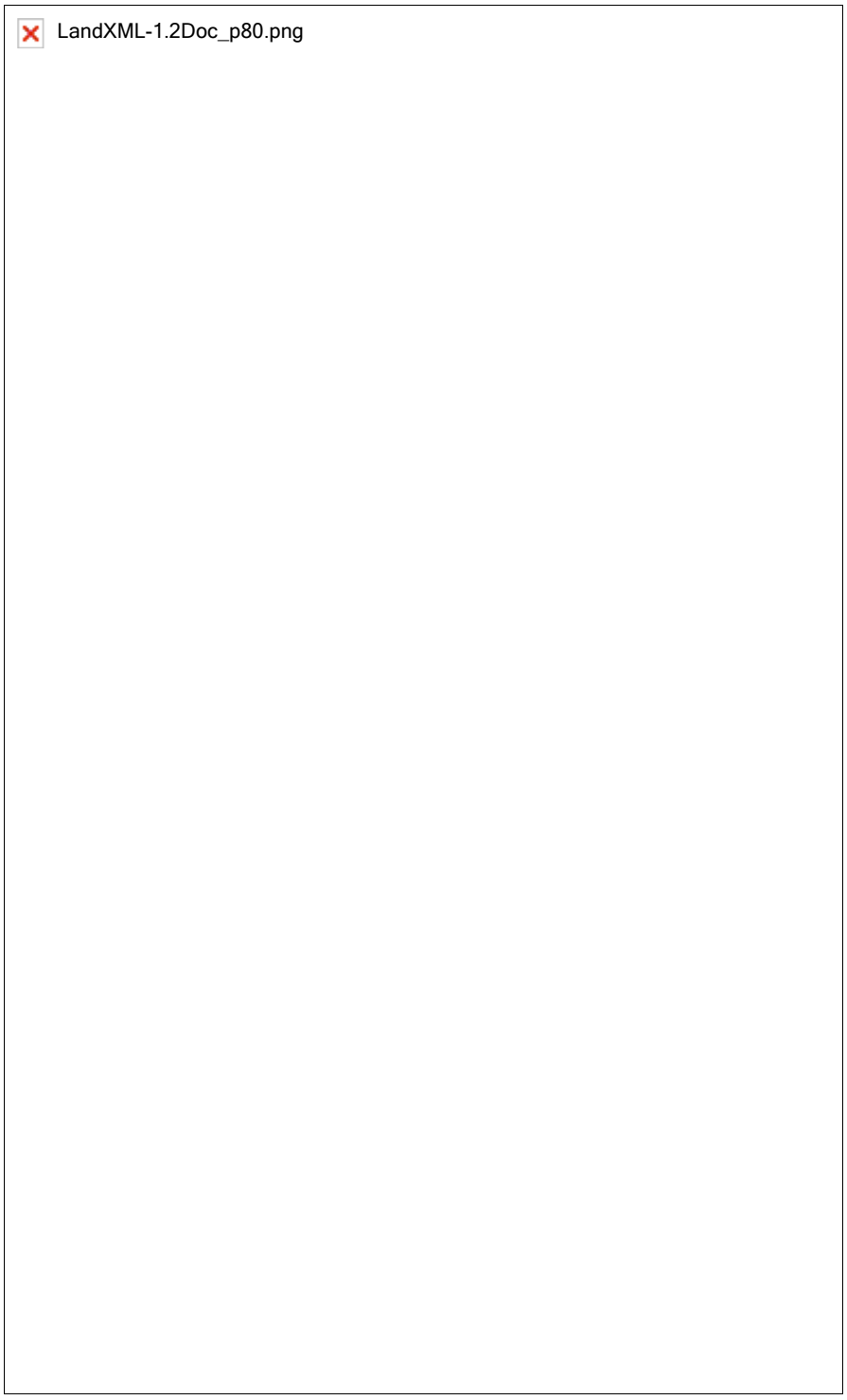
diagram	LandXML-1.2Doc_
namespace	http://www.landxml.org/schema/LandXML-1.2

type	**slope**
properties	content simple
used by	element **Superelevation**
source	<xs:element name="FullSuperelev" type="slope"/>

element **FullSuperSta**

diagram	LandXML-1.2Doc
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**station**
properties	content simple
used by	element **Superelevation**
source	<xs:element name="FullSuperSta" type="station"/>

element **GPSAntennaDetails**

diagram	 LandXML-1.2Doc_p80.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Monument** **FieldNote** **Feature**
used by	element **Equipment**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
manufacturer	**xs:string**				
model	**xs:string**				
serialNumber	**xs:string**				

	latitude **xs:double** longitude **xs:double** altitude **xs:double** ellipsiodalHeight **xs:double** orthometricHeight **xs:double**
source	<xs:element name="GPSAntennaDetails"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="Monument" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:sequence> <xs:attribute name="id" type="xs:ID" use="required"/> <xs:attribute name="manufacturer" type="xs:string"/> <xs:attribute name="model" type="xs:string"/> <xs:attribute name="serialNumber" type="xs:string"/> <xs:attribute name="latitude" type="xs:double"/> <xs:attribute name="longitude" type="xs:double"/> <xs:attribute name="altitude" type="xs:double"/> <xs:attribute name="ellipsiodalHeight" type="xs:double"/> <xs:attribute name="orthometricHeight" type="xs:double"/> </xs:complexType> </xs:element>

attribute **GPSAntennaDetails/@id**

type	**xs:ID**
properties	isRef 0 use required
source	<xs:attribute name="id" type="xs:ID" use="required"/>

attribute **GPSAntennaDetails/@manufacturer**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="manufacturer" type="xs:string"/>

attribute **GPSAntennaDetails/@model**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="model" type="xs:string"/>

attribute **GPSAntennaDetails/@serialNumber**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="serialNumber" type="xs:string"/>

attribute **GPSAntennaDetails/@latitude**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="latitude" type="xs:double"/>

attribute **GPSAntennaDetails/@longitude**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="longitude" type="xs:double"/>

attribute **GPSAntennaDetails/@altitude**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="altitude" type="xs:double"/>

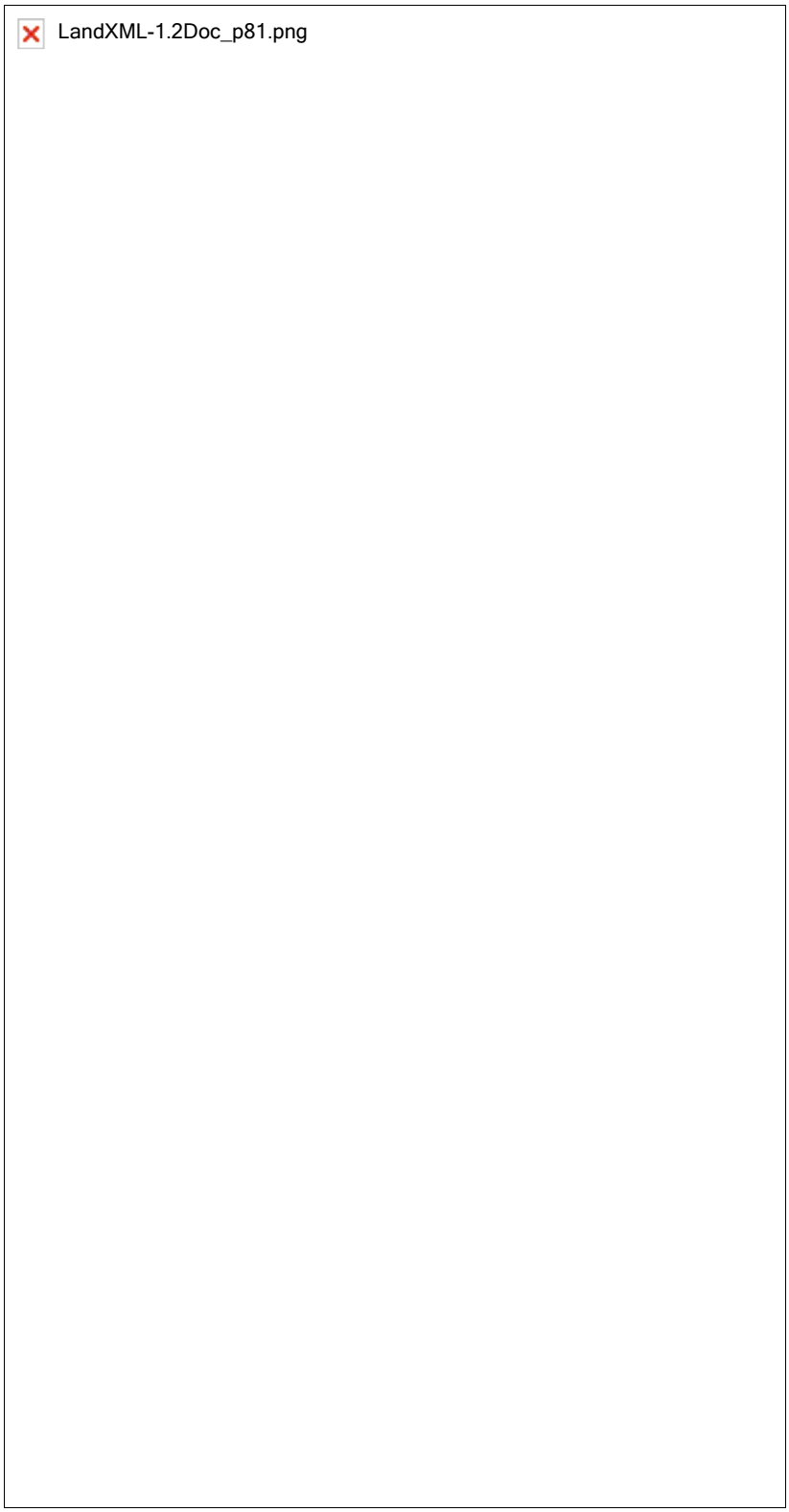
attribute **GPSAntennaDetails/@ellipsiodalHeight**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="ellipsiodalHeight" type="xs:double"/>

attribute **GPSAntennaDetails/@orthometricHeight**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="orthometricHeight" type="xs:double"/>

element **GPSPosition**

diagram	 LandXML-1.2Doc_p81.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetPoint GPSQCInfoLevel1 GPSQCInfoLevel2 FieldNote Feature**
used by	elements **GPSSetup Survey**

attributes	Name	Type	Use	Default	Fixed	annotation
	setupID	**xs:IDREF**				

	setID		
	wgsHeight	**xs:double**	required
	wgsLatitude	**xs:double**	required
	wgsLongitude	**xs:double**	required
	purpose		
	coordGeomRefs	**coordGeomNameRefs**	
	pntRef	**pointNameRef**	

source

```
<xs:element name="GPSPosition">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="TargetPoint"/>
      <xs:element ref="GPSQCInfoLevel1" minOccurs="0"/>
      <xs:element ref="GPSQCInfoLevel2" minOccurs="0"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="setupID" type="xs:IDREF"/>
    <xs:attribute name="setID"/>
    <xs:attribute name="wgsHeight" type="xs:double" use="required"/>
    <xs:attribute name="wgsLatitude" type="xs:double" use="required"/>
    <xs:attribute name="wgsLongitude" type="xs:double" use="required"/>
    <xs:attribute name="purpose"/>
    <xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>
    <xs:attribute name="pntRef" type="pointNameRef"/>
    <!-- coordGeomRefs identifies one or more 'name' values that link to specific <Line>, <Curve>,
<Spiral> or <IrregularLine> in a <CoordGeom> element. This allows linking an survey observation to
specific <Parcel>.<CoordGeom> based geometry. -->
  </xs:complexType>
</xs:element>
```

attribute **GPSPosition/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	`<xs:attribute name="setupID" type="xs:IDREF"/>`

attribute **GPSPosition/@setID**

properties	isRef 0
source	`<xs:attribute name="setID"/>`

attribute **GPSPosition/@wgsHeight**

type	**xs:double**
properties	isRef 0 use required
source	`<xs:attribute name="wgsHeight" type="xs:double" use="required"/>`

attribute **GPSPosition/@wgsLatitude**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="wgsLatitude" type="xs:double" use="required"/>

attribute **GPSPosition/@wgsLongitude**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="wgsLongitude" type="xs:double" use="required"/>

attribute **GPSPosition/@purpose**

properties	isRef 0
source	<xs:attribute name="purpose"/>

attribute **GPSPosition/@coordGeomRefs**

type	**coordGeomNameRefs**
properties	isRef 0
source	<xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>

attribute **GPSPosition/@pntRef**

type	**pointNameRef**
properties	isRef 0
source	<xs:attribute name="pntRef" type="pointNameRef"/>

element **GPSQCInfoLevel1**

diagram	LandXML-1.2Doc_p82.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	elements **GPSPosition** **GPSVector**
attributes	Name Type Use Default Fixed annotation

	GPSSolnType **GPSSolutionTypeEnum** GPSSolnFreq **GPSSolutionFrequencyEnum** nbrSatellites **xs:integer** RDOP **xs:double**
annotation	documentation GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week
source	<xs:element name="GPSQCInfoLevel1"> <xs:annotation> <xs:documentation>GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week </xs:documentation> </xs:annotation> <xs:complexType> <xs:attribute name="GPSSolnType" type="GPSSolutionTypeEnum"/> <xs:attribute name="GPSSolnFreq" type="GPSSolutionFrequencyEnum"/> <xs:attribute name="nbrSatellites" type="xs:integer"/> <xs:attribute name="RDOP" type="xs:double"/> </xs:complexType> </xs:element>

attribute **GPSQCInfoLevel1/@GPSSolnType**

type	**GPSSolutionTypeEnum**
properties	isRef 0
facets	enumeration Unknown enumeration Code enumeration Float enumeration Fixed enumeration Network Float enumeration Network Fixed enumeration WAAS Float enumeration WAAS Fixed
source	<xs:attribute name="GPSSolnType" type="GPSSolutionTypeEnum"/>

attribute **GPSQCInfoLevel1/@GPSSolnFreq**

type	**GPSSolutionFrequencyEnum**
properties	isRef 0
facets	enumeration Unknown enumeration L1 enumeration L2 enumeration L2 Squared enumeration Wide Lane enumeration Narrow Lane enumeration Iono Free
source	<xs:attribute name="GPSSolnFreq" type="GPSSolutionFrequencyEnum"/>

attribute **GPSQCInfoLevel1/@nbrSatellites**

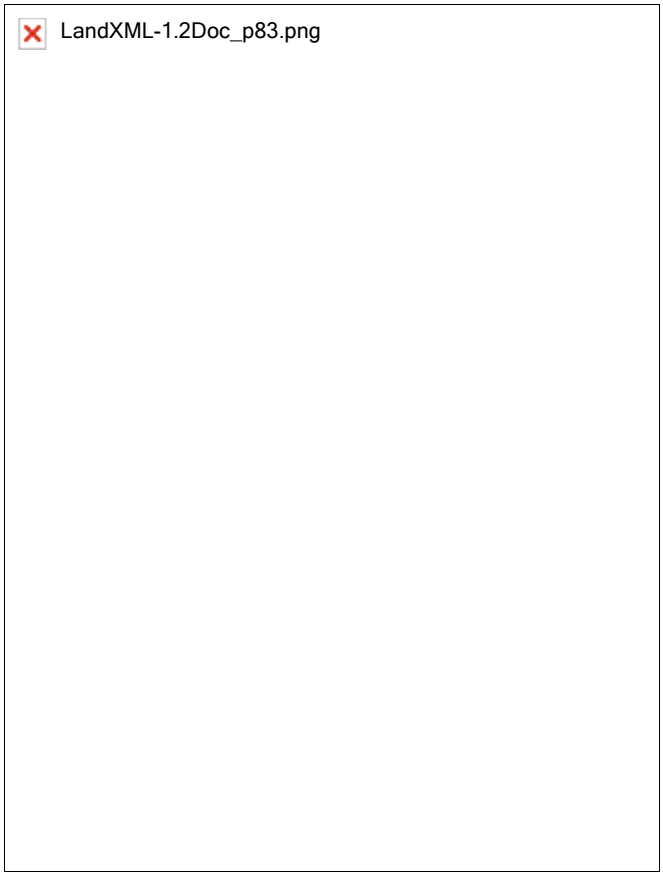
type	**xs:integer**
properties	isRef 0

source	<xs:attribute name="nbrSatellites" type="xs:integer"/>

attribute **GPSQCInfoLevel1/@RDOP**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="RDOP" type="xs:double"/>

element **GPSQCInfoLevel2**

diagram	 LandXML-1.2Doc_p83.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	elements **GPSPosition** **GPSVector**

attributes

Name	Type	Use	Default	Fixed	annotation
covarianceXX	**xs:double**				
covarianceXY	**xs:double**				
covarianceXZ	**xs:double**				
covarianceYY	**xs:double**				
covarianceYZ	**xs:double**				
covarianceZZ	**xs:double**				
GPSSolnType	**GPSSolutionTypeEnum**				
GPSSolnFreq	**GPSSolutionFrequencyEnum**				
RMS	**xs:double**				
ratio	**xs:double**				
referenceVariance	**xs:double**				
nbrSatellites	**xs:integer**				

	startTime **GPSTime** stopTime **GPSTime**
source	<xs:element name="GPSQCInfoLevel2"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:attribute name="covarianceXX" type="xs:double"/> <xs:attribute name="covarianceXY" type="xs:double"/> <xs:attribute name="covarianceXZ" type="xs:double"/> <xs:attribute name="covarianceYY" type="xs:double"/> <xs:attribute name="covarianceYZ" type="xs:double"/> <xs:attribute name="covarianceZZ" type="xs:double"/> <xs:attribute name="GPSSolnType" type="GPSSolutionTypeEnum"/> <xs:attribute name="GPSSolnFreq" type="GPSSolutionFrequencyEnum"/> <xs:attribute name="RMS" type="xs:double"/> <xs:attribute name="ratio" type="xs:double"/> <xs:attribute name="referenceVariance" type="xs:double"/> <xs:attribute name="nbrSatellites" type="xs:integer"/> <xs:attribute name="startTime" type="GPSTime"/> <xs:attribute name="stopTime" type="GPSTime"/> <!-- GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week --> </xs:complexType> </xs:element>

attribute **GPSQCInfoLevel2/@covarianceXX**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="covarianceXX" type="xs:double"/>

attribute **GPSQCInfoLevel2/@covarianceXY**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="covarianceXY" type="xs:double"/>

attribute **GPSQCInfoLevel2/@covarianceXZ**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="covarianceXZ" type="xs:double"/>

attribute **GPSQCInfoLevel2/@covarianceYY**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="covarianceYY" type="xs:double"/>

attribute **GPSQCInfoLevel2/@covarianceYZ**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="covarianceYZ" type="xs:double"/>

attribute **GPSQCInfoLevel2/@covarianceZZ**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="covarianceZZ" type="xs:double"/>

attribute **GPSQCInfoLevel2/@GPSSolnType**

type	**GPSSolutionTypeEnum**
properties	isRef 0
facets	enumeration Unknown enumeration Code enumeration Float enumeration Fixed enumeration Network Float enumeration Network Fixed enumeration WAAS Float enumeration WAAS Fixed
source	<xs:attribute name="GPSSolnType" type="GPSSolutionTypeEnum"/>

attribute **GPSQCInfoLevel2/@GPSSolnFreq**

type	**GPSSolutionFrequencyEnum**
properties	isRef 0
facets	enumeration Unknown enumeration L1 enumeration L2 enumeration L2 Squared enumeration Wide Lane enumeration Narrow Lane enumeration Iono Free
source	<xs:attribute name="GPSSolnFreq" type="GPSSolutionFrequencyEnum"/>

attribute **GPSQCInfoLevel2/@RMS**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="RMS" type="xs:double"/>

attribute **GPSQCInfoLevel2/@ratio**

type	**xs:double**

properties	isRef 0
source	<xs:attribute name="ratio" type="xs:double"/>

attribute **GPSQCInfoLevel2/@referenceVariance**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="referenceVariance" type="xs:double"/>

attribute **GPSQCInfoLevel2/@nbrSatellites**

type	**xs:integer**
properties	isRef 0
source	<xs:attribute name="nbrSatellites" type="xs:integer"/>

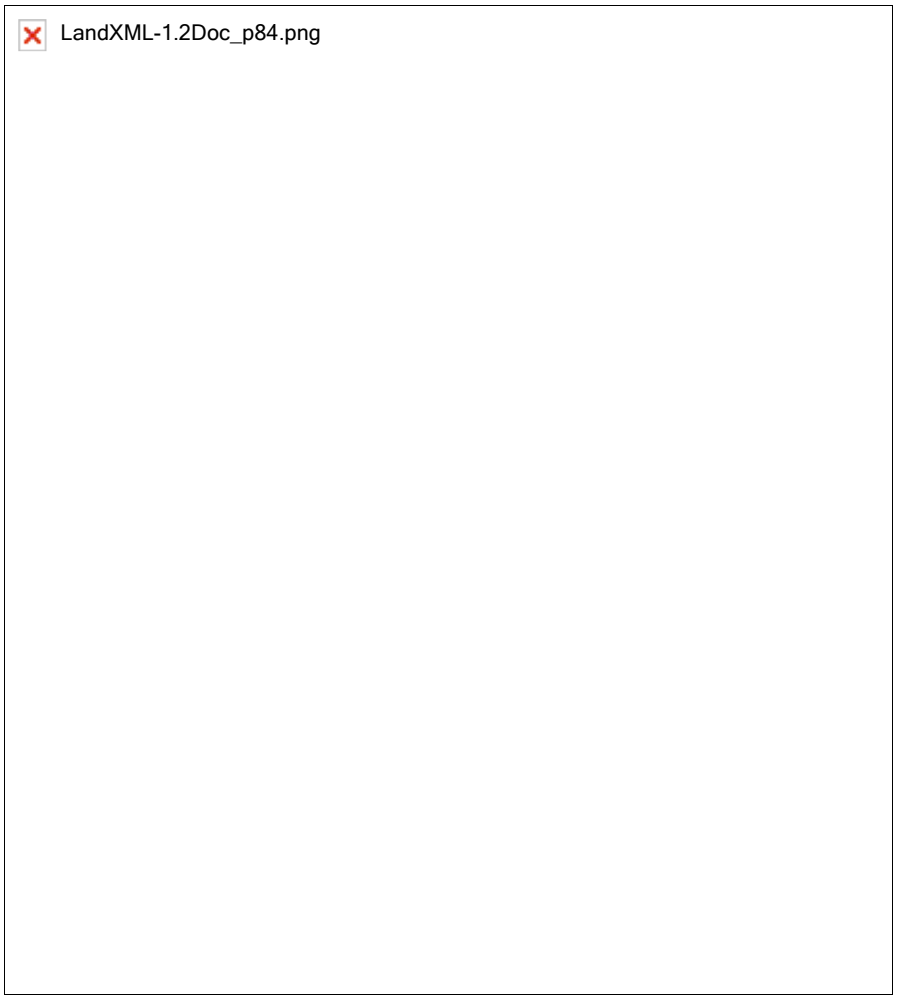
attribute **GPSQCInfoLevel2/@startTime**

type	**GPSTime**
properties	isRef 0
source	<xs:attribute name="startTime" type="GPSTime"/>

attribute **GPSQCInfoLevel2/@stopTime**

type	**GPSTime**
properties	isRef 0
source	<xs:attribute name="stopTime" type="GPSTime"/>

element **GPSReceiverDetails**

diagram	 LandXML-1.2Doc_p84.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**FieldNote** **Feature**
used by	element **Equipment**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
manufacturer	**xs:string**				
model	**xs:string**				
serialNumber	**xs:string**				

source

```
<xs:element name="GPSReceiverDetails">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="manufacturer" type="xs:string"/>
    <xs:attribute name="model" type="xs:string"/>
```

```
    <xs:attribute name="serialNumber" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **GPSReceiverDetails/@id**

type	**xs:ID**
properties	isRef 0 use required
source	<xs:attribute name="id" type="xs:ID" use="required"/>

attribute **GPSReceiverDetails/@manufacturer**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="manufacturer" type="xs:string"/>

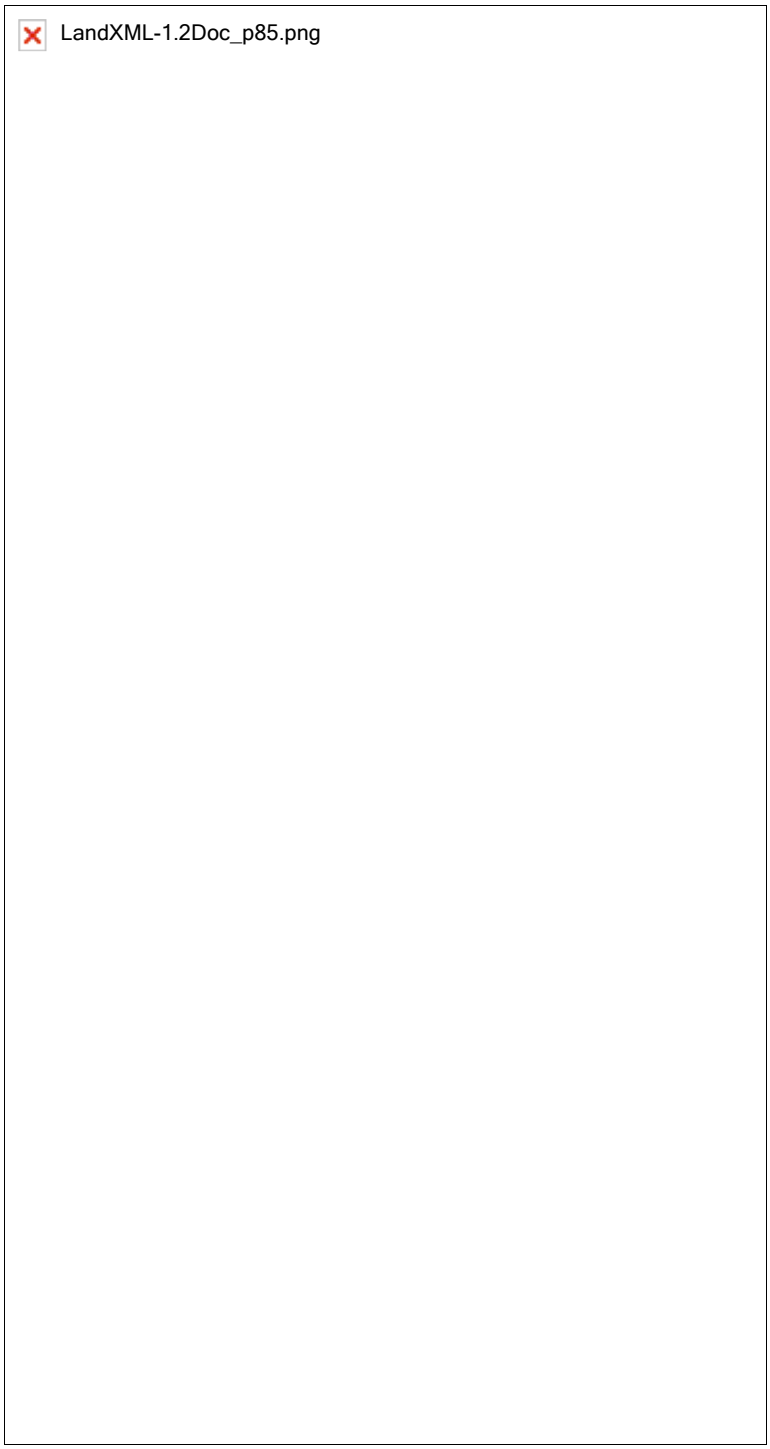
attribute **GPSReceiverDetails/@model**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="model" type="xs:string"/>

attribute **GPSReceiverDetails/@serialNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="serialNumber" type="xs:string"/>

element **GPSSetup**

diagram	 LandXML-1.2Doc_p85.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetSetup GPSPosition FieldNote Feature**
used by	element **Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
antennaHeight	**xs:double**	required			
stationName		required			
GPSAntennaDetailsID	**xs:IDREF**				

	GPSReceiverDetailsID **xs:IDREF** observationDataLink stationDescription startTime **GPSTime** stopTime **GPSTime**
source	<xs:element name="GPSSetup"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="TargetSetup" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="GPSPosition"/> <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:sequence> <xs:attribute name="id" type="xs:ID" use="required"/> <xs:attribute name="antennaHeight" type="xs:double" use="required"/> <xs:attribute name="stationName" use="required"/> <xs:attribute name="GPSAntennaDetailsID" type="xs:IDREF"/> <xs:attribute name="GPSReceiverDetailsID" type="xs:IDREF"/> <xs:attribute name="observationDataLink"/> <xs:attribute name="stationDescription"/> <xs:attribute name="startTime" type="GPSTime"/> <xs:attribute name="stopTime" type="GPSTime"/> <!-- GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week --> </xs:complexType> </xs:element>

attribute **GPSSetup/@id**

type	**xs:ID**
properties	isRef 0 use required
source	<xs:attribute name="id" type="xs:ID" use="required"/>

attribute **GPSSetup/@antennaHeight**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="antennaHeight" type="xs:double" use="required"/>

attribute **GPSSetup/@stationName**

properties	isRef 0 use required
source	<xs:attribute name="stationName" use="required"/>

attribute **GPSSetup/@GPSAntennaDetailsID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="GPSAntennaDetailsID" type="xs:IDREF"/>

attribute **GPSSetup/@GPSReceiverDetailsID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="GPSReceiverDetailsID" type="xs:IDREF"/>

attribute **GPSSetup/@observationDataLink**

properties	isRef 0
source	<xs:attribute name="observationDataLink"/>

attribute **GPSSetup/@stationDescription**

properties	isRef 0
source	<xs:attribute name="stationDescription"/>

attribute **GPSSetup/@startTime**

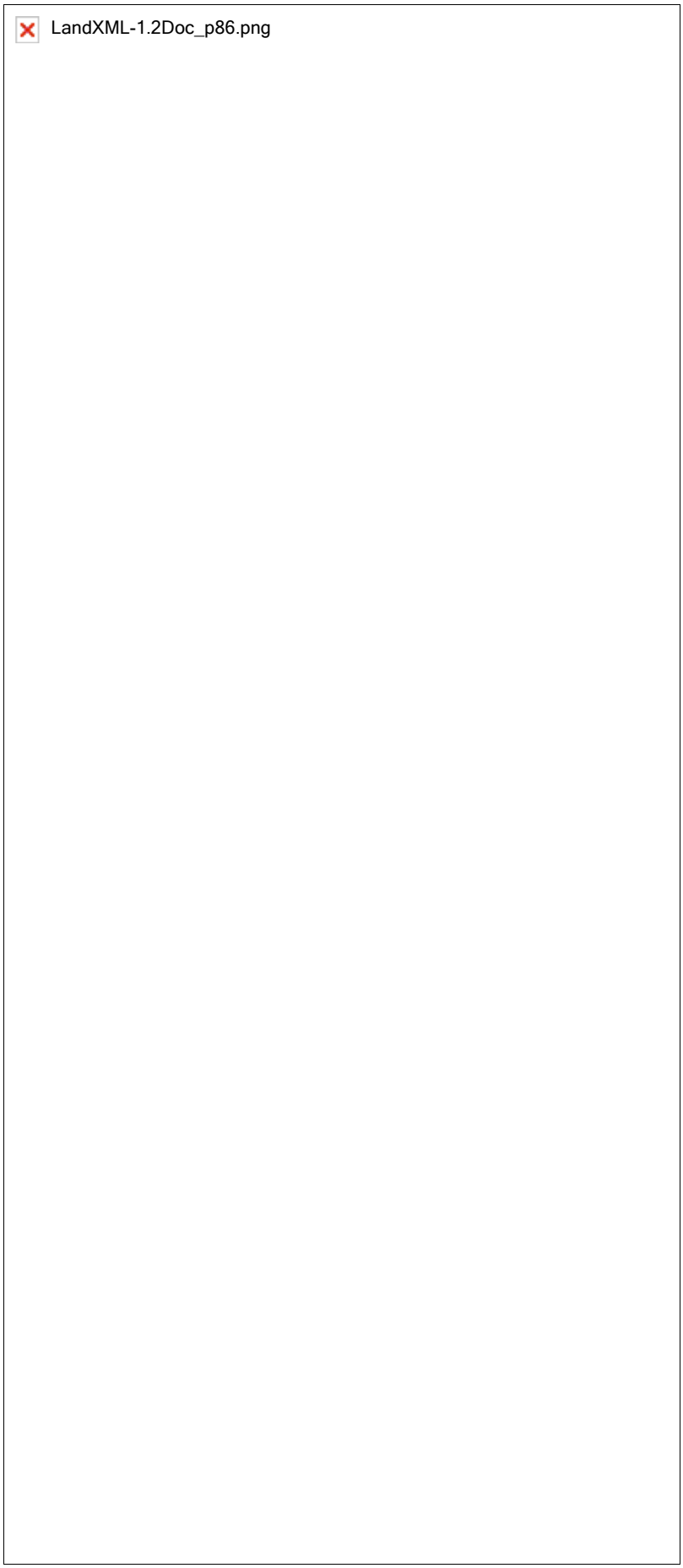
type	**GPSTime**
properties	isRef 0
source	<xs:attribute name="startTime" type="GPSTime"/>

attribute **GPSSetup/@stopTime**

type	**GPSTime**
properties	isRef 0
source	<xs:attribute name="stopTime" type="GPSTime"/>

element **GPSVector**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetPoint GPSQCInfoLevel1 GPSQCInfoLevel2 FieldNote Feature**
used by	element **Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
dX	**xs:double**	required			
dY	**xs:double**	required			
dZ	**xs:double**	required			
setupID_A	**xs:IDREF**	required			
setupID_B	**xs:IDREF**	required			
startTime	**xs:dateTime**	optional			
endTime	**xs:dateTime**	optional			
horizontalPrecision	**xs:double**	optional			
verticalPrecision	**xs:double**	optional			
purpose	**purposeType**				
setID					
solutionDataLink					
coordGeomRefs	**coordGeomNameRefs**				

source

```
<xs:element name="GPSVector">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="TargetPoint"/>
      <xs:element ref="GPSQCInfoLevel1" minOccurs="0"/>
      <xs:element ref="GPSQCInfoLevel2" minOccurs="0"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="dX" type="xs:double" use="required"/>
    <xs:attribute name="dY" type="xs:double" use="required"/>
    <xs:attribute name="dZ" type="xs:double" use="required"/>
    <xs:attribute name="setupID_A" type="xs:IDREF" use="required"/>
    <xs:attribute name="setupID_B" type="xs:IDREF" use="required"/>
    <xs:attribute name="startTime" type="xs:dateTime" use="optional"/>
    <xs:attribute name="endTime" type="xs:dateTime" use="optional"/>
    <xs:attribute name="horizontalPrecision" type="xs:double" use="optional"/>
    <xs:attribute name="verticalPrecision" type="xs:double" use="optional"/>
    <xs:attribute name="purpose" type="purposeType"/>
    <xs:attribute name="setID"/>
    <xs:attribute name="solutionDataLink"/>
    <xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>
    <!-- coordGeomRefs identifies one or more 'name' values that link to specific <Line>, <Curve>,
<Spiral> or <IrregularLine> in a <CoordGeom> element. This allows linking an survey observation to
specific <Parcel>.<CoordGeom> based geometry. -->
  </xs:complexType>
</xs:element>
```

attribute **GPSVector/@dX**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="dX" type="xs:double" use="required"/>

attribute **GPSVector/@dY**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="dY" type="xs:double" use="required"/>

attribute **GPSVector/@dZ**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="dZ" type="xs:double" use="required"/>

attribute **GPSVector/@setupID_A**

type	**xs:IDREF**
properties	isRef 0 use required
source	<xs:attribute name="setupID_A" type="xs:IDREF" use="required"/>

attribute **GPSVector/@setupID_B**

type	**xs:IDREF**
properties	isRef 0 use required
source	<xs:attribute name="setupID_B" type="xs:IDREF" use="required"/>

attribute **GPSVector/@startTime**

type	**xs:dateTime**
properties	isRef 0 use optional
source	<xs:attribute name="startTime" type="xs:dateTime" use="optional"/>

attribute **GPSVector/@endTime**

type	**xs:dateTime**
properties	isRef 0 use optional
source	<xs:attribute name="endTime" type="xs:dateTime" use="optional"/>

attribute **GPSVector/@horizontalPrecision**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="horizontalPrecision" type="xs:double" use="optional"/>

attribute **GPSVector/@verticalPrecision**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="verticalPrecision" type="xs:double" use="optional"/>

attribute **GPSVector/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **GPSVector/@setID**

properties	isRef 0
source	<xs:attribute name="setID"/>

attribute **GPSVector/@solutionDataLink**

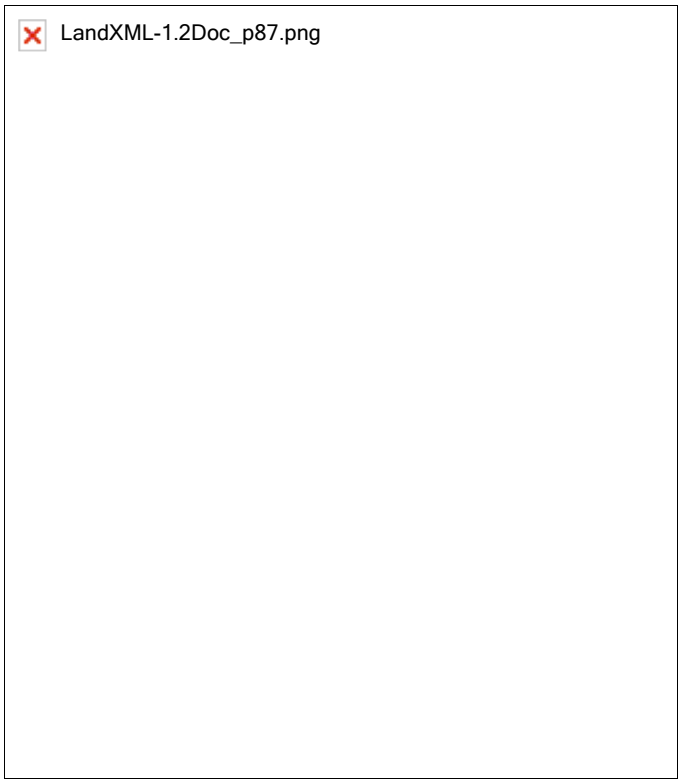
properties	isRef 0
source	<xs:attribute name="solutionDataLink"/>

attribute **GPSVector/@coordGeomRefs**

type	**coordGeomNameRefs**
properties	isRef 0

source	<xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>

element **GradeModel**

diagram	 LandXML-1.2Doc_p87.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**GradeSurface** **Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

source

```
<xs:element name="GradeModel">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="GradeSurface" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **GradeModel/@desc**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="desc" type="xs:string"/>

attribute **GradeModel/@name**

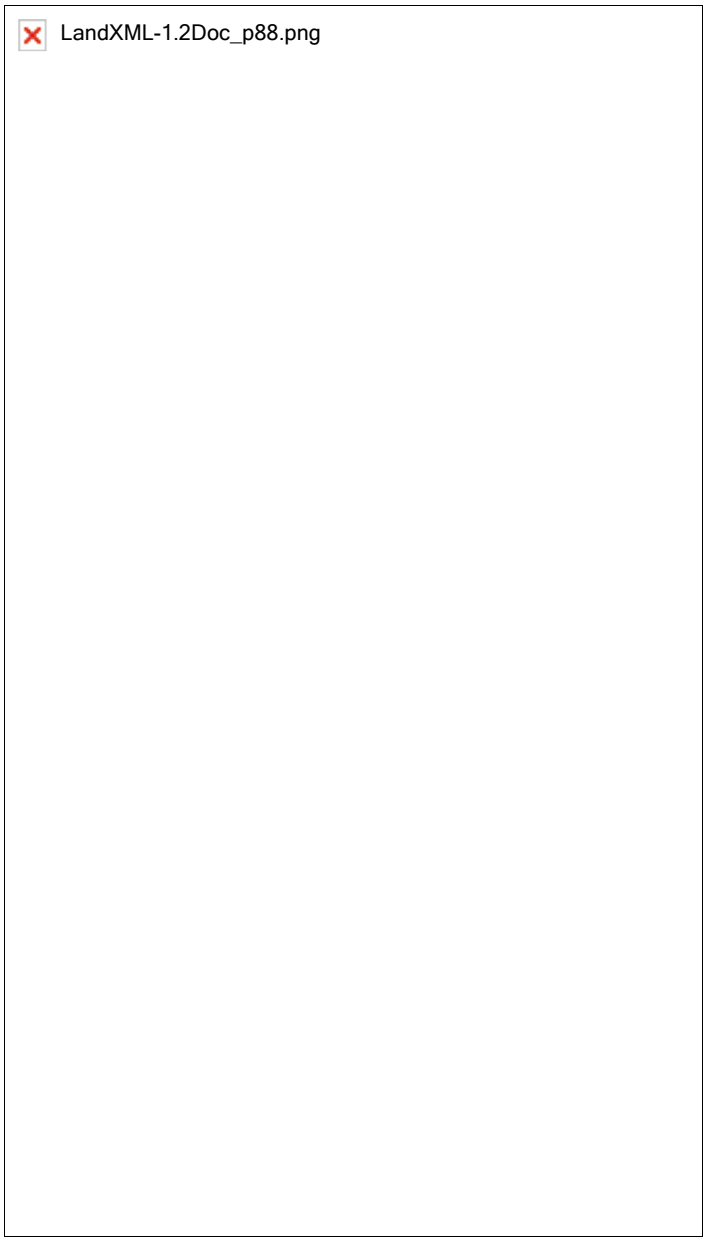
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **GradeModel/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **GradeSurface**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Start** **Zones** **Feature**

used by element **GradeModel**

attributes

Name	Type	Use	Default	Fixed	annotation
alignmentRef	**alignmentNameRef**	required			
stationAlignmentRef	**alignmentNameRef**				
surfaceType	**zoneSurfaceType**	required			
surfaceRef	**surfaceNameRef**				
surfaceRefs	**surfaceNameRefs**				
cgPointRefs	**pointNameRefs**				
name	**xs:string**				
desc	**xs:string**				
state	**stateType**				

source
```
<xs:element name="GradeSurface">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="Start" minOccurs="0"/>
      <xs:element ref="Zones" maxOccurs="2"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="alignmentRef" type="alignmentNameRef" use="required"/>
    <xs:attribute name="stationAlignmentRef" type="alignmentNameRef"/>
    <xs:attribute name="surfaceType" type="zoneSurfaceType" use="required"/>
    <xs:attribute name="surfaceRef" type="surfaceNameRef"/>
    <xs:attribute name="surfaceRefs" type="surfaceNameRefs"/>
    <xs:attribute name="cgPointRefs" type="pointNameRefs"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **GradeSurface/@alignmentRef**

type	**alignmentNameRef**
properties	isRef 0 use required
source	<xs:attribute name="alignmentRef" type="alignmentNameRef" use="required"/>

attribute **GradeSurface/@stationAlignmentRef**

type	**alignmentNameRef**
properties	isRef 0
source	<xs:attribute name="stationAlignmentRef" type="alignmentNameRef"/>

attribute **GradeSurface/@surfaceType**

type	**zoneSurfaceType**
properties	isRef 0 use required
facets	enumeration finalSurface enumeration subgrade
source	<xs:attribute name="surfaceType" type="zoneSurfaceType" use="required"/>

attribute **GradeSurface/@surfaceRef**

type	**surfaceNameRef**
properties	isRef 0
source	<xs:attribute name="surfaceRef" type="surfaceNameRef"/>

attribute **GradeSurface/@surfaceRefs**

type	**surfaceNameRefs**

properties	isRef 0
source	<xs:attribute name="surfaceRefs" type="surfaceNameRefs"/>

attribute **GradeSurface/@cgPointRefs**

type	**pointNameRefs**
properties	isRef 0
source	<xs:attribute name="cgPointRefs" type="pointNameRefs"/>

attribute **GradeSurface/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **GradeSurface/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **GradeSurface/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **HazardRating**

diagram	LandXML-1.2Doc_p89.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadside**
attributes	Name Type Use Default Fixed annotation staStart **station** staEnd **station** rating **xs:int**
source	<xs:element name="HazardRating"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="staStart" type="station"/> <xs:attribute name="staEnd" type="station"/> <xs:attribute name="rating" type="xs:int"/> <!-- Unit of measure: INT. Roadside Hazard Rating - The roadside hazard rating for both sides of the road. The enumeration values are: 1, 2, 3, 4, 5, 6 and 7. --> </xs:complexType> </xs:element>

attribute **HazardRating/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **HazardRating/@staEnd**

type	**station**

properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **HazardRating/@rating**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="rating" type="xs:int"/>

element **HeadOfPower**

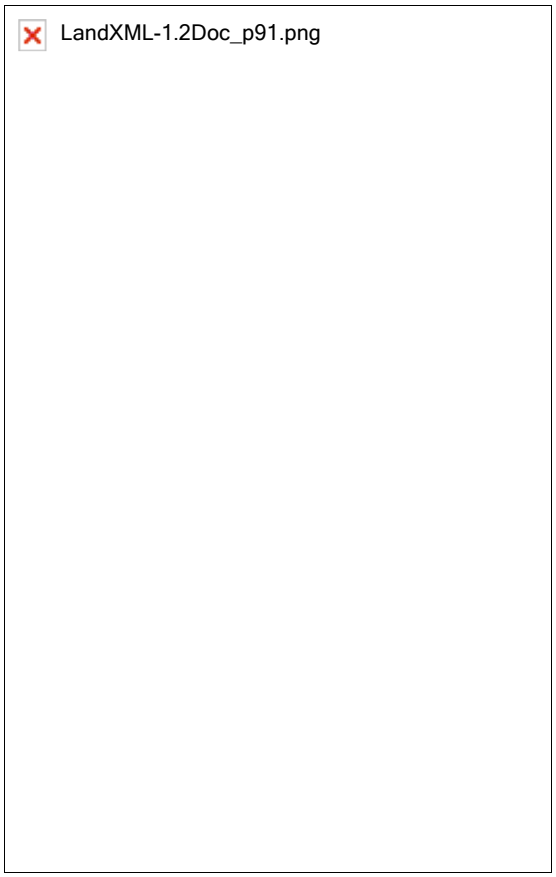
diagram	LandXML-1.2Doc_p90.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **SurveyHeader**
attributes	Name Type Use Default Fixed annotation name **headOfPowerType** required
source	<xs:element name="HeadOfPower"> <xs:complexType> <xs:attribute name="name" type="headOfPowerType" use="required"/> </xs:complexType> </xs:element>

attribute **HeadOfPower/@name**

type	**headOfPowerType**
properties	isRef 0 use required
source	<xs:attribute name="name" type="headOfPowerType" use="required"/>

element **Imperial**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

used by element **Units**

attributes

Name	Type	Use	Default	Fixed	annotation
areaUnit	**impArea**	required			
linearUnit	**impLinear**	required			
volumeUnit	**impVolume**	required			
temperatureUnit	**impTemperature**	required			
pressureUnit	**impPressure**	required			
diameterUnit	**impDiameter**				
widthUnit	**impWidth**				
heightUnit	**impHeight**				
velocityUnit	**impVelocity**				
flowUnit	**impFlow**				
angularUnit	**angularType**		radians		
directionUnit	**angularType**		radians		
latLongAngularUnit	**latLongAngularType**		decimal degrees		
elevationUnit	**elevationType**		meter		

source

```
<xs:element name="Imperial">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="areaUnit" type="impArea" use="required"/>
    <xs:attribute name="linearUnit" type="impLinear" use="required"/>
    <xs:attribute name="volumeUnit" type="impVolume" use="required"/>
    <xs:attribute name="temperatureUnit" type="impTemperature" use="required"/>
```

```
    <xs:attribute name="pressureUnit" type="impPressure" use="required"/>
    <xs:attribute name="diameterUnit" type="impDiameter"/>
    <xs:attribute name="widthUnit" type="impWidth"/>
    <xs:attribute name="heightUnit" type="impHeight"/>
    <xs:attribute name="velocityUnit" type="impVelocity"/>
    <xs:attribute name="flowUnit" type="impFlow"/>
    <xs:attribute name="angularUnit" type="angularType" default="radians"/>
    <xs:attribute name="directionUnit" type="angularType" default="radians"/>
    <xs:attribute name="latLongAngularUnit" type="latLongAngularType" default="decimal degrees"/>
    <xs:attribute name="elevationUnit" type="elevationType" default="meter"/>
  </xs:complexType>
</xs:element>
```

attribute **Imperial/@areaUnit**

type	**impArea**
properties	isRef 0 use required
facets	enumeration acre enumeration squareFoot enumeration squareInch enumeration squareMiles
source	<xs:attribute name="areaUnit" type="impArea" use="required"/>

attribute **Imperial/@linearUnit**

type	**impLinear**
properties	isRef 0 use required
facets	enumeration foot enumeration USSurveyFoot enumeration inch enumeration mile
source	<xs:attribute name="linearUnit" type="impLinear" use="required"/>

attribute **Imperial/@volumeUnit**

type	**impVolume**
properties	isRef 0 use required
facets	enumeration US_gallon enumeration IMP_gallon enumeration cubicInch enumeration cubicFeet enumeration cubicYard enumeration acreFeet
source	<xs:attribute name="volumeUnit" type="impVolume" use="required"/>

attribute **Imperial/@temperatureUnit**

type	**impTemperature**
properties	isRef 0 use required
facets	enumeration fahrenheit enumeration kelvin
source	<xs:attribute name="temperatureUnit" type="impTemperature" use="required"/>

attribute **Imperial/@pressureUnit**

type	**impPressure**
properties	isRef 0 use required
facets	enumeration inchHG enumeration inHG
source	<xs:attribute name="pressureUnit" type="impPressure" use="required"/>

attribute **Imperial/@diameterUnit**

type	**impDiameter**
properties	isRef 0
facets	enumeration foot enumeration USSurveyFoot enumeration inch
source	<xs:attribute name="diameterUnit" type="impDiameter"/>

attribute **Imperial/@widthUnit**

type	**impWidth**
properties	isRef 0
facets	enumeration foot enumeration USSurveyFoot enumeration inch
source	<xs:attribute name="widthUnit" type="impWidth"/>

attribute **Imperial/@heightUnit**

type	**impHeight**
properties	isRef 0
facets	enumeration foot enumeration USSurveyFoot enumeration inch
source	<xs:attribute name="heightUnit" type="impHeight"/>

attribute **Imperial/@velocityUnit**

type	**impVelocity**
properties	isRef 0
facets	enumeration feetPerSecond enumeration milesPerHour
source	<xs:attribute name="velocityUnit" type="impVelocity"/>

attribute **Imperial/@flowUnit**

type	**impFlow**
properties	isRef 0
facets	enumeration US_gallonPerDay enumeration IMP_gallonPerDay enumeration cubicFeetDay enumeration US_gallonPerMinute enumeration IMP_gallonPerMinute enumeration acreFeetDay enumeration cubicFeetSecond
source	<xs:attribute name="flowUnit" type="impFlow"/>

attribute **Imperial/@angularUnit**

type	**angularType**
properties	isRef 0 default radians
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
source	<xs:attribute name="angularUnit" type="angularType" default="radians"/>

attribute **Imperial/@directionUnit**

type	**angularType**
properties	isRef 0 default radians
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
source	<xs:attribute name="directionUnit" type="angularType" default="radians"/>

attribute **Imperial/@latLongAngularUnit**

type	**latLongAngularType**
properties	isRef 0 default decimal degrees

facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
source	<xs:attribute name="latLongAngularUnit" type="latLongAngularType" default="decimal degrees"/>

attribute **Imperial/@elevationUnit**

type	**elevationType**
properties	isRef 0 default meter
facets	enumeration meter enumeration kilometer enumeration feet enumeration miles
source	<xs:attribute name="elevationUnit" type="elevationType" default="meter"/>

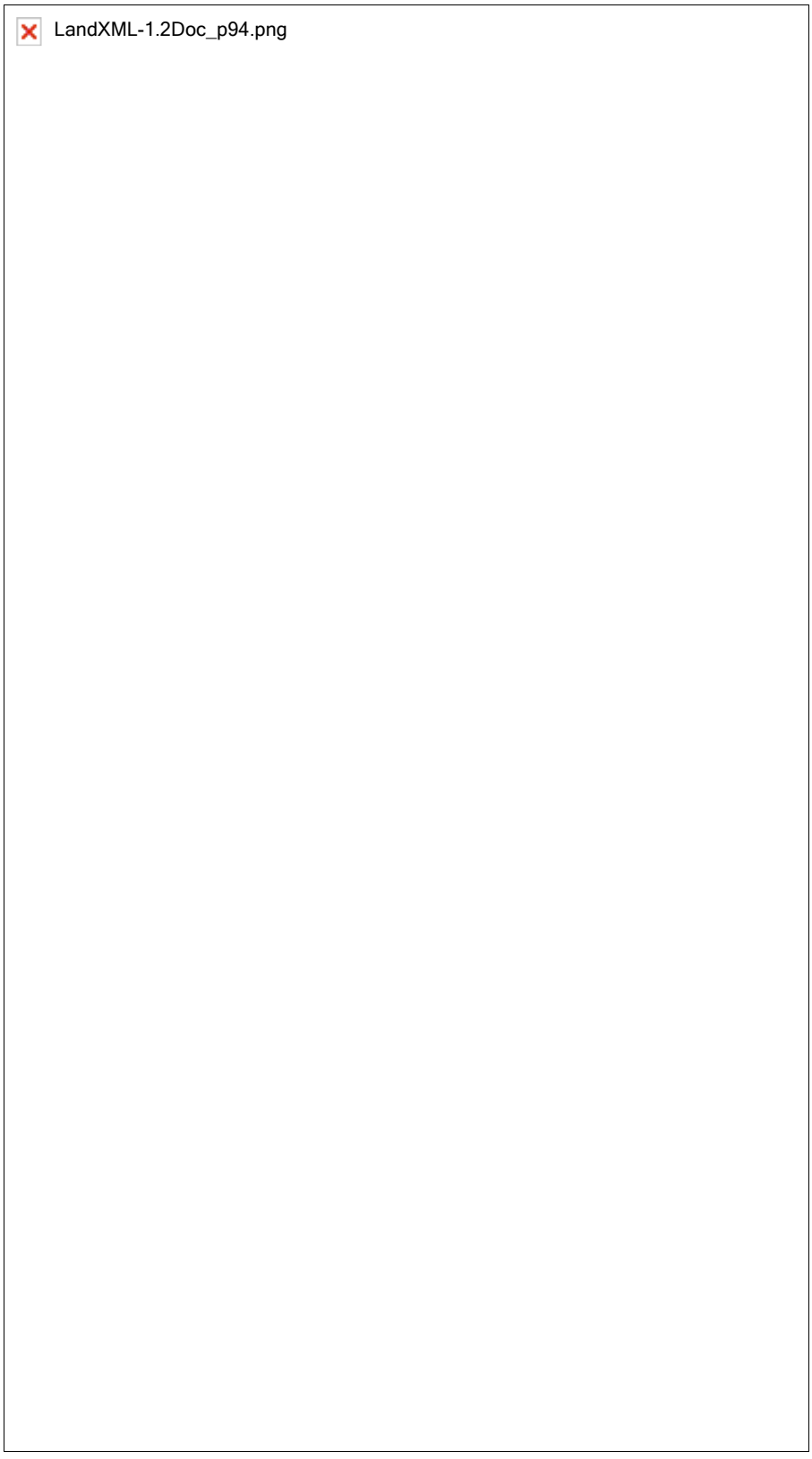
element **InletStruct**

diagram	LandXML-1.2Doc_p92.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Struct**
source	<xs:element name="InletStruct"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **InSpiral**

diagram	LandXML-1.2Doc_p93.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Spiral**
used by	element **AlignPI**
annotation	documentation In Spiral Definition
source	<xs:element name="InSpiral"> <xs:annotation> <xs:documentation>In Spiral Definition</xs:documentation> </xs:annotation> <xs:complexType> <xs:all> <xs:element ref="Spiral"/> </xs:all> </xs:complexType> </xs:element>

element **InstrumentDetails**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Corrections FieldNote Feature**
used by	element **Equipment**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
edmAccuracyConstant	**xs:double**				
edmAccuracyppm	**xs:double**				
edmVertOffset	**xs:double**				
horizAnglePrecision	**xs:double**				
manufacturer	**xs:string**				
model	**xs:string**				
serialNumber	**xs:string**				
zenithAnglePrecision	**xs:double**				
carrierWavelength	**xs:double**				
refractiveIndex	**xs:double**				
horizCollimation	**xs:double**				
vertCollimation	**xs:double**				
stadiaFactor	**xs:double**				

source

```
<xs:element name="InstrumentDetails">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Corrections"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="edmAccuracyConstant" type="xs:double"/>
    <xs:attribute name="edmAccuracyppm" type="xs:double"/>
    <xs:attribute name="edmVertOffset" type="xs:double"/>
    <xs:attribute name="horizAnglePrecision" type="xs:double"/>
    <xs:attribute name="manufacturer" type="xs:string"/>
    <xs:attribute name="model" type="xs:string"/>
    <xs:attribute name="serialNumber" type="xs:string"/>
    <xs:attribute name="zenithAnglePrecision" type="xs:double"/>
    <xs:attribute name="carrierWavelength" type="xs:double"/>
    <xs:attribute name="refractiveIndex" type="xs:double"/>
    <xs:attribute name="horizCollimation" type="xs:double"/>
    <xs:attribute name="vertCollimation" type="xs:double"/>
    <xs:attribute name="stadiaFactor" type="xs:double"/>
    <!-- In order to compute the atmospheric corrections correctly record the
EDM instrument carrier wavelength (carrierWavelength) and the group refractive index
for the instrument (refractiveIndex). -->
    <!-- To allow for older style top mounted EDM's -->
  </xs:complexType>
</xs:element>
```

attribute **InstrumentDetails/@id**

type **xs:ID**

properties
isRef 0
use required

source

```
<xs:attribute name="id" type="xs:ID" use="required"/>
```

attribute **InstrumentDetails/@edmAccuracyConstant**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="edmAccuracyConstant" type="xs:double"/>

attribute **InstrumentDetails/@edmAccuracyppm**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="edmAccuracyppm" type="xs:double"/>

attribute **InstrumentDetails/@edmVertOffset**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="edmVertOffset" type="xs:double"/>

attribute **InstrumentDetails/@horizAnglePrecision**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="horizAnglePrecision" type="xs:double"/>

attribute **InstrumentDetails/@manufacturer**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="manufacturer" type="xs:string"/>

attribute **InstrumentDetails/@model**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="model" type="xs:string"/>

attribute **InstrumentDetails/@serialNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="serialNumber" type="xs:string"/>

attribute **InstrumentDetails/@zenithAnglePrecision**

type	**xs:double**

properties	isRef 0
source	<xs:attribute name="zenithAnglePrecision" type="xs:double"/>

attribute **InstrumentDetails/@carrierWavelength**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="carrierWavelength" type="xs:double"/>

attribute **InstrumentDetails/@refractiveIndex**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="refractiveIndex" type="xs:double"/>

attribute **InstrumentDetails/@horizCollimation**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="horizCollimation" type="xs:double"/>

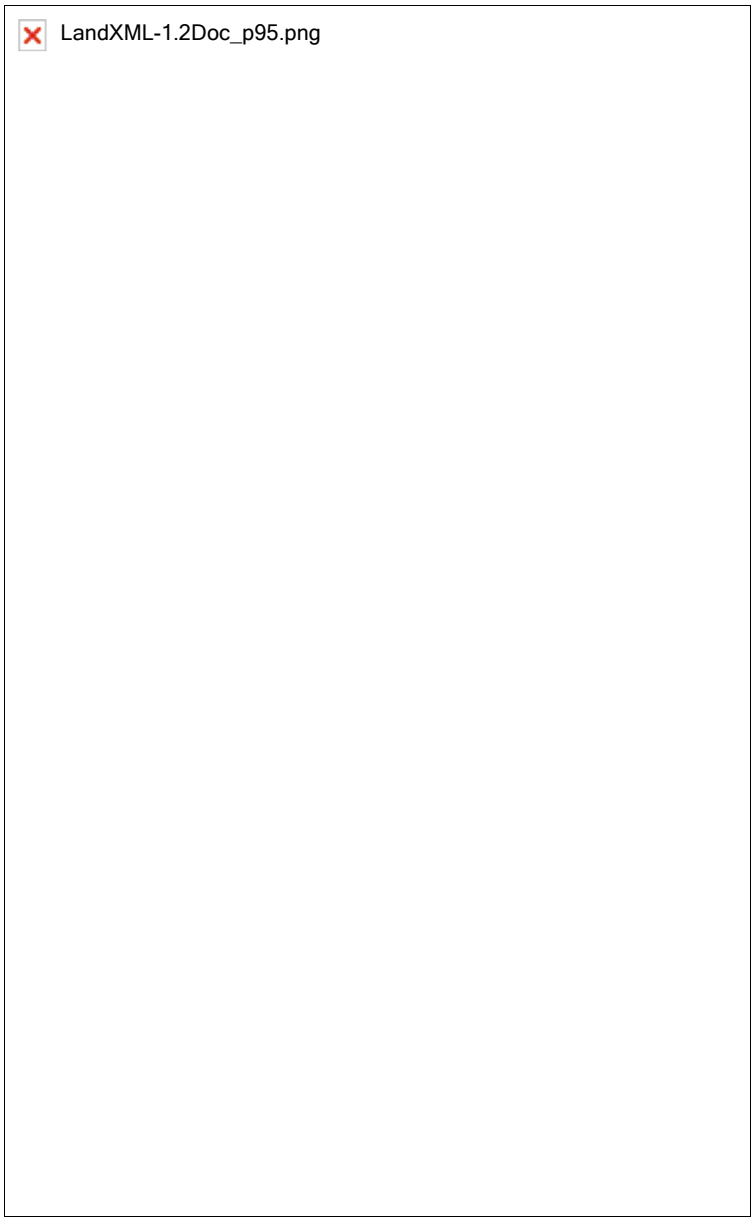
attribute **InstrumentDetails/@vertCollimation**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="vertCollimation" type="xs:double"/>

attribute **InstrumentDetails/@stadiaFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="stadiaFactor" type="xs:double"/>

element **InstrumentPoint**

diagram	 LandXML-1.2Doc_p95.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	elements **InstrumentSetup** **LaserSetup**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				

	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
annotation	documentation Represents a 2D or 3D Point location for Survey instrument location documentation Defined by either a coordinate text value ("north east" or "north east elev") or a PointType number reference "pntRef" attribute.		
source	<xs:element name="InstrumentPoint" type="PointType"> <xs:annotation> <xs:documentation>Represents a 2D or 3D Point location for Survey instrument location</xs:documentation> <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a PointType number reference "pntRef" attribute.</xs:documentation> </xs:annotation> </xs:element>		

element **InstrumentSetup**

diagram

LandXML-1.2Doc_p96.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**InstrumentPoint Backsight TargetSetup RawObservation ObservationGroup ControlChecks FieldNote Feature**
used by	element **Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
instrumentDetailsID	**xs:IDREF**				
stationName	**xs:string**	required			
instrumentHeight	**xs:double**	required			
orientationAzimuth	**direction**				
circleAzimuth	**direction**				
status	**observationStatusType**				

annotation

documentation

The Instrument setup location is defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.

source

```
<xs:element name="InstrumentSetup">
  <xs:annotation>
    <xs:documentation>The Instrument setup location is defined by either a coordinate text value
("north east" or "north east elev") or a CgPoint number reference "pntRef"
attribute.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="InstrumentPoint" minOccurs="0"/>
        <xs:element ref="Backsight" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="TargetSetup" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="RawObservation" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="ObservationGroup" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="ControlChecks" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="instrumentDetailsID" type="xs:IDREF"/>
    <xs:attribute name="stationName" type="xs:string" use="required"/>
    <xs:attribute name="instrumentHeight" type="xs:double" use="required"/>
    <xs:attribute name="orientationAzimuth" type="direction"/>
    <xs:attribute name="circleAzimuth" type="direction"/>
    <xs:attribute name="status" type="observationStatusType"/>
  </xs:complexType>
</xs:element>
```

attribute **InstrumentSetup/@id**

type	**xs:ID**
properties	isRef 0

	use required
source	<xs:attribute name="id" type="xs:ID" use="required"/>

attribute **InstrumentSetup/@instrumentDetailsID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="instrumentDetailsID" type="xs:IDREF"/>

attribute **InstrumentSetup/@stationName**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="stationName" type="xs:string" use="required"/>

attribute **InstrumentSetup/@instrumentHeight**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="instrumentHeight" type="xs:double" use="required"/>

attribute **InstrumentSetup/@orientationAzimuth**

type	**direction**
properties	isRef 0
source	<xs:attribute name="orientationAzimuth" type="direction"/>

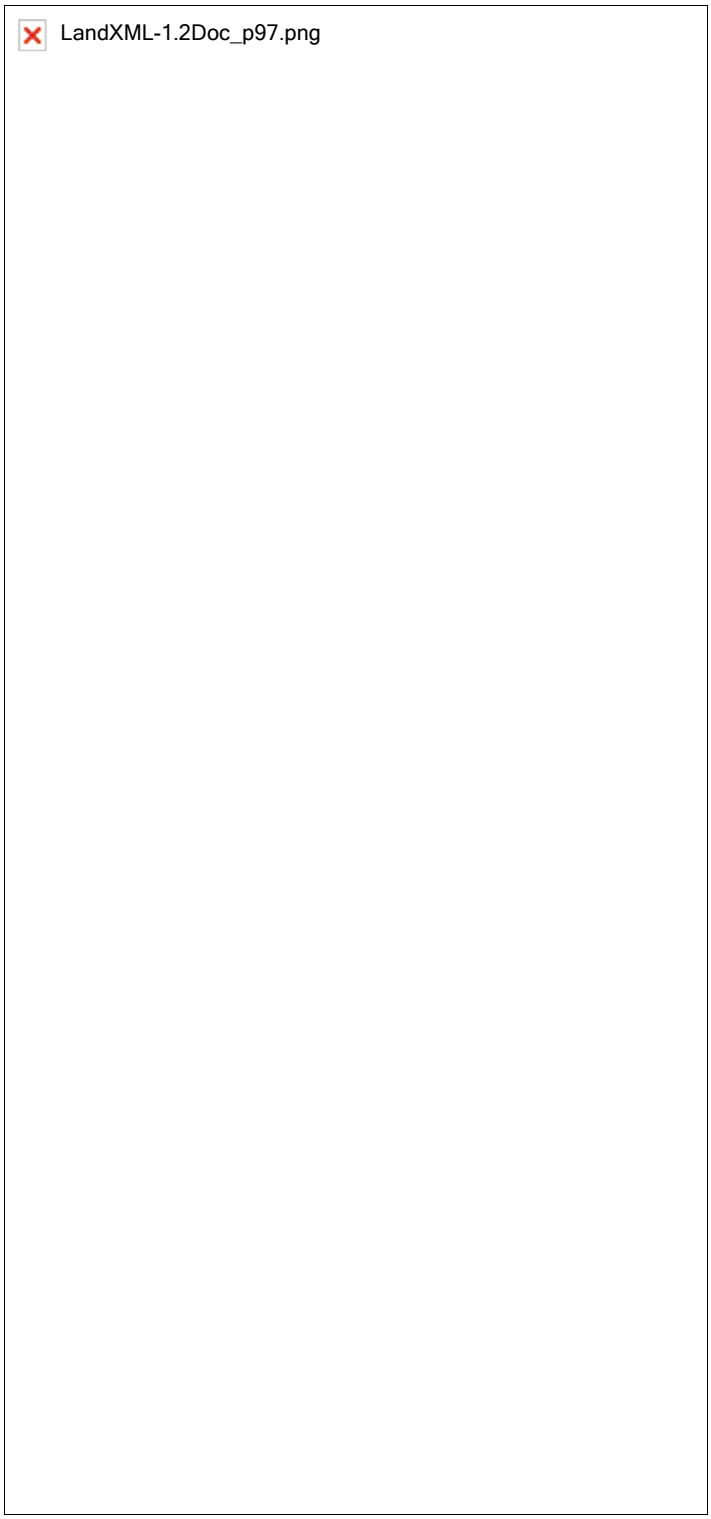
attribute **InstrumentSetup/@circleAzimuth**

type	**direction**
properties	isRef 0
source	<xs:attribute name="circleAzimuth" type="direction"/>

attribute **InstrumentSetup/@status**

type	**observationStatusType**
properties	isRef 0
facets	enumeration modified enumeration deleted
source	<xs:attribute name="status" type="observationStatusType"/>

element **Intersection**

diagram	 LandXML-1.2Doc_p97.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TrafficControl Timing Volume TurnSpeed TurnRestriction Curb Corner Feature**
used by	element **Intersections**

attributes	Name	Type	Use	Default	Fixed	annotation
	roadwayRef	**roadwayNameRef**				
	roadwayPI	**station**				

	intersectingRoadwayRef **roadwayNameRef** intersectRoadwayPI **station** contructionType **intersectionConstructionType**
source	<xs:element name="Intersection"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="TrafficControl" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Timing" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Volume" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="TurnSpeed" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="TurnRestriction" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Curb" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Corner" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="roadwayRef" type="roadwayNameRef"/> <xs:attribute name="roadwayPI" type="station"/> <xs:attribute name="intersectingRoadwayRef" type="roadwayNameRef"/> <xs:attribute name="intersectRoadwayPI" type="station"/> <xs:attribute name="contructionType" type="intersectionConstructionType"/> </xs:complexType> </xs:element>

attribute **Intersection/@roadwayRef**

type	**roadwayNameRef**
properties	isRef 0
source	<xs:attribute name="roadwayRef" type="roadwayNameRef"/>

attribute **Intersection/@roadwayPI**

type	**station**
properties	isRef 0
source	<xs:attribute name="roadwayPI" type="station"/>

attribute **Intersection/@intersectingRoadwayRef**

type	**roadwayNameRef**
properties	isRef 0
source	<xs:attribute name="intersectingRoadwayRef" type="roadwayNameRef"/>

attribute **Intersection/@intersectRoadwayPI**

type	**station**
properties	isRef 0
source	<xs:attribute name="intersectRoadwayPI" type="station"/>

attribute **Intersection/@contructionType**

type	**intersectionConstructionType**

properties	isRef 0
facets	enumeration existing enumeration improvement enumeration new
source	<xs:attribute name="contructionType" type="intersectionConstructionType"/>

element **Intersections**

diagram	LandXML-1.2Doc_p98.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Intersection** **Feature**
used by	element **Roadways**
source	<xs:element name="Intersections"> <xs:complexType> <xs:choice maxOccurs="unbounded"> <xs:element ref="Intersection" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:complexType> </xs:element>

element **Invert**

diagram	LandXML-1.2Doc_p99.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

used by	element **Struct**

attributes	Name	Type	Use	Default	Fixed	annotation
	desc	**xs:string**				
	elev	**xs:double**	required			
	flowDir	**inOut**	required			
	refPipe	**pipeNameRef**	required			

source

```
<xs:element name="Invert">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="elev" type="xs:double" use="required"/>
    <xs:attribute name="flowDir" type="inOut" use="required"/>
    <xs:attribute name="refPipe" type="pipeNameRef" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **Invert/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Invert/@elev**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="elev" type="xs:double" use="required"/>

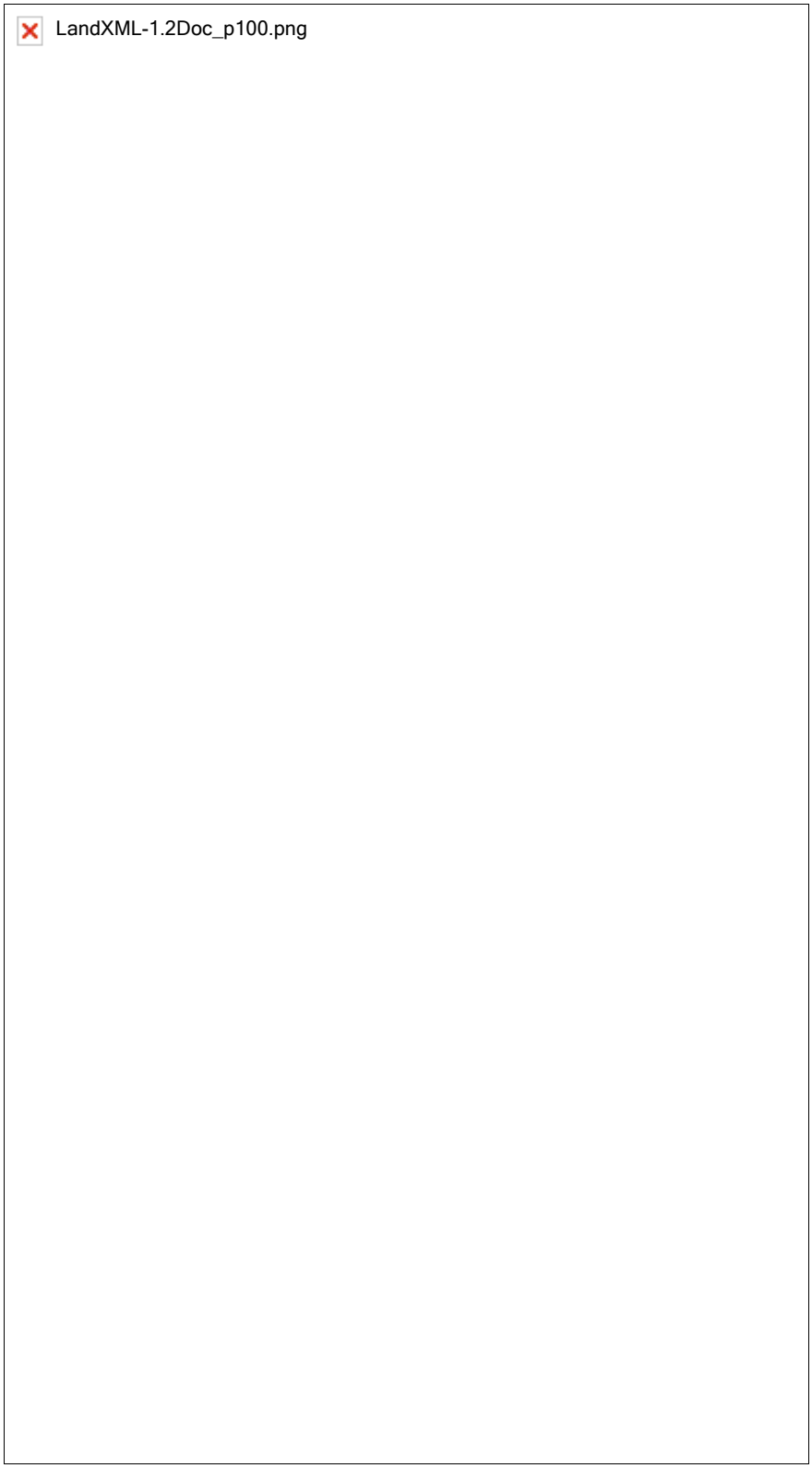
attribute **Invert/@flowDir**

type	**inOut**
properties	isRef 0 use required
facets	enumeration in enumeration out enumeration both
source	<xs:attribute name="flowDir" type="inOut" use="required"/>

attribute **Invert/@refPipe**

type	**pipeNameRef**
properties	isRef 0 use required
source	<xs:attribute name="refPipe" type="pipeNameRef" use="required"/>

element **IrregularLine**

diagram	 LandXML-1.2Doc_p100.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Start** **End** **PntList2D** **PntList3D** **Feature**
used by	element **CoordGeom**

attributes	Name	Type	Use	Default	Fixed	annotation
	desc	**xs:string**				
	dir	**direction**				
	length	**xs:double**				
	name	**xs:string**				
	staStart	**xs:double**				
	state	**stateType**				
	oID	**xs:string**				
	source	**xs:string**				
	note	**xs:string**				

annotation

documentation

Used to record lines that are irregular such as river boudaries etc. It has Start and End point elements and a list of intermediate points. Point list should also include the start and end points.

source

```
<xs:element name="IrregularLine">
  <xs:annotation>
    <xs:documentation>Used to record lines that are irregular such as river boudaries etc. It has Start and End point elements and a list of intermediate points. Point list should also include the start and end points.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Start"/>
      <xs:element ref="End"/>
      <xs:choice>
        <xs:element ref="PntList2D"/>
        <xs:element ref="PntList3D"/>
        <!-- Here PntList2D represents 2D planametric coordinate pairs expressed as space delimited Northing Easting pairs. -->
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="dir" type="direction"/>
    <xs:attribute name="length" type="xs:double"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="staStart" type="xs:double"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="source" type="xs:string"/>
    <xs:attribute name="note" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **IrregularLine/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **IrregularLine/@dir**

type	**direction**
properties	isRef 0

source	<xs:attribute name="dir" type="direction"/>

attribute **IrregularLine/@length**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="length" type="xs:double"/>

attribute **IrregularLine/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **IrregularLine/@staStart**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="staStart" type="xs:double"/>

attribute **IrregularLine/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **IrregularLine/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **IrregularLine/@source**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="source" type="xs:string"/>

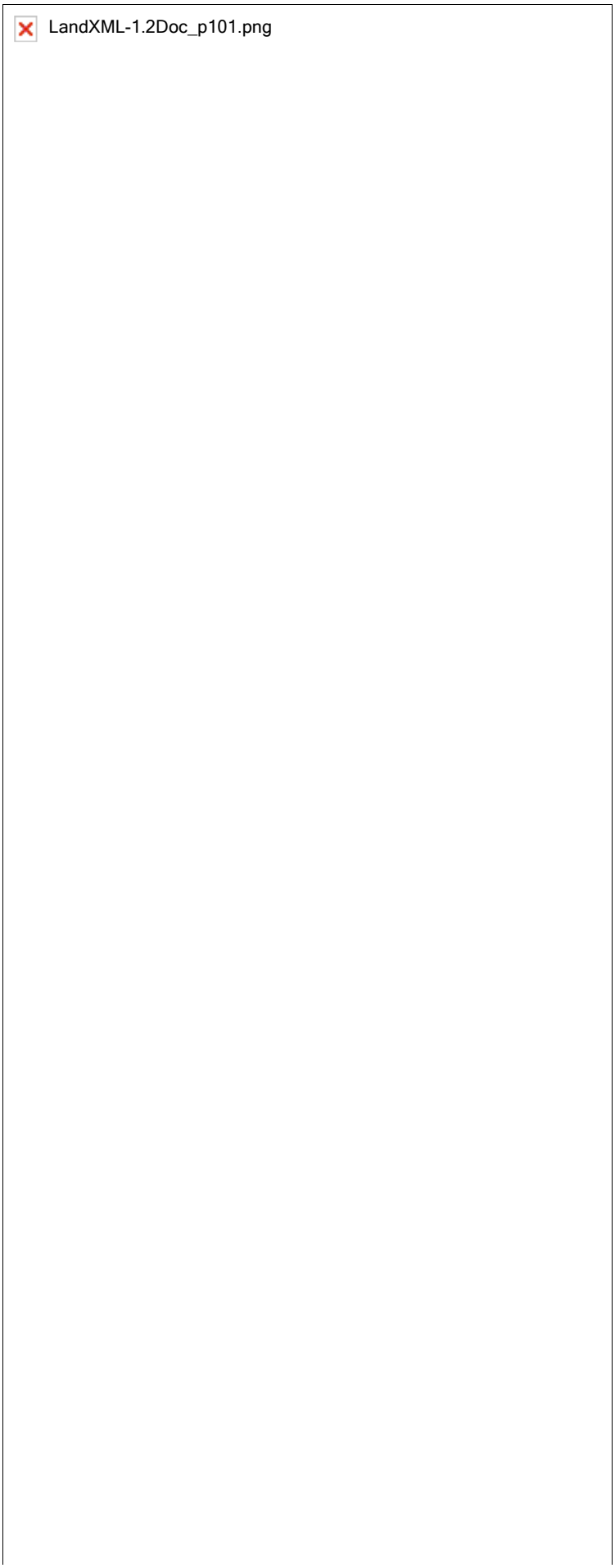
attribute **IrregularLine/@note**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="note" type="xs:string"/>

element **LandXML**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Units CoordinateSystem Project Application Alignments CgPoints Amendment GradeModel Monuments Parcels PlanFeatures PipeNetworks Roadways Surfaces Survey FeatureDictionary**

attributes

Name	Type	Use	Default	Fixed	annotation
date	**xs:date**	required			
time	**xs:time**	required			
version	**xs:string**	required			
language	**xs:string**				
readOnly	**xs:boolean**				
LandXMLId	**xs:int**				
crc	**xs:integer**				

identity constraints

	Name	Refer	Selector	Field(s)
unique	uCoordGeomName		CoordGeom	@name
unique	uCgPointsName		CgPoints	@name
unique	uRoadwayName		Roadways/Roadway	@name
unique	uGradeModelName		GradeModel	@name
key	MonumentKey		.//Monuments/Monument	@name
keyref	SurveyMonument	MonumentKey	.//SurveyMonument	@mntRef
key	StructKey		.//PipeNetwork/*/Struct	@name
keyref	PipeStart	StructKey	.//PipeNetwork/*/Pipe	@refStart
keyref	PipeEnd	StructKey	.//PipeNetwork/*/Pipe	@refEnd
key	PipeKey		.//PipeNetwork/*/Pipe	@name
keyref	StructInvert	PipeKey	.//PipeNetwork/*/Struct/Invert	@refPipe
key	ReducedObservationName		.//*/ObservationGroup/*/ReducedObservation	@name
key	ReducedArcObservationName		.//*/ObservationGroup/*/ReducedArcObservation	@name
key	RedHorizontalPositionName		.//*/ObservationGroup/*/RedHorizontalPosition	@name
key	RedVerticalPositionName		.//*/ObservationGroup/*/RedVerticalPosition	@name
key	Coord3DGeomName		.//Parcels/*/Coord3DGeom	@name
key	AnnotationName		.//Survey/*/Annotation	@name
key	SurveyorCertificateName		.//Survey/*/SurveyorCertificate	@name

source

```
<xs:element name="LandXML">
 <xs:complexType>
  <xs:choice maxOccurs="unbounded">
   <xs:element ref="Units"/>
   <xs:element ref="CoordinateSystem" minOccurs="0"/>
   <xs:element ref="Project" minOccurs="0"/>
   <xs:element ref="Application" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Alignments" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="CgPoints" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Amendment" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="GradeModel" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Monuments" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Parcels" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="PlanFeatures" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="PipeNetworks" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Roadways" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Surfaces" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Survey" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="FeatureDictionary" minOccurs="0" maxOccurs="unbounded"/>
   <xs:any namespace="##other" processContents="skip" minOccurs="0"/>
  </xs:choice>
  <xs:attribute name="date" type="xs:date" use="required"/>
  <xs:attribute name="time" type="xs:time" use="required"/>
  <xs:attribute name="version" type="xs:string" use="required"/>
  <xs:attribute name="language" type="xs:string"/>
  <xs:attribute name="readOnly" type="xs:boolean"/>
  <xs:attribute name="LandXMLId" type="xs:int"/>
  <xs:attribute name="crc" type="xs:integer"/>
```

```
    </xs:complexType>
    <xs:unique name="uCoordGeomName">
      <xs:selector xpath="CoordGeom"/>
      <xs:field xpath="@name"/>
    </xs:unique>
    <xs:unique name="uCgPointsName">
      <xs:selector xpath="CgPoints"/>
      <xs:field xpath="@name"/>
    </xs:unique>
    <xs:unique name="uRoadwayName">
      <xs:selector xpath="Roadways/Roadway"/>
      <xs:field xpath="@name"/>
    </xs:unique>
    <xs:unique name="uGradeModelName">
      <xs:selector xpath="GradeModel"/>
      <xs:field xpath="@name"/>
    </xs:unique>
    <xs:key name="MonumentKey">
      <xs:selector xpath=".//Monuments/Monument"/>
      <xs:field xpath="@name"/>
    </xs:key>
    <xs:keyref name="SurveyMonument" refer="MonumentKey">
      <xs:selector xpath=".//SurveyMonument"/>
      <xs:field xpath="@mntRef"/>
    </xs:keyref>
    <xs:key name="StructKey">
      <xs:selector xpath=".//PipeNetwork/*/Struct"/>
      <xs:field xpath="@name"/>
    </xs:key>
    <xs:keyref name="PipeStart" refer="StructKey">
      <xs:selector xpath=".//PipeNetwork/*/Pipe"/>
      <xs:field xpath="@refStart"/>
    </xs:keyref>
    <xs:keyref name="PipeEnd" refer="StructKey">
      <xs:selector xpath=".//PipeNetwork/*/Pipe"/>
      <xs:field xpath="@refEnd"/>
    </xs:keyref>
    <xs:key name="PipeKey">
      <xs:selector xpath=".//PipeNetwork/*/Pipe"/>
      <xs:field xpath="@name"/>
    </xs:key>
    <xs:keyref name="StructInvert" refer="PipeKey">
      <xs:selector xpath=".//PipeNetwork/*/Struct/Invert"/>
      <xs:field xpath="@refPipe"/>
    </xs:keyref>
    <xs:key name="ReducedObservationName">
      <xs:selector xpath=".//*/ObservationGroup/*/ReducedObservation"/>
      <xs:field xpath="@name"/>
    </xs:key>
    <xs:key name="ReducedArcObservationName">
      <xs:selector xpath=".//*/ObservationGroup/*/ReducedArcObservation"/>
      <xs:field xpath="@name"/>
    </xs:key>
    <xs:key name="RedHorizontalPositionName">
      <xs:selector xpath=".//*/ObservationGroup/*/RedHorizontalPosition"/>
      <xs:field xpath="@name"/>
    </xs:key>
    <xs:key name="RedVerticalPositionName">
      <xs:selector xpath=".//*/ObservationGroup/*/RedVerticalPosition"/>
```

```
    <xs:field xpath="@name"/>
  </xs:key>
  <xs:key name="Coord3DGeomName">
    <xs:selector xpath=".//Parcels/*/Coord3DGeom"/>
    <xs:field xpath="@name"/>
  </xs:key>
  <xs:key name="AnnotationName">
    <xs:selector xpath=".//Survey/*/Annotation"/>
    <xs:field xpath="@name"/>
  </xs:key>
  <xs:key name="SurveyorCertificateName">
    <xs:selector xpath=".//Survey/*/SurveyorCertificate"/>
    <xs:field xpath="@name"/>
  </xs:key>
</xs:element>
```

attribute **LandXML/@date**

type	**xs:date**
properties	isRef 0 use required
source	<xs:attribute name="date" type="xs:date" use="required"/>

attribute **LandXML/@time**

type	**xs:time**
properties	isRef 0 use required
source	<xs:attribute name="time" type="xs:time" use="required"/>

attribute **LandXML/@version**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="version" type="xs:string" use="required"/>

attribute **LandXML/@language**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="language" type="xs:string"/>

attribute **LandXML/@readOnly**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="readOnly" type="xs:boolean"/>

attribute **LandXML/@LandXMLId**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="LandXMLId" type="xs:int"/>

attribute **LandXML/@crc**

type	**xs:integer**
properties	isRef 0
source	<xs:attribute name="crc" type="xs:integer"/>

element **Lanes**

diagram	LandXML-1.2Doc_p102.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**ThruLane PassingLane TurnLane TwoWayLeftTurnLane ClimbLane OffsetLane WideningLane Feature**

used by	element **Roadway**
source	<xs:element name="Lanes"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="ThruLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="PassingLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="TurnLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="TwoWayLeftTurnLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="ClimbLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="OffsetLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="WideningLane" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:complexType> </xs:element>

element **LaserDetails**

diagram	LandXML-1.2Doc_p103.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**FieldNote** **Feature**
used by	element **Equipment**

attributes	Name	Type	Use	Default	Fixed	annotation
	id	**xs:ID**	required			
	laserVertOffset	**xs:double**				
	manufacturer	**xs:string**				
	model	**xs:string**				
	serialNumber	**xs:string**				

source

```
<xs:element name="LaserDetails">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="laserVertOffset" type="xs:double"/>
    <xs:attribute name="manufacturer" type="xs:string"/>
    <xs:attribute name="model" type="xs:string"/>
    <xs:attribute name="serialNumber" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **LaserDetails/@id**

type	**xs:ID**
properties	isRef 0 use required
source	`<xs:attribute name="id" type="xs:ID" use="required"/>`

attribute **LaserDetails/@laserVertOffset**

type	**xs:double**
properties	isRef 0
source	`<xs:attribute name="laserVertOffset" type="xs:double"/>`

attribute **LaserDetails/@manufacturer**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="manufacturer" type="xs:string"/>`

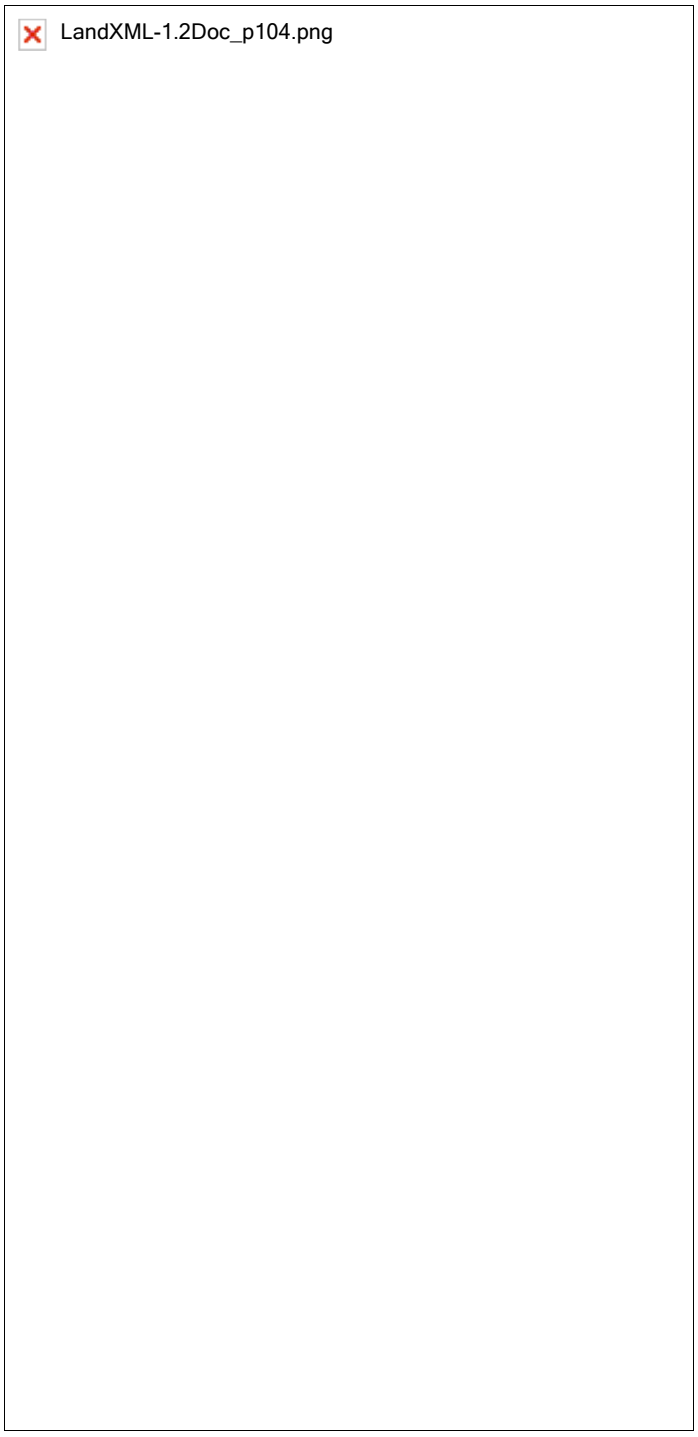
attribute **LaserDetails/@model**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="model" type="xs:string"/>`

attribute **LaserDetails/@serialNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="serialNumber" type="xs:string"/>

element **LaserSetup**

diagram	 LandXML-1.2Doc_p104.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**InstrumentPoint Backsight TargetSetup RawObservation FieldNote Feature**
used by	element **Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
stationName		required			
instrumentHeight	**xs:double**				
laserDetailsID	**xs:IDREF**				
magDeclination	**xs:double**				

source

```
<xs:element name="LaserSetup">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="InstrumentPoint" minOccurs="0"/>
      <xs:element ref="Backsight" minOccurs="0"/>
      <xs:element ref="TargetSetup" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="RawObservation"/>
      <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="stationName" use="required"/>
    <xs:attribute name="instrumentHeight" type="xs:double"/>
    <xs:attribute name="laserDetailsID" type="xs:IDREF"/>
    <xs:attribute name="magDeclination" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **LaserSetup/@id**

type	**xs:ID**
properties	isRef 0 use required
source	`<xs:attribute name="id" type="xs:ID" use="required"/>`

attribute **LaserSetup/@stationName**

properties	isRef 0 use required
source	`<xs:attribute name="stationName" use="required"/>`

attribute **LaserSetup/@instrumentHeight**

type	**xs:double**
properties	isRef 0
source	`<xs:attribute name="instrumentHeight" type="xs:double"/>`

attribute **LaserSetup/@laserDetailsID**

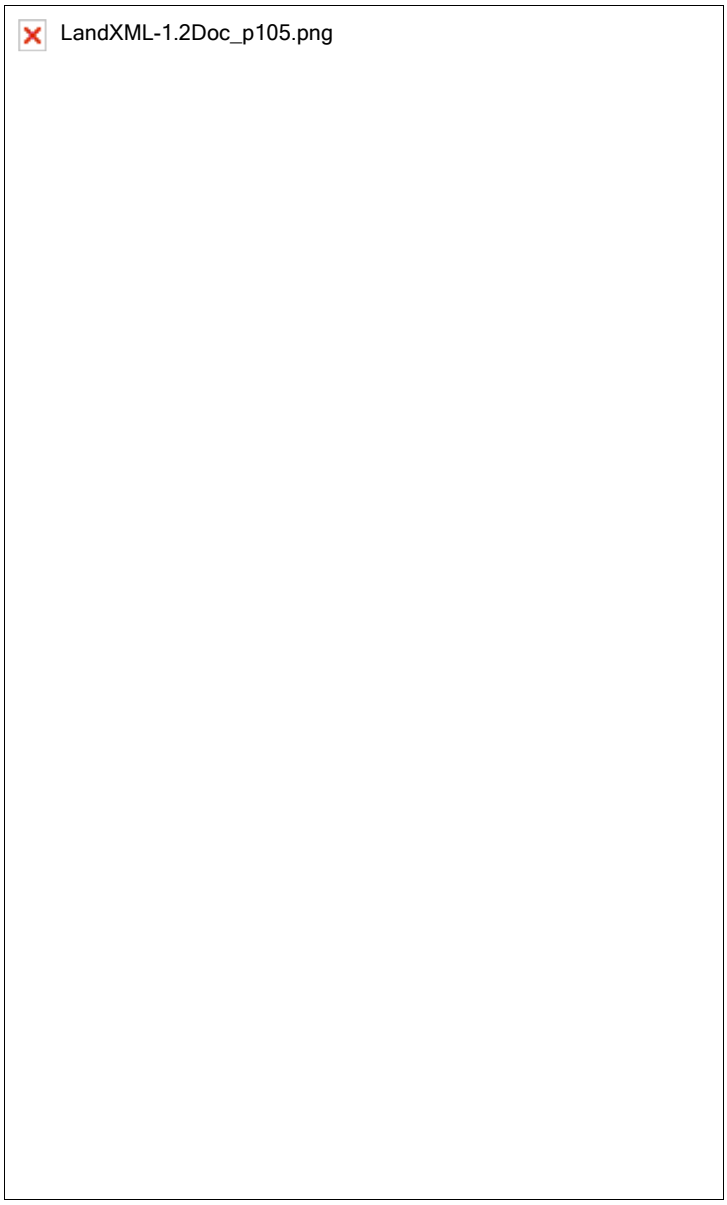
type	**xs:IDREF**

properties	isRef 0
source	<xs:attribute name="laserDetailsID" type="xs:IDREF"/>

attribute **LaserSetup/@magDeclination**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="magDeclination" type="xs:double"/>

element **Line**

diagram	 LandXML-1.2Doc_p105.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Start End Feature**
used by	element **CoordGeom**

attributes	Name	Type	Use	Default	Fixed	annotation
	desc	**xs:string**				
	dir	**direction**				
	length	**xs:double**				
	name	**xs:string**				
	staStart	**xs:double**				
	state	**stateType**				
	oID	**xs:string**				
	note	**xs:string**				

annotation	documentation Modified to include official ID, as with all CoordGeom elements

source

```
<xs:element name="Line">
  <xs:annotation>
    <xs:documentation>Modified to include official ID, as with all CoordGeom
elements</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Start"/>
      <xs:element ref="End"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="dir" type="direction"/>
    <xs:attribute name="length" type="xs:double"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="staStart" type="xs:double"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="note" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Line/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Line/@dir**

type	**direction**
properties	isRef 0
source	<xs:attribute name="dir" type="direction"/>

attribute **Line/@length**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="length" type="xs:double"/>

attribute **Line/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Line/@staStart**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="staStart" type="xs:double"/>

attribute **Line/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

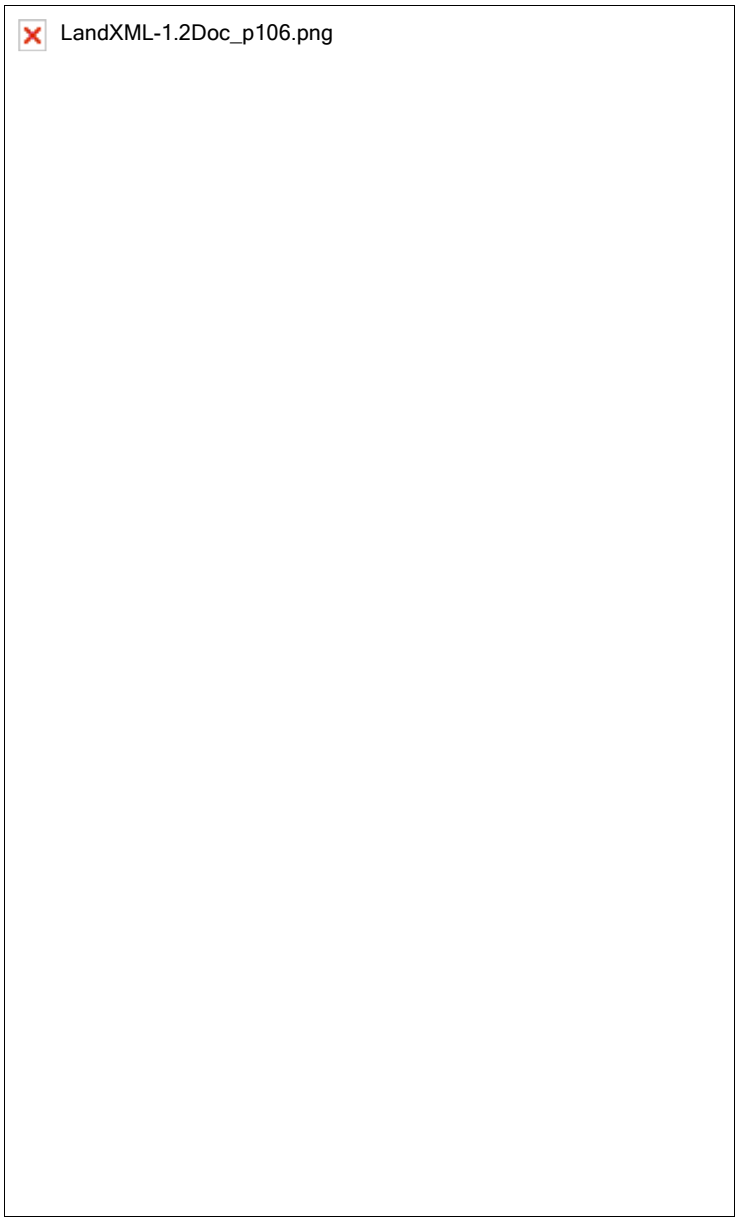
attribute **Line/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **Line/@note**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="note" type="xs:string"/>

element **Location**

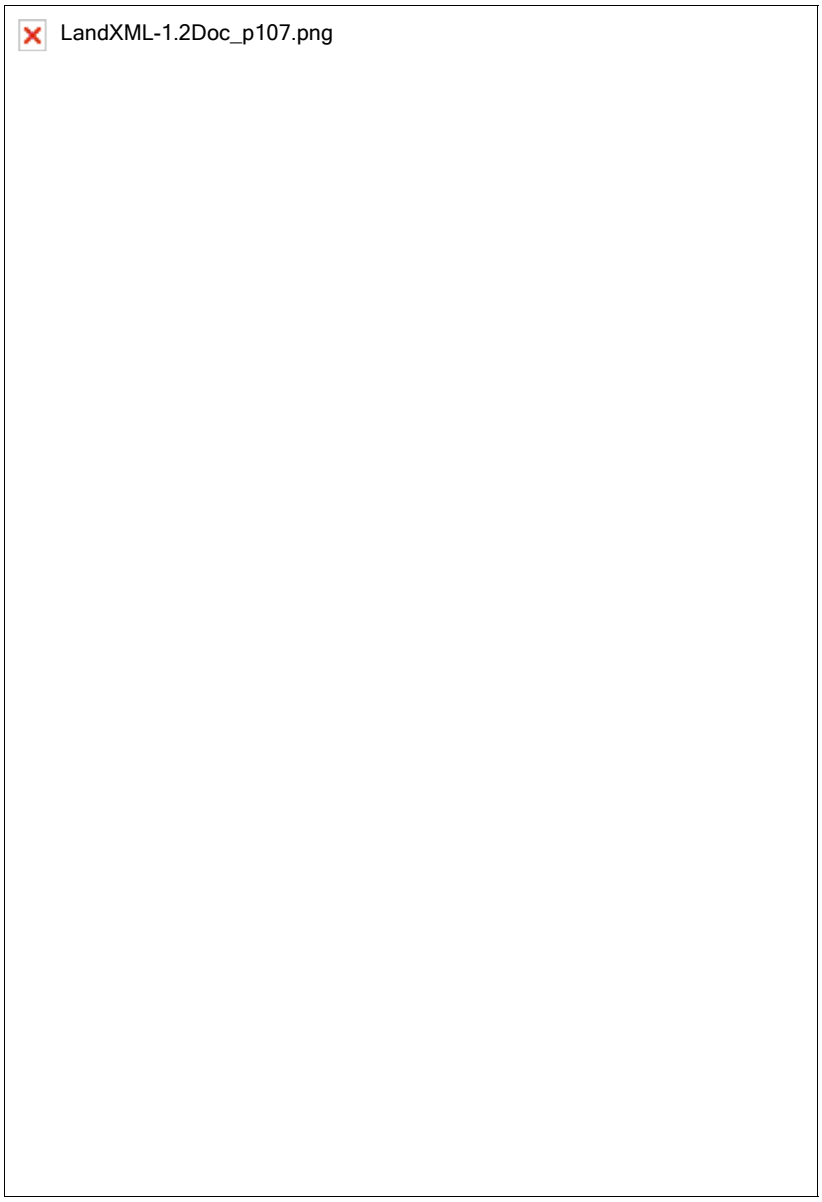
diagram	 LandXML-1.2Doc_p106.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	element **PlanFeature**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				

	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
annotation	documentation Represents a 2D or 3D Point location for a PlanFeature. documentation Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.		
source	<xs:element name="Location" type="PointType"> <xs:annotation> <xs:documentation>Represents a 2D or 3D Point location for a PlanFeature.</xs:documentation> <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation> </xs:annotation> </xs:element>		

element **LocationAddress**

diagram	 LandXML-1.2Doc_p107.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**ComplexName RoadName AdministrativeArea AddressPoint**
used by	element **Parcel**

attributes

Name	Type	Use	Default	Fixed	annotation
addressType	**addressTypeType**				
flatType	**flatTypeType**				
flatNumber	**xs:string**				
floorLevelType	**floorLevelTypeType**				
floorLevelNumber	**xs:string**				
numberFirst	**xs:int**				
numberSuffixFirst	**xs:string**				
numberLast	**xs:int**				
numberSuffixLast	**xs:string**				

annotation	documentation

	This element is used to define the location or positional address of a parcel. The address record is not designed to be a postal address (ie it has not postcode or zipcode etc) The element also needs to be able to handle both primary addresses and aliases if required.
source	<xs:element name="LocationAddress"> <xs:annotation> <xs:documentation>This element is used to define the location or positional address of a parcel. The address record is not designed to be a postal address (ie it has not postcode or zipcode etc) The element also needs to be able to handle both primary addresses and aliases if required.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="ComplexName" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="RoadName" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="AdministrativeArea" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="AddressPoint" minOccurs="0" maxOccurs="unbounded"/> <!-- <xs:any namespace="##any" processContents="skip" minOccurs="0"/> --> </xs:sequence> <xs:attribute name="addressType" type="addressTypeType"/> <xs:attribute name="flatType" type="flatTypeType"/> <xs:attribute name="flatNumber" type="xs:string"/> <xs:attribute name="floorLevelType" type="floorLevelTypeType"/> <xs:attribute name="floorLevelNumber" type="xs:string"/> <xs:attribute name="numberFirst" type="xs:int"/> <xs:attribute name="numberSuffixFirst" type="xs:string"/> <xs:attribute name="numberLast" type="xs:int"/> <xs:attribute name="numberSuffixLast" type="xs:string"/> </xs:complexType> </xs:element>

attribute **LocationAddress/@addressType**

type	**addressTypeType**
properties	isRef 0
source	<xs:attribute name="addressType" type="addressTypeType"/>

attribute **LocationAddress/@flatType**

type	**flatTypeType**
properties	isRef 0
source	<xs:attribute name="flatType" type="flatTypeType"/>

attribute **LocationAddress/@flatNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="flatNumber" type="xs:string"/>

attribute **LocationAddress/@floorLevelType**

type	**floorLevelTypeType**
properties	isRef 0

source	<xs:attribute name="floorLevelType" type="floorLevelTypeType"/>

attribute **LocationAddress/@floorLevelNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="floorLevelNumber" type="xs:string"/>

attribute **LocationAddress/@numberFirst**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="numberFirst" type="xs:int"/>

attribute **LocationAddress/@numberSuffixFirst**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="numberSuffixFirst" type="xs:string"/>

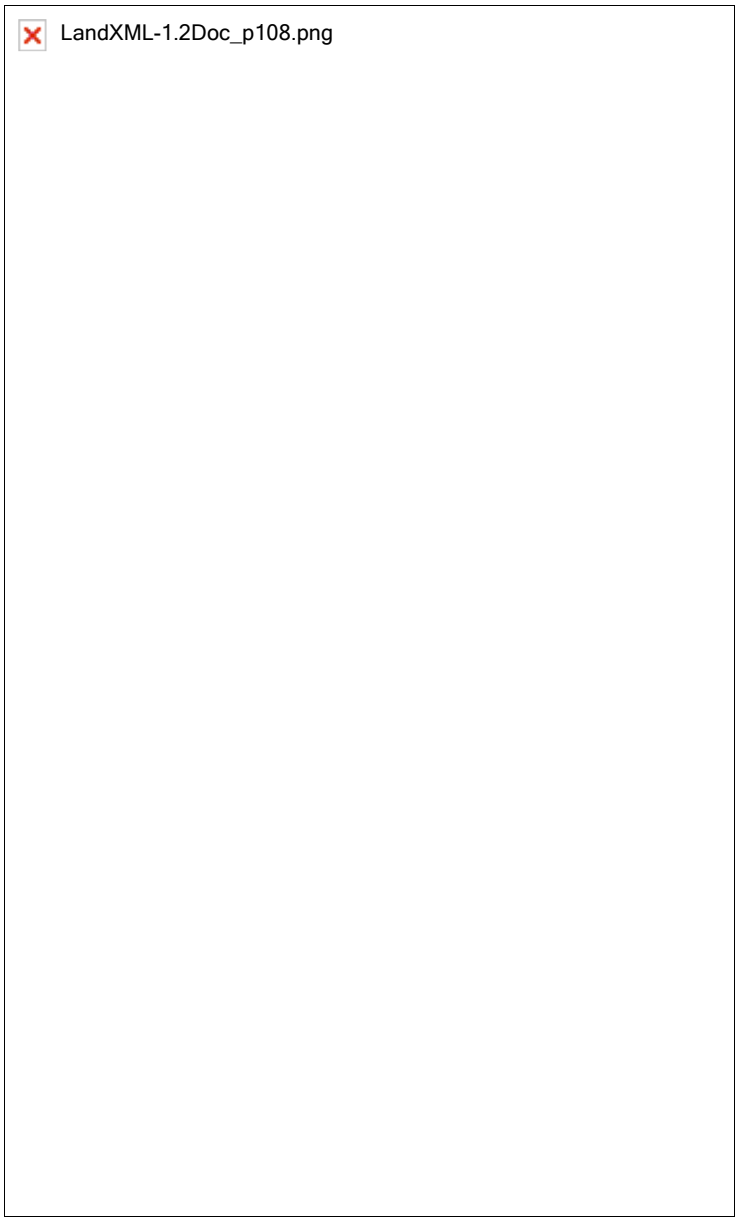
attribute **LocationAddress/@numberLast**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="numberLast" type="xs:int"/>

attribute **LocationAddress/@numberSuffixLast**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="numberSuffixLast" type="xs:string"/>

element **MapPoint**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	element **SurveyHeader**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				

	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional

annotation

documentation

Represents a 2D or 3D Point location for general Survey location

documentation

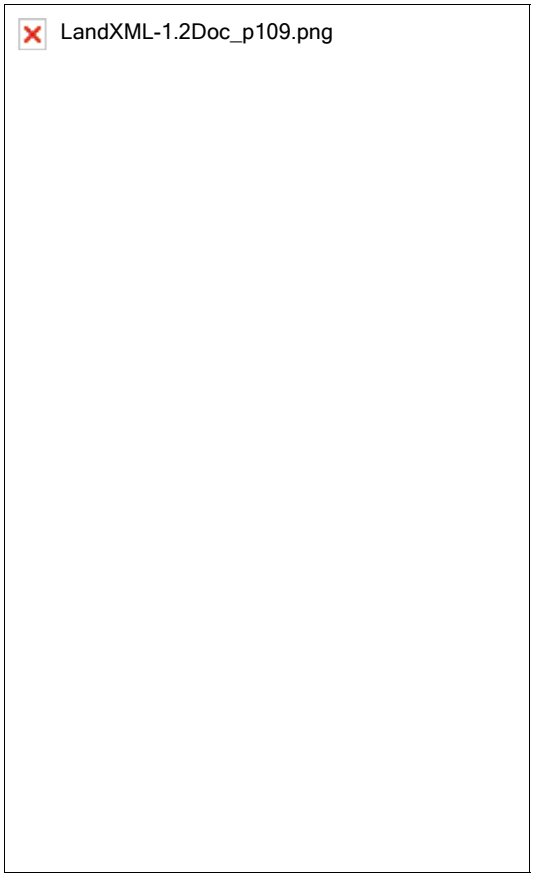
Defined by either a coordinate text value ("north east" or "north east elev") or a PointType number reference "pntRef" attribute.

source

```
<xs:element name="MapPoint" type="PointType">
  <xs:annotation>
    <xs:documentation>Represents a 2D or 3D Point location for general Survey
location</xs:documentation>
    <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a
PointType number reference "pntRef" attribute.</xs:documentation>
  </xs:annotation>
</xs:element>
```

element **Metric**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties	content complex
used by	element **Units**

attributes

Name	Type	Use	Default	Fixed	annotation
areaUnit	**metArea**	required			
linearUnit	**metLinear**	required			
volumeUnit	**metVolume**	required			
temperatureUnit	**metTemperature**	required			
pressureUnit	**metPressure**	required			
diameterUnit	**metDiameter**				
widthUnit	**metWidth**				
heightUnit	**metHeight**				
velocityUnit	**metVelocity**				
flowUnit	**metFlow**				
angularUnit	**angularType**		radians		
directionUnit	**angularType**		radians		
latLongAngularUnit	**latLongAngularType**		decimal degrees		
elevationUnit	**elevationType**		meter		

source

```
<xs:element name="Metric">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="areaUnit" type="metArea" use="required"/>
    <xs:attribute name="linearUnit" type="metLinear" use="required"/>
    <xs:attribute name="volumeUnit" type="metVolume" use="required"/>
    <xs:attribute name="temperatureUnit" type="metTemperature" use="required"/>
    <xs:attribute name="pressureUnit" type="metPressure" use="required"/>
    <xs:attribute name="diameterUnit" type="metDiameter"/>
    <xs:attribute name="widthUnit" type="metWidth"/>
    <xs:attribute name="heightUnit" type="metHeight"/>
    <xs:attribute name="velocityUnit" type="metVelocity"/>
    <xs:attribute name="flowUnit" type="metFlow"/>
    <xs:attribute name="angularUnit" type="angularType" default="radians"/>
    <xs:attribute name="directionUnit" type="angularType" default="radians"/>
    <xs:attribute name="latLongAngularUnit" type="latLongAngularType" default="decimal degrees"/>
    <xs:attribute name="elevationUnit" type="elevationType" default="meter"/>
    <!-- FAA Additions start -->
    <!-- FAA Additions end -->
  </xs:complexType>
</xs:element>
```

attribute **Metric/@areaUnit**

type	**metArea**
properties	isRef 0 use required
facets	enumeration hectare enumeration squareMeter enumeration squareMillimeter enumeration squareCentimeter
source	`<xs:attribute name="areaUnit" type="metArea" use="required"/>`

attribute **Metric/@linearUnit**

type	**metLinear**
properties	isRef 0 use required
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer
source	<xs:attribute name="linearUnit" type="metLinear" use="required"/>

attribute **Metric/@volumeUnit**

type	**metVolume**
properties	isRef 0 use required
facets	enumeration cubicMeter enumeration liter enumeration hectareMeter
source	<xs:attribute name="volumeUnit" type="metVolume" use="required"/>

attribute **Metric/@temperatureUnit**

type	**metTemperature**
properties	isRef 0 use required
facets	enumeration celsius enumeration kelvin
source	<xs:attribute name="temperatureUnit" type="metTemperature" use="required"/>

attribute **Metric/@pressureUnit**

type	**metPressure**
properties	isRef 0 use required
facets	enumeration HPA enumeration milliBars enumeration mmHG enumeration millimeterHG
source	<xs:attribute name="pressureUnit" type="metPressure" use="required"/>

attribute **Metric/@diameterUnit**

type	**metDiameter**
properties	isRef 0

facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer
source	<xs:attribute name="diameterUnit" type="metDiameter"/>

attribute **Metric/@widthUnit**

type	**metWidth**
properties	isRef 0
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer
source	<xs:attribute name="widthUnit" type="metWidth"/>

attribute **Metric/@heightUnit**

type	**metHeight**
properties	isRef 0
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer
source	<xs:attribute name="heightUnit" type="metHeight"/>

attribute **Metric/@velocityUnit**

type	**metVelocity**
properties	isRef 0
facets	enumeration metersPerSecond enumeration kilometersPerHour
source	<xs:attribute name="velocityUnit" type="metVelocity"/>

attribute **Metric/@flowUnit**

type	**metFlow**
properties	isRef 0
facets	enumeration cubicMeterSecond enumeration literPerSecond enumeration literPerMinute
source	<xs:attribute name="flowUnit" type="metFlow"/>

attribute **Metric/@angularUnit**

type	**angularType**

properties	isRef 0 default radians
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
source	<xs:attribute name="angularUnit" type="angularType" default="radians"/>

attribute **Metric/@directionUnit**

type	**angularType**
properties	isRef 0 default radians
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
source	<xs:attribute name="directionUnit" type="angularType" default="radians"/>

attribute **Metric/@latLongAngularUnit**

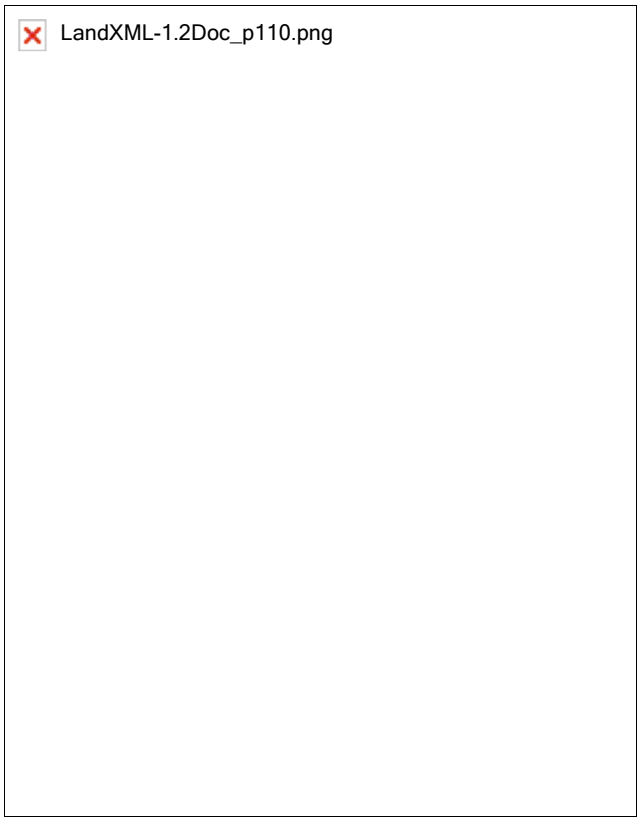
type	**latLongAngularType**
properties	isRef 0 default decimal degrees
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
source	<xs:attribute name="latLongAngularUnit" type="latLongAngularType" default="decimal degrees"/>

attribute **Metric/@elevationUnit**

type	**elevationType**
properties	isRef 0 default meter
facets	enumeration meter enumeration kilometer enumeration feet enumeration miles
source	<xs:attribute name="elevationUnit" type="elevationType" default="meter"/>

element **Monument**

diagram



namespace: http://www.landxml.org/schema/LandXML-1.2

properties: content complex

used by: elements **GPSAntennaDetails** **Monuments**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
desc	**xs:string**				
state	**monumentState**				
type	**monumentType**				
condition	**monumentCondition**				
category	**monumentCategory**				
beacon	**beaconType**				
beaconProtection	**beaconProtectionType**				
oID	**xs:string**				
reference	**xs:string**				
originSurvey	**xs:string**				

annotation

documentation

This is a new element that represents a physical monument placed to mark a CgPoint within a survey

source

```
<xs:element name="Monument">
  <xs:annotation>
    <xs:documentation>This is a new element that represents a physical monument placed to mark a
CgPoint within a survey</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="pntRef" type="pointNameRef"/>
    <xs:attribute name="featureRef" type="featureNameRef" use="optional"/>
```

```
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="monumentState"/>
    <xs:attribute name="type" type="monumentType"/>
    <xs:attribute name="condition" type="monumentCondition"/>
    <xs:attribute name="category" type="monumentCategory"/>
    <xs:attribute name="beacon" type="beaconType"/>
    <xs:attribute name="beaconProtection" type="beaconProtectionType"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="reference" type="xs:string"/>
    <xs:attribute name="originSurvey" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Monument/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Monument/@pntRef**

type	**pointNameRef**
properties	isRef 0
source	<xs:attribute name="pntRef" type="pointNameRef"/>

attribute **Monument/@featureRef**

type	**featureNameRef**
properties	isRef 0 use optional
source	<xs:attribute name="featureRef" type="featureNameRef" use="optional"/>

attribute **Monument/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Monument/@state**

type	**monumentState**
properties	isRef 0
source	<xs:attribute name="state" type="monumentState"/>

attribute **Monument/@type**

type	**monumentType**
properties	isRef 0

source	<xs:attribute name="type" type="monumentType"/>

attribute **Monument/@condition**

type	**monumentCondition**
properties	isRef 0
source	<xs:attribute name="condition" type="monumentCondition"/>

attribute **Monument/@category**

type	**monumentCategory**
properties	isRef 0
facets	enumeration benchmark enumeration central enumeration reference enumeration rural enumeration standard traverse enumeration urban standard traverse
source	<xs:attribute name="category" type="monumentCategory"/>

attribute **Monument/@beacon**

type	**beaconType**
properties	isRef 0
facets	enumeration cairn enumeration chimney enumeration large quadripod enumeration lighthouse enumeration marine beacon enumeration mast enumeration mast with targets enumeration no beacon enumeration other enumeration pillar enumeration post enumeration small quadripod enumeration tower enumeration tripod enumeration unknown
source	<xs:attribute name="beacon" type="beaconType"/>

attribute **Monument/@beaconProtection**

type	**beaconProtectionType**
properties	isRef 0
facets	enumeration cover enumeration cover and box enumeration fence enclosure enumeration marker post

	enumeration no protection enumeration other enumeration quadripod enumeration unknown
source	<xs:attribute name="beaconProtection" type="beaconProtectionType"/>

attribute **Monument/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

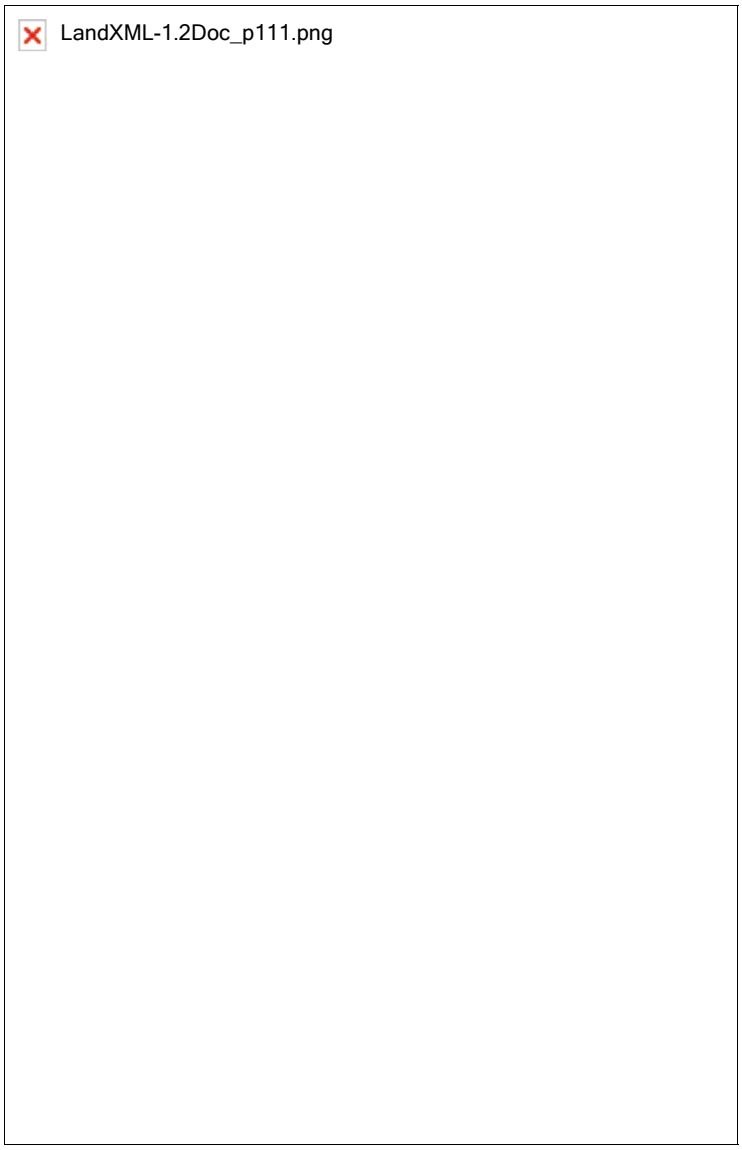
attribute **Monument/@reference**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="reference" type="xs:string"/>

attribute **Monument/@originSurvey**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="originSurvey" type="xs:string"/>

element **Monuments**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Monument** **Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

identity constraints

	Name	Refer	Selector	Field(s)
unique	uMntName		Monument	@name

annotation

documentation

This list of monuments allows them to be grouped at a file level like parcels and points etc

source

```
<xs:element name="Monuments">
  <xs:annotation>
    <xs:documentation>This list of monuments allows them to be grouped at a file level like parcels and points etc</xs:documentation>
```

```
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Monument" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
  <xs:unique name="uMntName">
    <xs:selector xpath="Monument"/>
    <xs:field xpath="@name"/>
  </xs:unique>
</xs:element>
```

attribute **Monuments/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

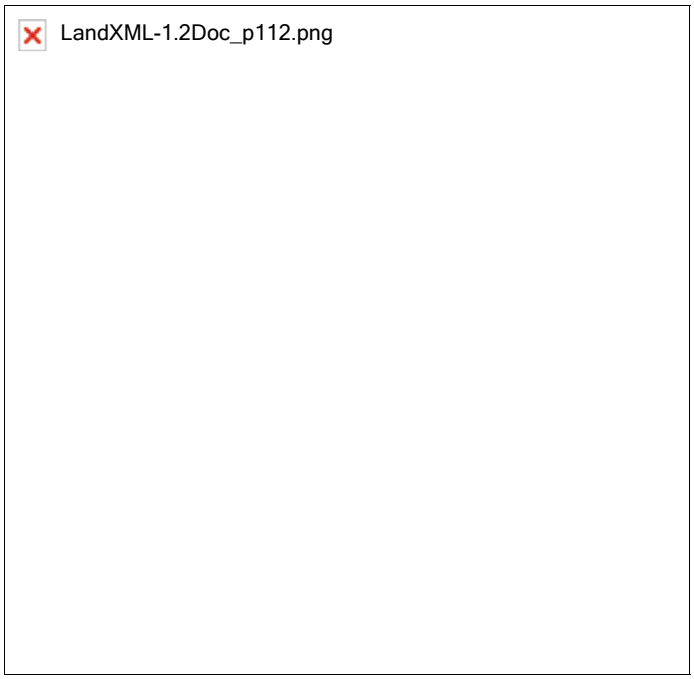
attribute **Monuments/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Monuments/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **NoPassingZone**

diagram	 LandXML-1.2Doc_p112.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadway**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="NoPassingZone">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **NoPassingZone/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **NoPassingZone/@staEnd**

type	**station**
properties	isRef 0

source	<xs:attribute name="staEnd" type="station"/>

attribute **NoPassingZone/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **ObservationGroup**

diagram

LandXML-1.2Doc_p113.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetPoint Backsight RawObservation ReducedObservation RedHorizontalPosition ReducedArcObservation RedVerticalObservation FieldNote Feature**
used by	elements **ControlChecks InstrumentSetup Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**	required			
purpose	**purposeType**				
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
setID					
coordGeomRefs	**coordGeomNameRefs**				
alignRef	**alignmentNameRef**				
alignStationName	**xs:string**				
alignOffset	**offsetDistance**				

annotation

documentation

All observations to the same point in a group should be averaged together (they have consistant orientation)

source

```
<xs:element name="ObservationGroup">
  <xs:annotation>
    <xs:documentation>All observations to the same point in a group should be averaged together (they
have consistant orientation)</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="TargetPoint" minOccurs="0"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="Backsight"/>
        <xs:element ref="RawObservation" maxOccurs="unbounded"/>
        <xs:element ref="ReducedObservation"/>
        <xs:element ref="RedHorizontalPosition" minOccurs="0"/>
        <xs:element ref="ReducedArcObservation" minOccurs="0"/>
        <xs:element ref="RedVerticalObservation" minOccurs="0"/>
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID" use="required"/>
    <xs:attribute name="purpose" type="purposeType"/>
    <xs:attribute name="setupID" type="xs:IDREF"/>
    <xs:attribute name="targetSetupID" type="xs:IDREF"/>
    <xs:attribute name="setID"/>
    <xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>
    <xs:attribute name="alignRef" type="alignmentNameRef"/>
```

```
    <xs:attribute name="alignStationName" type="xs:string"/>
    <xs:attribute name="alignOffset" type="offsetDistance"/>
    <!-- coordGeomRefs identifies one or more 'name' values that link to specific <Line>, <Curve>,
<Spiral> or <IrregularLine> in a <CoordGeom> element. This allows linking an survey observation to
specific <Parcel>.<CoordGeom> based geometry. -->
    <!-- alignRef is the name of the alignment.
      alignStationName is the station value where the rod reading is taken.
      alignOffset is the signed (+/-) distance from the CL of the referenced alignment.  -->
  </xs:complexType>
</xs:element>
```

attribute **ObservationGroup/@id**

type	**xs:ID**
properties	isRef 0 use required
source	<xs:attribute name="id" type="xs:ID" use="required"/>

attribute **ObservationGroup/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration reciprocalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **ObservationGroup/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **ObservationGroup/@targetSetupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="targetSetupID" type="xs:IDREF"/>

attribute **ObservationGroup/@setID**

properties	isRef 0
source	<xs:attribute name="setID"/>

attribute **ObservationGroup/@coordGeomRefs**

type	**coordGeomNameRefs**
properties	isRef 0
source	<xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>

attribute **ObservationGroup/@alignRef**

type	**alignmentNameRef**
properties	isRef 0
source	<xs:attribute name="alignRef" type="alignmentNameRef"/>

attribute **ObservationGroup/@alignStationName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="alignStationName" type="xs:string"/>

attribute **ObservationGroup/@alignOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="alignOffset" type="offsetDistance"/>

element **ObstructionOffset**

diagram	LandXML-1.2Doc_p114.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Roadside**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
offset	**offsetDistance**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="ObstructionOffset">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="offset" type="offsetDistance"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **ObstructionOffset/@staStart**

type	**station**
properties	isRef 0
source	`<xs:attribute name="staStart" type="station"/>`

attribute **ObstructionOffset/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **ObstructionOffset/@offset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="offset" type="offsetDistance"/>

attribute **ObstructionOffset/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **OffsetLane**

diagram	LandXML-1.2Doc_p115.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**Feature**
used by	element **Lanes**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
beginFullWidthSta	**station**				
endFullWidthSta	**station**				
fullOffset	**offsetDistance**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="OffsetLane">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="beginFullWidthSta" type="station"/>
    <xs:attribute name="endFullWidthSta" type="station"/>
    <xs:attribute name="fullOffset" type="offsetDistance"/>
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **OffsetLane/@staStart**

type	**station**
properties	isRef 0
source	`<xs:attribute name="staStart" type="station"/>`

attribute **OffsetLane/@staEnd**

type	**station**
properties	isRef 0
source	`<xs:attribute name="staEnd" type="station"/>`

attribute **OffsetLane/@beginFullWidthSta**

type	**station**
properties	isRef 0
source	`<xs:attribute name="beginFullWidthSta" type="station"/>`

attribute **OffsetLane/@endFullWidthSta**

type	**station**
properties	isRef 0
source	`<xs:attribute name="endFullWidthSta" type="station"/>`

attribute **OffsetLane/@fullOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="fullOffset" type="offsetDistance"/>

attribute **OffsetLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **OffsetLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **OffsetVals**

diagram	LandXML-1.2Doc_p116.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	elements **ReducedArcObservation** **ReducedObservation** complexType **RawObservationType**
attributes	Name Type Use Default Fixed annotation offsetInOut **xs:double** offsetLeftRight **xs:double** offsetUpDown **xs:double**
annotation	documentation offsetInOut: -ve = offset in towards inst, +ve = offset away from inst documentation offsetLeftRight: -ve = left, +ve = right (as viewed from instrument) documentation offsetUpDown: -ve = down, +ve = up
source	<xs:element name="OffsetVals"> <xs:annotation>

```
    <xs:documentation>offsetInOut:   -ve = offset in towards inst, +ve = offset away from inst
</xs:documentation>
    <xs:documentation>offsetLeftRight:   -ve = left, +ve = right (as viewed from instrument)
</xs:documentation>
    <xs:documentation>offsetUpDown:   -ve = down, +ve = up</xs:documentation>
   </xs:annotation>
   <xs:complexType>
    <xs:attribute name="offsetInOut" type="xs:double"/>
    <xs:attribute name="offsetLeftRight" type="xs:double"/>
    <xs:attribute name="offsetUpDown" type="xs:double"/>
   </xs:complexType>
</xs:element>
```

attribute **OffsetVals/@offsetInOut**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="offsetInOut" type="xs:double"/>

attribute **OffsetVals/@offsetLeftRight**

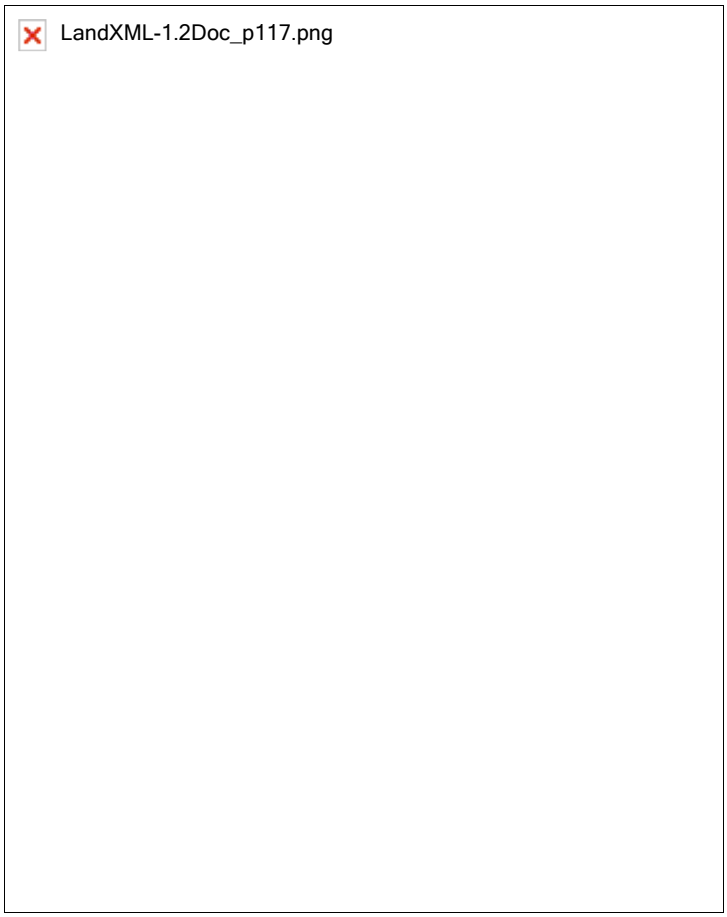
type	**xs:double**
properties	isRef 0
source	<xs:attribute name="offsetLeftRight" type="xs:double"/>

attribute **OffsetVals/@offsetUpDown**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="offsetUpDown" type="xs:double"/>

element **Outlet**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

type extension of **PointType3dReq**

properties
content complex
mixed true

used by element **Watershed**

facets
minLength 0
maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			
refWS	**waterShedNameRef**				

annotation
documentation
Identifies a drain point from the watershed with a space delimited "northing easting elevation" value.
documentation
If it drains to another known watershed, then the name of that watershed is identified by the "refWs" attribute.

source	<xs:element name="Outlet"> <xs:annotation> <xs:documentation>Identifies a drain point from the watershed with a space delimited "northing easting elevation" value.</xs:documentation> <xs:documentation>If it drains to another known watershed, then the name of that watershed is identified by the "refWs" attribute.</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:simpleContent> <xs:extension base="PointType3dReq"> <xs:attribute name="refWS" type="waterShedNameRef"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element>

attribute **Outlet/@refWS**

type	**waterShedNameRef**
properties	isRef 0
source	<xs:attribute name="refWS" type="waterShedNameRef"/>

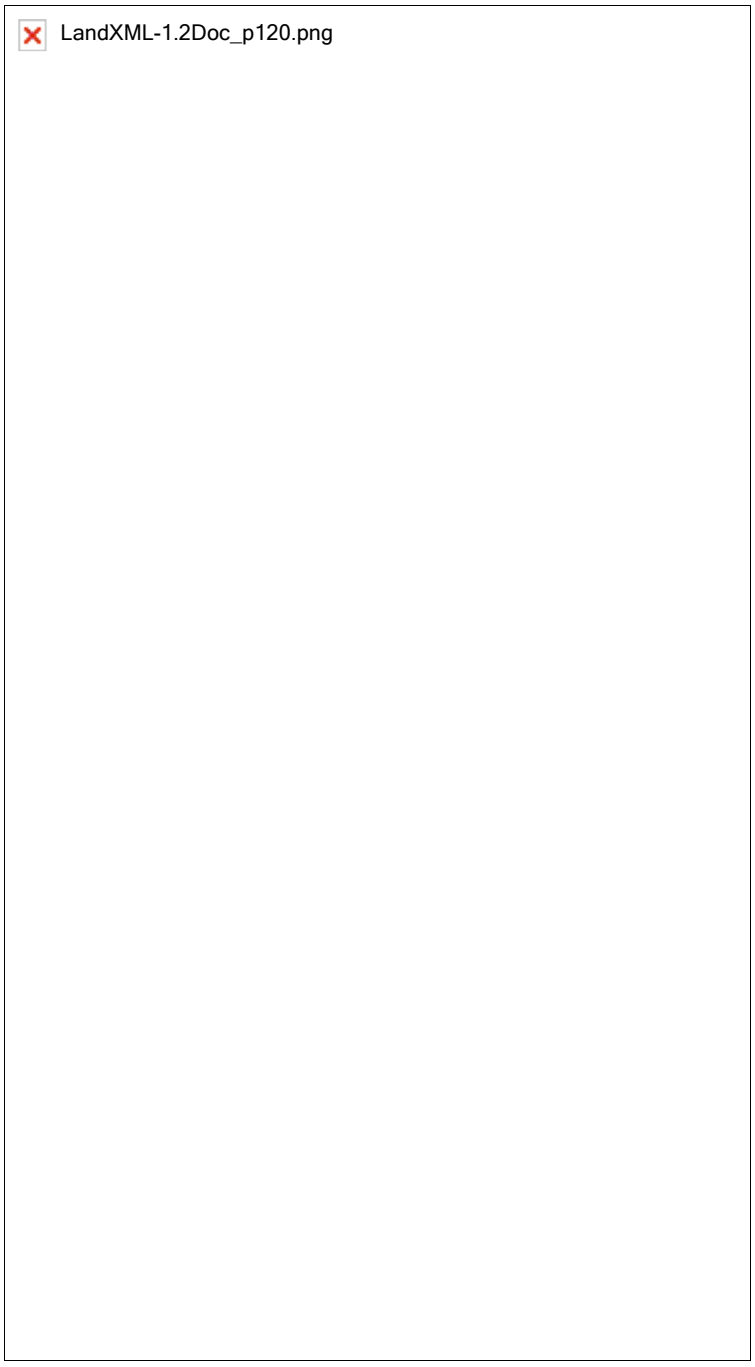
element **OutletStruct**

diagram	LandXML-1.2Doc_p118.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Struct**
source	<xs:element name="OutletStruct"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **OutSpiral**

diagram	LandXML-1.2Doc_p119.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Spiral**
used by	element **AlignPI**
annotation	documentation Out Spiral Definition
source	<xs:element name="OutSpiral"> <xs:annotation> <xs:documentation>Out Spiral Definition</xs:documentation> </xs:annotation> <xs:complexType> <xs:all> <xs:element ref="Spiral"/> </xs:all> </xs:complexType> </xs:element>

element **P**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **PointType**
properties	content complex mixed true
used by	element **Pnts**
facets	minLength 0 maxLength 3

attributes	Name	Type	Use	Default	Fixed	annotation
	name	**xs:string**				
	desc	**xs:string**				
	code	**xs:string**				

	state	**stateType**	
	pntRef	**pointNameRef**	
	featureRef	**featureNameRef**	optional
	pointGeometry	**pointGeometryType**	
	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
	id	**xs:positiveInteger**	required

annotation

documentation

A surface point. it contains an id attribute and a space delimited "northing easting elevation" text value.

documentation

The id values are referenced by the surface faces for the coordinate values.

source

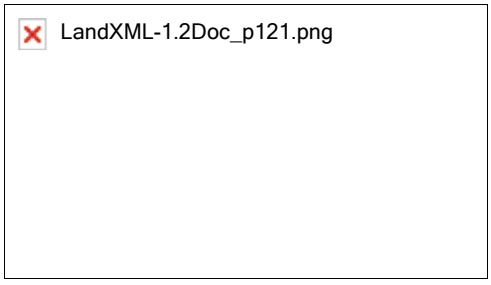
```
<xs:element name="P">
  <xs:annotation>
    <xs:documentation>A surface point. it contains an id attribute and a space delimited "northing easting elevation" text value.</xs:documentation>
    <xs:documentation>The id values are referenced by the surface faces for the coordinate values.</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:simpleContent>
      <xs:extension base="PointType">
        <xs:attribute name="id" type="xs:positiveInteger" use="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

attribute **P/@id**

type	**xs:positiveInteger**
properties	isRef 0 use required
source	`<xs:attribute name="id" type="xs:positiveInteger" use="required"/>`

element **ParaCurve**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **Point2dReq**
properties	content complex mixed true
used by	element **ProfAlign**
facets	length 2
attributes	Name Type Use Default Fixed annotation length **xs:double** required desc **xs:string**
annotation	documentation A Point of Vertical Intersection with a space delimited "station elevation" text value and a parabolic vertical curve defined by the "length" attribute.
source	<xs:element name="ParaCurve"> <xs:annotation> <xs:documentation>A Point of Vertical Intersection with a space delimited "station elevation" text value and a parabolic vertical curve defined by the "length" attribute.</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:simpleContent> <xs:extension base="Point2dReq"> <xs:attribute name="length" type="xs:double" use="required"/> <xs:attribute name="desc" type="xs:string"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element>

attribute **ParaCurve/@length**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="length" type="xs:double" use="required"/>

attribute **ParaCurve/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

element **Parcel**

diagram

LandXML-1.2Doc_p122.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Center CoordGeom VolumeGeom Parcels Title Exclusions LocationAddress Feature**
used by	element **Parcels**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
oID	**xs:string**				
area	**xs:double**				
desc	**xs:string**				
dirClosure	**direction**				
distClosure	**xs:double**				
owner	**xs:string**				
parcelType	**xs:string**				
setbackFront	**xs:double**				
setbackRear	**xs:double**				

	setbackSide	**xs:double**
	state	**parcelStateType**
	taxId	**xs:string**
	class	**parcelClass**
	useOfParcel	**useOfParcelType**
	parcelFormat	**parcelFormat**
	buildingNo	**xs:string**
	buildingLevelNo	**xs:string**
	volume	**xs:string**
	pclRef	**parcelNameRef**
	lotEntitlements	**xs:string**
	liabilityApportionment	**xs:string**
annotation	documentation Modified to include parcel class and an official ID	

source

```
<xs:element name="Parcel">
  <xs:annotation>
    <xs:documentation>Modified to include parcel class and an official ID</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice maxOccurs="unbounded">
        <xs:element ref="Center" minOccurs="0"/>
        <xs:element ref="CoordGeom"/>
        <xs:element ref="VolumeGeom" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Parcels" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Title" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Exclusions" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="LocationAddress" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="area" type="xs:double"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="dirClosure" type="direction"/>
    <xs:attribute name="distClosure" type="xs:double"/>
    <xs:attribute name="owner" type="xs:string"/>
    <xs:attribute name="parcelType" type="xs:string"/>
    <xs:attribute name="setbackFront" type="xs:double"/>
    <xs:attribute name="setbackRear" type="xs:double"/>
    <xs:attribute name="setbackSide" type="xs:double"/>
    <xs:attribute name="state" type="parcelStateType"/>
    <xs:attribute name="taxId" type="xs:string"/>
    <xs:attribute name="class" type="parcelClass"/>
    <xs:attribute name="useOfParcel" type="useOfParcelType"/>
    <xs:attribute name="parcelFormat" type="parcelFormat"/>
    <xs:attribute name="buildingNo" type="xs:string"/>
    <xs:attribute name="buildingLevelNo" type="xs:string"/>
    <xs:attribute name="volume" type="xs:string"/>
    <xs:attribute name="pclRef" type="parcelNameRef"/>
    <xs:attribute name="lotEntitlements" type="xs:string"/>
    <xs:attribute name="liabilityApportionment" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Parcel/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Parcel/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **Parcel/@area**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="area" type="xs:double"/>

attribute **Parcel/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Parcel/@dirClosure**

type	**direction**
properties	isRef 0
source	<xs:attribute name="dirClosure" type="direction"/>

attribute **Parcel/@distClosure**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="distClosure" type="xs:double"/>

attribute **Parcel/@owner**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="owner" type="xs:string"/>

attribute **Parcel/@parcelType**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="parcelType" type="xs:string"/>

attribute **Parcel/@setbackFront**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setbackFront" type="xs:double"/>

attribute **Parcel/@setbackRear**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setbackRear" type="xs:double"/>

attribute **Parcel/@setbackSide**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setbackSide" type="xs:double"/>

attribute **Parcel/@state**

type	**parcelStateType**
properties	isRef 0
facets	enumeration affected enumeration created enumeration encroached enumeration extinguished enumeration referenced enumeration proposed enumeration existing enumeration adjoining
source	<xs:attribute name="state" type="parcelStateType"/>

attribute **Parcel/@taxId**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="taxId" type="xs:string"/>

attribute **Parcel/@class**

type	**parcelClass**
properties	isRef 0
source	<xs:attribute name="class" type="parcelClass"/>

attribute **Parcel/@useOfParcel**

type	**useOfParcelType**
properties	isRef 0
source	<xs:attribute name="useOfParcel" type="useOfParcelType"/>

attribute **Parcel/@parcelFormat**

type	**parcelFormat**
properties	isRef 0
source	<xs:attribute name="parcelFormat" type="parcelFormat"/>

attribute **Parcel/@buildingNo**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="buildingNo" type="xs:string"/>

attribute **Parcel/@buildingLevelNo**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="buildingLevelNo" type="xs:string"/>

attribute **Parcel/@volume**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="volume" type="xs:string"/>

attribute **Parcel/@pclRef**

type	**parcelNameRef**
properties	isRef 0
source	<xs:attribute name="pclRef" type="parcelNameRef"/>

attribute **Parcel/@lotEntitlements**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="lotEntitlements" type="xs:string"/>

attribute **Parcel/@liabilityApportionment**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="liabilityApportionment" type="xs:string"/>

element **Parcels**

diagram	LandXML-1.2Doc_p123.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Parcel** **Feature**
used by	elements **LandXML** **Parcel**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

identity constraints

	Name	Refer	Selector	Field(s)
unique	uPclName		Parcel	@name

annotation

documentation
A collection of Parcels

source	<xs:element name="Parcels"> <xs:annotation> <xs:documentation>A collection of Parcels</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Parcel" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="name" type="xs:string"/> <xs:attribute name="state" type="stateType"/> </xs:complexType> <xs:unique name="uPclName"> <xs:selector xpath="Parcel"/> <xs:field xpath="@name"/> </xs:unique> </xs:element>

attribute **Parcels/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

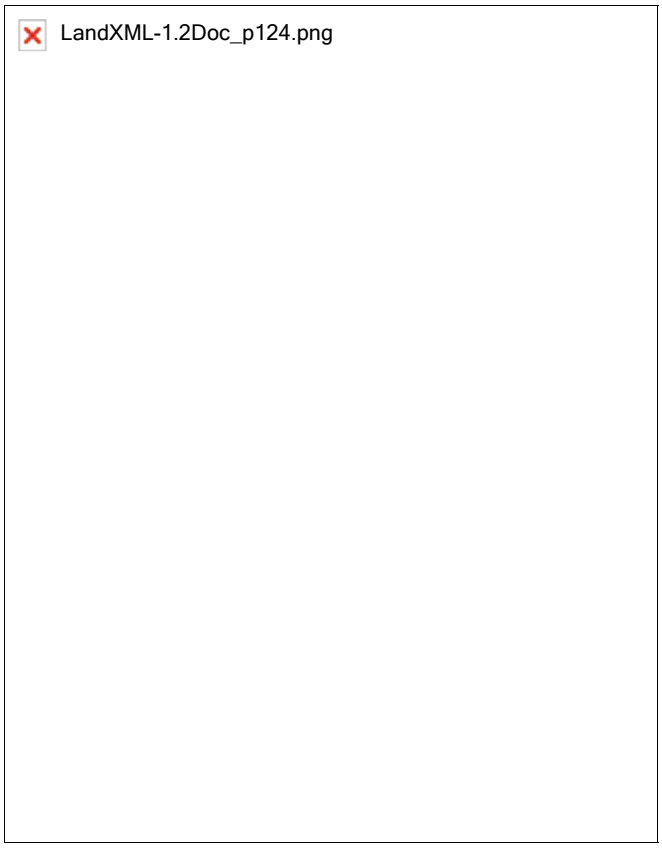
attribute **Parcels/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Parcels/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **PassingLane**

diagram	 LandXML-1.2Doc_p124.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Lanes**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
beginFullWidthSta	**station**				
endFullWidthSta	**station**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="PassingLane">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="beginFullWidthSta" type="station"/>
    <xs:attribute name="endFullWidthSta" type="station"/>
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **PassingLane/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **PassingLane/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **PassingLane/@beginFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="beginFullWidthSta" type="station"/>

attribute **PassingLane/@endFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="endFullWidthSta" type="station"/>

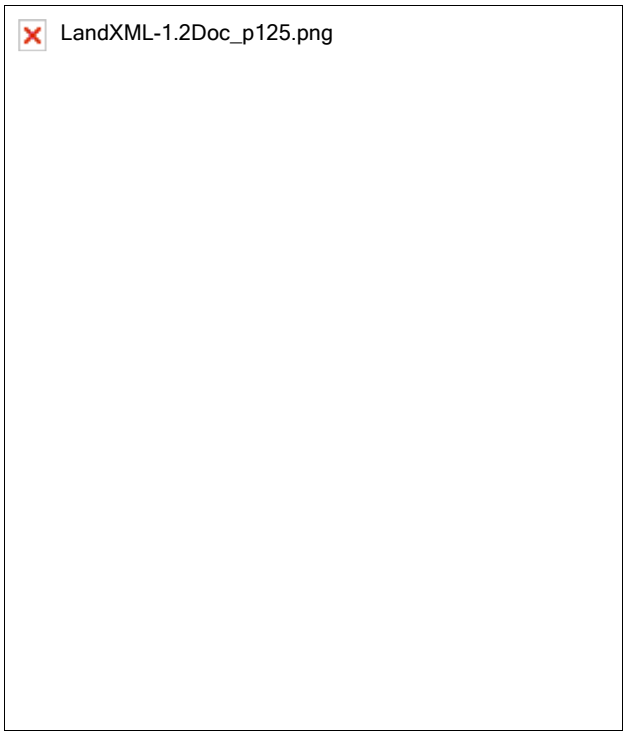
attribute **PassingLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **PassingLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **PeakHour**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **TrafficVolume**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
sideofRoad	**sideofRoadType**				
volume	**xs:double**				

source

```
<xs:element name="PeakHour">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
    <xs:attribute name="volume" type="xs:double"/>
  </xs:complexType>
  <!-- Peak Hour Volume - This item is the peak hour volume (PHV). The 30th highest volume of the year should be used as the PHV, which can be approximated as 15 percent of the average daily traffic (ADT). On two-lane rural highways, the DHV is the total traffic in both directions of travel. The unit of measure for this item is vehicles/hour. -->
</xs:element>
```

attribute **PeakHour/@staStart**

type	**station**
properties	isRef 0

source	<xs:attribute name="staStart" type="station"/>

attribute **PeakHour/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **PeakHour/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

attribute **PeakHour/@volume**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="volume" type="xs:double"/>

element **Personnel**

diagram	LandXML-1.2Doc_p126.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **SurveyHeader**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
role	**surveyorRoleType**				
regType	**registrationType**				
regNumber	**xs:string**				

source

```
<xs:element name="Personnel">
  <xs:complexType>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="role" type="surveyorRoleType"/>
    <xs:attribute name="regType" type="registrationType"/>
```

```
    <xs:attribute name="regNumber" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Personnel/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Personnel/@role**

type	**surveyorRoleType**
properties	isRef 0
source	<xs:attribute name="role" type="surveyorRoleType"/>

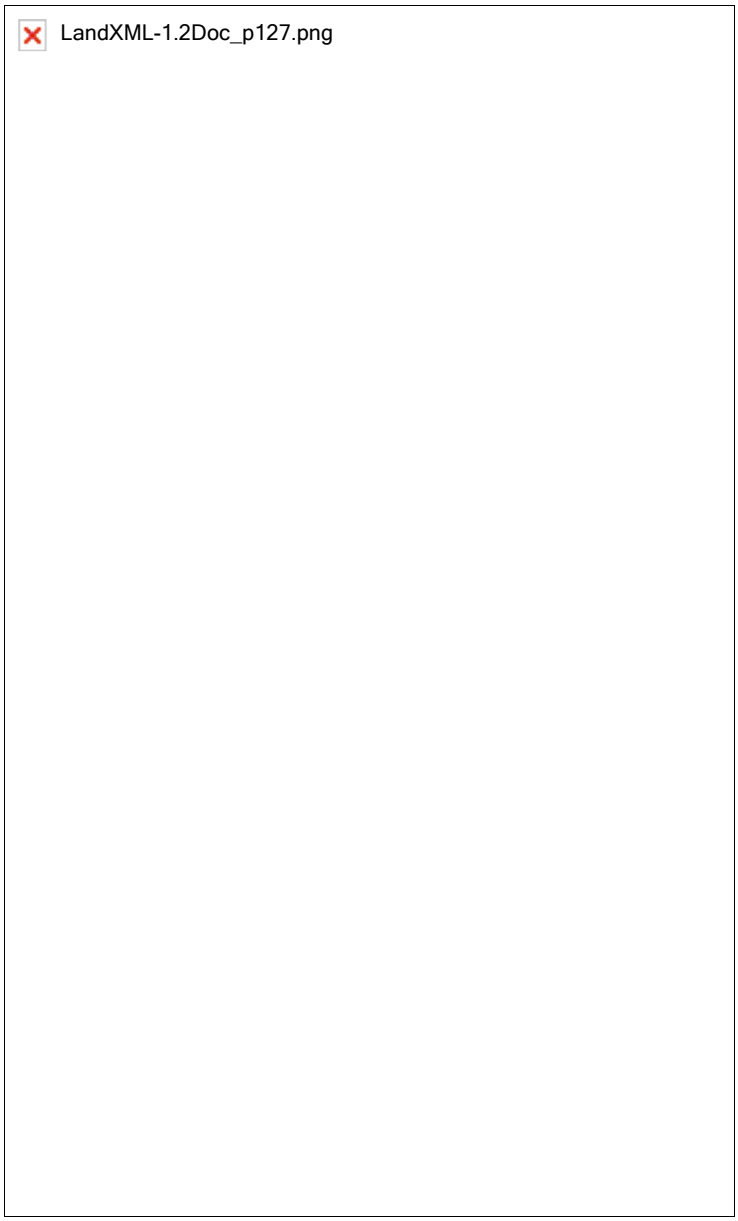
attribute **Personnel/@regType**

type	**registrationType**
properties	isRef 0
source	<xs:attribute name="regType" type="registrationType"/>

attribute **Personnel/@regNumber**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="regNumber" type="xs:string"/>

element **PI**

diagram	 LandXML-1.2Doc_p127.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	elements **AlignPI** **Curve** **Spiral**
facets	minLength 0 maxLength 3

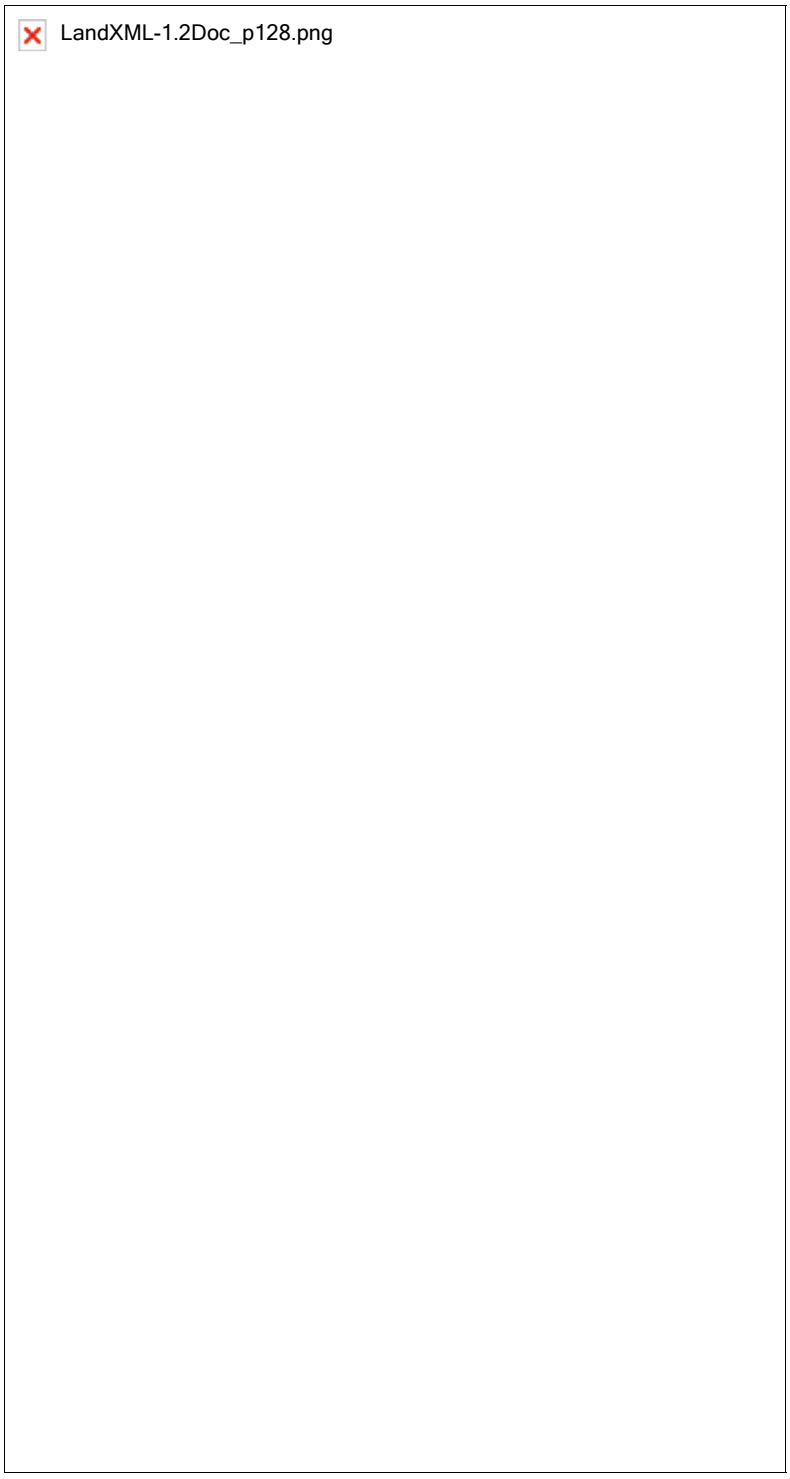
attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				

	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
annotation	documentation Represents a 2D or 3D Point of Intersection documentation Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.		
source	<xs:element name="PI" type="PointType"> <xs:annotation> <xs:documentation>Represents a 2D or 3D Point of Intersection</xs:documentation> <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation> </xs:annotation> </xs:element>		

element **Pipe**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CircPipe EggPipe ElliPipe RectPipe Channel PipeFlow Center Feature**
used by	element **Pipes**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
refEnd	**structNameRef**	required			
refStart	**structNameRef**	required			
desc	**xs:string**				

	length	**xs:double**
	oID	**xs:string**
	slope	**xs:double**
	state	**stateType**

annotation

documentation
Each Pipe within a Pipes collection element will have a unique "name" attribute.
documentation
The pipe type is determined by the existance of one of the following elements: CircPipe, ElliPipe or RectPipe.
documentation
The "startRef and "endRef" attributes reference Struct "name" values.
documentation
The start and end invert elevations for the pipe are defined in the Invert elements of referenced structures.
documentation
Since a struct may have more than one Invert element, the Invert "pipeRef" attribute is used to select the correct invert element.

source

```
<xs:element name="Pipe">
  <xs:annotation>
    <xs:documentation>Each Pipe within a Pipes collection element will have a unique  "name" attribute.</xs:documentation>
    <xs:documentation>The pipe type is determined by the existance of one of the following elements: CircPipe, ElliPipe or RectPipe.</xs:documentation>
    <xs:documentation>The "startRef and "endRef" attributes reference Struct "name" values.</xs:documentation>
    <xs:documentation>The start and end invert elevations for the pipe are defined in the Invert elements of referenced structures.</xs:documentation>
    <xs:documentation>Since a struct may have more than one Invert element, the Invert "pipeRef" attribute is used to select the correct invert element.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice>
        <xs:element ref="CircPipe"/>
        <xs:element ref="EggPipe"/>
        <xs:element ref="ElliPipe"/>
        <xs:element ref="RectPipe"/>
        <xs:element ref="Channel"/>
      </xs:choice>
      <xs:element ref="PipeFlow" minOccurs="0"/>
      <xs:element ref="Center" minOccurs="0"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      <!-- <Center> point of the Pipe is the point of center on the curved pipe arc.  If this optional element is specified, then the pipe starts at refStart, passes through the <Center> point, and end at refEnd. -->
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="refEnd" type="structNameRef" use="required"/>
    <xs:attribute name="refStart" type="structNameRef" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="length" type="xs:double"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="slope" type="xs:double"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Pipe/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Pipe/@refEnd**

type	**structNameRef**
properties	isRef 0 use required
source	<xs:attribute name="refEnd" type="structNameRef" use="required"/>

attribute **Pipe/@refStart**

type	**structNameRef**
properties	isRef 0 use required
source	<xs:attribute name="refStart" type="structNameRef" use="required"/>

attribute **Pipe/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Pipe/@length**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="length" type="xs:double"/>

attribute **Pipe/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **Pipe/@slope**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="slope" type="xs:double"/>

attribute **Pipe/@state**

type	**stateType**

properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **PipeFlow**

diagram	LandXML-1.2Doc_p129.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Pipe**

attributes

Name	Type	Use	Default	Fixed	annotation
flowIn	**xs:double**	required			
areaCatchment	**xs:double**				
desc	**xs:string**				
depthCritical	**xs:double**				

	hglDown **xs:double** hglUp **xs:double** intensity **xs:double** runoffCoeff **xs:double** slopeCritical **xs:double** timeInlet **xs:double** velocityCritical **xs:double**
source	<xs:element name="PipeFlow"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="flowIn" type="xs:double" use="required"/> <xs:attribute name="areaCatchment" type="xs:double"/> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="depthCritical" type="xs:double"/> <xs:attribute name="hglDown" type="xs:double"/> <xs:attribute name="hglUp" type="xs:double"/> <xs:attribute name="intensity" type="xs:double"/> <xs:attribute name="runoffCoeff" type="xs:double"/> <xs:attribute name="slopeCritical" type="xs:double"/> <xs:attribute name="timeInlet" type="xs:double"/> <xs:attribute name="velocityCritical" type="xs:double"/> </xs:complexType> </xs:element>

attribute **PipeFlow/@flowIn**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="flowIn" type="xs:double" use="required"/>

attribute **PipeFlow/@areaCatchment**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="areaCatchment" type="xs:double"/>

attribute **PipeFlow/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **PipeFlow/@depthCritical**

type	**xs:double**

properties	isRef 0
source	<xs:attribute name="depthCritical" type="xs:double"/>

attribute **PipeFlow/@hglDown**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hglDown" type="xs:double"/>

attribute **PipeFlow/@hglUp**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hglUp" type="xs:double"/>

attribute **PipeFlow/@intensity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="intensity" type="xs:double"/>

attribute **PipeFlow/@runoffCoeff**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="runoffCoeff" type="xs:double"/>

attribute **PipeFlow/@slopeCritical**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="slopeCritical" type="xs:double"/>

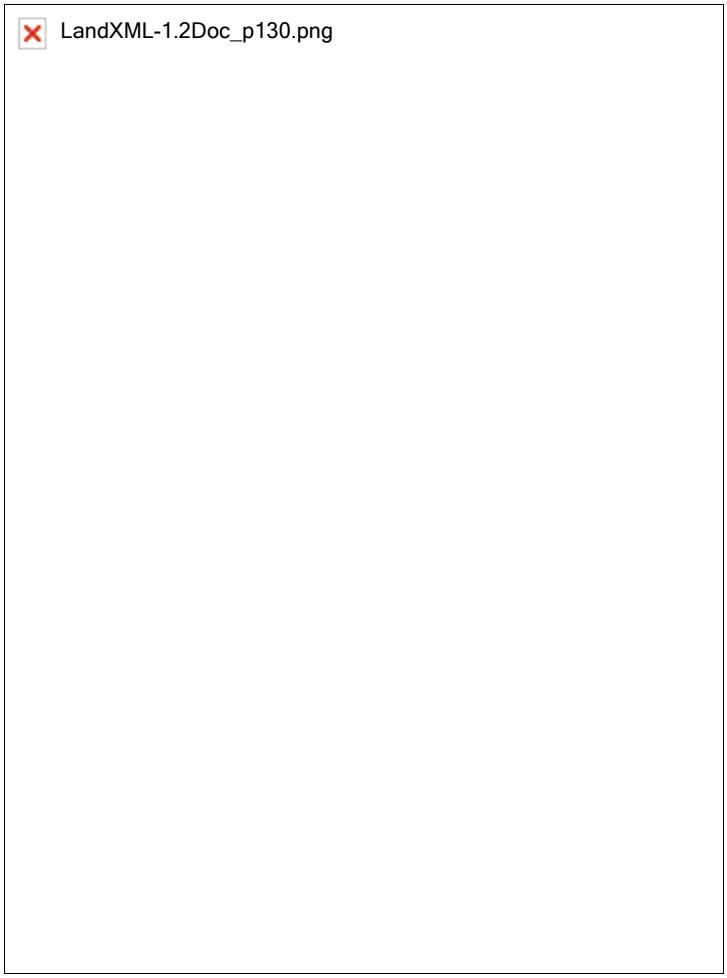
attribute **PipeFlow/@timeInlet**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="timeInlet" type="xs:double"/>

attribute **PipeFlow/@velocityCritical**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="velocityCritical" type="xs:double"/>

element **PipeNetwork**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Structs** **Pipes** **Feature**
used by	element **PipeNetworks**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
pipeNetType	**pipeNetworkType**	required			
alignmentRef	**alignmentNameRef**				
desc	**xs:string**				
oID	**xs:string**				
state	**stateType**				

annotation

documentation

This element contains one "Structs" collection element and one "Pipes" collection element.

documentation

keyRef is a Schema validation mechanism that ensures that the "structRef" and "pipeRef" attribute values have corresponding Pipe and Struct "name" values"

source

```
<xs:element name="PipeNetwork">
  <xs:annotation>
    <xs:documentation>This element contains one "Structs" collection element and one "Pipes" collection element.</xs:documentation>
```

```
    <xs:documentation>keyRef is a Schema validation mechanism that ensures that the "structRef" and "pipeRef" attribute values have corresponding Pipe and Struct "name" values"</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Structs"/>
      <xs:element ref="Pipes"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="pipeNetType" type="pipeNetworkType" use="required"/>
    <xs:attribute name="alignmentRef" type="alignmentNameRef"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **PipeNetwork/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **PipeNetwork/@pipeNetType**

type	**pipeNetworkType**
properties	isRef 0 use required
facets	enumeration sanitary enumeration storm enumeration water enumeration other
source	<xs:attribute name="pipeNetType" type="pipeNetworkType" use="required"/>

attribute **PipeNetwork/@alignmentRef**

type	**alignmentNameRef**
properties	isRef 0
source	<xs:attribute name="alignmentRef" type="alignmentNameRef"/>

attribute **PipeNetwork/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **PipeNetwork/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **PipeNetwork/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **PipeNetworks**

diagram	LandXML-1.2Doc_p131.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
children	**PipeNetwork** **Feature**
used by	element **LandXML**

attributes	Name	Type	Use	Default	Fixed	annotation
	desc	**xs:string**				
	name	**xs:string**				
	state	**stateType**				

identity constraints	Name	Refer	Selector	Field(s)
unique	uPipeNetName		PipeNetwork	@name

source

```
<xs:element name="PipeNetworks">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="PipeNetwork" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
  <xs:unique name="uPipeNetName">
    <xs:selector xpath="PipeNetwork"/>
    <xs:field xpath="@name"/>
  </xs:unique>
</xs:element>
```

attribute **PipeNetworks/@desc**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="desc" type="xs:string"/>`

attribute **PipeNetworks/@name**

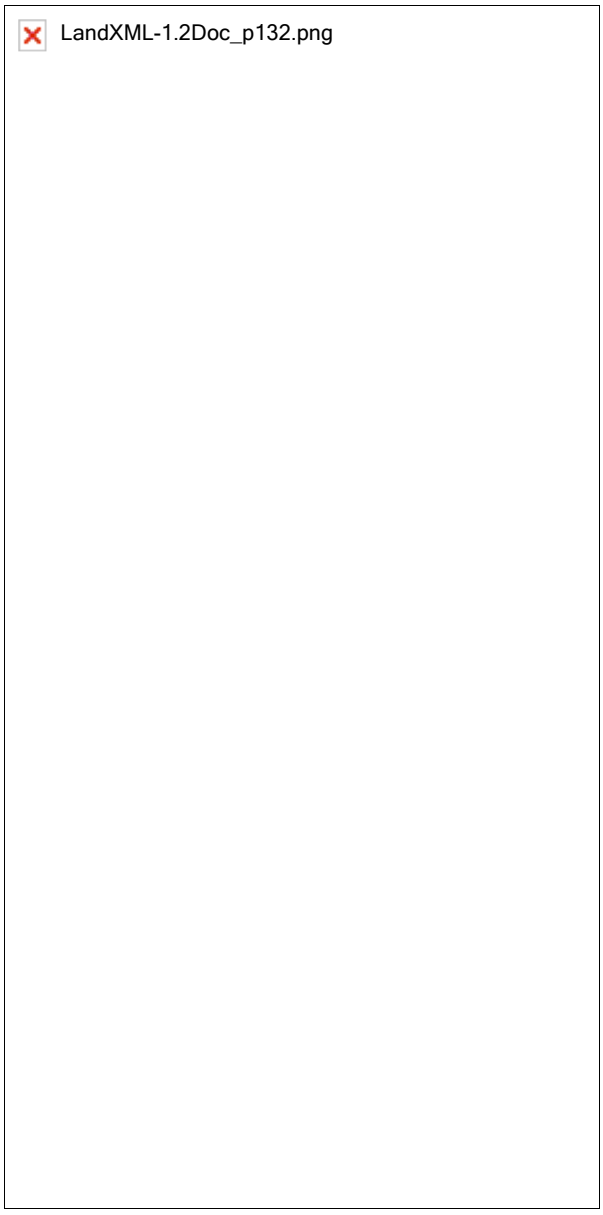
type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="name" type="xs:string"/>`

attribute **PipeNetworks/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed

source	<xs:attribute name="state" type="stateType"/>

element **Pipes**

diagram	 LandXML-1.2Doc_p132.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Units Pipe Feature**
used by	element **PipeNetwork**

identity constraints	Name	Refer	Selector	Field(s)
unique	uPipeName		Pipe	@name

source

```
<xs:element name="Pipes">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
```

```
      <xs:element ref="Units" minOccurs="0"/>
      <xs:element ref="Pipe" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:unique name="uPipeName">
    <xs:selector xpath="Pipe"/>
    <xs:field xpath="@name"/>
  </xs:unique>
</xs:element>
```

element **PlanFeature**

diagram	LandXML-1.2Doc_p133.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CoordGeom** **Location** **FieldNote** **Feature**
used by	elements **PlanFeatures** **Roadway**

attributes	Name	Type	Use	Default	Fixed	annotation
	desc	**xs:string**				
	name	**xs:string**				
	state	**stateType**				
annotation	documentation A planimetric feature not otherwise defined by the schema, such as building footprints, guard rails, tree lines, lightpoles or signage.					

source

```
<xs:element name="PlanFeature">
  <xs:annotation>
    <xs:documentation>A planimetric feature not otherwise defined by the schema, such as building footprints, guard rails, tree lines, lightpoles or signage.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="CoordGeom"/>
      <xs:element ref="Location" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **PlanFeature/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **PlanFeature/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **PlanFeature/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **PlanFeatures**

diagram	LandXML-1.2Doc_p134.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PlanFeature** **Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

annotation

documentation

A collection of planimetric features not otherwise defined by the schema, such as building footprints, guard rails, tree lines, lightpoles or signage.

documentation

Typically a PlanFeatures element will contain a collection of similar items.

source

```
<xs:element name="PlanFeatures">
  <xs:annotation>
    <xs:documentation>A collection of planimetric features not otherwise defined by the schema, such as building footprints, guard rails, tree lines, lightpoles or signage.</xs:documentation>
    <xs:documentation>Typically a PlanFeatures element will contain a collection of similar items.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="PlanFeature" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
```

```
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **PlanFeatures/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **PlanFeatures/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **PlanFeatures/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **PntList2D**

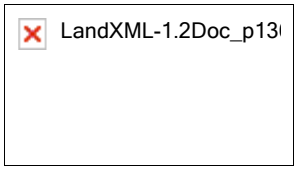
diagram	LandXML-1.2Doc_p13
namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **Point**
properties	content simple
used by	elements **Boundary** **Breakline** **Contour** **CrossSectSurf** **IrregularLine** **ProfSurf** **Watershed** **ZoneCrossSectStructure**
facets	minLength 2
annotation	documentation A sequential space delimited list of 2D coordinates with a minimum of 2 points (4 values). documentation It is primarily used for ProfileSurf to hold the list of station/elevations and CrossSectSurf for offset/elevation. documentation Example: "0.000 86.52 6.267 86.89 12.413 87.01 26.020 87.83"

source

```
<xs:element name="PntList2D">
  <xs:annotation>
    <xs:documentation>A sequential space delimited list of 2D coordinates with a minimum of 2 points (4 values). </xs:documentation>
    <xs:documentation>It is primarily used for ProfileSurf to hold the list of station/elevations and CrossSectSurf for offset/elevation. </xs:documentation>
    <xs:documentation>Example: "0.000 86.52 6.267 86.89 12.413 87.01 26.020 87.83" </xs:documentation>
  </xs:annotation>
  <xs:simpleType>
    <xs:restriction base="Point">
      <xs:minLength value="2"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

element **PntList3D**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

type restriction of **Point**

properties content simple

used by elements **Boundary** **Breakline** **DataPoints** **IrregularLine** **Watershed**

facets minLength 3

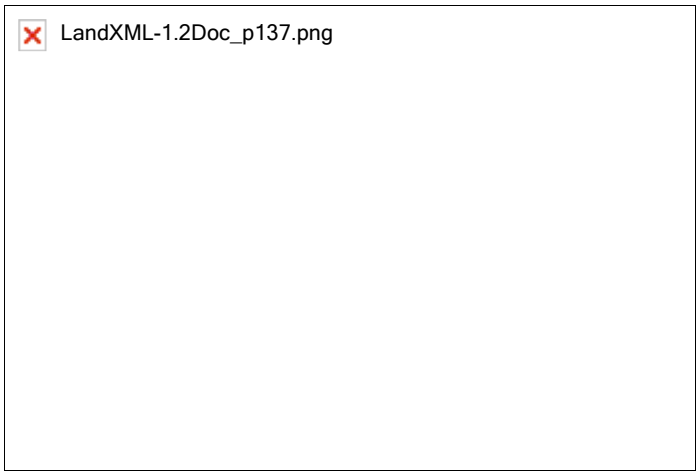
annotation

documentation
A sequential space delimited list of 3D coordinates with a minimum of 2 points (6 values).
documentation
Primarily used to store lists of northing/easting/elevation for Terrain Surface data.
documentation
Example: "0.000 86.52 50.0 6.267 86.89 50.0 12.413 87.01 50.0 26.020 87.83 50.0"

source

```
<xs:element name="PntList3D">
  <xs:annotation>
    <xs:documentation>A sequential space delimited list of 3D coordinates with a minimum of 2 points (6 values). </xs:documentation>
    <xs:documentation>Primarily used to store lists of northing/easting/elevation for Terrain Surface data. </xs:documentation>
    <xs:documentation>Example: "0.000 86.52 50.0 6.267 86.89 50.0 12.413 87.01 50.0 26.020 87.83 50.0" </xs:documentation>
  </xs:annotation>
  <xs:simpleType>
    <xs:restriction base="Point">
      <xs:minLength value="3"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

element **Pnts**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**P**
used by	element **Definition**

identity constraints	Name	Refer	Selector	Field(s)
unique	uSrfPntNum		P	@id

annotation

documentation

The collection of points that defined the surface. The "P" point id values are unique per surface.

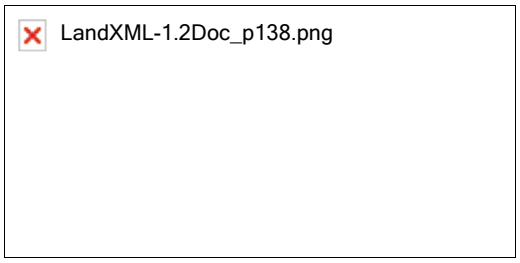
documentation

The id values are referenced by the surface faces and breaklines.

source

```
<xs:element name="Pnts">
  <xs:annotation>
    <xs:documentation>The collection of points that defined the surface. The "P" point id values are unique per surface.</xs:documentation>
    <xs:documentation>The id values are referenced by the surface faces and breaklines.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="P" minOccurs="3" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:unique name="uSrfPntNum">
    <xs:selector xpath="P"/>
    <xs:field xpath="@id"/>
  </xs:unique>
</xs:element>
```

element **PointFile**

diagram	

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **PointFiles**
attributes	Name Type Use Default Fixed annotation fileName required fileType required fileFormat required
annotation	documentation A reference to an external file containing point information. documentation The format of the information is defined by the order and delimeter attributes.
source	<xs:element name="PointFile"> <xs:annotation> <xs:documentation>A reference to an external file containing point information.</xs:documentation> <xs:documentation>The format of the information is defined by the order and delimeter attributes.</xs:documentation> </xs:annotation> <xs:complexType> <xs:attribute name="fileName" use="required"/> <xs:attribute name="fileType" use="required"/> <xs:attribute name="fileFormat" use="required"/> </xs:complexType> </xs:element>

attribute **PointFile/@fileName**

properties	isRef 0 use required
source	<xs:attribute name="fileName" use="required"/>

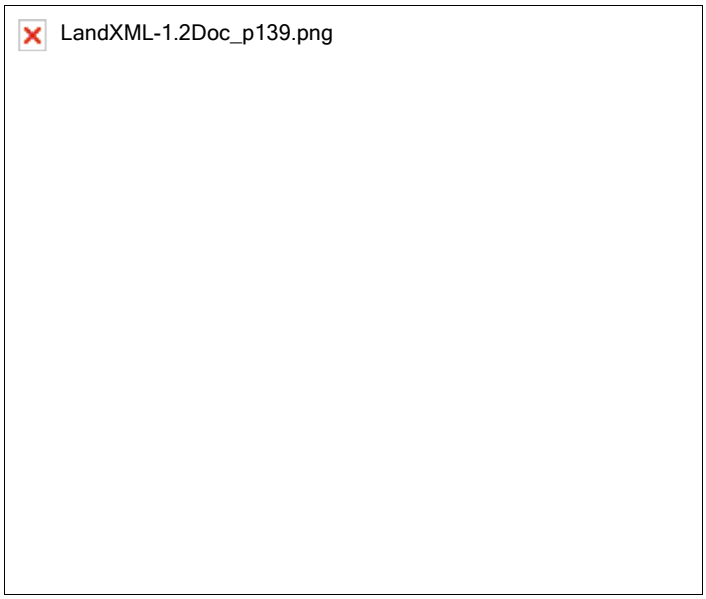
attribute **PointFile/@fileType**

properties	isRef 0 use required
source	<xs:attribute name="fileType" use="required"/>

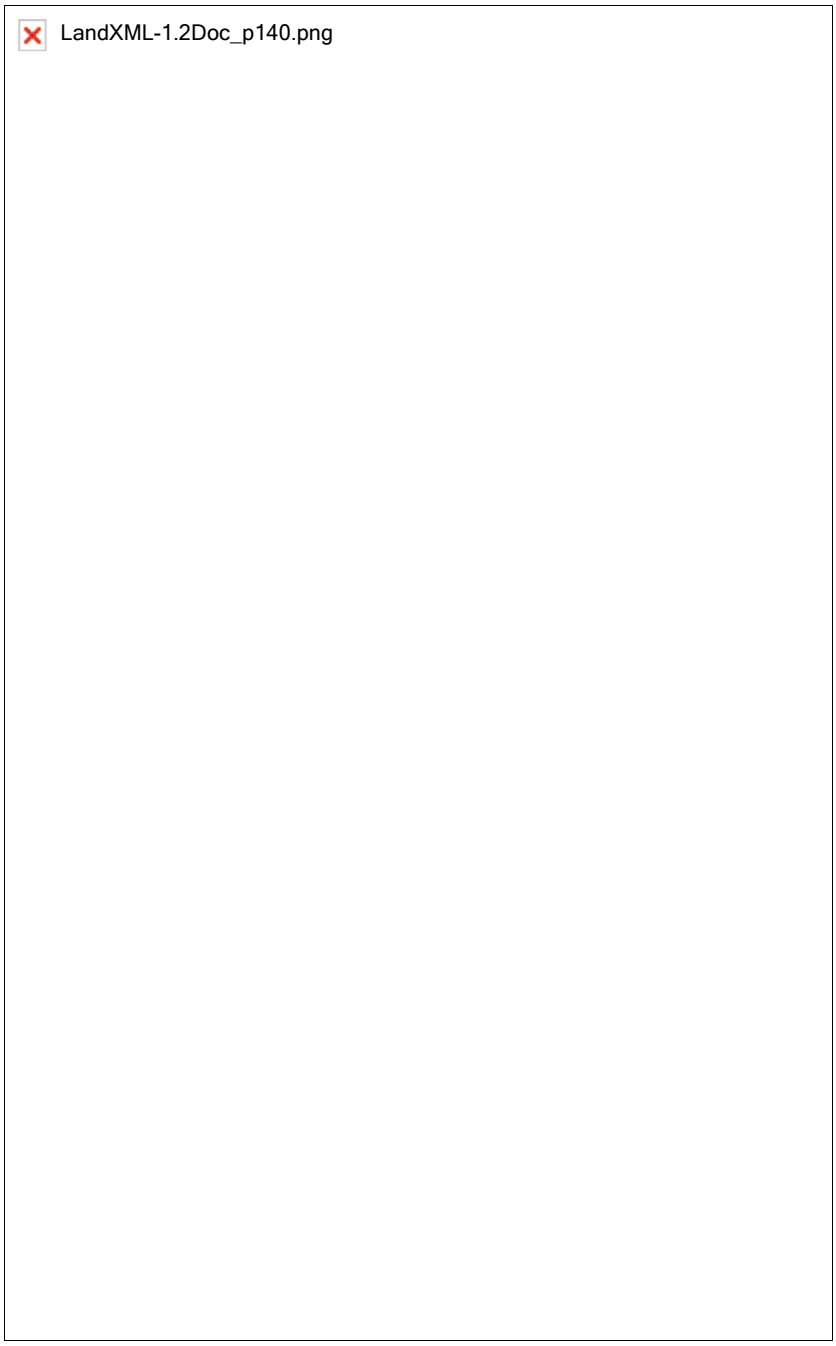
attribute **PointFile/@fileFormat**

properties	isRef 0 use required
source	<xs:attribute name="fileFormat" use="required"/>

element **PointFiles**

diagram	 LandXML-1.2Doc_p139.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PointFile** **Feature**
used by	element **SourceData**
annotation	documentation The collection of external point files that were used to define the surface. documentation Use is optional.
source	<xs:element name="PointFiles"> <xs:annotation> <xs:documentation>The collection of external point files that were used to define the surface.</xs:documentation> <xs:documentation>Use is optional.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="PointFile" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **PointResults**

diagram	 LandXML-1.2Doc_p140.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetPoint FieldNote Feature**
used by	element **ControlChecks**

attributes

Name	Type	Use	Default	Fixed	annotation
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
meanHorizAngle	**xs:double**				
horizStdDeviation	**xs:double**				
meanzenithAngle	**zenithAngle**				
vertStdDeviation	**xs:double**				
meanSlopeDistance	**xs:double**				

	slopeDistanceStdDeviation**xs:double**
source	<xs:element name="PointResults"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="TargetPoint" minOccurs="0"/> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:sequence> <xs:attribute name="setupID" type="xs:IDREF"/> <xs:attribute name="targetSetupID" type="xs:IDREF"/> <xs:attribute name="meanHorizAngle" type="xs:double"/> <xs:attribute name="horizStdDeviation" type="xs:double"/> <xs:attribute name="meanzenithAngle" type="zenithAngle"/> <xs:attribute name="vertStdDeviation" type="xs:double"/> <xs:attribute name="meanSlopeDistance" type="xs:double"/> <xs:attribute name="slopeDistanceStdDeviation" type="xs:double"/> </xs:complexType> </xs:element>

attribute **PointResults/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **PointResults/@targetSetupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="targetSetupID" type="xs:IDREF"/>

attribute **PointResults/@meanHorizAngle**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="meanHorizAngle" type="xs:double"/>

attribute **PointResults/@horizStdDeviation**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="horizStdDeviation" type="xs:double"/>

attribute **PointResults/@meanzenithAngle**

type	**zenithAngle**

properties	isRef 0
source	<xs:attribute name="meanzenithAngle" type="zenithAngle"/>

attribute **PointResults/@vertStdDeviation**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="vertStdDeviation" type="xs:double"/>

attribute **PointResults/@meanSlopeDistance**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="meanSlopeDistance" type="xs:double"/>

attribute **PointResults/@slopeDistanceStdDeviation**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="slopeDistanceStdDeviation" type="xs:double"/>

element **PostedSpeed**

diagram	LandXML-1.2Doc_p141.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**

used by	element **Speeds**

attributes	Name	Type	Use	Default	Fixed	annotation
	staStart	**station**				
	staEnd	**station**				
	sideofRoad	**sideofRoadType**				
	speedLimit	**speed**				

source

```
<xs:element name="PostedSpeed">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
    <xs:attribute name="speedLimit" type="speed"/>
  </xs:complexType>
</xs:element>
```

attribute **PostedSpeed/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **PostedSpeed/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

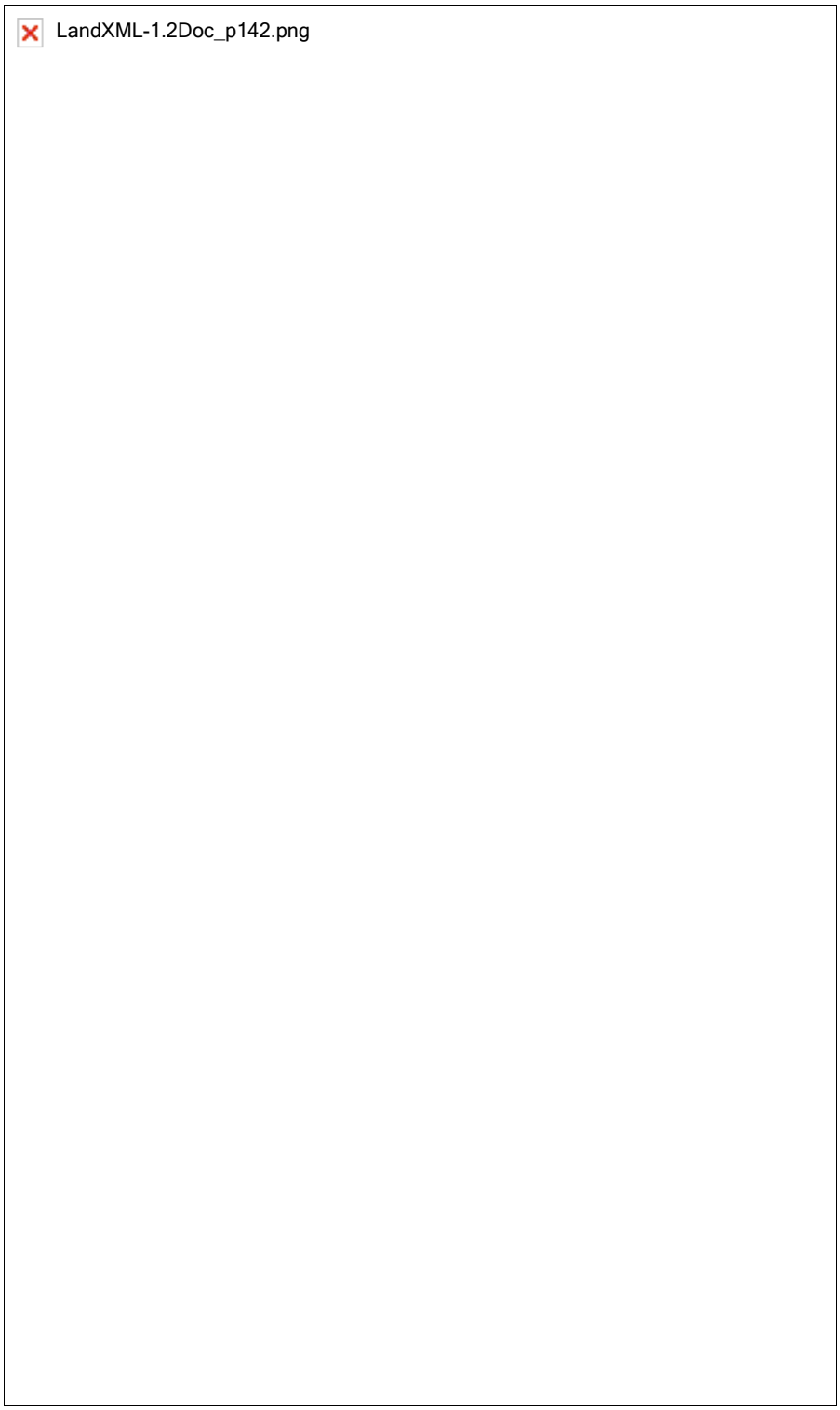
attribute **PostedSpeed/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

attribute **PostedSpeed/@speedLimit**

type	**speed**
properties	isRef 0
source	<xs:attribute name="speedLimit" type="speed"/>

element **ProfAlign**

diagram	 LandXML-1.2Doc_p142.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PVI** **ParaCurve** **UnsymParaCurve** **CircCurve** **Feature**
used by	element **Profile**

attributes	Name	Type	Use	Default	Fixed	annotation
	name	**xs:string**	required			
	desc	**xs:string**				
	state	**stateType**				

annotation	documentation
	The "ProfAlign" element will typically represent a proposed vertical alignment for a profile.
	documentation
	It is defined by a sequential series of any combination of the four "PVI" element types.

source

```
<xs:element name="ProfAlign">
  <xs:annotation>
    <xs:documentation>The "ProfAlign" element will typically represent a proposed vertical alignment for a profile.</xs:documentation>
    <xs:documentation>It is defined by a sequential series of any combination of the four "PVI" element types.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice maxOccurs="unbounded">
        <xs:element ref="PVI" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="ParaCurve" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="UnsymParaCurve" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="CircCurve" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      <!--              <xs:element ref="PVI"/>  -->
      <!--                <xs:element ref="PVI"/> -->
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **ProfAlign/@name**

type	**xs:string**
properties	isRef 0 use required
source	`<xs:attribute name="name" type="xs:string" use="required"/>`

attribute **ProfAlign/@desc**

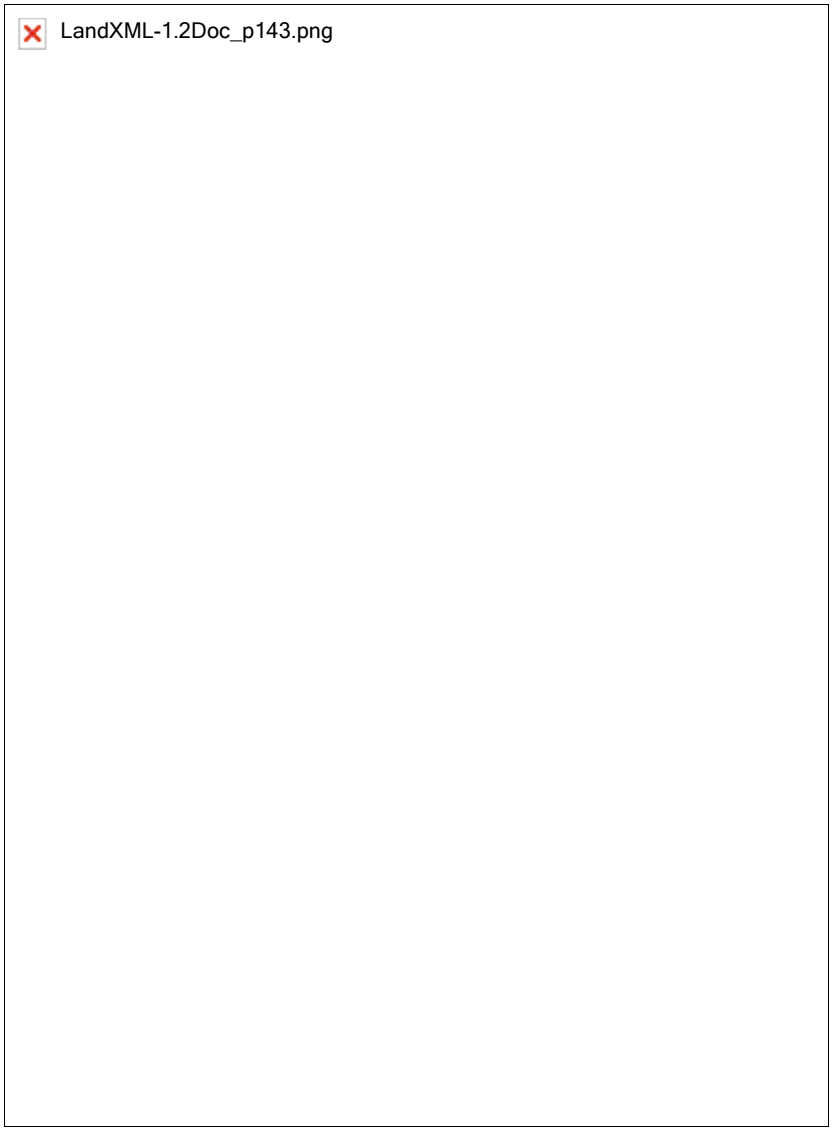
type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="desc" type="xs:string"/>`

attribute **ProfAlign/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned

	enumeration **destroyed** enumeration **existing** enumeration **proposed**
source	<xs:attribute name="state" type="stateType"/>

element **Profile**

diagram	 LandXML-1.2Doc_p143.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content **complex**
children	**ProfSurf** **ProfAlign** **Feature**
used by	element **Alignment**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
staStart	**xs:double**				
state	**stateType**				

annotation	documentation A profile or long section
source	<xs:element name="Profile"> <xs:annotation> <xs:documentation>A profile or long section</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice maxOccurs="unbounded"> <xs:element ref="ProfSurf" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="ProfAlign" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="name" type="xs:string"/> <xs:attribute name="staStart" type="xs:double"/> <xs:attribute name="state" type="stateType"/> </xs:complexType> </xs:element>

attribute **Profile/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Profile/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

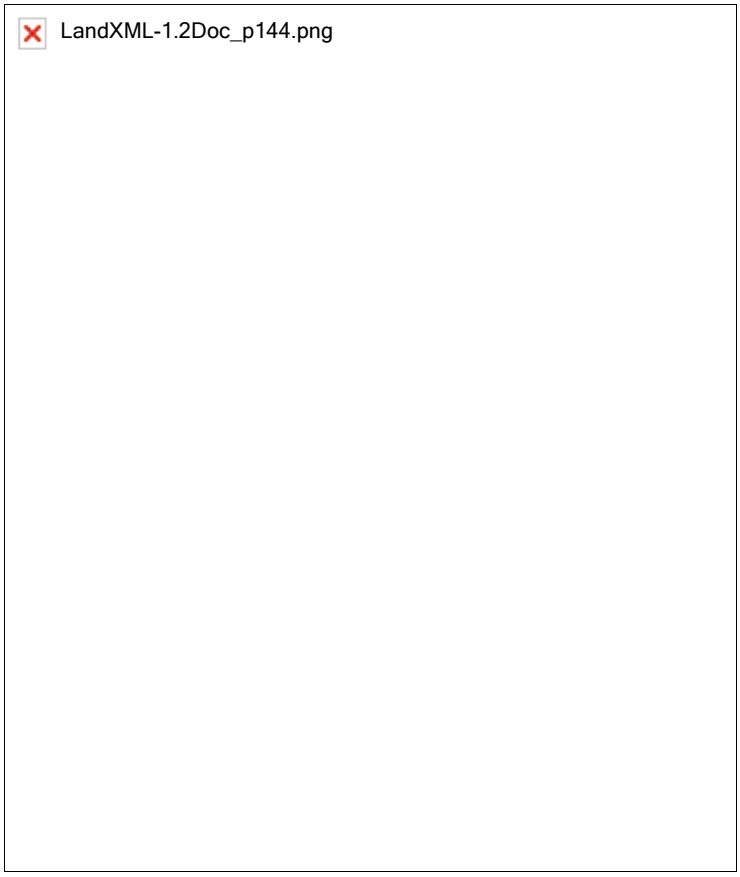
attribute **Profile/@staStart**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="staStart" type="xs:double"/>

attribute **Profile/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **ProfSurf**

diagram	 LandXML-1.2Doc_p144.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **Feature**
used by	element **Profile**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
state	**stateType**				

annotation

documentation
The "ProfSurf" element will typically represent an existing ground surface for a profile.
documentation
It is defined with a space delimited PntList2D of station/elevations pairs.
documentation
Example: "0.000 86.52 6.267 86.89 12.413 87.01 26.020 87.83"
documentation
Note: Gaps in the profile are handled by having 2 or more PntList2D elements.

source

```
<xs:element name="ProfSurf">
  <xs:annotation>
    <xs:documentation>The "ProfSurf" element will typically represent an existing ground surface for a profile. </xs:documentation>
    <xs:documentation>It is defined with a space delimited PntList2D of station/elevations pairs. </xs:documentation>
    <xs:documentation>Example: "0.000 86.52 6.267 86.89 12.413 87.01 26.020 87.83"
```

```
</xs:documentation>
   <xs:documentation>Note: Gaps in the profile are handled by having 2 or more PntList2D
elements.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
   <xs:sequence>
    <xs:element ref="PntList2D" maxOccurs="unbounded"/>
    <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
   </xs:sequence>
   <xs:attribute name="name" type="xs:string" use="required"/>
   <xs:attribute name="desc" type="xs:string"/>
   <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **ProfSurf/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

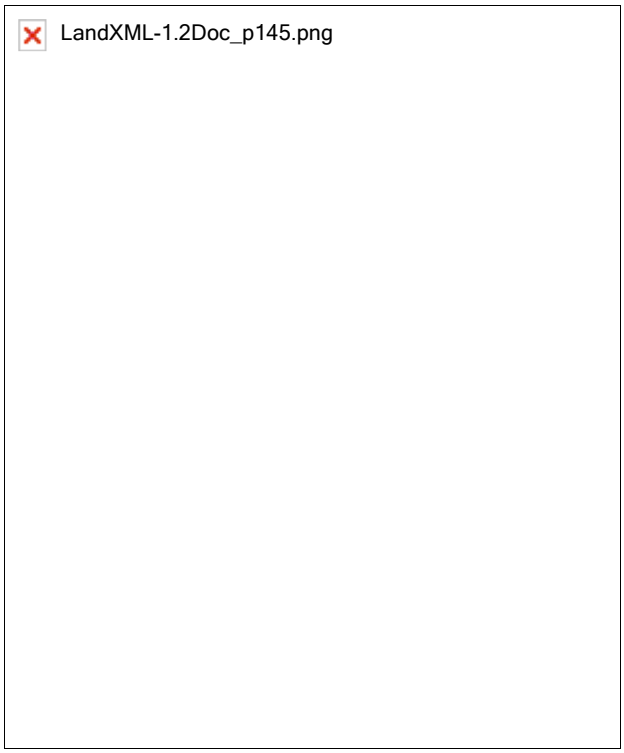
attribute **ProfSurf/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **ProfSurf/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Project**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
state	**stateType**				

source

```
<xs:element name="Project">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
   <xs:any namespace="##other" processContents="skip" minOccurs="0"/>
  </xs:choice>
  <xs:attribute name="name" type="xs:string" use="required"/>
  <xs:attribute name="desc" type="xs:string"/>
  <xs:attribute name="state" type="stateType"/>
 </xs:complexType>
</xs:element>
```

attribute **Project/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Project/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Project/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Property**

diagram	LandXML-1.2Doc_p146.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **Feature**

attributes

Name	Type	Use	Default	Fixed	annotation
label		required			
value		required			

annotation

documentation

Used to include additional information that is not explicitly defined by the LandXML schema. Each Property element defines one piece of data.

documentation

The "label" attribute defines the name of the value held in the "value" attribute.

source

```
<xs:element name="Property">
  <xs:annotation>
    <xs:documentation>Used to include additional information that is not explicitly defined by the
LandXML schema. Each Property element defines one piece of data.</xs:documentation>
    <xs:documentation>The "label" attribute defines the name of the value held in the "value"
attribute.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:attribute name="label" use="required"/>
    <xs:attribute name="value" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **Property/@label**

properties	isRef 0 use required
source	<xs:attribute name="label" use="required"/>

attribute **Property/@value**

properties	isRef 0 use required
source	<xs:attribute name="value" use="required"/>

element **PurposeOfSurvey**

diagram	LandXML-1.2Doc_p147.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **SurveyHeader**
attributes	Name Type Use Default Fixed annotation name **purpSurvType** required
source	<xs:element name="PurposeOfSurvey"> <xs:complexType> <xs:attribute name="name" type="purpSurvType" use="required"/> </xs:complexType> </xs:element>

attribute **PurposeOfSurvey/@name**

type	**purpSurvType**
properties	isRef 0 use required
source	<xs:attribute name="name" type="purpSurvType" use="required"/>

element **PVI**

diagram	LandXML-1.2Doc_p148.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **Point2dReq**
properties	content complex

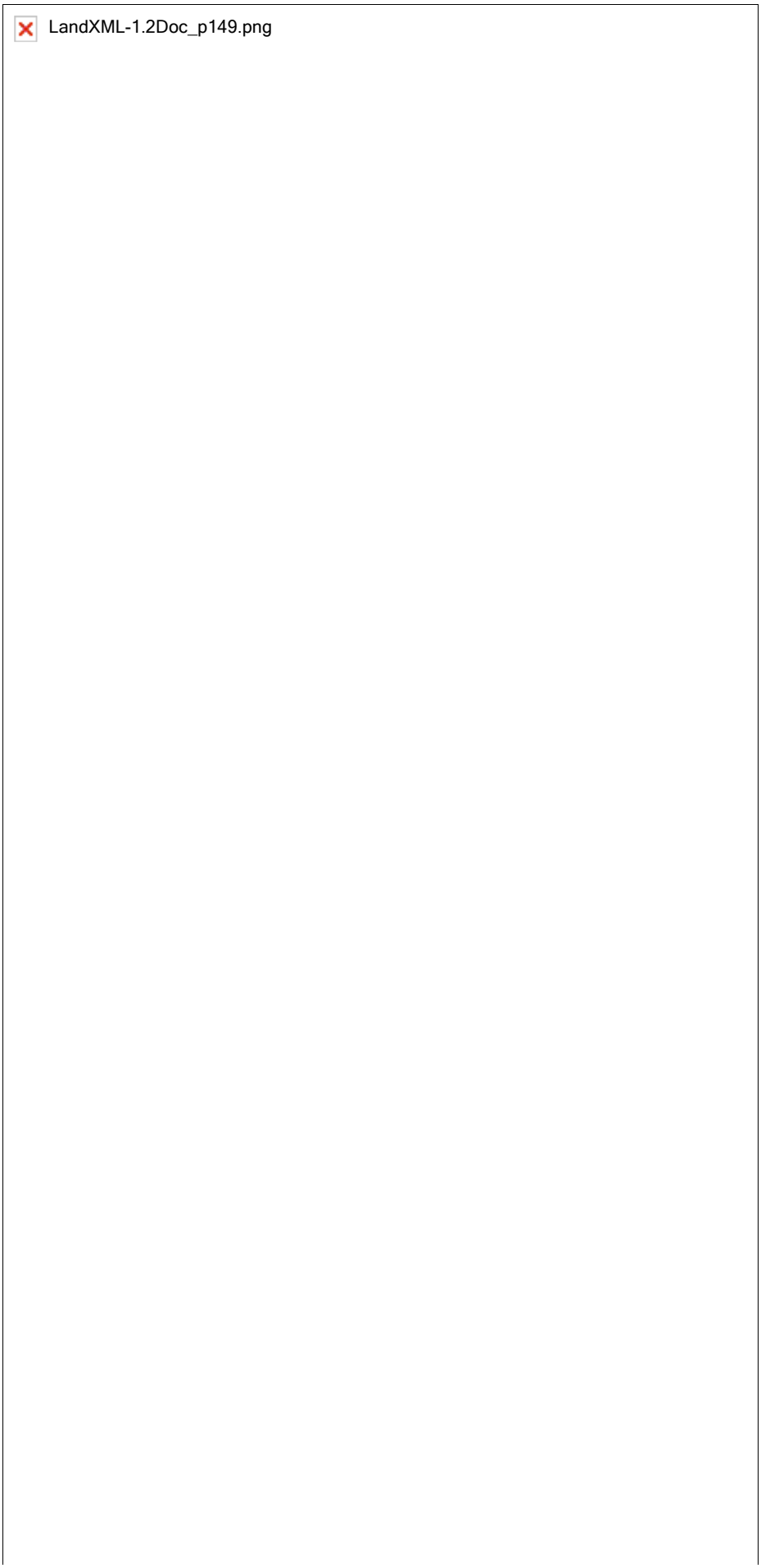
	mixed true
used by	element **ProfAlign**
facets	length 2
attributes	Name Type Use Default Fixed annotation desc **xs:string**
annotation	documentation Represents a Point of Vertical Intersection with a space delimited "station elevation" text value
source	<xs:element name="PVI"> <xs:annotation> <xs:documentation>Represents a Point of Vertical Intersection with a space delimited "station elevation" text value</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:simpleContent> <xs:extension base="Point2dReq"> <xs:attribute name="desc" type="xs:string"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element>

attribute **PVI/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

element **RawObservation**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **RawObservationType**
properties	content complex mixed false
children	**TargetPoint** **OffsetVals** **FieldNote** **Feature**
used by	elements **InstrumentSetup** **LaserSetup** **ObservationGroup**

attributes

Name	Type	Use	Default	Fixed	annotation
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
setID					
purpose	**purposeType**				
targetHeight	**xs:double**				
horizAngle	**angle**	optional			
slopeDistance	**xs:double**	optional			
zenithAngle	**zenithAngle**	optional			
horizDistance	**xs:double**				
vertDistance	**xs:double**				
azimuth	**direction**	optional			
unused	**xs:boolean**				
directFace	**xs:boolean**				
coordGeomRefs	**coordGeomNameRefs**				
timeStamp	**xs:dateTime**				
alignRef	**alignmentNameRef**				
alignStationName	**xs:string**				
alignOffset	**offsetDistance**				
upperStadia	**xs:double**				
rod	**xs:double**				
lowerStadia	**xs:double**				
circlePositionSet	**xs:double**				
status	**observationStatusType**				

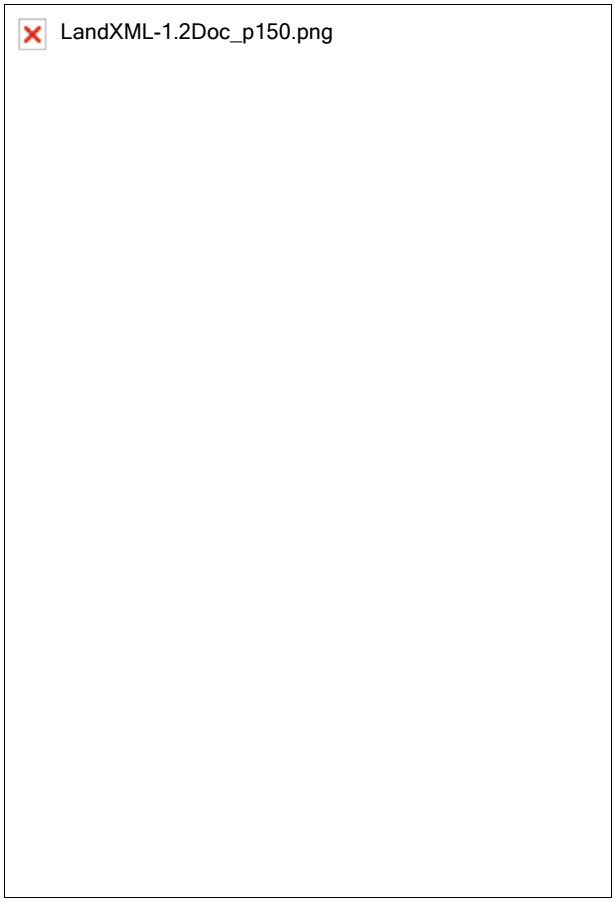
source

```
<xs:element name="RawObservation">
  <xs:complexType mixed="false">
    <xs:complexContent mixed="false">
      <xs:extension base="RawObservationType"/>
    </xs:complexContent>
```

```
  </xs:complexType>
</xs:element>
```

element **RectPipe**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Feature**

used by element **Pipe**

attributes

Name	Type	Use	Default	Fixed	annotation
height	**xs:double**	required			
width	**xs:double**	required			
desc	**xs:string**				
hazenWilliams	**xs:double**				
mannings	**xs:double**				
material					
thickness	**xs:double**				

source

```
<xs:element name="RectPipe">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="height" type="xs:double" use="required"/>
```

```
    <xs:attribute name="width" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="hazenWilliams" type="xs:double"/>
    <xs:attribute name="mannings" type="xs:double"/>
    <xs:attribute name="material"/>
    <xs:attribute name="thickness" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **RectPipe/@height**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="height" type="xs:double" use="required"/>

attribute **RectPipe/@width**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="width" type="xs:double" use="required"/>

attribute **RectPipe/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **RectPipe/@hazenWilliams**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hazenWilliams" type="xs:double"/>

attribute **RectPipe/@mannings**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="mannings" type="xs:double"/>

attribute **RectPipe/@material**

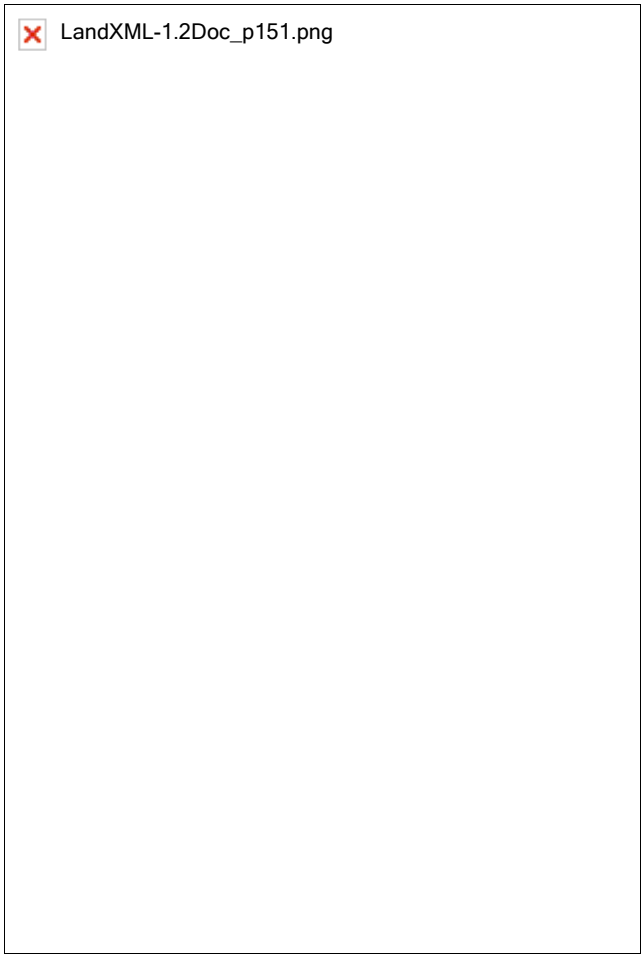
properties	isRef 0
source	<xs:attribute name="material"/>

attribute **RectPipe/@thickness**

type	**xs:double**

properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **RectStruct**

diagram	 LandXML-1.2Doc_p151.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Struct**

attributes

Name	Type	Use	Default	Fixed	annotation
length	**xs:double**	required			
lengthDir	**direction**	optional			
width	**xs:double**	required			
desc	**xs:string**				
inletCase					
lossCoeff	**xs:double**				
material					
thickness	**xs:double**				

source

```
<xs:element name="RectStruct">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
```

```
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="length" type="xs:double" use="required"/>
    <xs:attribute name="lengthDir" type="direction" use="optional"/>
    <xs:attribute name="width" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="inletCase"/>
    <xs:attribute name="lossCoeff" type="xs:double"/>
    <xs:attribute name="material"/>
    <xs:attribute name="thickness" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **RectStruct/@length**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="length" type="xs:double" use="required"/>

attribute **RectStruct/@lengthDir**

type	**direction**
properties	isRef 0 use optional
source	<xs:attribute name="lengthDir" type="direction" use="optional"/>

attribute **RectStruct/@width**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="width" type="xs:double" use="required"/>

attribute **RectStruct/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **RectStruct/@inletCase**

properties	isRef 0
source	<xs:attribute name="inletCase"/>

attribute **RectStruct/@lossCoeff**

type	**xs:double**
properties	isRef 0

source	<xs:attribute name="lossCoeff" type="xs:double"/>

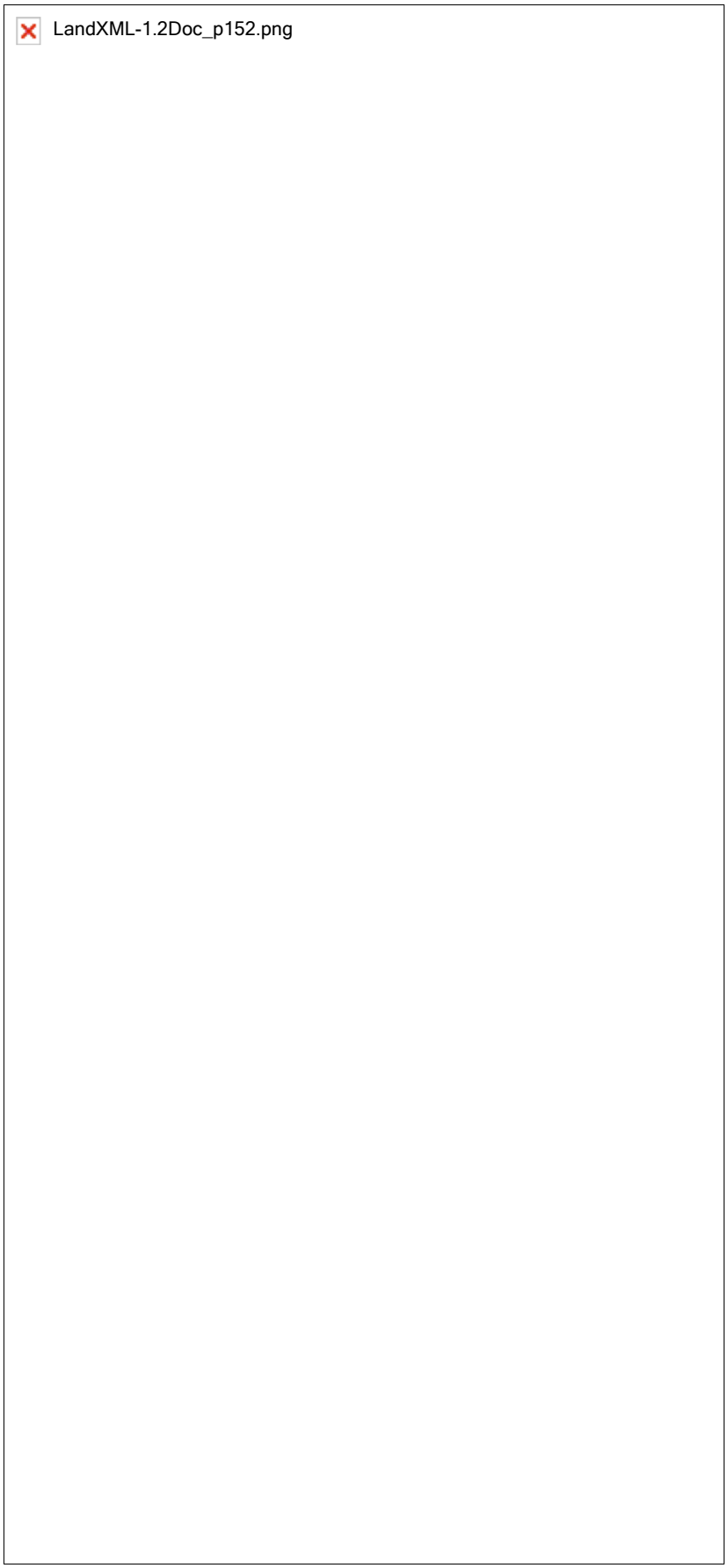
attribute **RectStruct/@material**

properties	isRef 0
source	<xs:attribute name="material"/>

attribute **RectStruct/@thickness**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="thickness" type="xs:double"/>

element **RedHorizontalPosition**

diagram	 LandXML-1.2Doc_p152.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
children	**FieldNote** **Feature**
used by	element **ObservationGroup**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**	required			
state	**xs:string**				
oID	**xs:string**				
purpose	**purposeType**				
setupID	**xs:IDREF**				
date	**xs:date**				
equipmentUsed	**equipmentType**				
horizontalDatum	**xs:string**				
horizontalAdjustment	**xs:string**				
latitude	**xs:string**				
longitude	**xs:string**				
horizontalFix	**xs:string**				
currencyDate	**xs:string**				
localUncertainity	**xs:double**				
class	**xs:string**				
order	**xs:string**				
positionalUncertainity	**xs:double**				

annotation

documentation

This element is used to define the Reduced Horizontal Position. The coordinates given in Geographical Coordinates may come in variety of means.

source

```
<xs:element name="RedHorizontalPosition">
  <xs:annotation>
    <xs:documentation>This element is used to define the Reduced Horizontal Position. The coordinates given in Geographical Coordinates may come in variety of means. </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="state" type="xs:string"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="purpose" type="purposeType"/>
    <xs:attribute name="setupID" type="xs:IDREF"/>
    <xs:attribute name="date" type="xs:date"/>
    <xs:attribute name="equipmentUsed" type="equipmentType"/>
    <xs:attribute name="horizontalDatum" type="xs:string"/>
    <xs:attribute name="horizontalAdjustment" type="xs:string"/>
    <xs:attribute name="latitude" type="xs:string"/>
    <xs:attribute name="longitude" type="xs:string"/>
    <xs:attribute name="horizontalFix" type="xs:string"/>
    <xs:attribute name="currencyDate" type="xs:string"/>
    <xs:attribute name="localUncertainity" type="xs:double"/>
    <xs:attribute name="class" type="xs:string"/>
    <xs:attribute name="order" type="xs:string"/>
    <xs:attribute name="positionalUncertainity" type="xs:double"/>
```

```
  </xs:complexType>
</xs:element>
```

attribute **RedHorizontalPosition/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **RedHorizontalPosition/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **RedHorizontalPosition/@state**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="state" type="xs:string"/>

attribute **RedHorizontalPosition/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **RedHorizontalPosition/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **RedHorizontalPosition/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **RedHorizontalPosition/@date**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="date" type="xs:date"/>

attribute **RedHorizontalPosition/@equipmentUsed**

type	**equipmentType**
properties	isRef 0
source	<xs:attribute name="equipmentUsed" type="equipmentType"/>

attribute **RedHorizontalPosition/@horizontalDatum**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="horizontalDatum" type="xs:string"/>

attribute **RedHorizontalPosition/@horizontalAdjustment**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="horizontalAdjustment" type="xs:string"/>

attribute **RedHorizontalPosition/@latitude**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="latitude" type="xs:string"/>

attribute **RedHorizontalPosition/@longitude**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="longitude" type="xs:string"/>

attribute **RedHorizontalPosition/@horizontalFix**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="horizontalFix" type="xs:string"/>

attribute **RedHorizontalPosition/@currencyDate**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="currencyDate" type="xs:string"/>

attribute **RedHorizontalPosition/@localUncertainity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="localUncertainity" type="xs:double"/>

attribute **RedHorizontalPosition/@class**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="class" type="xs:string"/>

attribute **RedHorizontalPosition/@order**

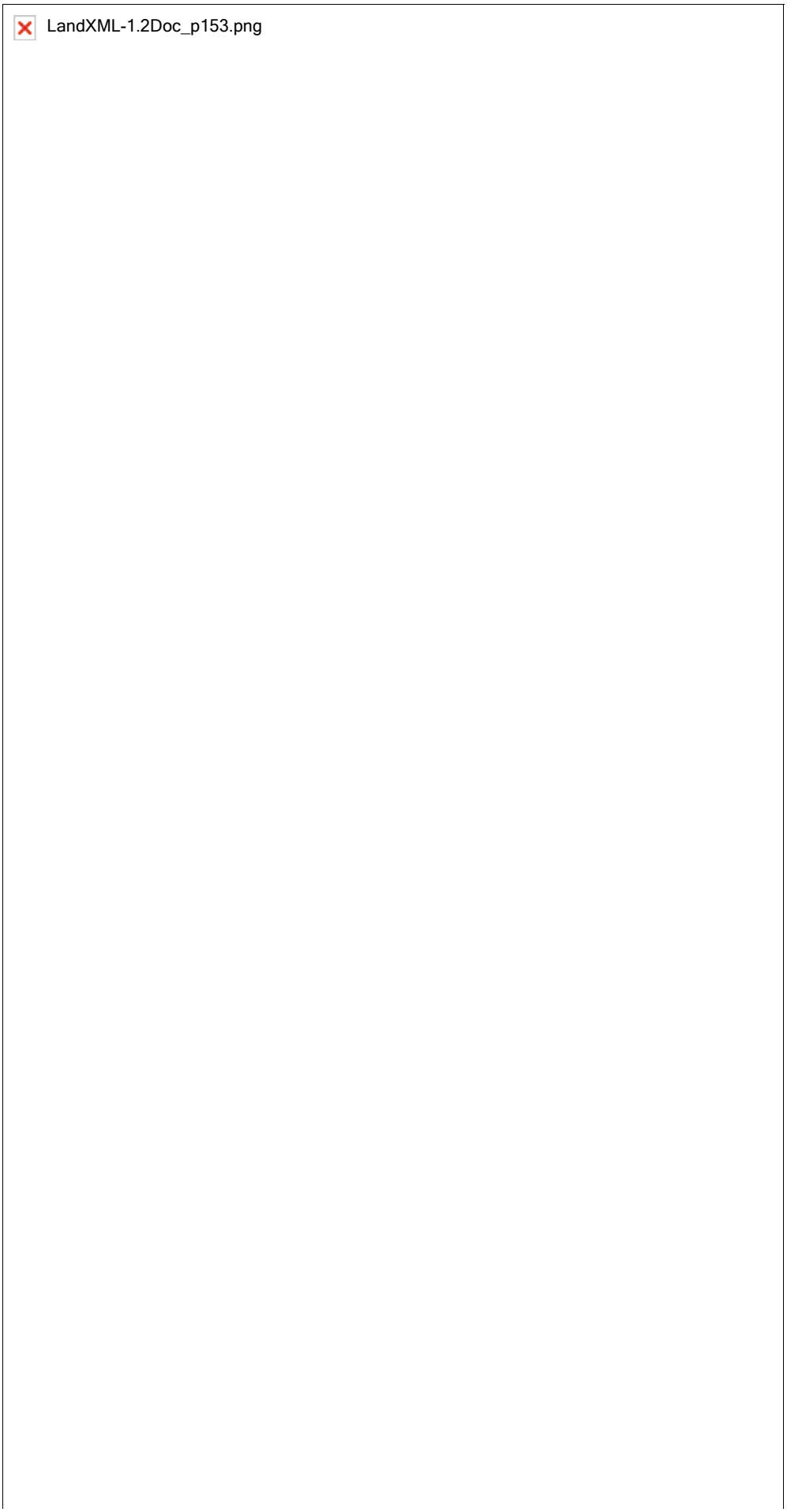
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="order" type="xs:string"/>

attribute **RedHorizontalPosition/@positionalUncertainity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="positionalUncertainity" type="xs:double"/>

element **ReducedArcObservation**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetPoint OffsetVals FieldNote Feature**
used by	element **ObservationGroup**

attributes

Name	Type	Use	Default	Fixed	annotation
purpose	**purposeType**				
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
setID					
chordAzimuth	**direction**	required			
radius	**xs:double**	required			
length	**xs:double**	required			
rot	**clockwise**	required			
equipmentUsed	**equipmentType**				
arcAzimuthAccuracy	**xs:double**				
arcLengthAccuracy	**xs:double**				
date	**xs:date**				
arcType	**xs:string**				
adoptedSurvey	**xs:string**				
lengthAccClass	**xs:string**				
azimuthAccClass	**xs:string**				
azimuthAdoptionFactor	**xs:double**				
lengthAdoptionFactor	**xs:double**				
name	**xs:string**				
desc	**xs:string**				
state	**stateType**				
oID	**xs:string**				
coordGeomRefs	**coordGeomNameRefs**				
alignRef	**alignmentNameRef**				
alignStationName	**xs:string**				
alignOffset	**offsetDistance**				

annotation

documentation

As we discussed this element is used to provide measured information for calculating boundary arcs. The definition information required is quite different to the curve element

source

```
<xs:element name="ReducedArcObservation">
  <xs:annotation>
    <xs:documentation>As we discussed this element is used to provide measured information for calculating boundary arcs. The definition information required is quite different to the curve element</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="TargetPoint" minOccurs="0"/>
      <xs:element ref="OffsetVals" minOccurs="0"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="purpose" type="purposeType"/>
    <xs:attribute name="setupID" type="xs:IDREF"/>
    <xs:attribute name="targetSetupID" type="xs:IDREF"/>
    <xs:attribute name="setID"/>
    <xs:attribute name="chordAzimuth" type="direction" use="required"/>
    <xs:attribute name="radius" type="xs:double" use="required"/>
    <xs:attribute name="length" type="xs:double" use="required"/>
    <xs:attribute name="rot" type="clockwise" use="required"/>
    <xs:attribute name="equipmentUsed" type="equipmentType"/>
    <xs:attribute name="arcAzimuthAccuracy" type="xs:double"/>
    <xs:attribute name="arcLengthAccuracy" type="xs:double"/>
    <xs:attribute name="date" type="xs:date"/>
    <xs:attribute name="arcType" type="xs:string"/>
    <xs:attribute name="adoptedSurvey" type="xs:string"/>
    <xs:attribute name="lengthAccClass" type="xs:string"/>
    <xs:attribute name="azimuthAccClass" type="xs:string"/>
    <xs:attribute name="azimuthAdoptionFactor" type="xs:double"/>
    <xs:attribute name="lengthAdoptionFactor" type="xs:double"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>
    <xs:attribute name="alignRef" type="alignmentNameRef"/>
    <xs:attribute name="alignStationName" type="xs:string"/>
    <xs:attribute name="alignOffset" type="offsetDistance"/>
    <!-- coordGeomRefs identifies one or more 'name' values that link to specific <Line>, <Curve>, <Spiral> or <IrregularLine> in a <CoordGeom> element. This allows linking  an survey observation to specific <Parcel>.<CoordGeom> based geometry. -->
    <!-- alignRef is the name of the alignment.
            alignStationName is the station value where the rod reading is taken.
       alignOffset is the signed (+/-) distance from the CL of the referenced alignment.  -->
  </xs:complexType>
</xs:element>
```

attribute **ReducedArcObservation/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight

	enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **ReducedArcObservation/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **ReducedArcObservation/@targetSetupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="targetSetupID" type="xs:IDREF"/>

attribute **ReducedArcObservation/@setID**

properties	isRef 0
source	<xs:attribute name="setID"/>

attribute **ReducedArcObservation/@chordAzimuth**

type	**direction**
properties	isRef 0 use required
source	<xs:attribute name="chordAzimuth" type="direction" use="required"/>

attribute **ReducedArcObservation/@radius**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="radius" type="xs:double" use="required"/>

attribute **ReducedArcObservation/@length**

type	**xs:double**
properties	isRef 0

	use required
source	<xs:attribute name="length" type="xs:double" use="required"/>

attribute **ReducedArcObservation/@rot**

type	**clockwise**
properties	isRef 0 use required
facets	enumeration cw enumeration ccw
source	<xs:attribute name="rot" type="clockwise" use="required"/>

attribute **ReducedArcObservation/@equipmentUsed**

type	**equipmentType**
properties	isRef 0
source	<xs:attribute name="equipmentUsed" type="equipmentType"/>

attribute **ReducedArcObservation/@arcAzimuthAccuracy**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="arcAzimuthAccuracy" type="xs:double"/>

attribute **ReducedArcObservation/@arcLengthAccuracy**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="arcLengthAccuracy" type="xs:double"/>

attribute **ReducedArcObservation/@date**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="date" type="xs:date"/>

attribute **ReducedArcObservation/@arcType**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="arcType" type="xs:string"/>

attribute **ReducedArcObservation/@adoptedSurvey**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="adoptedSurvey" type="xs:string"/>

attribute **ReducedArcObservation/@lengthAccClass**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="lengthAccClass" type="xs:string"/>

attribute **ReducedArcObservation/@azimuthAccClass**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="azimuthAccClass" type="xs:string"/>

attribute **ReducedArcObservation/@azimuthAdoptionFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="azimuthAdoptionFactor" type="xs:double"/>

attribute **ReducedArcObservation/@lengthAdoptionFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="lengthAdoptionFactor" type="xs:double"/>

attribute **ReducedArcObservation/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **ReducedArcObservation/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **ReducedArcObservation/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed

	enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **ReducedArcObservation/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **ReducedArcObservation/@coordGeomRefs**

type	**coordGeomNameRefs**
properties	isRef 0
source	<xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>

attribute **ReducedArcObservation/@alignRef**

type	**alignmentNameRef**
properties	isRef 0
source	<xs:attribute name="alignRef" type="alignmentNameRef"/>

attribute **ReducedArcObservation/@alignStationName**

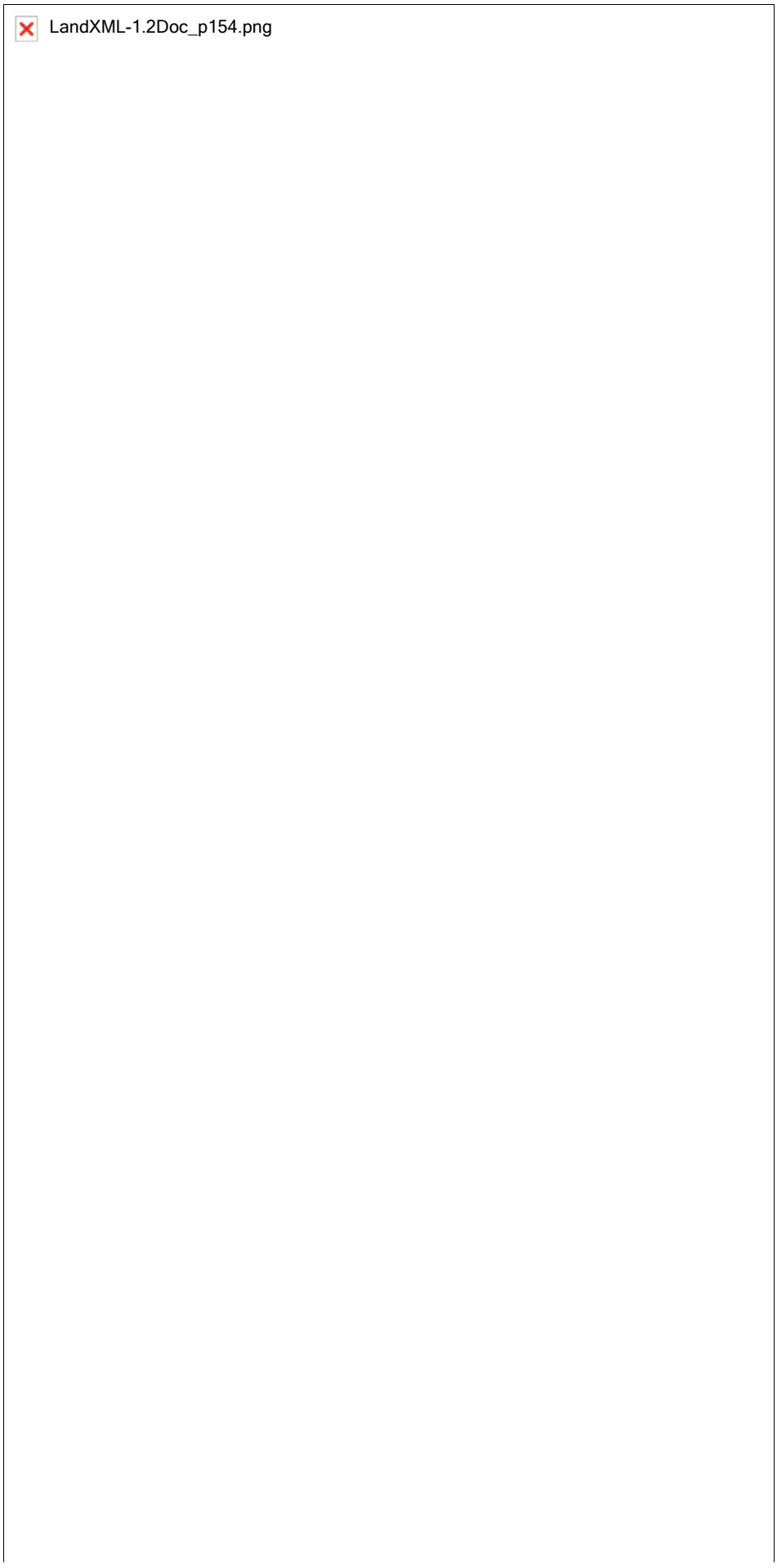
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="alignStationName" type="xs:string"/>

attribute **ReducedArcObservation/@alignOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="alignOffset" type="offsetDistance"/>

element **ReducedObservation**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**TargetPoint** **OffsetVals** **FieldNote** **Feature**
used by	element **ObservationGroup**

attributes

Name	Type	Use	Default	Fixed	annotation
purpose	**purposeType**				
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
targetSetup2ID	**xs:IDREF**				
setID					
targetHeight	**xs:double**				
azimuth	**direction**	optional			
horizDistance	**xs:double**	optional			
vertDistance	**xs:double**	optional			
horizAngle	**angle**	optional			

	slopeDistance	**xs:double**	optional
	zenithAngle	**zenithAngle**	optional
	equipmentUsed	**equipmentType**	
	azimuthAccuracy	**xs:double**	
	distanceAccuracy	**xs:double**	
	angleAccuracy	**xs:double**	
	date	**xs:date**	
	distanceType	**observationType**	
	azimuthType	**observationType**	
	angleType	**observationType**	
	adoptedAzimuthSurvey	**xs:string**	
	adoptedDistanceSurvey	**xs:string**	
	adoptedAngleSurvey	**xs:string**	
	distanceAccClass	**xs:string**	
	azimuthAccClass	**xs:string**	
	angleAccClass	**xs:string**	
	azimuthAdoptionFactor	**xs:double**	
	distanceAdoptionFactor	**xs:double**	
	name	**xs:string**	
	desc	**xs:string**	
	state	**stateType**	
	oID	**xs:string**	
	MSLDistance	**xs:string**	
	spherDistance	**xs:string**	
	coordGeomRefs	**coordGeomNameRefs**	
	alignRef	**alignmentNameRef**	
	alignStationName	**xs:string**	
	alignOffset	**offsetDistance**	

annotation

documentation

This has been modified to include new fields such as accuracy, date, class and adoption. I've added in bearing (azimuth is in terms of true north whereas bearing is the projection north)

documentation

- maybe this doesn't matter, may need to discuss

source

```
<xs:element name="ReducedObservation">
  <xs:annotation>
    <xs:documentation>This has been modified to include new fields such as accuracy, date, class and adoption. I've added in bearing (azimuth is in terms of true north whereas bearing is the projection north) </xs:documentation>
    <xs:documentation> - maybe this doesn't matter, may need to discuss</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="TargetPoint" minOccurs="0"/>
      <xs:element ref="OffsetVals" minOccurs="0"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="purpose" type="purposeType"/>
    <xs:attribute name="setupID" type="xs:IDREF"/>
    <xs:attribute name="targetSetupID" type="xs:IDREF"/>
    <xs:attribute name="targetSetup2ID" type="xs:IDREF"/>
    <xs:attribute name="setID"/>
    <xs:attribute name="targetHeight" type="xs:double"/>
```

```
    <xs:attribute name="azimuth" type="direction" use="optional"/>
    <xs:attribute name="horizDistance" type="xs:double" use="optional"/>
    <xs:attribute name="vertDistance" type="xs:double" use="optional"/>
    <xs:attribute name="horizAngle" type="angle" use="optional"/>
    <xs:attribute name="slopeDistance" type="xs:double" use="optional"/>
    <xs:attribute name="zenithAngle" type="zenithAngle" use="optional"/>
    <xs:attribute name="equipmentUsed" type="equipmentType"/>
    <xs:attribute name="azimuthAccuracy" type="xs:double"/>
    <xs:attribute name="distanceAccuracy" type="xs:double"/>
    <xs:attribute name="angleAccuracy" type="xs:double"/>
    <xs:attribute name="date" type="xs:date"/>
    <xs:attribute name="distanceType" type="observationType"/>
    <xs:attribute name="azimuthType" type="observationType"/>
    <xs:attribute name="angleType" type="observationType"/>
    <xs:attribute name="adoptedAzimuthSurvey" type="xs:string"/>
    <xs:attribute name="adoptedDistanceSurvey" type="xs:string"/>
    <xs:attribute name="adoptedAngleSurvey" type="xs:string"/>
    <xs:attribute name="distanceAccClass" type="xs:string"/>
    <xs:attribute name="azimuthAccClass" type="xs:string"/>
    <xs:attribute name="angleAccClass" type="xs:string"/>
    <xs:attribute name="azimuthAdoptionFactor" type="xs:double"/>
    <xs:attribute name="distanceAdoptionFactor" type="xs:double"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="MSLDistance" type="xs:string"/>
    <xs:attribute name="spherDistance" type="xs:string"/>
    <xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>
    <xs:attribute name="alignRef" type="alignmentNameRef"/>
    <xs:attribute name="alignStationName" type="xs:string"/>
    <xs:attribute name="alignOffset" type="offsetDistance"/>
    <!-- coordGeomRefs identifies one or more 'name' values that link to specific <Line>, <Curve>,
<Spiral> or <IrregularLine> in a <CoordGeom> element.
              This allows linking an survey observation to specific <Parcel>.<CoordGeom> based
geometry. -->
    <!-- alignRef is the name of the alignment.
      alignStationName is the station value where the rod reading is taken.
      alignOffset is the signed (+/-) distance from the CL of the referenced alignment.  -->
  </xs:complexType>
</xs:element>
```

attribute **ReducedObservation/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation

	enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **ReducedObservation/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **ReducedObservation/@targetSetupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="targetSetupID" type="xs:IDREF"/>

attribute **ReducedObservation/@targetSetup2ID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="targetSetup2ID" type="xs:IDREF"/>

attribute **ReducedObservation/@setID**

properties	isRef 0
source	<xs:attribute name="setID"/>

attribute **ReducedObservation/@targetHeight**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="targetHeight" type="xs:double"/>

attribute **ReducedObservation/@azimuth**

type	**direction**
properties	isRef 0 use optional
source	<xs:attribute name="azimuth" type="direction" use="optional"/>

attribute **ReducedObservation/@horizDistance**

type	**xs:double**
properties	isRef 0 use optional

source	<xs:attribute name="horizDistance" type="xs:double" use="optional"/>

attribute **ReducedObservation/@vertDistance**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="vertDistance" type="xs:double" use="optional"/>

attribute **ReducedObservation/@horizAngle**

type	**angle**
properties	isRef 0 use optional
source	<xs:attribute name="horizAngle" type="angle" use="optional"/>

attribute **ReducedObservation/@slopeDistance**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="slopeDistance" type="xs:double" use="optional"/>

attribute **ReducedObservation/@zenithAngle**

type	**zenithAngle**
properties	isRef 0 use optional
source	<xs:attribute name="zenithAngle" type="zenithAngle" use="optional"/>

attribute **ReducedObservation/@equipmentUsed**

type	**equipmentType**
properties	isRef 0
source	<xs:attribute name="equipmentUsed" type="equipmentType"/>

attribute **ReducedObservation/@azimuthAccuracy**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="azimuthAccuracy" type="xs:double"/>

attribute **ReducedObservation/@distanceAccuracy**

type	**xs:double**
properties	isRef 0

source	<xs:attribute name="distanceAccuracy" type="xs:double"/>

attribute **ReducedObservation/@angleAccuracy**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="angleAccuracy" type="xs:double"/>

attribute **ReducedObservation/@date**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="date" type="xs:date"/>

attribute **ReducedObservation/@distanceType**

type	**observationType**
properties	isRef 0
source	<xs:attribute name="distanceType" type="observationType"/>

attribute **ReducedObservation/@azimuthType**

type	**observationType**
properties	isRef 0
source	<xs:attribute name="azimuthType" type="observationType"/>

attribute **ReducedObservation/@angleType**

type	**observationType**
properties	isRef 0
source	<xs:attribute name="angleType" type="observationType"/>

attribute **ReducedObservation/@adoptedAzimuthSurvey**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="adoptedAzimuthSurvey" type="xs:string"/>

attribute **ReducedObservation/@adoptedDistanceSurvey**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="adoptedDistanceSurvey" type="xs:string"/>

attribute **ReducedObservation/@adoptedAngleSurvey**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="adoptedAngleSurvey" type="xs:string"/>

attribute **ReducedObservation/@distanceAccClass**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="distanceAccClass" type="xs:string"/>

attribute **ReducedObservation/@azimuthAccClass**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="azimuthAccClass" type="xs:string"/>

attribute **ReducedObservation/@angleAccClass**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="angleAccClass" type="xs:string"/>

attribute **ReducedObservation/@azimuthAdoptionFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="azimuthAdoptionFactor" type="xs:double"/>

attribute **ReducedObservation/@distanceAdoptionFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="distanceAdoptionFactor" type="xs:double"/>

attribute **ReducedObservation/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **ReducedObservation/@desc**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="desc" type="xs:string"/>

attribute **ReducedObservation/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **ReducedObservation/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **ReducedObservation/@MSLDistance**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="MSLDistance" type="xs:string"/>

attribute **ReducedObservation/@spherDistance**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="spherDistance" type="xs:string"/>

attribute **ReducedObservation/@coordGeomRefs**

type	**coordGeomNameRefs**
properties	isRef 0
source	<xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>

attribute **ReducedObservation/@alignRef**

type	**alignmentNameRef**
properties	isRef 0
source	<xs:attribute name="alignRef" type="alignmentNameRef"/>

attribute **ReducedObservation/@alignStationName**

type	**xs:string**
properties	isRef 0

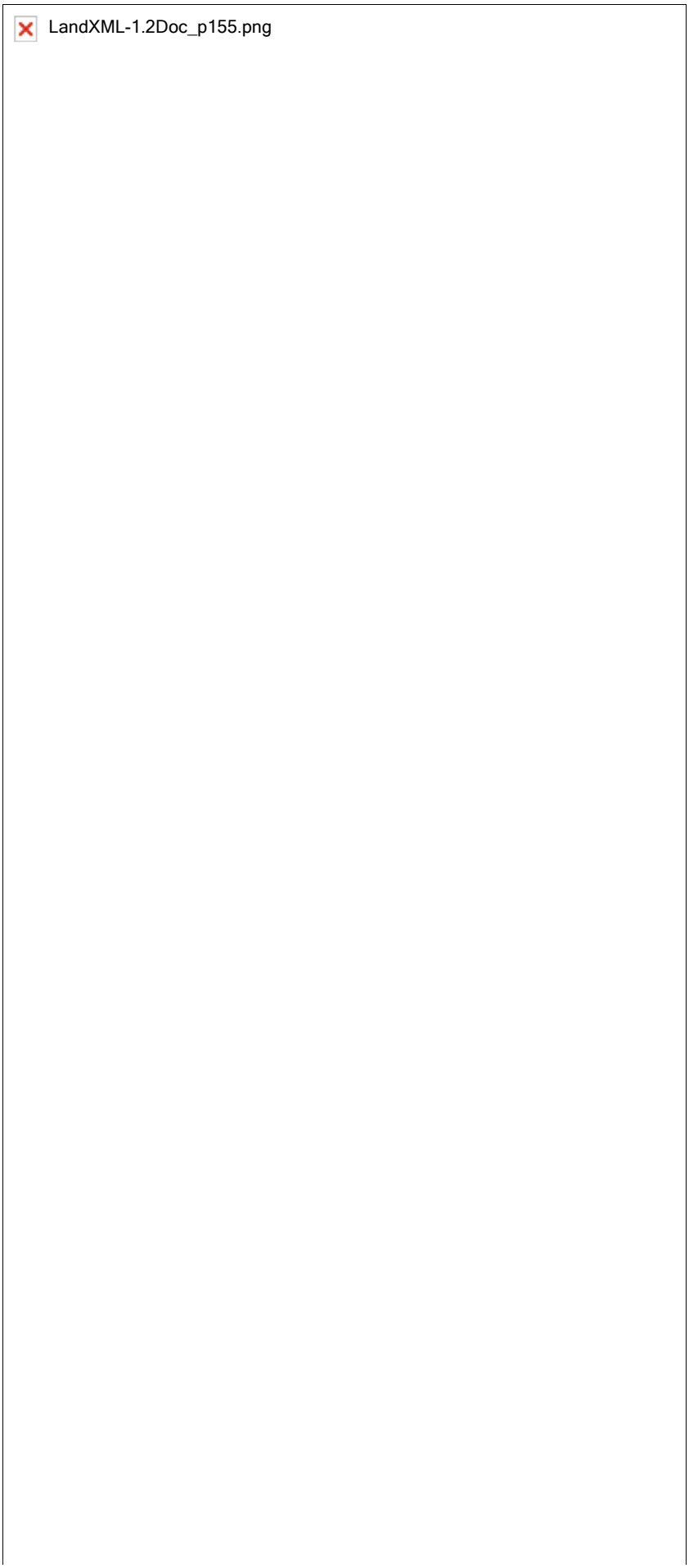
source	<xs:attribute name="alignStationName" type="xs:string"/>

attribute **ReducedObservation/@alignOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="alignOffset" type="offsetDistance"/>

element **RedVerticalObservation**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**FieldNote** **Feature**
used by	element **ObservationGroup**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**	required			
state	**xs:string**				
oID	**xs:string**				
purpose	**purposeType**				
setupID	**xs:IDREF**				
date	**xs:date**				
equipmentUsed	**equipmentType**				
height	**xs:double**				
verticalAdjustment	**xs:string**				
verticalFix	**xs:string**				
geosphoid	**xs:double**				
gsDatum	**xs:string**				
gsModel	**xs:string**				
gsMethod	**xs:string**				
originMark	**xs:string**				
verticalDatum	**xs:string**				
localUncertainity	**xs:double**				
class	**xs:string**				
order	**xs:string**				
positionalUncertainity	**xs:double**				

source

```
<xs:element name="RedVerticalObservation">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="desc" type="xs:string"/>
  <xs:attribute name="name" type="xs:string" use="required"/>
  <xs:attribute name="state" type="xs:string"/>
  <xs:attribute name="oID" type="xs:string"/>
  <xs:attribute name="purpose" type="purposeType"/>
  <xs:attribute name="setupID" type="xs:IDREF"/>
  <xs:attribute name="date" type="xs:date"/>
  <xs:attribute name="equipmentUsed" type="equipmentType"/>
  <xs:attribute name="height" type="xs:double"/>
  <xs:attribute name="verticalAdjustment" type="xs:string"/>
  <xs:attribute name="verticalFix" type="xs:string"/>
  <xs:attribute name="geosphoid" type="xs:double"/>
  <xs:attribute name="gsDatum" type="xs:string"/>
  <xs:attribute name="gsModel" type="xs:string"/>
  <xs:attribute name="gsMethod" type="xs:string"/>
  <xs:attribute name="originMark" type="xs:string"/>
  <xs:attribute name="verticalDatum" type="xs:string"/>
  <xs:attribute name="localUncertainity" type="xs:double"/>
  <xs:attribute name="class" type="xs:string"/>
  <xs:attribute name="order" type="xs:string"/>
```

```
    <xs:attribute name="positionalUncertainity" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **RedVerticalObservation/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **RedVerticalObservation/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **RedVerticalObservation/@state**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="state" type="xs:string"/>

attribute **RedVerticalObservation/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **RedVerticalObservation/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **RedVerticalObservation/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **RedVerticalObservation/@date**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="date" type="xs:date"/>

attribute **RedVerticalObservation/@equipmentUsed**

type	**equipmentType**
properties	isRef 0
source	<xs:attribute name="equipmentUsed" type="equipmentType"/>

attribute **RedVerticalObservation/@height**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="height" type="xs:double"/>

attribute **RedVerticalObservation/@verticalAdjustment**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="verticalAdjustment" type="xs:string"/>

attribute **RedVerticalObservation/@verticalFix**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="verticalFix" type="xs:string"/>

attribute **RedVerticalObservation/@geosphoid**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="geosphoid" type="xs:double"/>

attribute **RedVerticalObservation/@gsDatum**

type	**xs:string**

properties	isRef 0
source	<xs:attribute name="gsDatum" type="xs:string"/>

attribute **RedVerticalObservation/@gsModel**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="gsModel" type="xs:string"/>

attribute **RedVerticalObservation/@gsMethod**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="gsMethod" type="xs:string"/>

attribute **RedVerticalObservation/@originMark**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="originMark" type="xs:string"/>

attribute **RedVerticalObservation/@verticalDatum**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="verticalDatum" type="xs:string"/>

attribute **RedVerticalObservation/@localUncertainity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="localUncertainity" type="xs:double"/>

attribute **RedVerticalObservation/@class**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="class" type="xs:string"/>

attribute **RedVerticalObservation/@order**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="order" type="xs:string"/>

attribute **RedVerticalObservation/@positionalUncertainity**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="positionalUncertainity" type="xs:double"/>

element **RetWall**

diagram	LandXML-1.2Doc_p156.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**RetWallPnt** **Feature**
used by	element **Breaklines**
attributes	Name Type Use Default Fixed annotation desc **xs:string** name **xs:string** state **stateType**
annotation	documentation The retaining wall is defined by a sequential collection of points along the wall. documentation Each point has a location (northing/easting/elevation), height of wall and offset to the wall point.
source	<xs:element name="RetWall"> <xs:annotation>

```
    <xs:documentation>The retaining wall is defined by a sequential collection of points along the wall.</xs:documentation>
    <xs:documentation>Each point has a location (northing/easting/elevation),  height of wall and offset to the wall point.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="RetWallPnt" minOccurs="2" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **RetWall/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **RetWall/@name**

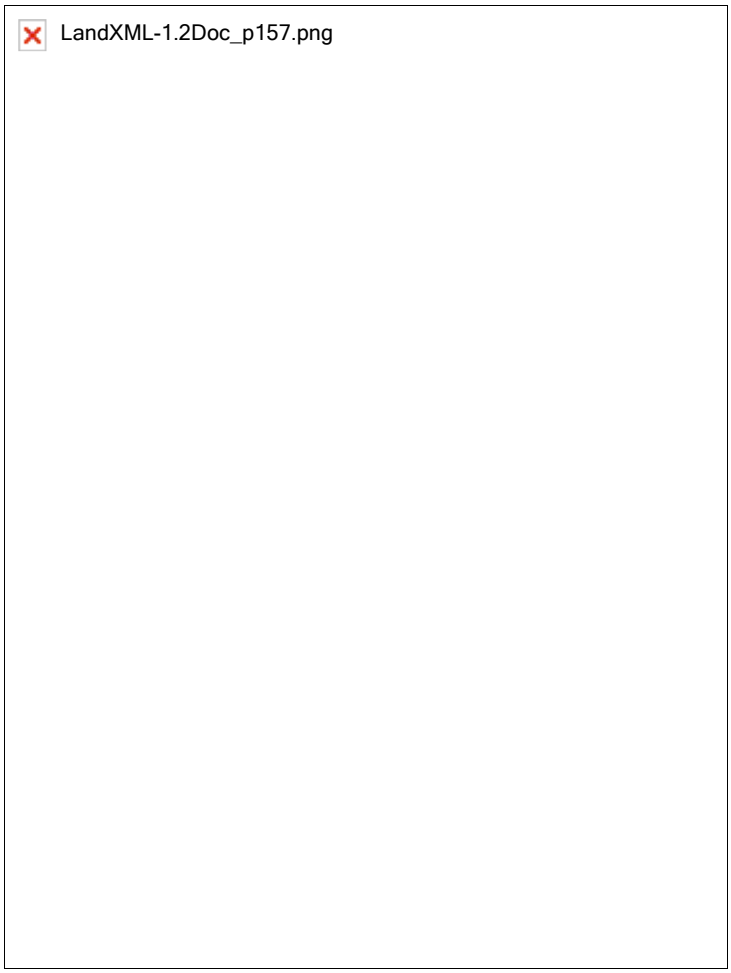
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **RetWall/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **RetWallPnt**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

type extension of **PointType3dReq**

properties
content complex
mixed true

used by element **RetWall**

facets
minLength 0
maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			
height	**xs:double**	required			
offset	**xs:double**	required			

annotation documentation

	A retaining wall point defined by a space delimited "northing easting elevation" text value with height and offset attributes to define the wall point documentation The height value is positive if the northing/easting/elevation point is at the bottom of the wall, negative if the point is at the top of the wall. documentation The offset value is negative for left and positive for right.
source	<xs:element name="RetWallPnt"> <xs:annotation> <xs:documentation>A retaining wall point defined by a space delimited "northing easting elevation" text value with height and offset attributes to define the wall point</xs:documentation> <xs:documentation>The height value is positive if the northing/easting/elevation point is at the bottom of the wall, negative if the point is at the top of the wall.</xs:documentation> <xs:documentation>The offset value is negative for left and positive for right.</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:simpleContent> <xs:extension base="PointType3dReq"> <xs:attribute name="height" type="xs:double" use="required"/> <xs:attribute name="offset" type="xs:double" use="required"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element>

attribute **RetWallPnt/@height**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="height" type="xs:double" use="required"/>

attribute **RetWallPnt/@offset**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="offset" type="xs:double" use="required"/>

element **RoadName**

diagram	LandXML-1.2Doc_p158.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
used by	element **LocationAddress**

attributes	Name	Type	Use	Default	Fixed	annotation
	roadNameType	**roadNameTypeType**				
	roadName	**xs:string**				
	roadNameSuffix	**roadNameSuffixType**				
	roadType	**roadTypeType**				
	pclRef	**parcelNameRefs**				

source

```
<xs:element name="RoadName">
  <xs:complexType>
    <xs:attribute name="roadNameType" type="roadNameTypeType"/>
    <xs:attribute name="roadName" type="xs:string"/>
    <xs:attribute name="roadNameSuffix" type="roadNameSuffixType"/>
    <xs:attribute name="roadType" type="roadTypeType"/>
    <xs:attribute name="pclRef" type="parcelNameRefs"/>
  </xs:complexType>
</xs:element>
```

attribute **RoadName/@roadNameType**

type	**roadNameTypeType**
properties	isRef 0
source	`<xs:attribute name="roadNameType" type="roadNameTypeType"/>`

attribute **RoadName/@roadName**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="roadName" type="xs:string"/>`

attribute **RoadName/@roadNameSuffix**

type	**roadNameSuffixType**
properties	isRef 0
source	`<xs:attribute name="roadNameSuffix" type="roadNameSuffixType"/>`

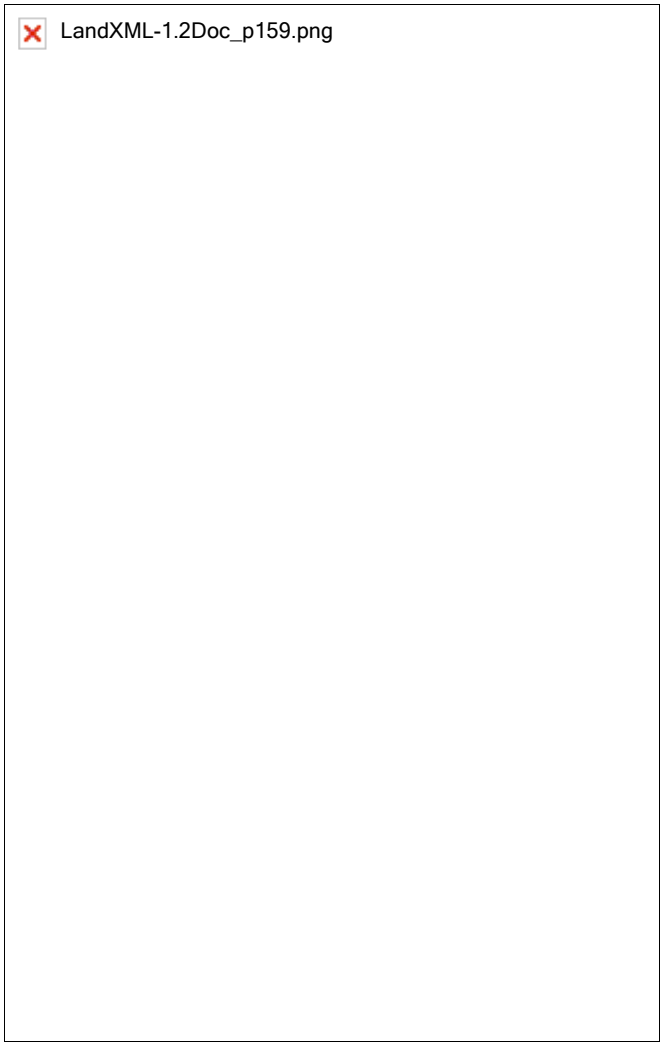
attribute **RoadName/@roadType**

type	**roadTypeType**
properties	isRef 0
source	`<xs:attribute name="roadType" type="roadTypeType"/>`

attribute **RoadName/@pclRef**

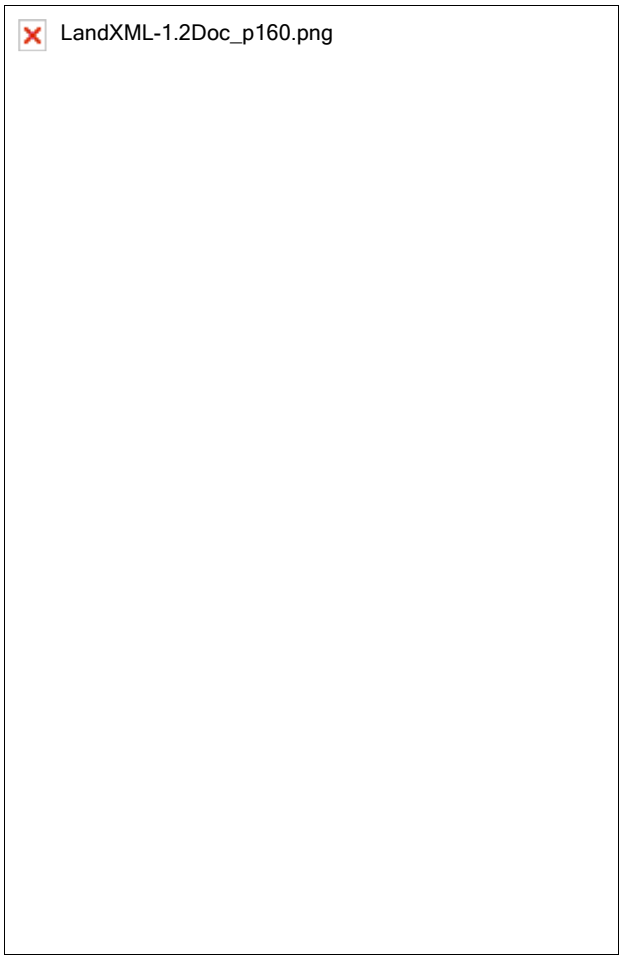
type	**parcelNameRefs**
properties	isRef 0
source	`<xs:attribute name="pclRef" type="parcelNameRefs"/>`

element **Roadside**

diagram	 LandXML-1.2Doc_p159.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**ObstructionOffset** **BikeFacilities** **RoadSign** **DrivewayDensity** **HazardRating** **Ditch** **Feature**
used by	element **Roadway**
source	<xs:element name="Roadside"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="ObstructionOffset" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="BikeFacilities" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="RoadSign" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="DrivewayDensity" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="HazardRating" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Ditch" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:complexType> </xs:element>

element **RoadSign**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Feature**

used by element **Roadside**

attributes

Name	Type	Use	Default	Fixed	annotation
MUTCDCode	**xs:string**				
station	**station**				
offset	**offsetDistance**				
sideofRoad	**sideofRoadType**				
type	**roadSignType**				
mountHeight	**xs:double**				
width	**xs:double**				
height	**xs:double**				

source

```
<xs:element name="RoadSign">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="MUTCDCode" type="xs:string"/>
  <xs:attribute name="station" type="station"/>
  <xs:attribute name="offset" type="offsetDistance"/>
  <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  <xs:attribute name="type" type="roadSignType"/>
  <xs:attribute name="mountHeight" type="xs:double"/>
```

```
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="height" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **RoadSign/@MUTCDCode**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="MUTCDCode" type="xs:string"/>

attribute **RoadSign/@station**

type	**station**
properties	isRef 0
source	<xs:attribute name="station" type="station"/>

attribute **RoadSign/@offset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="offset" type="offsetDistance"/>

attribute **RoadSign/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

attribute **RoadSign/@type**

type	**roadSignType**
properties	isRef 0
facets	enumeration regulatory enumeration guide enumeration warning enumeration specificService enumeration tourist enumeration recreation-cultural enumeration emergencyManagement
source	<xs:attribute name="type" type="roadSignType"/>

attribute **RoadSign/@mountHeight**

type	**xs:double**

properties	isRef 0
source	<xs:attribute name="mountHeight" type="xs:double"/>

attribute **RoadSign/@width**

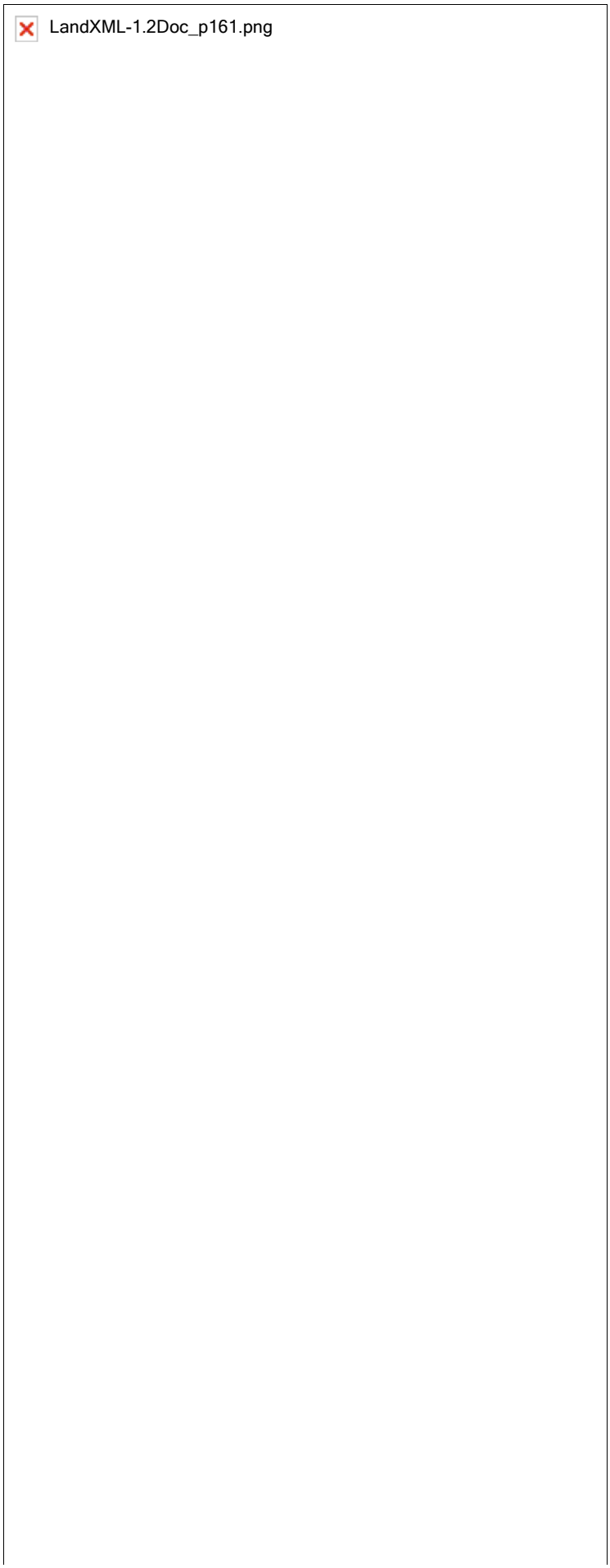
type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **RoadSign/@height**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="height" type="xs:double"/>

element **Roadway**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Classification Lanes Roadside Speeds NoPassingZone TrafficVolume CrashData DecisionSightDistance BridgeElement PlanFeature Feature**
used by	element **Roadways**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
alignmentRefs	**alignmentNameRefs**	required			
surfaceRefs	**surfaceNameRefs**				
gradeModelRefs	**gradeModelNameRefs**				
staStart	**station**				
staEnd	**station**				
desc	**xs:string**				
roadTerrain	**roadTerrainType**				
state	**stateType**				

source

```
<xs:element name="Roadway">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Classification" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Lanes" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Roadside" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Speeds" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="NoPassingZone" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="TrafficVolume" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="CrashData" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="DecisionSightDistance" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="BridgeElement" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="PlanFeature" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="name" type="xs:string" use="required"/>
  <xs:attribute name="alignmentRefs" type="alignmentNameRefs" use="required"/>
  <xs:attribute name="surfaceRefs" type="surfaceNameRefs"/>
  <xs:attribute name="gradeModelRefs" type="gradeModelNameRefs"/>
  <xs:attribute name="staStart" type="station"/>
  <xs:attribute name="staEnd" type="station"/>
  <xs:attribute name="desc" type="xs:string"/>
  <xs:attribute name="roadTerrain" type="roadTerrainType"/>
  <xs:attribute name="state" type="stateType"/>
 </xs:complexType>
</xs:element>
```

attribute **Roadway/@name**

type	**xs:string**

properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Roadway/@alignmentRefs**

type	**alignmentNameRefs**
properties	isRef 0 use required
source	<xs:attribute name="alignmentRefs" type="alignmentNameRefs" use="required"/>

attribute **Roadway/@surfaceRefs**

type	**surfaceNameRefs**
properties	isRef 0
source	<xs:attribute name="surfaceRefs" type="surfaceNameRefs"/>

attribute **Roadway/@gradeModelRefs**

type	**gradeModelNameRefs**
properties	isRef 0
source	<xs:attribute name="gradeModelRefs" type="gradeModelNameRefs"/>

attribute **Roadway/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **Roadway/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **Roadway/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Roadway/@roadTerrain**

type	**roadTerrainType**
properties	isRef 0

facets	enumeration flat enumeration rolling enumeration mountainous
source	<xs:attribute name="roadTerrain" type="roadTerrainType"/>

attribute **Roadway/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Roadways**

diagram	LandXML-1.2Doc_p162.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Roadway** **Intersections** **Feature**
used by	element **LandXML**
attributes	Name Type Use Default Fixed annotation name **xs:string**

	desc **xs:string** state **stateType**
source	<xs:element name="Roadways"> <xs:complexType> <xs:choice> <xs:element ref="Roadway" maxOccurs="unbounded"/> <xs:element ref="Intersections" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="name" type="xs:string"/> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="state" type="stateType"/> </xs:complexType> </xs:element>

attribute **Roadways/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Roadways/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

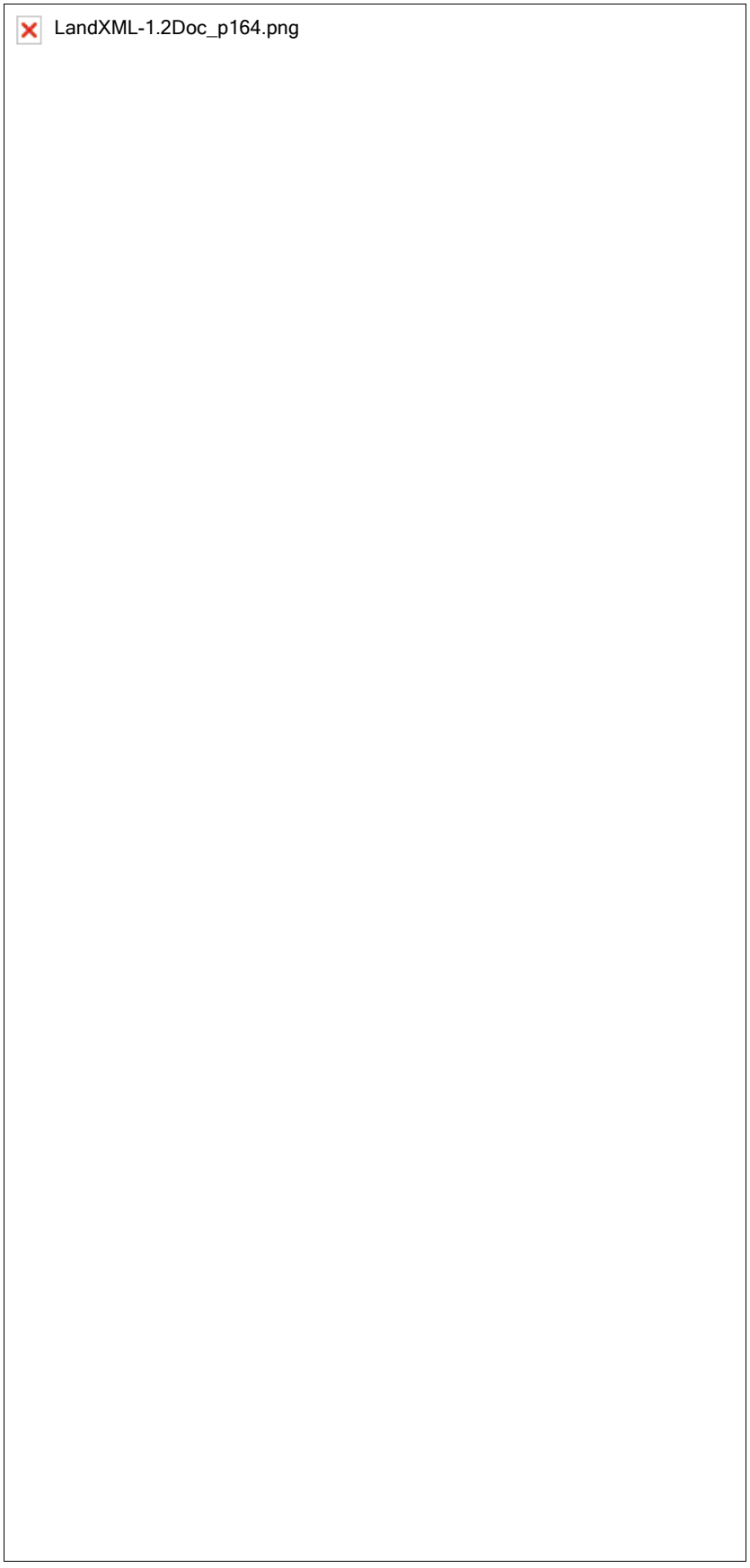
attribute **Roadways/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **RunoffSta**

diagram	LandXML-1.2[
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**station**
properties	content simple nillable true
used by	element **Superelevation**
source	<xs:element name="RunoffSta" type="station" nillable="true"/>

element **SourceData**

diagram	 LandXML-1.2Doc_p164.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
children	**Chain PointFiles Boundaries Breaklines Contours DataPoints Feature**
used by	element **Surface**
annotation	documentation The collection of data that was used to create the surface.
source	<xs:element name="SourceData"> <xs:annotation> <xs:documentation>The collection of data that was used to create the surface.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence maxOccurs="unbounded"> <xs:choice> <xs:element ref="Chain" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="PointFiles" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Boundaries" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Breaklines" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Contours" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="DataPoints" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **Speeds**

diagram	LandXML-1.2Doc_p165.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**DesignSpeed DesignSpeed85th PostedSpeed Feature**

used by	element **Roadway**
source	<xs:element name="Speeds"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="DesignSpeed" maxOccurs="unbounded"/> <xs:element ref="DesignSpeed85th" maxOccurs="unbounded"/> <xs:element ref="PostedSpeed" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> </xs:complexType> </xs:element>

element **SpeedStation**

diagram	LandXML-1.2Doc_p166.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **Cant**
attributes	Name Type Use Default Fixed annotation station **xs:double** required speed **xs:double** required
annotation	documentation A cant speed-only station. The "station" is a required double that is internal station value. The "speed" is an optional double that is the design speed. This value is in kmph or mph depending upon the units.
source	<xs:element name="SpeedStation"> <xs:annotation> <xs:documentation>A cant speed-only station. The "station" is a required double that is internal station value. The "speed" is an optional double that is the design speed. This value is in kmph or mph depending upon the units. </xs:documentation> </xs:annotation> <xs:complexType> <xs:attribute name="station" type="xs:double" use="required"/> <xs:attribute name="speed" type="xs:double" use="required"/> </xs:complexType> </xs:element>

attribute **SpeedStation/@station**

type	**xs:double**

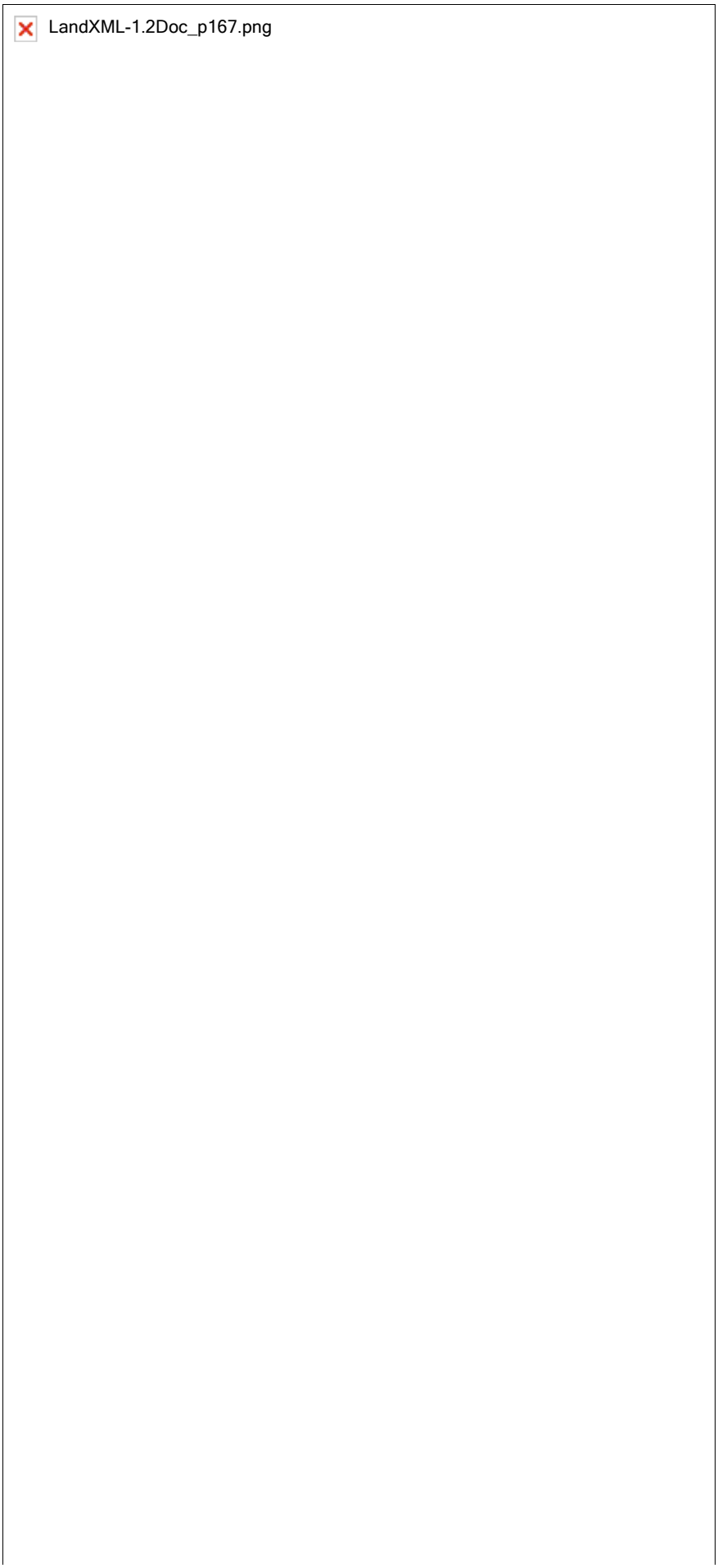
properties	isRef 0 use required
source	<xs:attribute name="station" type="xs:double" use="required"/>

attribute **SpeedStation/@speed**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="speed" type="xs:double" use="required"/>

element **Spiral**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Start PI End Feature**
used by	elements **ConnSpiral CoordGeom InSpiral OutSpiral**

attributes

Name	Type	Use	Default	Fixed	annotation
length	**xs:double**	required			
radiusEnd	**xs:double**	required			
radiusStart	**xs:double**	required			
rot	**clockwise**	required			
spiType	**spiralType**	required			
chord	**xs:double**				
constant	**xs:double**				
desc	**xs:string**				
dirEnd	**direction**				
dirStart	**direction**				
name	**xs:string**				
theta	**angle**				
totalY	**xs:double**				
totalX	**xs:double**				
staStart	**xs:double**				
state	**stateType**				
tanLong	**xs:double**				
tanShort	**xs:double**				
oID	**xs:string**				

annotation

documentation

An "infinite" spiral radius is denoted by the value "INF".

documentation

This conforms to XML Schema which defines infinity as "INF" or "-INF" for all numeric datatypes

source

```
<xs:element name="Spiral">
  <xs:annotation>
    <xs:documentation>An "infinite" spiral radius is denoted by the value "INF". </xs:documentation>
    <xs:documentation>This conforms to XML Schema which defines infinity as "INF" or "-INF" for all
numeric datatypes </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice minOccurs="3" maxOccurs="3">
        <xs:element ref="Start"/>
        <xs:element ref="PI"/>
        <xs:element ref="End"/>
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="length" type="xs:double" use="required"/>
    <xs:attribute name="radiusEnd" type="xs:double" use="required"/>
    <xs:attribute name="radiusStart" type="xs:double" use="required"/>
    <xs:attribute name="rot" type="clockwise" use="required"/>
    <xs:attribute name="spiType" type="spiralType" use="required"/>
    <xs:attribute name="chord" type="xs:double"/>
    <xs:attribute name="constant" type="xs:double"/>
    <xs:attribute name="desc" type="xs:string"/>
```

```
    <xs:attribute name="dirEnd" type="direction"/>
    <xs:attribute name="dirStart" type="direction"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="theta" type="angle"/>
    <xs:attribute name="totalY" type="xs:double"/>
    <xs:attribute name="totalX" type="xs:double"/>
    <xs:attribute name="staStart" type="xs:double"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="tanLong" type="xs:double"/>
    <xs:attribute name="tanShort" type="xs:double"/>
    <xs:attribute name="oID" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Spiral/@length**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="length" type="xs:double" use="required"/>

attribute **Spiral/@radiusEnd**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="radiusEnd" type="xs:double" use="required"/>

attribute **Spiral/@radiusStart**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="radiusStart" type="xs:double" use="required"/>

attribute **Spiral/@rot**

type	**clockwise**
properties	isRef 0 use required
facets	enumeration cw enumeration ccw
source	<xs:attribute name="rot" type="clockwise" use="required"/>

attribute **Spiral/@spiType**

type	**spiralType**
properties	isRef 0 use required

facets	enumeration biquadratic enumeration bloss enumeration clothoid enumeration cosine enumeration cubic enumeration sinusoid enumeration revBiquadratic enumeration revBloss enumeration revCosine enumeration revSinusoid enumeration sineHalfWave enumeration biquadraticParabola enumeration cubicParabola enumeration japaneseCubic enumeration radioid enumeration weinerBogen
source	<xs:attribute name="spiType" type="spiralType" use="required"/>

attribute **Spiral/@chord**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="chord" type="xs:double"/>

attribute **Spiral/@constant**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="constant" type="xs:double"/>

attribute **Spiral/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Spiral/@dirEnd**

type	**direction**
properties	isRef 0
source	<xs:attribute name="dirEnd" type="direction"/>

attribute **Spiral/@dirStart**

type	**direction**
properties	isRef 0
source	<xs:attribute name="dirStart" type="direction"/>

attribute **Spiral/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Spiral/@theta**

type	**angle**
properties	isRef 0
source	<xs:attribute name="theta" type="angle"/>

attribute **Spiral/@totalY**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="totalY" type="xs:double"/>

attribute **Spiral/@totalX**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="totalX" type="xs:double"/>

attribute **Spiral/@staStart**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="staStart" type="xs:double"/>

attribute **Spiral/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **Spiral/@tanLong**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="tanLong" type="xs:double"/>

attribute **Spiral/@tanShort**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="tanShort" type="xs:double"/>

attribute **Spiral/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

element **StaEquation**

diagram	LandXML-1.2Doc_p168.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Alignment**

attributes

Name	Type	Use	Default	Fixed	annotation
staAhead	**xs:double**	required			
staBack	**xs:double**				
staInternal	**xs:double**	required			
staIncrement	**stationIncrementDirectionType**	optional			
desc	**xs:string**				

annotation	documentation

	The "staInternal" value identifies the location of the station equation. It is the station value with no equations applied (staStart + dist). "staAhead" is the new station value and "staIncrement" indicates whether or not the station values increase or decrease.
source	<xs:element name="StaEquation"> <xs:annotation> <xs:documentation>The "staInternal" value identifies the location of the station equation. It is the station value with no equations applied (staStart + dist). "staAhead" is the new station value and "staIncrement" indicates whether or not the station values increase or decrease.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="staAhead" type="xs:double" use="required"/> <xs:attribute name="staBack" type="xs:double"/> <xs:attribute name="staInternal" type="xs:double" use="required"/> <xs:attribute name="staIncrement" type="stationIncrementDirectionType" use="optional"/> <xs:attribute name="desc" type="xs:string"/> </xs:complexType> </xs:element>

attribute **StaEquation/@staAhead**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="staAhead" type="xs:double" use="required"/>

attribute **StaEquation/@staBack**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="staBack" type="xs:double"/>

attribute **StaEquation/@staInternal**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="staInternal" type="xs:double" use="required"/>

attribute **StaEquation/@staIncrement**

type	**stationIncrementDirectionType**
properties	isRef 0 use optional
facets	enumeration increasing enumeration decreasing
source	<xs:attribute name="staIncrement" type="stationIncrementDirectionType" use="optional"/>

attribute **StaEquation/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

element **Start**

diagram	LandXML-1.2Doc_p169.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	**PointType**
properties	content complex mixed true
used by	elements **Alignment CoordinateSystem Curve GradeSurface IrregularLine Line Spiral**
facets	minLength 0 maxLength 3
attributes	Name Type Use Default Fixed annotation

	name	**xs:string**	
	desc	**xs:string**	
	code	**xs:string**	
	state	**stateType**	
	pntRef	**pointNameRef**	
	featureRef	**featureNameRef**	optional
	pointGeometry	**pointGeometryType**	
	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional

annotation

documentation

Represents a 2D or 3D Starting or beginning Point

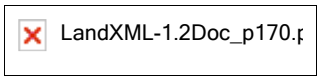
documentation

Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.

source

```
<xs:element name="Start" type="PointType">
  <xs:annotation>
    <xs:documentation>Represents a 2D or 3D Starting or beginning Point</xs:documentation>
    <xs:documentation>Defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation>
  </xs:annotation>
</xs:element>
```

element **StartofRunoutSta**

diagram 

namespace http://www.landxml.org/schema/LandXML-1.2

type **station**

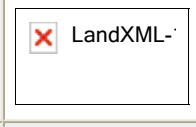
properties content simple
nillable true

used by element **Superelevation**

source

```
<xs:element name="StartofRunoutSta" type="station" nillable="true"/>
```

element **Station**

diagram 

namespace http://www.landxml.org/schema/LandXML-1.2

type **xs:double**

properties content simple

used by	element **AlignPI**
annotation	documentation Station Name
source	<xs:element name="Station" type="xs:double"> <xs:annotation> <xs:documentation>Station Name</xs:documentation> </xs:annotation> </xs:element>

element **Struct**

diagram	LandXML-1.2Doc_p172.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Center CircStruct RectStruct InletStruct OutletStruct Connection Invert StructFlow Feature**
used by	element **Structs**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
elevRim	**xs:double**				
elevSump	**xs:double**				
oID	**xs:string**				
state	**stateType**				

annotation

documentation
Each Struct within a Structs collection element must have a unique "name" attribute.
documentation
The structure type is determined by the existance of one of the following elements: CircStruct or RectStruct.
documentation
The Center element will contain the "north east" coordinate text value or a CgPoint "refPnt" attribute.
documentation
Each Invert element contains a "refPipe" attribute to reference a Pipe element "name"

source

```
<xs:element name="Struct">
  <xs:annotation>
    <xs:documentation>Each Struct within a Structs collection element must have a unique "name" attribute.</xs:documentation>
    <xs:documentation>The structure type is determined by the existance of one of the following elements: CircStruct or RectStruct.</xs:documentation>
    <xs:documentation>The Center element will contain the "north east" coordinate text value or a CgPoint "refPnt" attribute.</xs:documentation>
    <xs:documentation>Each Invert element contains a "refPipe" attribute to reference a Pipe element "name"</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Center"/>
      <xs:choice>
        <xs:element ref="CircStruct"/>
        <xs:element ref="RectStruct"/>
        <xs:element ref="InletStruct"/>
        <xs:element ref="OutletStruct"/>
        <xs:element ref="Connection"/>
      </xs:choice>
      <xs:element ref="Invert" maxOccurs="unbounded"/>
      <xs:element ref="StructFlow" minOccurs="0"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="elevRim" type="xs:double"/>
    <xs:attribute name="elevSump" type="xs:double"/>
    <xs:attribute name="oID" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Struct/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Struct/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Struct/@elevRim**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="elevRim" type="xs:double"/>

attribute **Struct/@elevSump**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="elevSump" type="xs:double"/>

attribute **Struct/@oID**

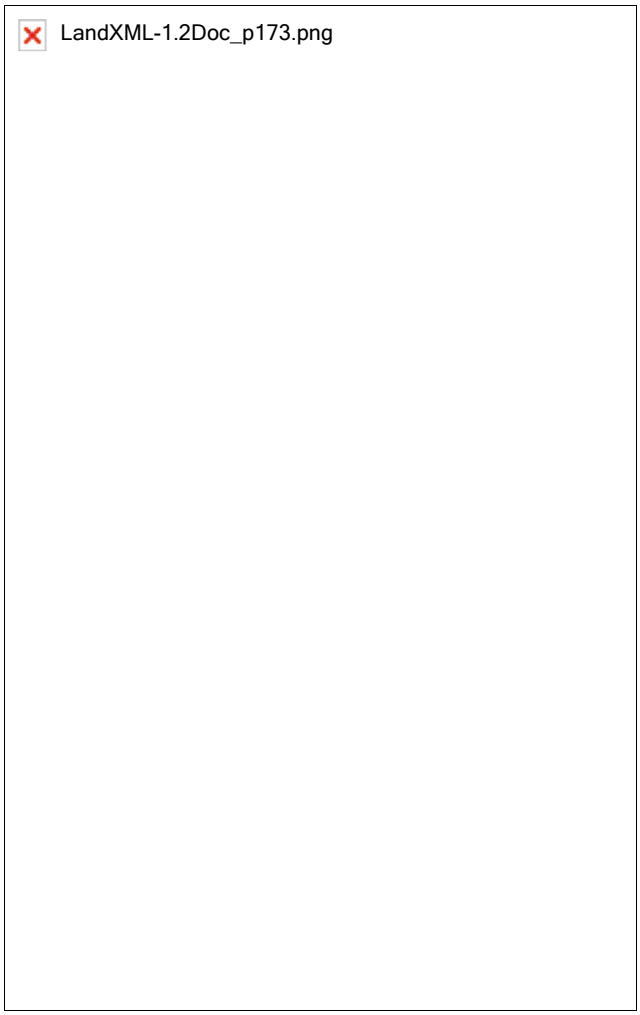
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

attribute **Struct/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **StructFlow**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Feature**

used by element **Struct**

attributes

Name	Type	Use	Default	Fixed	annotation
lossIn	**xs:double**	required			
lossOut	**xs:double**	required			
desc	**xs:string**				
hglIn	**xs:double**				
hglOut	**xs:double**				
localDepression	**xs:double**				
slopeSurf	**xs:double**				
slopeGutter	**xs:double**				
widthGutter	**xs:double**				

source

```
<xs:element name="StructFlow">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
```

```
    <xs:attribute name="lossIn" type="xs:double" use="required"/>
    <xs:attribute name="lossOut" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="hglIn" type="xs:double"/>
    <xs:attribute name="hglOut" type="xs:double"/>
    <xs:attribute name="localDepression" type="xs:double"/>
    <xs:attribute name="slopeSurf" type="xs:double"/>
    <xs:attribute name="slopeGutter" type="xs:double"/>
    <xs:attribute name="widthGutter" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **StructFlow/@lossIn**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="lossIn" type="xs:double" use="required"/>

attribute **StructFlow/@lossOut**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="lossOut" type="xs:double" use="required"/>

attribute **StructFlow/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **StructFlow/@hglIn**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hglIn" type="xs:double"/>

attribute **StructFlow/@hglOut**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="hglOut" type="xs:double"/>

attribute **StructFlow/@localDepression**

type	**xs:double**
properties	isRef 0

source	<xs:attribute name="localDepression" type="xs:double"/>

attribute **StructFlow/@slopeSurf**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="slopeSurf" type="xs:double"/>

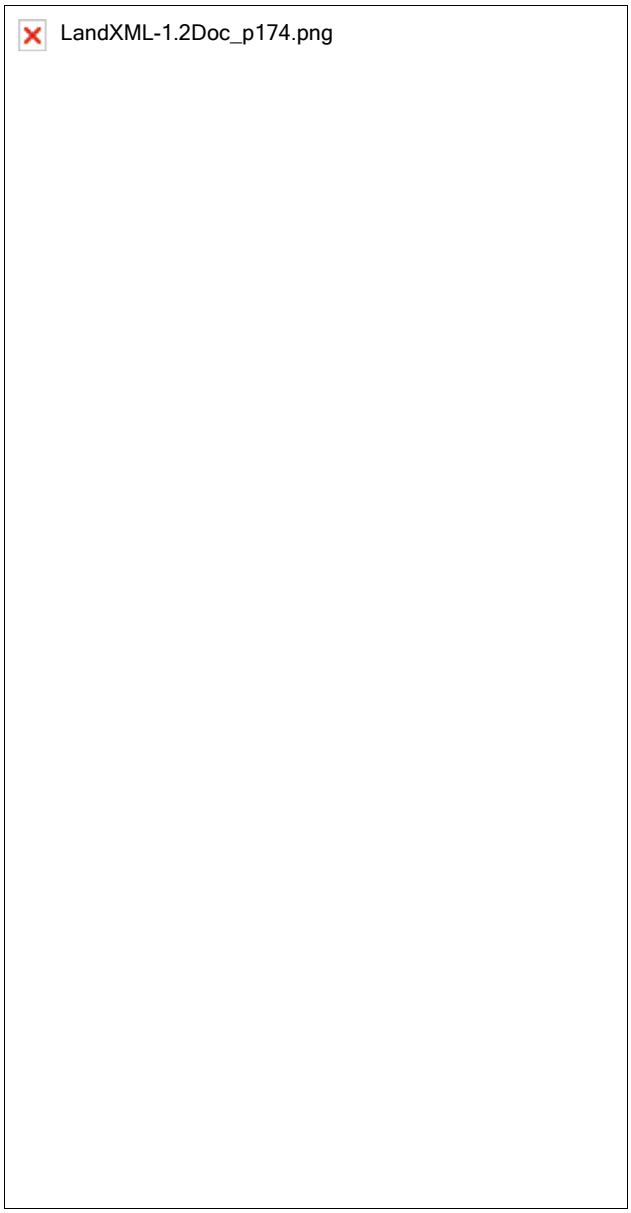
attribute **StructFlow/@slopeGutter**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="slopeGutter" type="xs:double"/>

attribute **StructFlow/@widthGutter**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="widthGutter" type="xs:double"/>

element **Structs**

diagram	 LandXML-1.2Doc_p174.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Units Struct Feature**
used by	element **PipeNetwork**

identity constraints

	Name	Refer	Selector	Field(s)
unique	uStructName		Struct	@name

source

```
<xs:element name="Structs">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Units" minOccurs="0"/>
      <xs:element ref="Struct" minOccurs="2" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
```

```
  </xs:complexType>
  <xs:unique name="uStructName">
    <xs:selector xpath="Struct"/>
    <xs:field xpath="@name"/>
  </xs:unique>
</xs:element>
```

element **Superelevation**

diagram	LandXML-1.2Doc_p175.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**BeginRunoutSta** **BeginRunoffSta** **FullSuperSta** **FullSuperelev** **RunoffSta** **StartofRunoutSta** **EndofRunoutSta** **AdverseSE** **Feature**
used by	element **Alignment**
attributes	Name Type Use Default Fixed annotation staStart **station** staEnd **station**
source	<xs:element name="Superelevation"> <xs:complexType> <xs:choice maxOccurs="unbounded"> <xs:element ref="BeginRunoutSta" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="BeginRunoffSta" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="FullSuperSta" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="FullSuperelev" maxOccurs="unbounded"/> <xs:element ref="RunoffSta" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="StartofRunoutSta" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="EndofRunoutSta" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="AdverseSE" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="staStart" type="station"/> <xs:attribute name="staEnd" type="station"/> </xs:complexType> </xs:element>

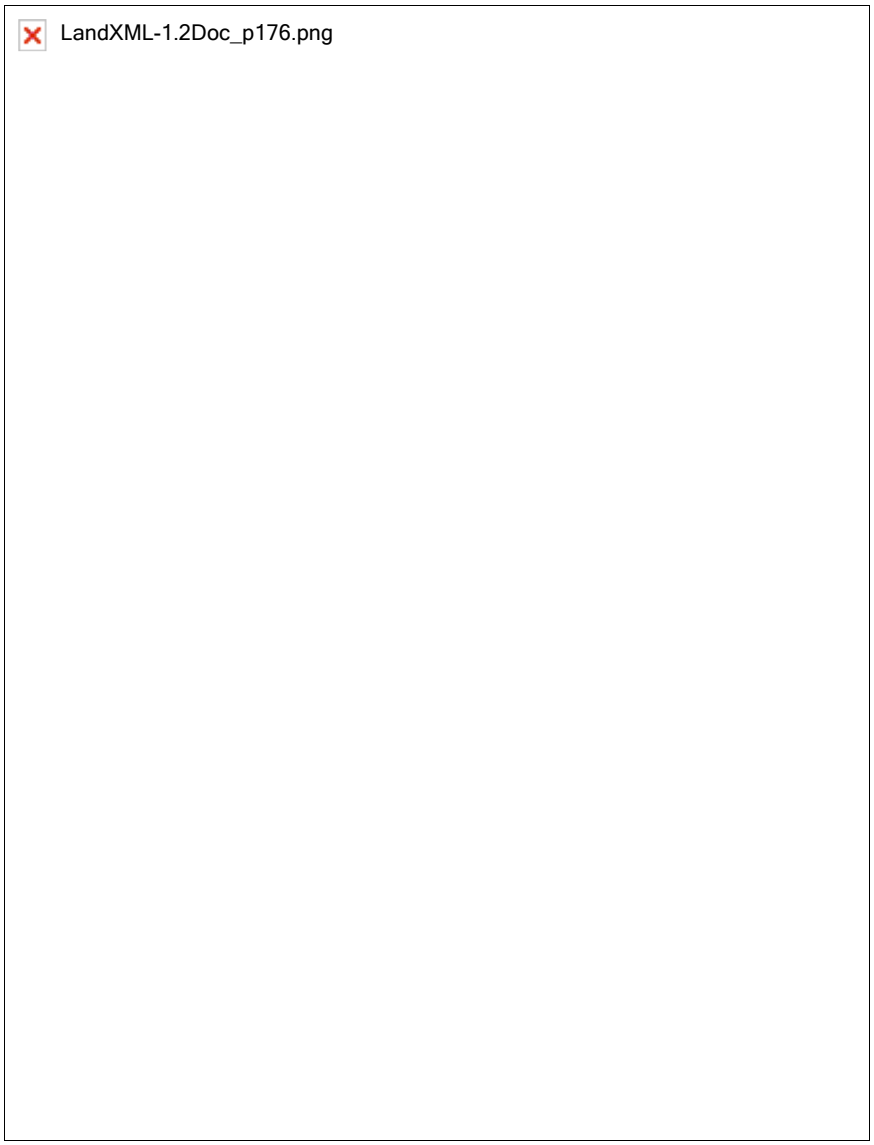
attribute **Superelevation/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **Superelevation/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

element **Surface**

diagram	 LandXML-1.2Doc_p176.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**SourceData** **Definition** **Watersheds** **Feature**
used by	element **Surfaces**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
OID	**xs:string**				
state	**stateType**				

annotation

documentation
SourceData is an optional collection of the points, contours, breaklines and boundaries that were used to create the surface.
documentation
Definition is a collection of points and faces that define the surface.
documentation
Watersheds is a collection the watershed boundaries for the surface.

source

```
<xs:element name="Surface">
  <xs:annotation>
```

```
    <xs:documentation>SourceData is an optional collection of the points, contours, breaklines and
boundaries that were used to create the surface.</xs:documentation>
    <xs:documentation>Definition is a collection of points and faces that define the
surface.</xs:documentation>
    <xs:documentation>Watersheds is a collection the watershed boundaries for the
surface.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice maxOccurs="3">
        <xs:element ref="SourceData" minOccurs="0"/>
        <xs:element ref="Definition" minOccurs="0"/>
        <xs:element ref="Watersheds" minOccurs="0"/>
      </xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="OID" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Surface/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Surface/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

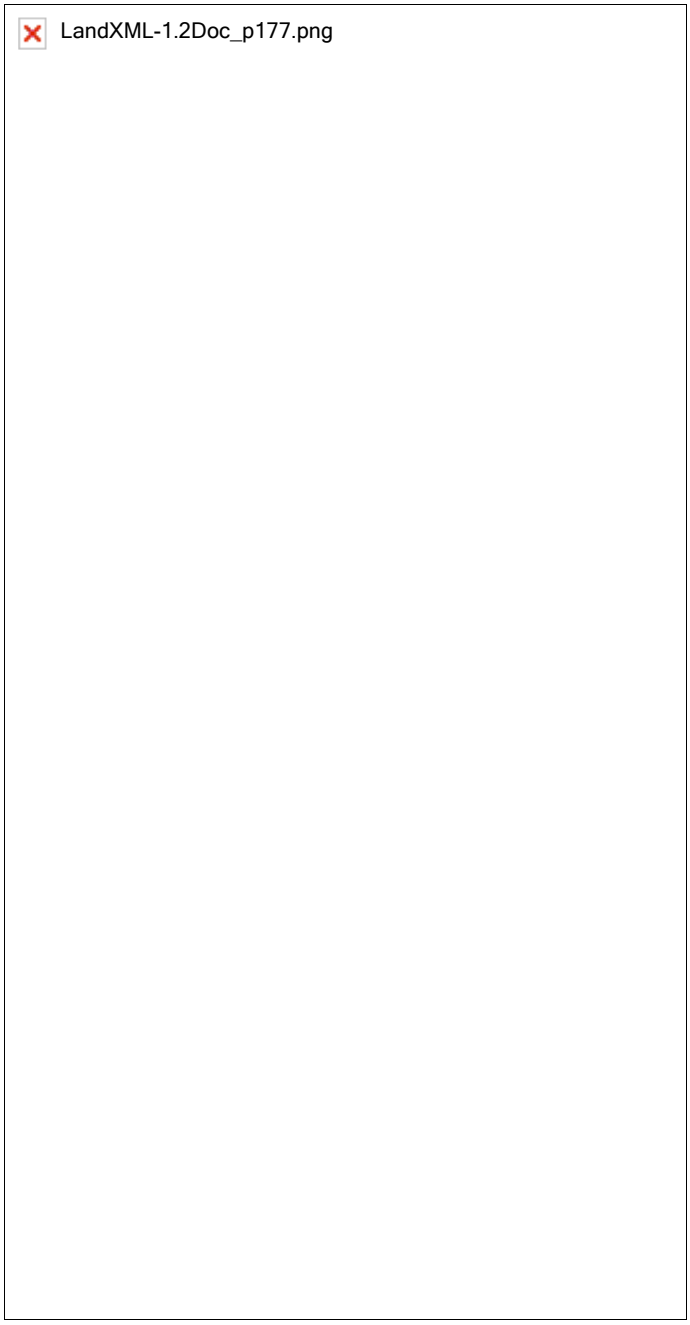
attribute **Surface/@OID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="OID" type="xs:string"/>

attribute **Surface/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **Surfaces**

diagram	 LandXML-1.2Doc_p177.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Surface** **SurfVolumes** **Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

identity constraints

	Name	Refer	Selector	Field(s)
unique	uSrfName		Surface	@name

annotation	documentation A collection of surface models.
source	<xs:element name="Surfaces"> <xs:annotation> <xs:documentation>A collection of surface models.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Surface" maxOccurs="unbounded"/> <xs:element ref="SurfVolumes" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="desc" type="xs:string"/> <xs:attribute name="name" type="xs:string"/> <xs:attribute name="state" type="stateType"/> </xs:complexType> <xs:unique name="uSrfName"> <xs:selector xpath="Surface"/> <xs:field xpath="@name"/> </xs:unique> </xs:element>

attribute **Surfaces/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Surfaces/@name**

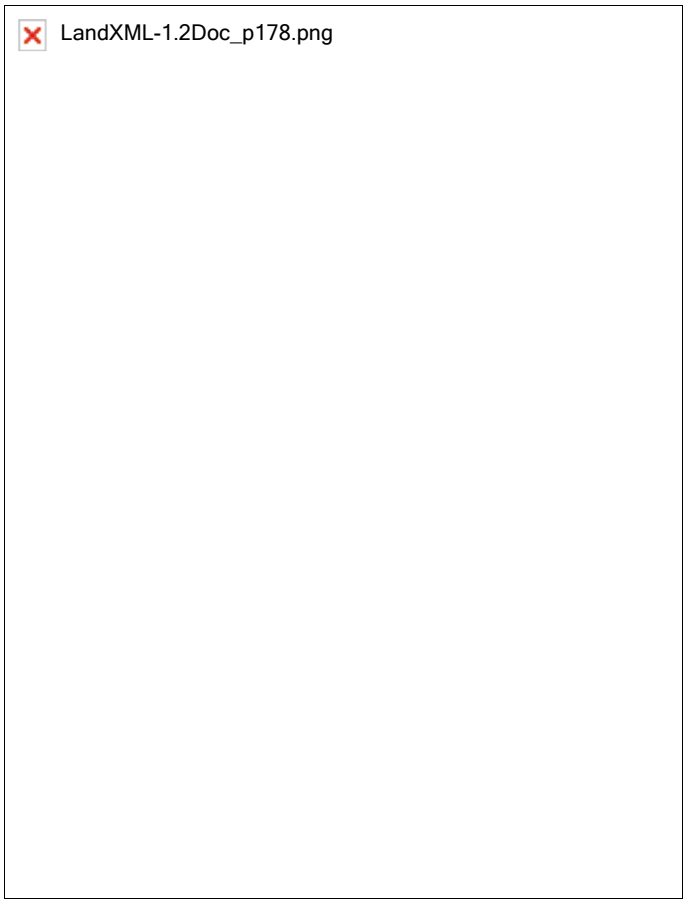
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Surfaces/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **SurfVolume**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Feature**

used by element **SurfVolumes**

attributes

Name	Type	Use	Default	Fixed	annotation
surfBase	**surfaceNameRef**	required			
surfCompare	**surfaceNameRef**	required			
volCut	**xs:double**	required			
volFill	**xs:double**	required			
volTotal	**xs:double**	required			
desc	**xs:string**				
name	**xs:string**				

annotation

documentation

volume calculation results between two surfaces

source

```
<xs:element name="SurfVolume">
  <xs:annotation>
    <xs:documentation>volume calculation results between two surfaces</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="surfBase" type="surfaceNameRef" use="required"/>
    <xs:attribute name="surfCompare" type="surfaceNameRef" use="required"/>
    <xs:attribute name="volCut" type="xs:double" use="required"/>
```

```
    <xs:attribute name="volFill" type="xs:double" use="required"/>
    <xs:attribute name="volTotal" type="xs:double" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **SurfVolume/@surfBase**

type	**surfaceNameRef**
properties	isRef 0 use required
source	<xs:attribute name="surfBase" type="surfaceNameRef" use="required"/>

attribute **SurfVolume/@surfCompare**

type	**surfaceNameRef**
properties	isRef 0 use required
source	<xs:attribute name="surfCompare" type="surfaceNameRef" use="required"/>

attribute **SurfVolume/@volCut**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="volCut" type="xs:double" use="required"/>

attribute **SurfVolume/@volFill**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="volFill" type="xs:double" use="required"/>

attribute **SurfVolume/@volTotal**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="volTotal" type="xs:double" use="required"/>

attribute **SurfVolume/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **SurfVolume/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

element **SurfVolumes**

diagram	LandXML-1.2Doc_p179.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**SurfVolume** **Feature**
used by	element **Surfaces**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
surfVolCalcMethod	**surfVolCMethodType**	required			

annotation

documentation

A collection of surface volume data

source

```
<xs:element name="SurfVolumes">
  <xs:annotation>
    <xs:documentation>A collection of surface volume data</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="SurfVolume" maxOccurs="unbounded"/>
```

```
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="surfVolCalcMethod" type="surfVolCMethodType" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **SurfVolumes/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **SurfVolumes/@name**

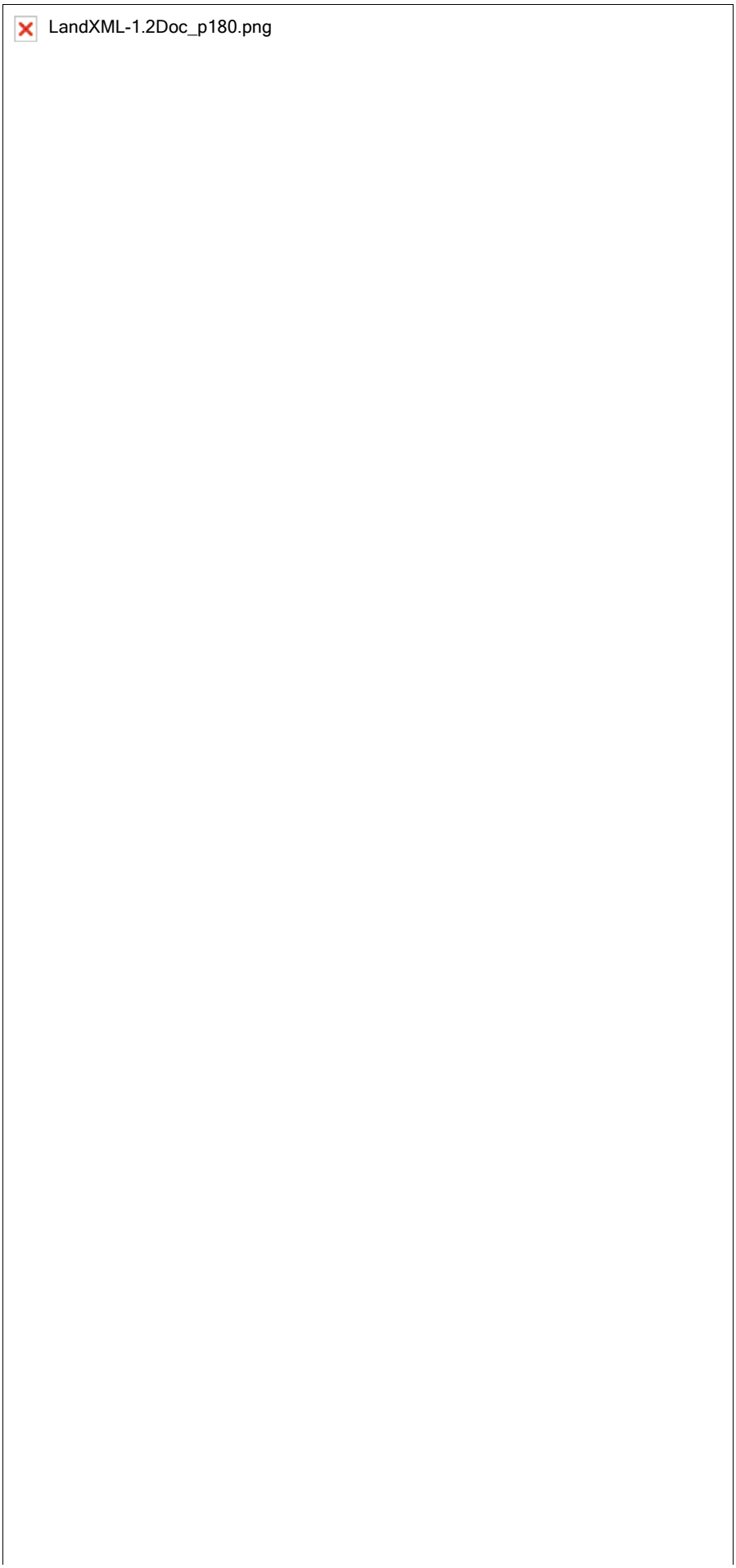
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **SurfVolumes/@surfVolCalcMethod**

type	**surfVolCMethodType**
properties	isRef 0 use required
facets	enumeration grid enumeration composite
source	<xs:attribute name="surfVolCalcMethod" type="surfVolCMethodType" use="required"/>

element **Survey**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**SurveyHeader Equipment SurveyMonument CgPoints InstrumentSetup LaserSetup GPSSetup TargetSetup GPSVector GPSPosition ObservationGroup ControlChecks FieldNote Feature**
used by	element **LandXML**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
date	**xs:date**				
startTime	**xs:dateTime**				
endTime	**xs:dateTime**				
state	**stateType**				
horizontalAccuracy	**xs:string**				
verticalAccuracy	**xs:string**				

annotation

documentation

I've added state here as a safety net

source

```
<xs:element name="Survey">
  <xs:annotation>
    <xs:documentation>I've added state here as a safety net</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="SurveyHeader"/>
      <xs:element ref="Equipment" minOccurs="0"/>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="SurveyMonument" minOccurs="0"/>
        <xs:element ref="CgPoints" minOccurs="0"/>
        <xs:element ref="InstrumentSetup" minOccurs="0"/>
        <xs:element ref="LaserSetup" minOccurs="0"/>
        <xs:element ref="GPSSetup" minOccurs="0"/>
        <xs:element ref="TargetSetup" minOccurs="0"/>
        <xs:element ref="GPSVector"/>
```

```
        <xs:element ref="GPSPosition"/>
        <xs:element ref="ObservationGroup"/>
        <xs:element ref="ControlChecks"/>
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="date" type="xs:date"/>
    <xs:attribute name="startTime" type="xs:dateTime"/>
    <xs:attribute name="endTime" type="xs:dateTime"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="horizontalAccuracy" type="xs:string"/>
    <xs:attribute name="verticalAccuracy" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **Survey/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Survey/@date**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="date" type="xs:date"/>

attribute **Survey/@startTime**

type	**xs:dateTime**
properties	isRef 0
source	<xs:attribute name="startTime" type="xs:dateTime"/>

attribute **Survey/@endTime**

type	**xs:dateTime**
properties	isRef 0
source	<xs:attribute name="endTime" type="xs:dateTime"/>

attribute **Survey/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed

source	<xs:attribute name="state" type="stateType"/>

attribute **Survey/@horizontalAccuracy**

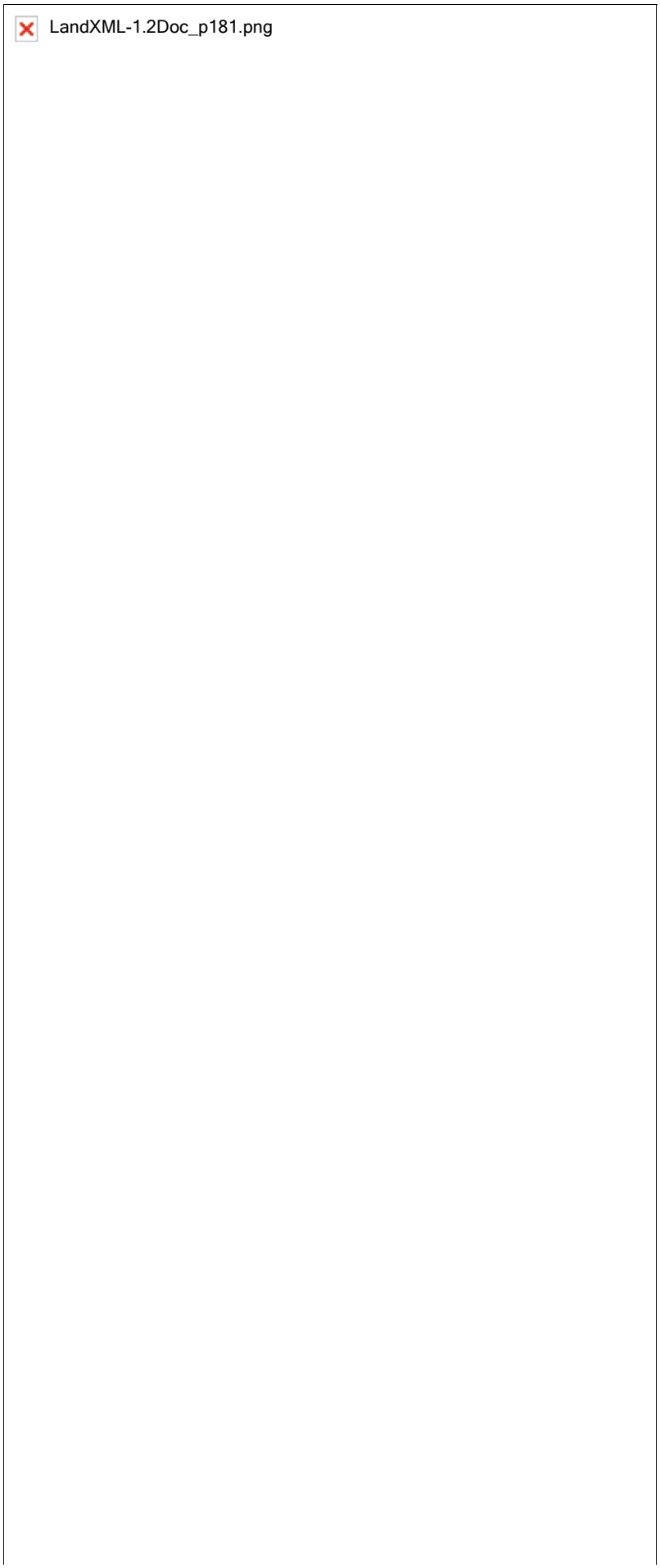
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="horizontalAccuracy" type="xs:string"/>

attribute **Survey/@verticalAccuracy**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="verticalAccuracy" type="xs:string"/>

element **SurveyHeader**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
children	**Annotation AdministrativeArea AdministrativeDate CoordinateSystem Units MapPoint Personnel FieldNote Feature SurveyorCertificate PurposeOfSurvey HeadOfPower**
used by	element **Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
desc	**xs:string**				
purpose	**purposeType**				
startTime	**xs:dateTime**				
endTime	**xs:dateTime**				
surveyor	**xs:string**				
surveyorFirm	**xs:string**				
surveyorReference	**xs:string**				
surveyorRegistration	**xs:string**				
surveyPurpose	**xs:string**				
type	**surveyType**				
class	**xs:string**				
county	**xs:string**				
applyAtmosphericCorrection	**xs:boolean**				
pressure	**xs:double**				
temperature	**xs:double**				
applySeaLevelCorrection	**xs:boolean**				
scaleFactor	**xs:double**				
seaLevelCorrectionFactor	**xs:double**				
combinedFactor	**xs:double**				
jurisdiction	**jurisdictionType**				
submissionDate	**xs:date**				

	documentStatus	**documentStatusType**
	surveyFormat	**surveyFormatType**
	surveyStatus	**surveyStatusType**
	communityTitleSchemeNo	**xs:int**
	communityTitleSchemeName	**xs:string**
	fieldNoteFlag	**xs:boolean**
	fieldNoteReference	**xs:string**
	fieldReport	**xs:string**
annotation	documentation We seemed to have doubled up on the survey purpose here, but the two are quite different - maybe need a different name	

source

```
<xs:element name="SurveyHeader">
 <xs:annotation>
  <xs:documentation>We seemed to have doubled up on the survey purpose here, but the two are quite different - maybe need a different name</xs:documentation>
 </xs:annotation>
 <xs:complexType mixed="true">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Annotation" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="AdministrativeArea" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="AdministrativeDate" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="CoordinateSystem" minOccurs="0"/>
   <xs:element ref="Units" minOccurs="0"/>
   <xs:element ref="MapPoint" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Personnel" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="SurveyorCertificate" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="PurposeOfSurvey" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="HeadOfPower" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="name" type="xs:string" use="required"/>
  <xs:attribute name="desc" type="xs:string"/>
  <xs:attribute name="purpose" type="purposeType"/>
  <xs:attribute name="startTime" type="xs:dateTime"/>
  <xs:attribute name="endTime" type="xs:dateTime"/>
  <xs:attribute name="surveyor" type="xs:string"/>
  <xs:attribute name="surveyorFirm" type="xs:string"/>
  <xs:attribute name="surveyorReference" type="xs:string"/>
  <xs:attribute name="surveyorRegistration" type="xs:string"/>
  <xs:attribute name="surveyPurpose" type="xs:string"/>
  <xs:attribute name="type" type="surveyType"/>
  <xs:attribute name="class" type="xs:string"/>
  <xs:attribute name="county" type="xs:string"/>
  <xs:attribute name="applyAtmosphericCorrection" type="xs:boolean"/>
  <xs:attribute name="pressure" type="xs:double"/>
  <xs:attribute name="temperature" type="xs:double"/>
  <xs:attribute name="applySeaLevelCorrection" type="xs:boolean"/>
  <xs:attribute name="scaleFactor" type="xs:double"/>
  <xs:attribute name="seaLevelCorrectionFactor" type="xs:double"/>
  <xs:attribute name="combinedFactor" type="xs:double"/>
  <xs:attribute name="jurisdiction" type="jurisdictionType"/>
  <xs:attribute name="submissionDate" type="xs:date"/>
  <xs:attribute name="documentStatus" type="documentStatusType"/>
  <xs:attribute name="surveyFormat" type="surveyFormatType"/>
  <xs:attribute name="surveyStatus" type="surveyStatusType"/>
  <xs:attribute name="communityTitleSchemeNo" type="xs:int"/>
  <xs:attribute name="communityTitleSchemeName" type="xs:string"/>
```

```
    <xs:attribute name="fieldNoteFlag" type="xs:boolean"/>
    <xs:attribute name="fieldNoteReference" type="xs:string"/>
    <xs:attribute name="fieldReport" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **SurveyHeader/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **SurveyHeader/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **SurveyHeader/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **SurveyHeader/@startTime**

type	**xs:dateTime**
properties	isRef 0
source	<xs:attribute name="startTime" type="xs:dateTime"/>

attribute **SurveyHeader/@endTime**

type	**xs:dateTime**
properties	isRef 0

source	<xs:attribute name="endTime" type="xs:dateTime"/>

attribute **SurveyHeader/@surveyor**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyor" type="xs:string"/>

attribute **SurveyHeader/@surveyorFirm**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyorFirm" type="xs:string"/>

attribute **SurveyHeader/@surveyorReference**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyorReference" type="xs:string"/>

attribute **SurveyHeader/@surveyorRegistration**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyorRegistration" type="xs:string"/>

attribute **SurveyHeader/@surveyPurpose**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="surveyPurpose" type="xs:string"/>

attribute **SurveyHeader/@type**

type	**surveyType**
properties	isRef 0
facets	enumeration compiled enumeration computed enumeration surveyed
source	<xs:attribute name="type" type="surveyType"/>

attribute **SurveyHeader/@class**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="class" type="xs:string"/>

attribute **SurveyHeader/@county**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="county" type="xs:string"/>

attribute **SurveyHeader/@applyAtmosphericCorrection**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="applyAtmosphericCorrection" type="xs:boolean"/>

attribute **SurveyHeader/@pressure**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="pressure" type="xs:double"/>

attribute **SurveyHeader/@temperature**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="temperature" type="xs:double"/>

attribute **SurveyHeader/@applySeaLevelCorrection**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="applySeaLevelCorrection" type="xs:boolean"/>

attribute **SurveyHeader/@scaleFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="scaleFactor" type="xs:double"/>

attribute **SurveyHeader/@seaLevelCorrectionFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="seaLevelCorrectionFactor" type="xs:double"/>

attribute **SurveyHeader/@combinedFactor**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="combinedFactor" type="xs:double"/>

attribute **SurveyHeader/@jurisdiction**

type	**jurisdictionType**
properties	isRef 0
source	<xs:attribute name="jurisdiction" type="jurisdictionType"/>

attribute **SurveyHeader/@submissionDate**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="submissionDate" type="xs:date"/>

attribute **SurveyHeader/@documentStatus**

type	**documentStatusType**
properties	isRef 0
source	<xs:attribute name="documentStatus" type="documentStatusType"/>

attribute **SurveyHeader/@surveyFormat**

type	**surveyFormatType**
properties	isRef 0
source	<xs:attribute name="surveyFormat" type="surveyFormatType"/>

attribute **SurveyHeader/@surveyStatus**

type	**surveyStatusType**
properties	isRef 0
source	<xs:attribute name="surveyStatus" type="surveyStatusType"/>

attribute **SurveyHeader/@communityTitleSchemeNo**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="communityTitleSchemeNo" type="xs:int"/>

attribute **SurveyHeader/@communityTitleSchemeName**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="communityTitleSchemeName" type="xs:string"/>

attribute **SurveyHeader/@fieldNoteFlag**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="fieldNoteFlag" type="xs:boolean"/>

attribute **SurveyHeader/@fieldNoteReference**

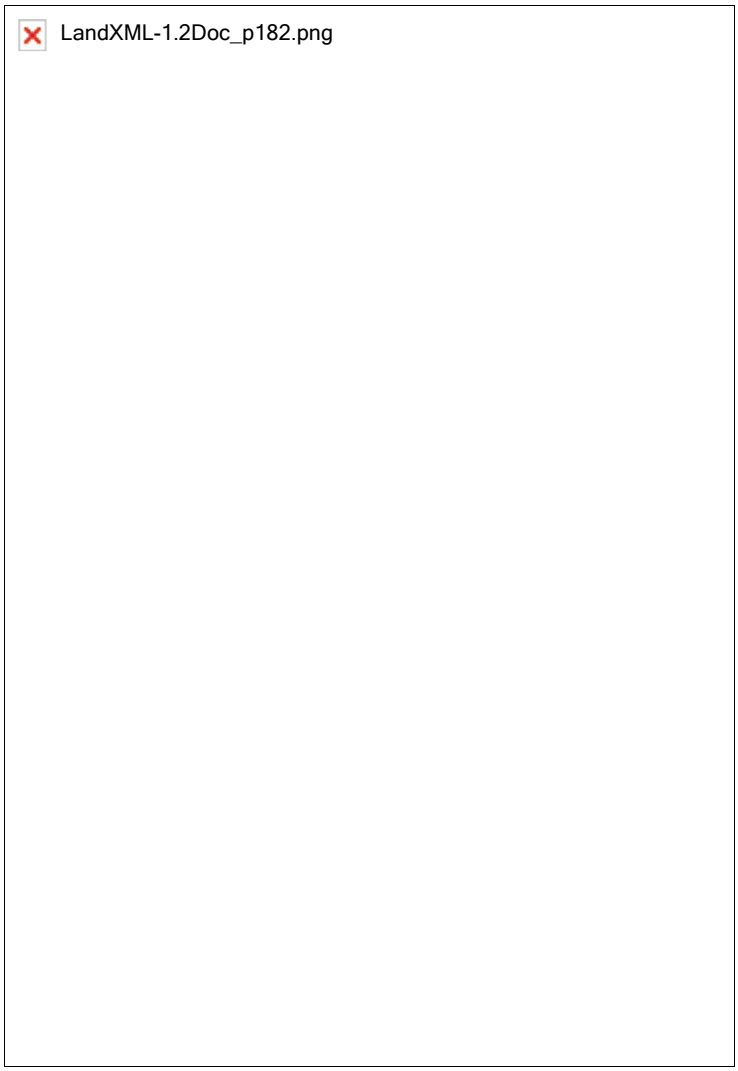
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="fieldNoteReference" type="xs:string"/>

attribute **SurveyHeader/@fieldReport**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="fieldReport" type="xs:string"/>

element **SurveyMonument**

diagram



namespace: http://www.landxml.org/schema/LandXML-1.2

properties: content complex

children: **Feature**

used by: element **Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
mntRef	**monumentNameRef**	required			
purpose	**monumentPurpose**	required			
state	**monumentState**				
adoptedSurvey	**xs:string**				
disturbedMonument	**xs:string**				
disturbedDate	**xs:date**				
disturbedAnnotation	**xs:string**				
replacedMonument	**xs:string**				
replacedDate	**xs:date**				
replacedAnnotation	**xs:string**				

annotation

documentation

This relates the new monument element to a survey - indicating its purpose in the survey and distrubed / replaced info as well

source

```
<xs:element name="SurveyMonument">
  <xs:annotation>
```

```
    <xs:documentation>This relates the new monument element to a survey - indicating its purpose in the survey and distrubed / replaced info as well</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="mntRef" type="monumentNameRef" use="required"/>
    <xs:attribute name="purpose" type="monumentPurpose" use="required"/>
    <xs:attribute name="state" type="monumentState"/>
    <xs:attribute name="adoptedSurvey" type="xs:string"/>
    <xs:attribute name="disturbedMonument" type="xs:string"/>
    <xs:attribute name="disturbedDate" type="xs:date"/>
    <xs:attribute name="disturbedAnnotation" type="xs:string"/>
    <xs:attribute name="replacedMonument" type="xs:string"/>
    <xs:attribute name="replacedDate" type="xs:date"/>
    <xs:attribute name="replacedAnnotation" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **SurveyMonument/@mntRef**

type	**monumentNameRef**
properties	isRef 0 use required
source	<xs:attribute name="mntRef" type="monumentNameRef" use="required"/>

attribute **SurveyMonument/@purpose**

type	**monumentPurpose**
properties	isRef 0 use required
source	<xs:attribute name="purpose" type="monumentPurpose" use="required"/>

attribute **SurveyMonument/@state**

type	**monumentState**
properties	isRef 0
source	<xs:attribute name="state" type="monumentState"/>

attribute **SurveyMonument/@adoptedSurvey**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="adoptedSurvey" type="xs:string"/>

attribute **SurveyMonument/@disturbedMonument**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="disturbedMonument" type="xs:string"/>

attribute **SurveyMonument/@disturbedDate**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="disturbedDate" type="xs:date"/>

attribute **SurveyMonument/@disturbedAnnotation**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="disturbedAnnotation" type="xs:string"/>

attribute **SurveyMonument/@replacedMonument**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="replacedMonument" type="xs:string"/>

attribute **SurveyMonument/@replacedDate**

type	**xs:date**
properties	isRef 0
source	<xs:attribute name="replacedDate" type="xs:date"/>

attribute **SurveyMonument/@replacedAnnotation**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="replacedAnnotation" type="xs:string"/>

element **SurveyorCertificate**

diagram	LandXML-1.2Doc_p183.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
used by	element **SurveyHeader**

attributes	Name	Type	Use	Default	Fixed	annotation
	name	**xs:string**	required			
	certificateType	**xs:string**				
	textCertificate	**xs:string**				
	surveyDate	**xs:date**				

source

```
<xs:element name="SurveyorCertificate">
  <xs:complexType>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="certificateType" type="xs:string"/>
    <xs:attribute name="textCertificate" type="xs:string"/>
    <xs:attribute name="surveyDate" type="xs:date"/>
  </xs:complexType>
</xs:element>
```

attribute **SurveyorCertificate/@name**

type	**xs:string**
properties	isRef 0 use required
source	`<xs:attribute name="name" type="xs:string" use="required"/>`

attribute **SurveyorCertificate/@certificateType**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="certificateType" type="xs:string"/>`

attribute **SurveyorCertificate/@textCertificate**

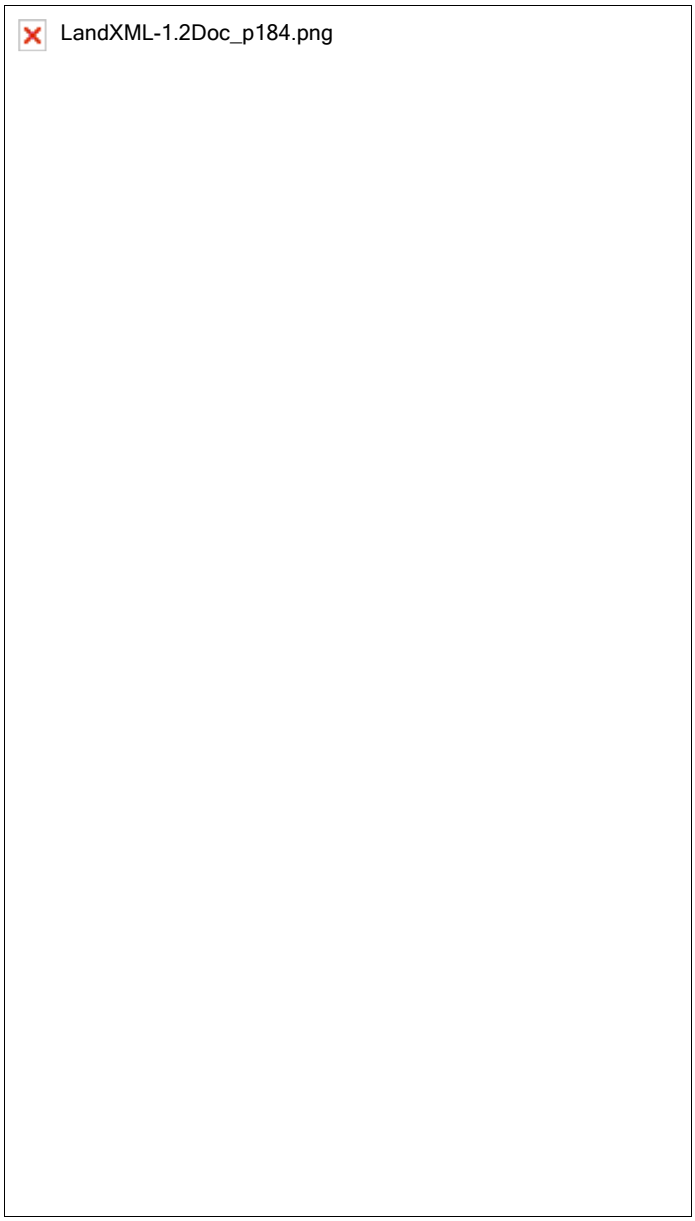
type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="textCertificate" type="xs:string"/>`

attribute **SurveyorCertificate/@surveyDate**

type	**xs:date**
properties	isRef 0
source	`<xs:attribute name="surveyDate" type="xs:date"/>`

element **TargetPoint**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

type **PointType**

properties
content complex
mixed true

used by
elements **GPSPosition** **GPSVector** **ObservationGroup** **PointResults** **ReducedArcObservation** **ReducedObservation**
complexType **RawObservationType**

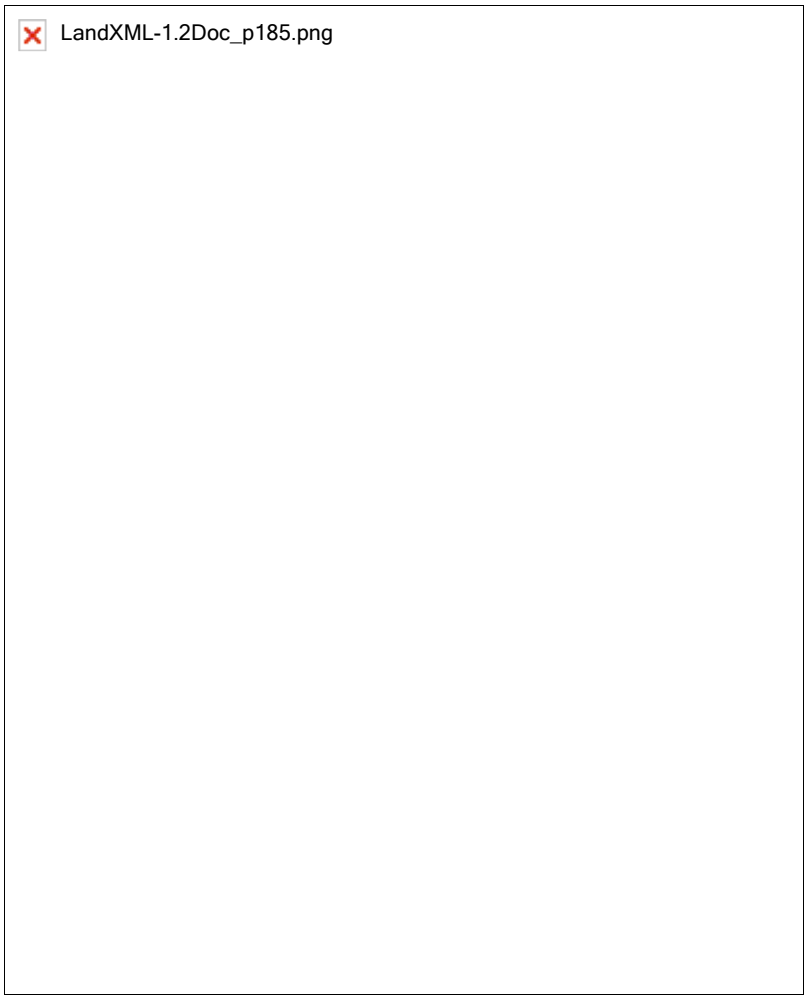
facets
minLength 0
maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			

	pointGeometry	**pointGeometryType**	
	DTMAttribute	**DTMAttributeType**	
	timeStamp	**xs:dateTime**	optional
	role	**surveyRoleType**	optional
	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional
annotation	documentation Represents a 2D or 3D location for the target documentation It is defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.		
source	<xs:element name="TargetPoint" type="PointType"> <xs:annotation> <xs:documentation>Represents a 2D or 3D location for the target</xs:documentation> <xs:documentation>It is defined by either a coordinate text value ("north east" or "north east elev") or a CgPoint number reference "pntRef" attribute.</xs:documentation> </xs:annotation> </xs:element>		

element **TargetSetup**

diagram	 LandXML-1.2Doc_p185.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**FieldNote Feature**
used by	elements **GPSSetup InstrumentSetup LaserSetup Survey**

attributes

Name	Type	Use	Default	Fixed	annotation
id	**xs:ID**				
targetHeight	**xs:double**				
edmTargetVertOffset	**xs:double**				
prismConstant	**xs:double**				

source

```
<xs:element name="TargetSetup">
  <xs:annotation>
    <xs:documentation/>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="id" type="xs:ID"/>
    <xs:attribute name="targetHeight" type="xs:double"/>
    <xs:attribute name="edmTargetVertOffset" type="xs:double"/>
```

```
    <xs:attribute name="prismConstant" type="xs:double"/>
    <!-- To allow for older style EDM's -->
  </xs:complexType>
</xs:element>
```

attribute **TargetSetup/@id**

type	**xs:ID**
properties	isRef 0
source	<xs:attribute name="id" type="xs:ID"/>

attribute **TargetSetup/@targetHeight**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="targetHeight" type="xs:double"/>

attribute **TargetSetup/@edmTargetVertOffset**

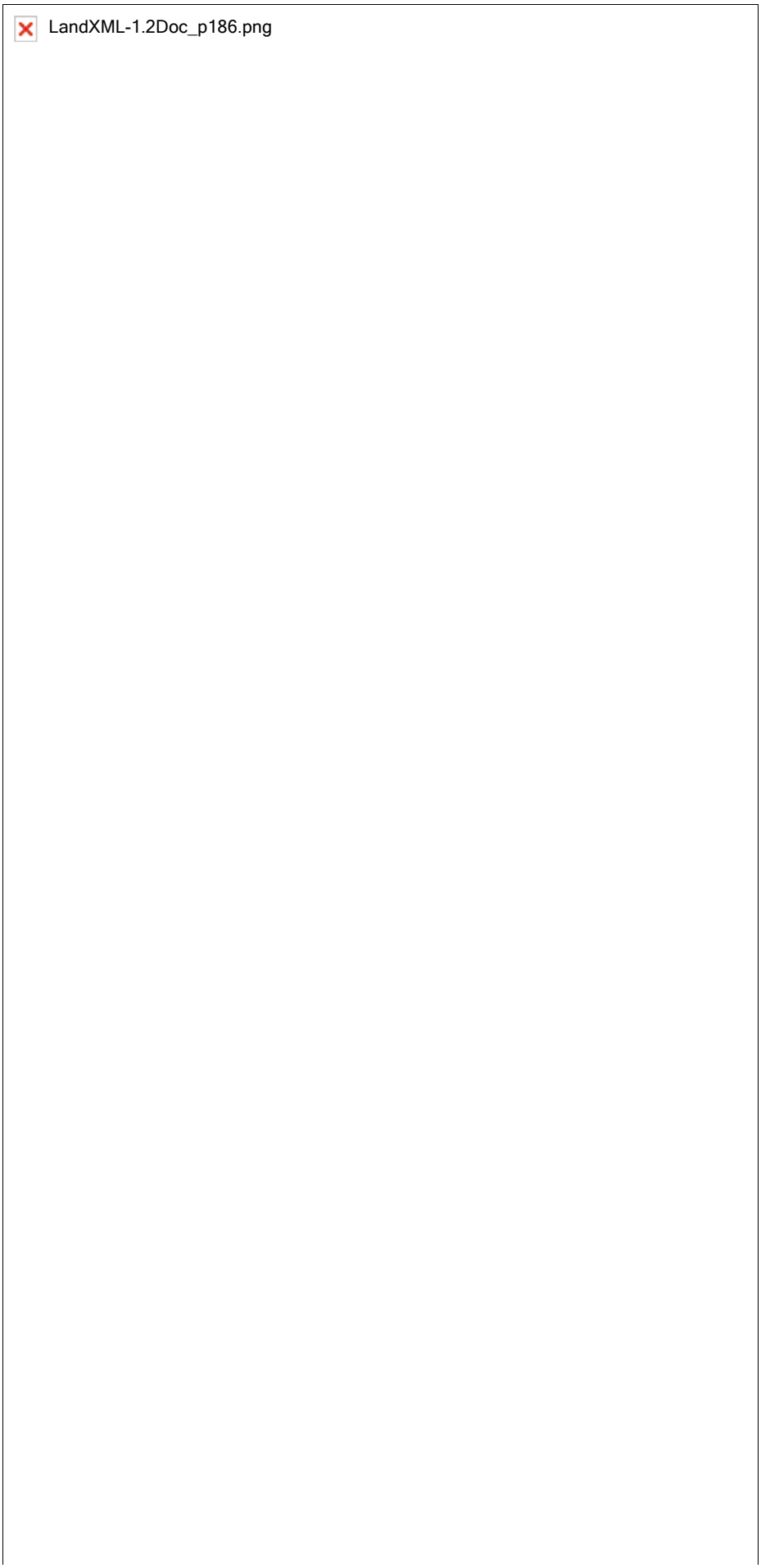
type	**xs:double**
properties	isRef 0
source	<xs:attribute name="edmTargetVertOffset" type="xs:double"/>

attribute **TargetSetup/@prismConstant**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="prismConstant" type="xs:double"/>

element **TestObservation**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **RawObservationType**
properties	content complex mixed false
children	**TargetPoint** **OffsetVals** **FieldNote** **Feature**
used by	element **ControlChecks**

attributes

Name	Type	Use	Default	Fixed	annotation
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
setID					
purpose	**purposeType**				
targetHeight	**xs:double**				
horizAngle	**angle**	optional			
slopeDistance	**xs:double**	optional			
zenithAngle	**zenithAngle**	optional			
horizDistance	**xs:double**				
vertDistance	**xs:double**				
azimuth	**direction**	optional			
unused	**xs:boolean**				
directFace	**xs:boolean**				
coordGeomRefs	**coordGeomNameRefs**				
timeStamp	**xs:dateTime**				
alignRef	**alignmentNameRef**				
alignStationName	**xs:string**				
alignOffset	**offsetDistance**				
upperStadia	**xs:double**				
rod	**xs:double**				

	lowerStadia **xs:double** circlePositionSet **xs:double** status **observationStatusType** setup1RodA **xs:double** setup1RodB **xs:double** setup2RodA **xs:double** setup2RodB **xs:double**
source	<xs:element name="TestObservation"> <xs:complexType mixed="false"> <xs:complexContent mixed="false"> <xs:extension base="RawObservationType"> <xs:attribute name="setup1RodA" type="xs:double"/> <xs:attribute name="setup1RodB" type="xs:double"/> <xs:attribute name="setup2RodA" type="xs:double"/> <xs:attribute name="setup2RodB" type="xs:double"/> </xs:extension> </xs:complexContent> </xs:complexType> </xs:element>

attribute **TestObservation/@setup1RodA**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setup1RodA" type="xs:double"/>

attribute **TestObservation/@setup1RodB**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setup1RodB" type="xs:double"/>

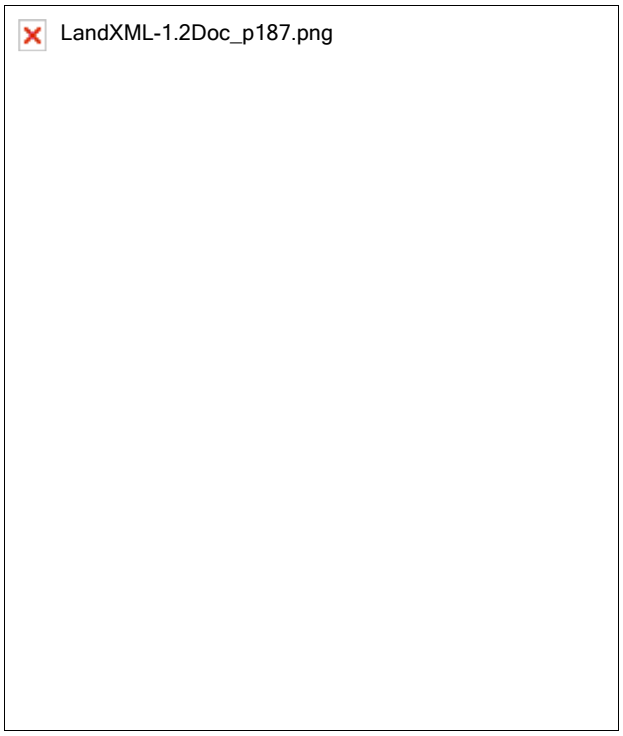
attribute **TestObservation/@setup2RodA**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setup2RodA" type="xs:double"/>

attribute **TestObservation/@setup2RodB**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="setup2RodB" type="xs:double"/>

element **ThruLane**

diagram	 LandXML-1.2Doc_p187.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Lanes**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="ThruLane">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **ThruLane/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **ThruLane/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **ThruLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **ThruLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **Timing**

diagram	LandXML-1.2Doc_p188.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Intersection**

attributes	Name	Type	Use	Default	Fixed	annotation
	station	**station**				
	legNumber	**xs:int**				
	protectedTurnPercent	**xs:double**				
	unprotectedTurnPercent	**xs:double**				

source

```
<xs:element name="Timing">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="station" type="station"/>
    <xs:attribute name="legNumber" type="xs:int"/>
    <xs:attribute name="protectedTurnPercent" type="xs:double"/>
    <xs:attribute name="unprotectedTurnPercent" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **Timing/@station**

type	**station**
properties	isRef 0
source	<xs:attribute name="station" type="station"/>

attribute **Timing/@legNumber**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="legNumber" type="xs:int"/>

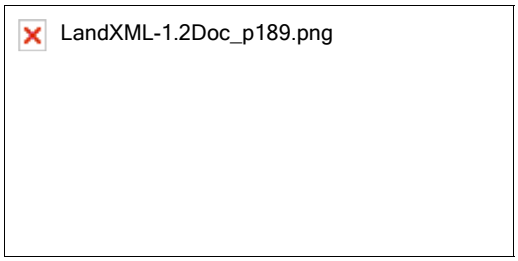
attribute **Timing/@protectedTurnPercent**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="protectedTurnPercent" type="xs:double"/>

attribute **Timing/@unprotectedTurnPercent**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="unprotectedTurnPercent" type="xs:double"/>

element **Title**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex mixed true
used by	element **Parcel**

attributes	Name	Type	Use	Default	Fixed	annotation
	name	**xs:string**	required			
	titleType	**xs:anySimpleType**				

annotation	documentation This may be expanded, but the LandXML schema is not really aimed at providing title information so I think name is sufficient

source

```
<xs:element name="Title">
  <xs:annotation>
    <xs:documentation>This may be expanded, but the LandXML schema is not really aimed at providing title information so I think name is sufficient</xs:documentation>
  </xs:annotation>
  <xs:complexType mixed="true">
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="titleType" type="xs:anySimpleType"/>
  </xs:complexType>
</xs:element>
```

attribute **Title/@name**

type	**xs:string**
properties	isRef 0 use required

source

```
<xs:attribute name="name" type="xs:string" use="required"/>
```

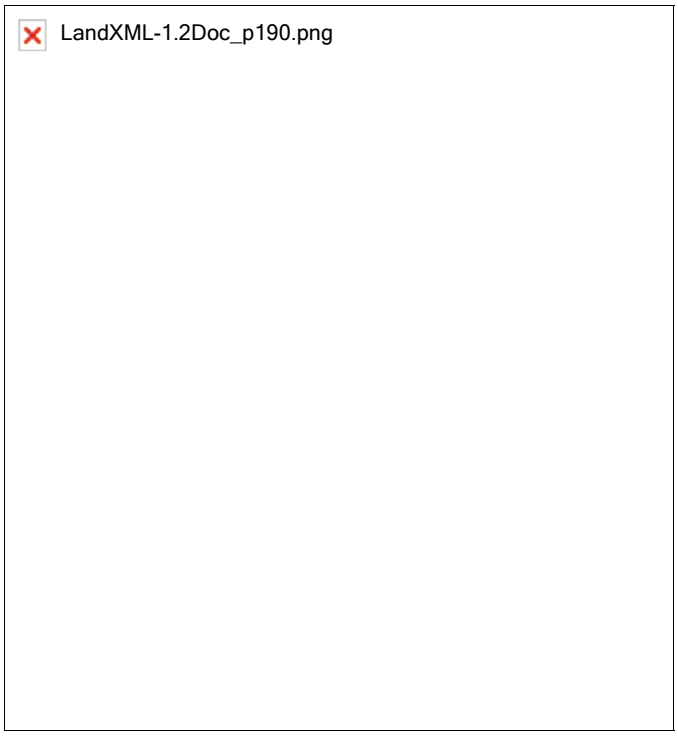
attribute **Title/@titleType**

type	**xs:anySimpleType**
properties	isRef 0

source

```
<xs:attribute name="titleType" type="xs:anySimpleType"/>
```

element **TrafficControl**

diagram	 LandXML-1.2Doc_p190.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Intersection**

attributes

Name	Type	Use	Default	Fixed	annotation
station	**station**				
signalPeriod	**xs:double**				
controlPosition	**trafficControlPosition**				
controlType	**trafficControlType**				

source

```
<xs:element name="TrafficControl">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="station" type="station"/>
    <xs:attribute name="signalPeriod" type="xs:double"/>
    <xs:attribute name="controlPosition" type="trafficControlPosition"/>
    <xs:attribute name="controlType" type="trafficControlType"/>
  </xs:complexType>
</xs:element>
```

attribute **TrafficControl/@station**

type	**station**
properties	isRef 0
source	<xs:attribute name="station" type="station"/>

attribute **TrafficControl/@signalPeriod**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="signalPeriod" type="xs:double"/>

attribute **TrafficControl/@controlPosition**

type	**trafficControlPosition**
properties	isRef 0
facets	enumeration side enumeration overhead
source	<xs:attribute name="controlPosition" type="trafficControlPosition"/>

attribute **TrafficControl/@controlType**

type	**trafficControlType**
properties	isRef 0
facets	enumeration none enumeration signal enumeration stop enumeration yield
source	<xs:attribute name="controlType" type="trafficControlType"/>

element **TrafficVolume**

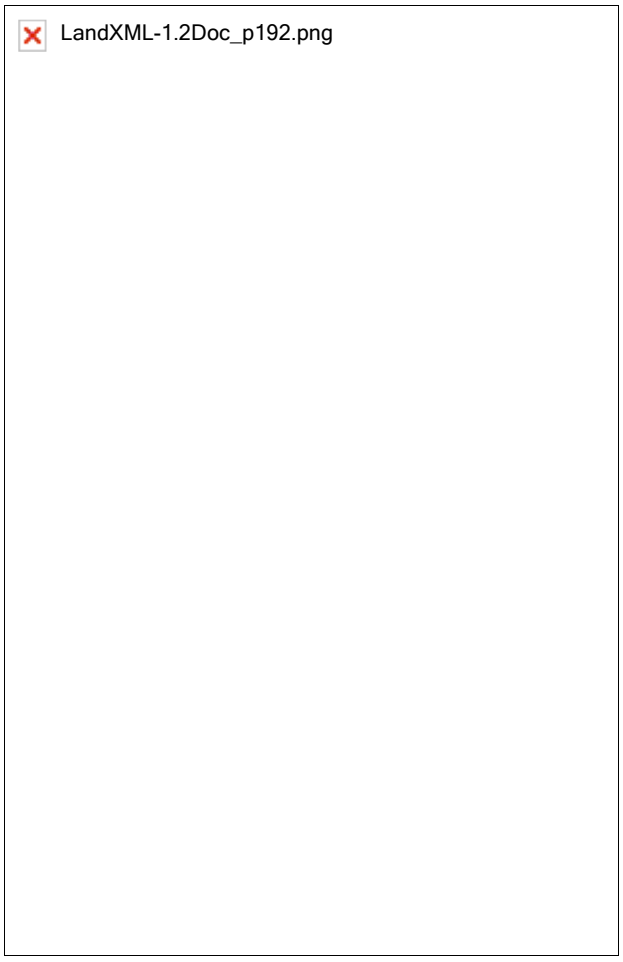
diagram	LandXML-1.2Doc_p191.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**DailyTrafficVolume** **DesignHour** **PeakHour** **Feature**
used by	element **Roadway**

source

```
<xs:element name="TrafficVolume">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="DailyTrafficVolume"/>
      <xs:element ref="DesignHour"/>
      <xs:element ref="PeakHour"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
  </xs:complexType>
</xs:element>
```

element **TurnLane**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Lanes**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
beginFullWidthSta	**station**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				
type	**turnLaneType**				
taperType	**laneTaperType**				

	taperTangentLength **xs:double**
source	<xs:element name="TurnLane"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="staStart" type="station"/> <xs:attribute name="staEnd" type="station"/> <xs:attribute name="beginFullWidthSta" type="station"/> <xs:attribute name="width" type="xs:double"/> <xs:attribute name="sideofRoad" type="sideofRoadType"/> <xs:attribute name="type" type="turnLaneType"/> <xs:attribute name="taperType" type="laneTaperType"/> <xs:attribute name="taperTangentLength" type="xs:double"/> </xs:complexType> </xs:element>

attribute **TurnLane/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **TurnLane/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **TurnLane/@beginFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="beginFullWidthSta" type="station"/>

attribute **TurnLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **TurnLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both

source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

attribute **TurnLane/@type**

type	**turnLaneType**
properties	isRef 0
facets	enumeration left enumeration right
source	<xs:attribute name="type" type="turnLaneType"/>

attribute **TurnLane/@taperType**

type	**laneTaperType**
properties	isRef 0
facets	enumeration straight-line enumeration partial-tangent enumeration symmetrical-reverse-curve enumeration asymmetrical-reverse-curve
source	<xs:attribute name="taperType" type="laneTaperType"/>

attribute **TurnLane/@taperTangentLength**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="taperTangentLength" type="xs:double"/>

element **TurnRestriction**

diagram	LandXML-1.2Doc_p193.png
namespace	http://www.landxml.org/schema/LandXML-1.2

properties	content complex
children	**Feature**
used by	element **Intersection**

attributes

Name	Type	Use	Default	Fixed	annotation
station	**station**				
legNumber	**xs:int**				
type	**trafficTurnRestriction**				

source

```
<xs:element name="TurnRestriction">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="station" type="station"/>
    <xs:attribute name="legNumber" type="xs:int"/>
    <xs:attribute name="type" type="trafficTurnRestriction"/>
  </xs:complexType>
</xs:element>
```

attribute **TurnRestriction/@station**

type	**station**
properties	isRef 0
source	`<xs:attribute name="station" type="station"/>`

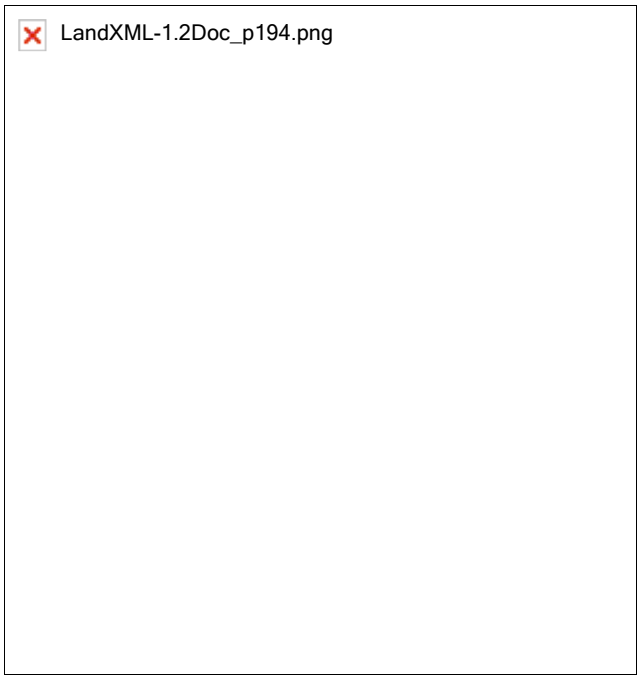
attribute **TurnRestriction/@legNumber**

type	**xs:int**
properties	isRef 0
source	`<xs:attribute name="legNumber" type="xs:int"/>`

attribute **TurnRestriction/@type**

type	**trafficTurnRestriction**
properties	isRef 0
facets	enumeration none enumeration no-left-turn enumeration no-right-turn enumeration no-U-turn enumeration no-turn
source	`<xs:attribute name="type" type="trafficTurnRestriction"/>`

element **TurnSpeed**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Intersection**

attributes

Name	Type	Use	Default	Fixed	annotation
station	**station**				
legNumber	**xs:int**				
speed	**xs:double**				

source

```
<xs:element name="TurnSpeed">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="station" type="station"/>
    <xs:attribute name="legNumber" type="xs:int"/>
    <xs:attribute name="speed" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **TurnSpeed/@station**

type	**station**
properties	isRef 0
source	<xs:attribute name="station" type="station"/>

attribute **TurnSpeed/@legNumber**

type	**xs:int**
properties	isRef 0

source	<xs:attribute name="legNumber" type="xs:int"/>

attribute **TurnSpeed/@speed**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="speed" type="xs:double"/>

element **TwoWayLeftTurnLane**

diagram	LandXML-1.2Doc_p195.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Lanes**

attributes	Name	Type	Use	Default	Fixed	annotation
	staStart	**station**				
	staEnd	**station**				
	beginFullWidthSta	**station**				
	endFullWidthSta	**station**				
	startOffset	**offsetDistance**				
	endOffset	**offsetDistance**				
	width	**xs:double**				
	sideofRoad	**sideofRoadType**				

source

```
<xs:element name="TwoWayLeftTurnLane">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station"/>
    <xs:attribute name="staEnd" type="station"/>
    <xs:attribute name="beginFullWidthSta" type="station"/>
    <xs:attribute name="endFullWidthSta" type="station"/>
    <xs:attribute name="startOffset" type="offsetDistance"/>
    <xs:attribute name="endOffset" type="offsetDistance"/>
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
  <!--
* Start Centerline Offset - Unit of measure: SHORT_DIST. Start Centerline Offset - This item is the starting lateral offset of the TWLTL relative to the roadway centerline. This item specifies the lateral offset of the start of the two-way left turn lane from the centerline of the roadway. A poistive value represents an offset to the right side of the road (relative to the direction of increasing stations) and a negative value represent represents an offset to the left side of the road. The unit of measure for this item is meters (feet).
* Begin Full Width - Unit of measure: STATION. Begin Full Width - This item is the station location at which full lane width begins. It specifies the station at which the initial taper ends and the full width begins.
Lane Width - Unit of measure: SHORT_DIST. Lane Width - This item is the width of lane. The unit of measure for this item is meters (feet).
* End Full Width - Unit of measure: STATION. End Full Width - This item is the station location at which final taper begins. This item specifies the station at which the full width ends and the final taper begins.
* End Centerline Offset - Unit of measure: SHORT_DIST. End Centerline Offset - This item is the ending lateral offset of the TWLTL relative to the roadway centerline. This item specifies the lateral offset of the end of the two-way left turn lane from the centerline of the roadway. A poistive value represents an offset to the right side of the road (relative to the direction of increasing stations) and a negative value represent represents an offset to the left side of the road. The unit of measure for this item is meters (feet).  -->
</xs:element>
```

attribute **TwoWayLeftTurnLane/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **TwoWayLeftTurnLane/@staEnd**

type	**station**

properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **TwoWayLeftTurnLane/@beginFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="beginFullWidthSta" type="station"/>

attribute **TwoWayLeftTurnLane/@endFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="endFullWidthSta" type="station"/>

attribute **TwoWayLeftTurnLane/@startOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="startOffset" type="offsetDistance"/>

attribute **TwoWayLeftTurnLane/@endOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="endOffset" type="offsetDistance"/>

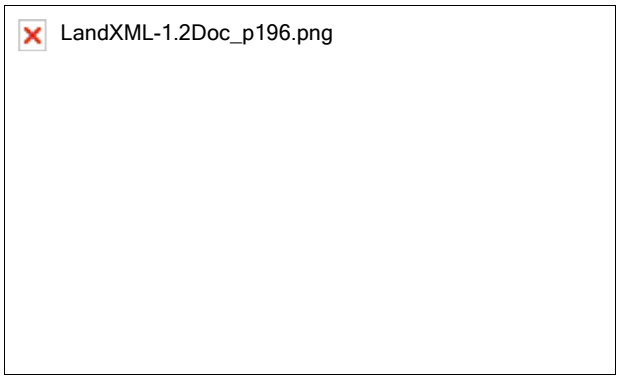
attribute **TwoWayLeftTurnLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **TwoWayLeftTurnLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

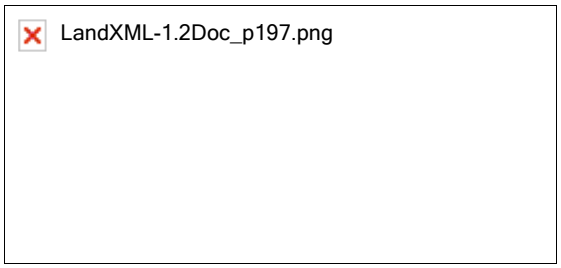
element **Units**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Metric Imperial**
used by	elements **LandXML Pipes Structs SurveyHeader**
annotation	documentation All angular and direction values default to radians unless otherwise noted. Angular values, expressed in the specified Units.angleUnit are measured counter-clockwise from east=0. Horizontal directions, expressed in the specified Units.directionUnit are measured counter-clockwise from 0 degrees = north

source

```
<xs:element name="Units">
  <xs:annotation>
    <xs:documentation>All angular and direction values default to radians unless otherwise noted.
Angular values, expressed in the specified Units.angleUnit are measured counter-clockwise from east=0.
Horizontal directions, expressed in the specified Units.directionUnit are measured counter-clockwise from
0 degrees = north</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice>
      <xs:element ref="Metric"/>
      <xs:element ref="Imperial"/>
    </xs:choice>
  </xs:complexType>
</xs:element>
```

element **UnsymParaCurve**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **Point2dReq**
properties	content complex mixed true
used by	element **ProfAlign**

facets	length 2
attributes	Name Type Use Default Fixed annotation lengthIn **xs:double** required lengthOut **xs:double** required desc **xs:string**
annotation	documentation A Point of Vertical Intersection with a space delimited "station elevation" text value. documentation with an unsymetrical parabolic vertical curve defined by "lengthIn and "lengthOut" attributes.
source	<xs:element name="UnsymParaCurve"> <xs:annotation> <xs:documentation>A Point of Vertical Intersection with a space delimited "station elevation" text value.</xs:documentation> <xs:documentation>with an unsymetrical parabolic vertical curve defined by "lengthIn and "lengthOut" attributes.</xs:documentation> </xs:annotation> <xs:complexType mixed="true"> <xs:simpleContent> <xs:extension base="Point2dReq"> <xs:attribute name="lengthIn" type="xs:double" use="required"/> <xs:attribute name="lengthOut" type="xs:double" use="required"/> <xs:attribute name="desc" type="xs:string"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element>

attribute **UnsymParaCurve/@lengthIn**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="lengthIn" type="xs:double" use="required"/>

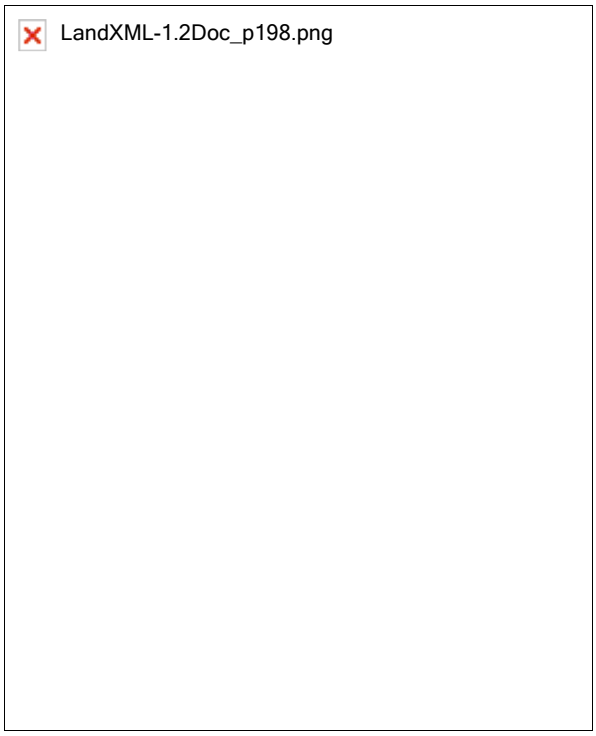
attribute **UnsymParaCurve/@lengthOut**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="lengthOut" type="xs:double" use="required"/>

attribute **UnsymParaCurve/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

element **Volume**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Intersection**

attributes

Name	Type	Use	Default	Fixed	annotation
station	**station**				
legNumber	**xs:int**				
turnPercent	**xs:double**				
percentTrucks	**xs:double**				

source

```
<xs:element name="Volume">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="station" type="station"/>
    <xs:attribute name="legNumber" type="xs:int"/>
    <xs:attribute name="turnPercent" type="xs:double"/>
    <xs:attribute name="percentTrucks" type="xs:double"/>
  </xs:complexType>
</xs:element>
```

attribute **Volume/@station**

type	**station**
properties	isRef 0
source	<xs:attribute name="station" type="station"/>

attribute **Volume/@legNumber**

type	**xs:int**
properties	isRef 0
source	<xs:attribute name="legNumber" type="xs:int"/>

attribute **Volume/@turnPercent**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="turnPercent" type="xs:double"/>

attribute **Volume/@percentTrucks**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="percentTrucks" type="xs:double"/>

element **VolumeGeom**

diagram	LandXML-1.2Doc_p199.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**CoordGeom**
used by	element **Parcel**
attributes	Name Type Use Default Fixed annotation desc **xs:string** name **xs:string** required state **stateType** oID **xs:string**
annotation	documentation Defines the properties of 3Dcoordinate Geometry Collection
source	<xs:element name="VolumeGeom"> <xs:annotation> <xs:documentation>Defines the properties of 3Dcoordinate Geometry Collection</xs:documentation>

```
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="4" maxOccurs="unbounded">
      <xs:element ref="CoordGeom"/>
    </xs:choice>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string" use="required"/>
    <xs:attribute name="state" type="stateType"/>
    <xs:attribute name="oID" type="xs:string"/>
  </xs:complexType>
</xs:element>
```

attribute **VolumeGeom/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **VolumeGeom/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

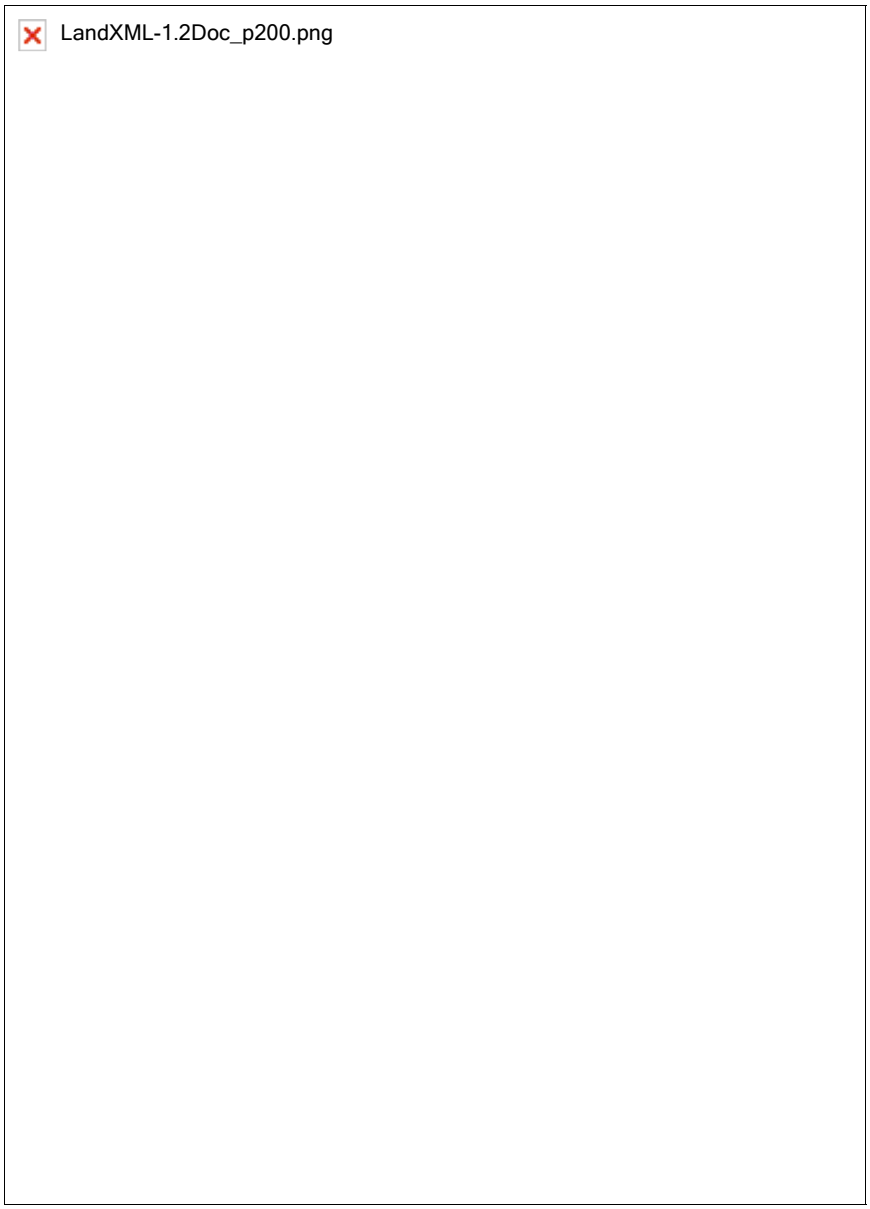
attribute **VolumeGeom/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **VolumeGeom/@oID**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="oID" type="xs:string"/>

element **Watershed**

diagram	 LandXML-1.2Doc_p200.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **PntList3D** **Outlet** **Feature**
used by	element **Watersheds**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**	required			
area	**xs:double**				
desc	**xs:string**				

annotation

documentation
The watershed region contains a 2D north/east or 3D north/east/elev list of points that define the boundary.
documentation
A watershed is identified by the "name" attribute.
documentation
It may have 1 or more Outlet elements.

source	<xs:element name="Watershed"> <xs:annotation> <xs:documentation>The watershed region contains a 2D north/east or 3D north/east/elev list of points that define the boundary.</xs:documentation> <xs:documentation>A watershed is identified by the "name" attribute.</xs:documentation> <xs:documentation>It may have 1 or more Outlet elements.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:choice> <xs:element ref="PntList2D"/> <xs:element ref="PntList3D"/> <!-- Here PntList2D represents 2D planametric coordinate pairs expressed as space delimited Northing Easting pairs. --> </xs:choice> <xs:element ref="Outlet" minOccurs="0" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> <xs:attribute name="name" type="xs:string" use="required"/> <xs:attribute name="area" type="xs:double"/> <xs:attribute name="desc" type="xs:string"/> </xs:complexType> </xs:element>

attribute **Watershed/@name**

type	**xs:string**
properties	isRef 0 use required
source	<xs:attribute name="name" type="xs:string" use="required"/>

attribute **Watershed/@area**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="area" type="xs:double"/>

attribute **Watershed/@desc**

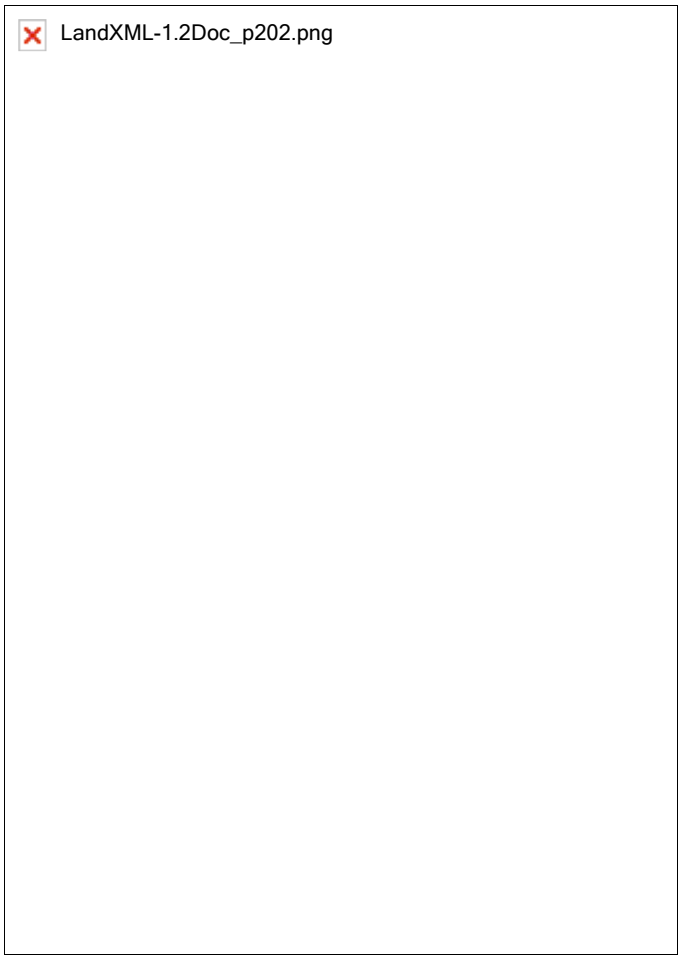
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

element **Watersheds**

diagram	LandXML-1.2Doc_p201.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Watershed** **Feature**
used by	element **Surface**
annotation	documentation The collection of watershed regions for the surface.
source	<xs:element name="Watersheds"> <xs:annotation> <xs:documentation>The collection of watershed regions for the surface.</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Watershed" maxOccurs="unbounded"/> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **WideningLane**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Feature**

used by element **Lanes**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**				
staEnd	**station**				
beginFullWidthSta	**station**				
endFullWidthSta	**station**				
offset	**offsetDistance**				
widening	**xs:double**				
width	**xs:double**				
sideofRoad	**sideofRoadType**				

source

```
<xs:element name="WideningLane">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="staStart" type="station"/>
  <xs:attribute name="staEnd" type="station"/>
  <xs:attribute name="beginFullWidthSta" type="station"/>
  <xs:attribute name="endFullWidthSta" type="station"/>
  <xs:attribute name="offset" type="offsetDistance"/>
  <xs:attribute name="widening" type="xs:double"/>
```

```
    <xs:attribute name="width" type="xs:double"/>
    <xs:attribute name="sideofRoad" type="sideofRoadType"/>
  </xs:complexType>
</xs:element>
```

attribute **WideningLane/@staStart**

type	**station**
properties	isRef 0
source	<xs:attribute name="staStart" type="station"/>

attribute **WideningLane/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **WideningLane/@beginFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="beginFullWidthSta" type="station"/>

attribute **WideningLane/@endFullWidthSta**

type	**station**
properties	isRef 0
source	<xs:attribute name="endFullWidthSta" type="station"/>

attribute **WideningLane/@offset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="offset" type="offsetDistance"/>

attribute **WideningLane/@widening**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="widening" type="xs:double"/>

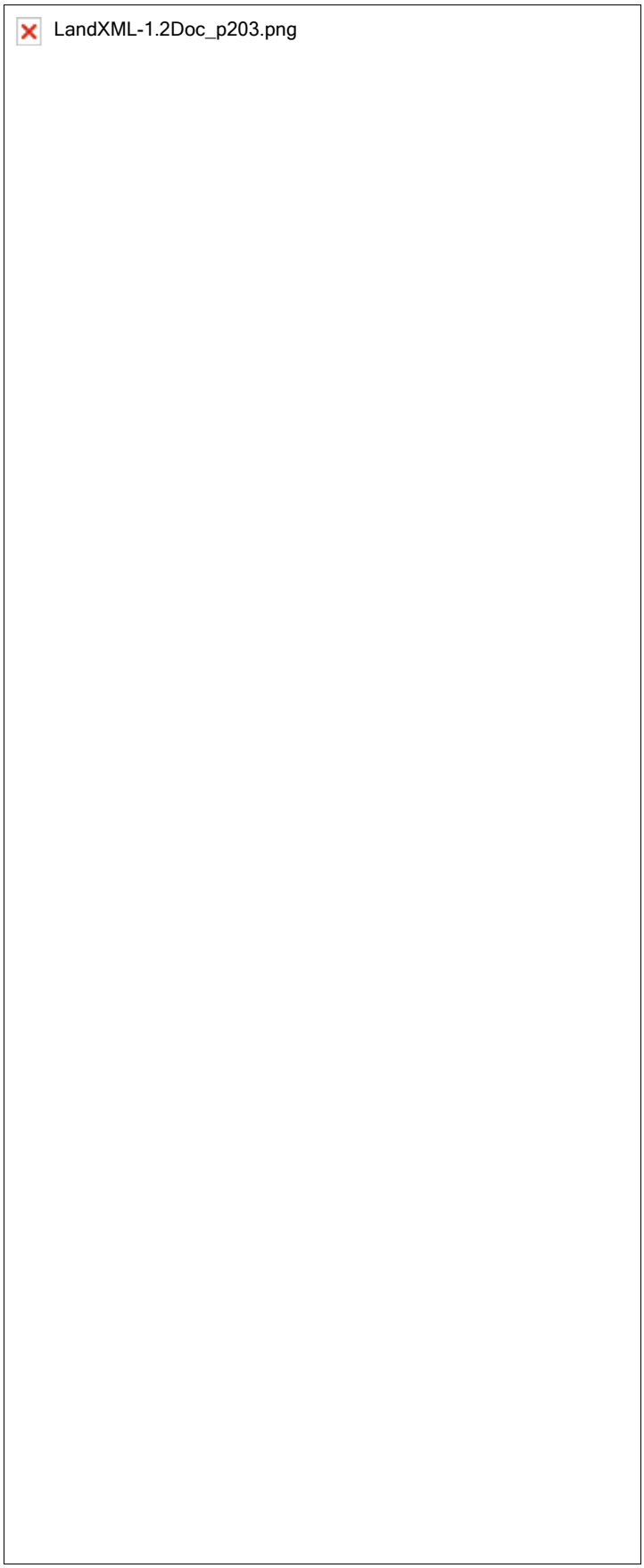
attribute **WideningLane/@width**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="width" type="xs:double"/>

attribute **WideningLane/@sideofRoad**

type	**sideofRoadType**
properties	isRef 0
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="sideofRoad" type="sideofRoadType"/>

element **Zone**

diagram	
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex

children	**ZoneWidth ZoneSlope ZoneCutFill ZoneMaterial ZoneCrossSectStructure Feature**
used by	element **Zones**

attributes

Name	Type	Use	Default	Fixed	annotation
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				
priority	**xs:int**	required			
category	**zoneCategoryType**	required			
staStart	**station**	required			
staEnd	**station**				
startWidth	**xs:double**	required			
startVertValue	**xs:double**	required			
startVertType	**zoneVertType**	required			
endWidth	**xs:double**				
endVertValue	**xs:double**				
endVertType	**zoneVertType**				

source

```
<xs:element name="Zone">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="ZoneWidth" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="ZoneSlope" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="ZoneCutFill" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="ZoneMaterial" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="ZoneCrossSectStructure" minOccurs="0" maxOccurs="unbounded"/>
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="desc" type="xs:string"/>
  <xs:attribute name="name" type="xs:string"/>
  <xs:attribute name="state" type="stateType"/>
  <xs:attribute name="priority" type="xs:int" use="required"/>
  <xs:attribute name="category" type="zoneCategoryType" use="required"/>
  <xs:attribute name="staStart" type="station" use="required"/>
  <xs:attribute name="staEnd" type="station"/>
  <xs:attribute name="startWidth" type="xs:double" use="required"/>
  <xs:attribute name="startVertValue" type="xs:double" use="required"/>
  <xs:attribute name="startVertType" type="zoneVertType" use="required"/>
  <xs:attribute name="endWidth" type="xs:double"/>
  <xs:attribute name="endVertValue" type="xs:double"/>
  <xs:attribute name="endVertType" type="zoneVertType"/>
 </xs:complexType>
</xs:element>
```

attribute **Zone/@desc**

type	**xs:string**
properties	isRef 0
source	`<xs:attribute name="desc" type="xs:string"/>`

attribute **Zone/@name**

type	**xs:string**
properties	isRef 0

source	<xs:attribute name="name" type="xs:string"/>

attribute **Zone/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **Zone/@priority**

type	**xs:int**
properties	isRef 0 use required
source	<xs:attribute name="priority" type="xs:int" use="required"/>

attribute **Zone/@category**

type	**zoneCategoryType**
properties	isRef 0 use required
facets	enumeration road surface enumeration road subsurface enumeration road shoulder enumeration road foreSlope enumeration road backSlope enumeration road curb-gutter enumeration bridge surface enumeration bridge body enumeration sidewalk enumeration ground enumeration ditch enumeration wall enumeration channel enumeration bike facilities enumeration obstruction offset enumeration longitudinal barrier enumeration sound barrier enumeration bridge abutment enumeration vertical pillar
source	<xs:attribute name="category" type="zoneCategoryType" use="required"/>

attribute **Zone/@staStart**

type	**station**
properties	isRef 0

	use required
source	<xs:attribute name="staStart" type="station" use="required"/>

attribute **Zone/@staEnd**

type	**station**
properties	isRef 0
source	<xs:attribute name="staEnd" type="station"/>

attribute **Zone/@startWidth**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="startWidth" type="xs:double" use="required"/>

attribute **Zone/@startVertValue**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="startVertValue" type="xs:double" use="required"/>

attribute **Zone/@startVertType**

type	**zoneVertType**
properties	isRef 0 use required
facets	enumeration slope enumeration vertical distance
source	<xs:attribute name="startVertType" type="zoneVertType" use="required"/>

attribute **Zone/@endWidth**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="endWidth" type="xs:double"/>

attribute **Zone/@endVertValue**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="endVertValue" type="xs:double"/>

attribute **Zone/@endVertType**

type	**zoneVertType**
properties	isRef 0
facets	enumeration slope enumeration vertical distance
source	<xs:attribute name="endVertType" type="zoneVertType"/>

element **ZoneCrossSectStructure**

diagram	LandXML-1.2Doc_p204.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**PntList2D** **Feature**
used by	element **Zone**

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
innerConnectPnt	**crossSectionPnt**	required			
outerConnectPnt	**crossSectionPnt**	required			
offsetMode	**zoneOffsetType**		zone		
startOffset	**offsetDistance**		0.0		
startOffsetElev	**offsetElevation**		0.0		
endOffset	**offsetDistance**		0.0		
endOffsetElev	**offsetElevation**		0.0		
transition	**zoneTransitionType**		parallel		
placement	**zonePlacementType**		dependent		
catalogReference	**xs:anyURI**	optional			

source

```
<xs:element name="ZoneCrossSectStructure">
  <xs:complexType>
    <xs:sequence>
      <xs:annotation>
        <xs:documentation>
        The PntList2D contains space delimited offsetDistance / elevation pairs describing a crossectional shape, typically a closed shape representing a retaining wall, traffic barriers or vertical pillars. As is common with road cross sections the origin is the Profile Grade Line (PGL) of the design road. The offsetDistance measure is the 2D distance from the PGL and the elevation values are absolute (real world) elevations for the entire data set.</xs:documentation>
      </xs:annotation>
      <xs:element ref="PntList2D"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="innerConnectPnt" type="crossSectionPnt" use="required"/>
    <xs:attribute name="outerConnectPnt" type="crossSectionPnt" use="required"/>
    <xs:attribute name="offsetMode" type="zoneOffsetType" default="zone"/>
    <xs:attribute name="startOffset" type="offsetDistance" default="0.0"/>
    <xs:attribute name="startOffsetElev" type="offsetElevation" default="0.0"/>
    <xs:attribute name="endOffset" type="offsetDistance" default="0.0"/>
    <xs:attribute name="endOffsetElev" type="offsetElevation" default="0.0"/>
    <xs:attribute name="transition" type="zoneTransitionType" default="parallel"/>
    <xs:attribute name="placement" type="zonePlacementType" default="dependent"/>
    <xs:attribute name="catalogReference" type="xs:anyURI" use="optional"/>
  </xs:complexType>
</xs:element>
```

attribute **ZoneCrossSectStructure/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **ZoneCrossSectStructure/@innerConnectPnt**

type	**crossSectionPnt**
properties	isRef 0 use required
facets	length 2

source	<xs:attribute name="innerConnectPnt" type="crossSectionPnt" use="required"/>

attribute **ZoneCrossSectStructure/@outerConnectPnt**

type	**crossSectionPnt**
properties	isRef 0 use required
facets	length 2
source	<xs:attribute name="outerConnectPnt" type="crossSectionPnt" use="required"/>

attribute **ZoneCrossSectStructure/@offsetMode**

type	**zoneOffsetType**
properties	isRef 0 default zone
facets	enumeration centerline enumeration zone
source	<xs:attribute name="offsetMode" type="zoneOffsetType" default="zone"/>

attribute **ZoneCrossSectStructure/@startOffset**

type	**offsetDistance**
properties	isRef 0 default 0.0
source	<xs:attribute name="startOffset" type="offsetDistance" default="0.0"/>

attribute **ZoneCrossSectStructure/@startOffsetElev**

type	**offsetElevation**
properties	isRef 0 default 0.0
source	<xs:attribute name="startOffsetElev" type="offsetElevation" default="0.0"/>

attribute **ZoneCrossSectStructure/@endOffset**

type	**offsetDistance**
properties	isRef 0 default 0.0
source	<xs:attribute name="endOffset" type="offsetDistance" default="0.0"/>

attribute **ZoneCrossSectStructure/@endOffsetElev**

type	**offsetElevation**
properties	isRef 0 default 0.0
source	<xs:attribute name="endOffsetElev" type="offsetElevation" default="0.0"/>

attribute **ZoneCrossSectStructure/@transition**

type	**zoneTransitionType**
properties	isRef 0 default parallel
facets	enumeration parallel enumeration linear
source	<xs:attribute name="transition" type="zoneTransitionType" default="parallel"/>

attribute **ZoneCrossSectStructure/@placement**

type	**zonePlacementType**
properties	isRef 0 default dependent
facets	enumeration dependent enumeration independent
source	<xs:attribute name="placement" type="zonePlacementType" default="dependent"/>

attribute **ZoneCrossSectStructure/@catalogReference**

type	**xs:anyURI**
properties	isRef 0 use optional
source	<xs:attribute name="catalogReference" type="xs:anyURI" use="optional"/>

element **ZoneCutFill**

diagram	LandXML-1.2Doc_p205.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Zone**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**	required			
staEnd	**station**	required			
cutSlope	**crossSlope**				
fillSlope	**crossSlope**				

source

```
<xs:element name="ZoneCutFill">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station" use="required"/>
    <xs:attribute name="staEnd" type="station" use="required"/>
    <xs:attribute name="cutSlope" type="crossSlope"/>
    <xs:attribute name="fillSlope" type="crossSlope"/>
  </xs:complexType>
</xs:element>
```

attribute **ZoneCutFill/@staStart**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staStart" type="station" use="required"/>

attribute **ZoneCutFill/@staEnd**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staEnd" type="station" use="required"/>

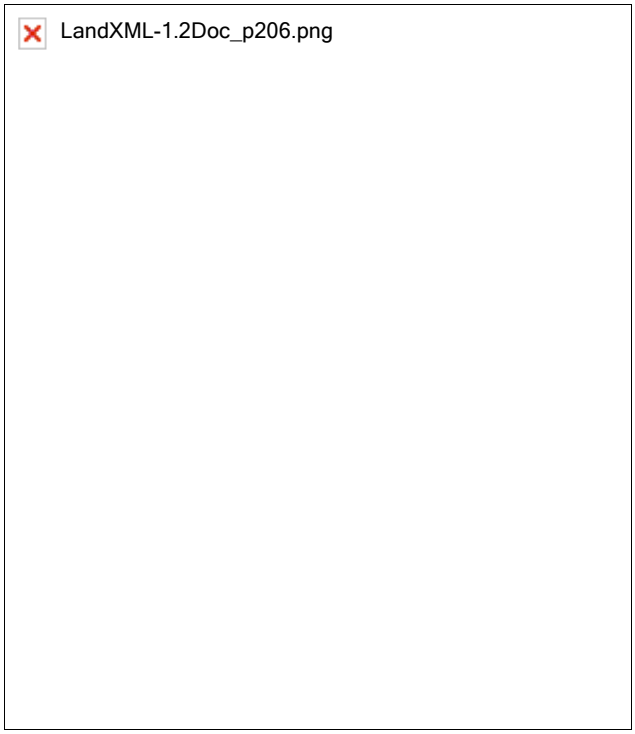
attribute **ZoneCutFill/@cutSlope**

type	**crossSlope**
properties	isRef 0
source	<xs:attribute name="cutSlope" type="crossSlope"/>

attribute **ZoneCutFill/@fillSlope**

type	**crossSlope**
properties	isRef 0
source	<xs:attribute name="fillSlope" type="crossSlope"/>

element **ZoneHinge**

diagram	 LandXML-1.2Doc_p206.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Zones**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**	required			
staEnd	**station**	required			
hingeType	**zoneHingeType**	required			
zonePriorityRef	**xs:int**	required			

source

```
<xs:element name="ZoneHinge">
  <xs:complexType>
    <xs:choice>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station" use="required"/>
    <xs:attribute name="staEnd" type="station" use="required"/>
    <xs:attribute name="hingeType" type="zoneHingeType" use="required"/>
    <xs:attribute name="zonePriorityRef" type="xs:int" use="required"/>
  </xs:complexType>
  <!-- This element describes the non-center hinge point for superelevated roadways
       The zonePriorityRef should contain the zone priority number (zone identifier) where the hinge point
is located. The hingeType attribute identifies the left or right side of the zone to use as the hinge point.
-->
</xs:element>
```

attribute **ZoneHinge/@staStart**

type	**station**

properties	isRef 0 use required
source	<xs:attribute name="staStart" type="station" use="required"/>

attribute **ZoneHinge/@staEnd**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staEnd" type="station" use="required"/>

attribute **ZoneHinge/@hingeType**

type	**zoneHingeType**
properties	isRef 0 use required
facets	enumeration center enumeration left edge enumeration right edge
source	<xs:attribute name="hingeType" type="zoneHingeType" use="required"/>

attribute **ZoneHinge/@zonePriorityRef**

type	**xs:int**
properties	isRef 0 use required
source	<xs:attribute name="zonePriorityRef" type="xs:int" use="required"/>

element **ZoneMaterial**

diagram	LandXML-1.2Doc_p207.png

namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Zone**

attributes	Name	Type	Use	Default	Fixed	annotation
	staStart	**station**	required			
	staEnd	**station**	required			
	material	**zoneMaterialType**	required			

source

```
<xs:element name="ZoneMaterial">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
    <xs:attribute name="staStart" type="station" use="required"/>
    <xs:attribute name="staEnd" type="station" use="required"/>
    <xs:attribute name="material" type="zoneMaterialType" use="required"/>
  </xs:complexType>
</xs:element>
```

attribute **ZoneMaterial/@staStart**

type	**station**
properties	isRef 0 use required
source	`<xs:attribute name="staStart" type="station" use="required"/>`

attribute **ZoneMaterial/@staEnd**

type	**station**
properties	isRef 0 use required
source	`<xs:attribute name="staEnd" type="station" use="required"/>`

attribute **ZoneMaterial/@material**

type	**zoneMaterialType**
properties	isRef 0 use required
facets	enumeration pavement-high-type enumeration pavement-intermediate-type enumeration pavement-low-type enumeration soil enumeration concrete enumeration stone enumeration riprap enumeration turf enumeration gravel enumeration paved

	enumeration metal enumeration metal grate enumeration composite enumeration timber enumeration other
source	<xs:attribute name="material" type="zoneMaterialType" use="required"/>

element **Zones**

diagram	LandXML-1.2Doc_p208.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Zone ZoneHinge Feature**
used by	element **GradeSurface**

attributes

Name	Type	Use	Default	Fixed	annotation
side	**sideofRoadType**	required			
desc	**xs:string**				
name	**xs:string**				
state	**stateType**				

source

```
<xs:element name="Zones">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="Zone" maxOccurs="unbounded"/>
      <xs:element ref="ZoneHinge" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
```

```
    </xs:choice>
    <xs:attribute name="side" type="sideofRoadType" use="required"/>
    <xs:attribute name="desc" type="xs:string"/>
    <xs:attribute name="name" type="xs:string"/>
    <xs:attribute name="state" type="stateType"/>
  </xs:complexType>
</xs:element>
```

attribute **Zones/@side**

type	**sideofRoadType**
properties	isRef 0 use required
facets	enumeration right enumeration left enumeration both
source	<xs:attribute name="side" type="sideofRoadType" use="required"/>

attribute **Zones/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **Zones/@name**

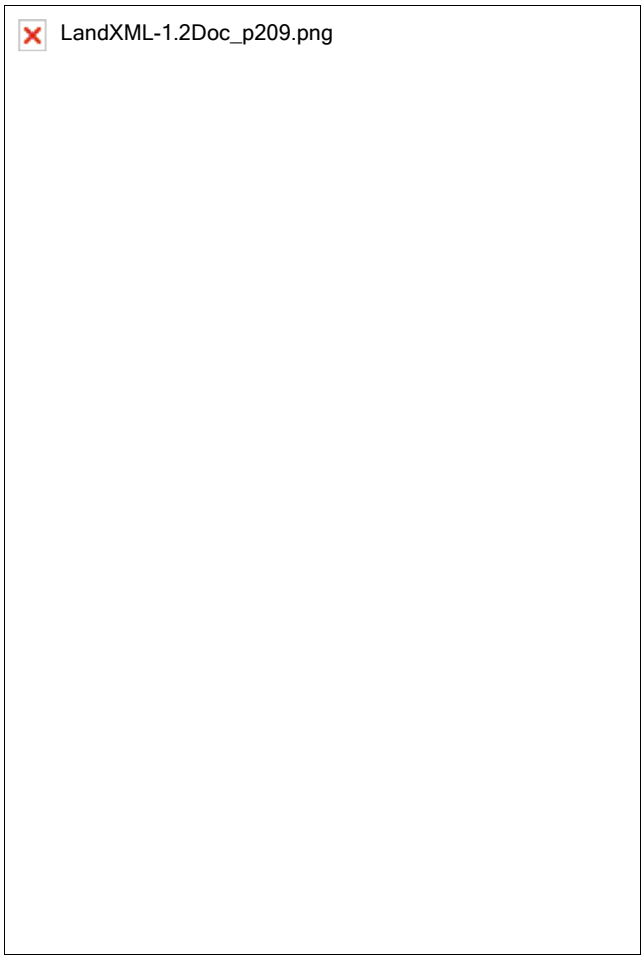
type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **Zones/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

element **ZoneSlope**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

properties content complex

children **Feature**

used by element **Zone**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**	required			
staEnd	**station**	required			
startVertValue	**xs:double**				
startVertType	**zoneVertType**				
endVertValue	**xs:double**	required			
endVertType	**zoneVertType**	required			
parabolicStartStation	**station**				
parabolicEndStation	**station**				

source

```
<xs:element name="ZoneSlope">
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
  </xs:choice>
  <xs:attribute name="staStart" type="station" use="required"/>
  <xs:attribute name="staEnd" type="station" use="required"/>
  <xs:attribute name="startVertValue" type="xs:double"/>
  <xs:attribute name="startVertType" type="zoneVertType"/>
  <xs:attribute name="endVertValue" type="xs:double" use="required"/>
  <xs:attribute name="endVertType" type="zoneVertType" use="required"/>
```

```
    <xs:attribute name="parabolicStartStation" type="station"/>
    <xs:attribute name="parabolicEndStation" type="station"/>
    <!-- changeType is a flag that indicates the use of slope or vertical change it can be either "slope" or "vertDistance"-->
  </xs:complexType>
</xs:element>
```

attribute **ZoneSlope/@staStart**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staStart" type="station" use="required"/>

attribute **ZoneSlope/@staEnd**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staEnd" type="station" use="required"/>

attribute **ZoneSlope/@startVertValue**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="startVertValue" type="xs:double"/>

attribute **ZoneSlope/@startVertType**

type	**zoneVertType**
properties	isRef 0
facets	enumeration slope enumeration vertical distance
source	<xs:attribute name="startVertType" type="zoneVertType"/>

attribute **ZoneSlope/@endVertValue**

type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="endVertValue" type="xs:double" use="required"/>

attribute **ZoneSlope/@endVertType**

type	**zoneVertType**
properties	isRef 0 use required

facets	enumeration slope enumeration vertical distance
source	<xs:attribute name="endVertType" type="zoneVertType" use="required"/>

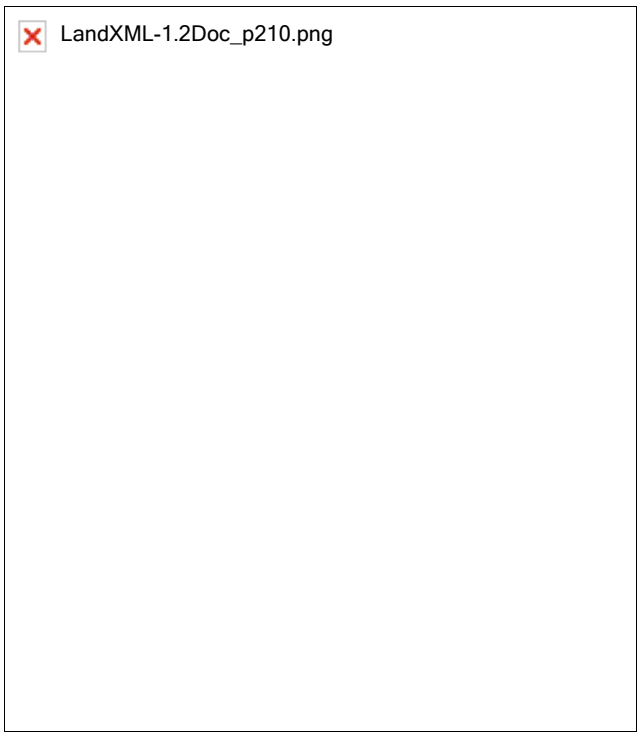
attribute **ZoneSlope/@parabolicStartStation**

type	**station**
properties	isRef 0
source	<xs:attribute name="parabolicStartStation" type="station"/>

attribute **ZoneSlope/@parabolicEndStation**

type	**station**
properties	isRef 0
source	<xs:attribute name="parabolicEndStation" type="station"/>

element **ZoneWidth**

diagram	 LandXML-1.2Doc_p210.png
namespace	http://www.landxml.org/schema/LandXML-1.2
properties	content complex
children	**Feature**
used by	element **Zone**

attributes

Name	Type	Use	Default	Fixed	annotation
staStart	**station**	required			
staEnd	**station**	required			
startWidth	**xs:double**	required			
endWidth	**xs:double**				

source	<xs:element name="ZoneWidth"> <xs:complexType> <xs:choice> <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/> </xs:choice> <xs:attribute name="staStart" type="station" use="required"/> <xs:attribute name="staEnd" type="station" use="required"/> <xs:attribute name="startWidth" type="xs:double" use="required"/> <xs:attribute name="endWidth" type="xs:double"/> </xs:complexType> </xs:element>

attribute **ZoneWidth/@staStart**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staStart" type="station" use="required"/>

attribute **ZoneWidth/@staEnd**

type	**station**
properties	isRef 0 use required
source	<xs:attribute name="staEnd" type="station" use="required"/>

attribute **ZoneWidth/@startWidth**

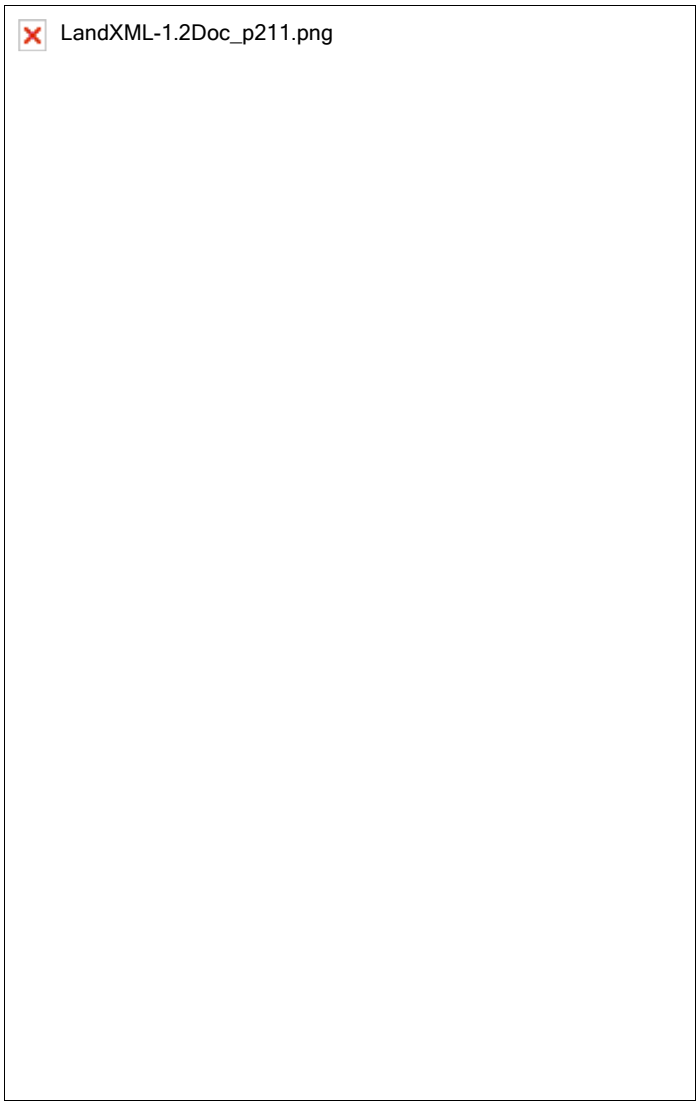
type	**xs:double**
properties	isRef 0 use required
source	<xs:attribute name="startWidth" type="xs:double" use="required"/>

attribute **ZoneWidth/@endWidth**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="endWidth" type="xs:double"/>

complexType **PointType**

diagram



namespace http://www.landxml.org/schema/LandXML-1.2

type extension of **Point3dOpt**

properties base Point3dOpt
mixed true

used by elements **AddressPoint** **BacksightPoint** **Center** **CgPoint** **CrossSectPnt** **End** **InstrumentPoint** **Location** **MapPoint** **P** **PI** **Start** **TargetPoint**

facets minLength 0
maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			

	determinedTimeStamp	**xs:dateTime**	optional
	ellipsoidHeight	**ellipsoidHeightType**	optional
	latitude	**latLongAngle**	optional
	longitude	**latLongAngle**	optional
	zone	**xs:string**	optional
	northingStdError	**xs:double**	optional
	eastingStdError	**xs:double**	optional
	elevationStdError	**xs:double**	optional

annotation

documentation

All elements derived from PointType will either contain a coordinate text value ("north east" or "north east elev"), a "pntRef" attribute value, or both. The "pntRef" attribute contains the value of a PointType derived element "name" attribute that exists elsewhere the instance data. If this element has a "pntRef" value, then it's coordinates will be retrieved from the referenced element. If an element contains both a coordinate value and a pntRef, the coordinate value should be used as the point location and the referenced point is either ignored or is used for point attributes such as number or desc.

documentation

The featureRef attribute points to a specific named Feature element that contains feature data related to the point.
The suggested form is to refer to a feature element within the same CgPoints group or parent element of the point element.

source

```
<xs:complexType name="PointType" mixed="true">
  <xs:annotation>
    <xs:documentation>All elements derived from PointType will either contain a coordinate text value
( "north east" or "north east elev"), a "pntRef" attribute value, or both. The "pntRef" attribute contains
the value of a PointType derived element "name" attribute that exists elsewhere the instance data. If
this element has a "pntRef" value, then it's coordinates will be retrieved from the referenced element. If
an element contains both a coordinate value and a pntRef, the coordinate value should be used as the
point location and the referenced point is either ignored or is used for point attributes such as number or
desc.</xs:documentation>
    <xs:documentation>The featureRef attribute points to a specific named Feature element that
contains feature data related to the point.
The suggested form is to refer to a feature element within the same CgPoints group or parent element
of the point element.
</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="Point3dOpt">
      <xs:attribute name="name" type="xs:string"/>
      <xs:attribute name="desc" type="xs:string"/>
      <xs:attribute name="code" type="xs:string"/>
      <xs:attribute name="state" type="stateType"/>
      <xs:attribute name="pntRef" type="pointNameRef"/>
      <xs:attribute name="featureRef" type="featureNameRef" use="optional"/>
      <xs:attribute name="pointGeometry" type="pointGeometryType"/>
      <xs:attribute name="DTMAttribute" type="DTMAttributeType"/>
      <xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>
      <xs:attribute name="role" type="surveyRoleType" use="optional"/>
      <xs:attribute name="determinedTimeStamp" type="xs:dateTime" use="optional"/>
      <xs:attribute name="ellipsoidHeight" type="ellipsoidHeightType" use="optional"/>
      <xs:attribute name="latitude" type="latLongAngle" use="optional"/>
      <xs:attribute name="longitude" type="latLongAngle" use="optional"/>
      <xs:attribute name="zone" type="xs:string" use="optional"/>
      <xs:attribute name="northingStdError" type="xs:double" use="optional"/>
      <xs:attribute name="eastingStdError" type="xs:double" use="optional"/>
      <xs:attribute name="elevationStdError" type="xs:double" use="optional"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

attribute **PointType/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **PointType/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **PointType/@code**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="code" type="xs:string"/>

attribute **PointType/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **PointType/@pntRef**

type	**pointNameRef**
properties	isRef 0
source	<xs:attribute name="pntRef" type="pointNameRef"/>

attribute **PointType/@featureRef**

type	**featureNameRef**
properties	isRef 0 use optional
source	<xs:attribute name="featureRef" type="featureNameRef" use="optional"/>

attribute **PointType/@pointGeometry**

type	**pointGeometryType**
properties	isRef 0

facets	enumeration point enumeration curve
source	<xs:attribute name="pointGeometry" type="pointGeometryType"/>

attribute **PointType/@DTMAttribute**

type	**DTMAttributeType**
properties	isRef 0
facets	enumeration determinebyfeature enumeration donotinclude enumeration spot enumeration spotandbreak enumeration void enumeration drapevoid enumeration breakvoid enumeration island enumeration boundary enumeration contour enumeration feature enumeration ground enumeration xsection enumeration user
source	<xs:attribute name="DTMAttribute" type="DTMAttributeType"/>

attribute **PointType/@timeStamp**

type	**xs:dateTime**
properties	isRef 0 use optional
source	<xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>

attribute **PointType/@role**

type	**surveyRoleType**
properties	isRef 0 use optional
facets	enumeration measured enumeration to stake out enumeration staked out enumeration calculated enumeration assistance point enumeration user entered point enumeration control point
source	<xs:attribute name="role" type="surveyRoleType" use="optional"/>

attribute **PointType/@determinedTimeStamp**

type	**xs:dateTime**

properties	isRef 0 use optional
source	<xs:attribute name="determinedTimeStamp" type="xs:dateTime" use="optional"/>

attribute **PointType/@ellipsoidHeight**

type	**ellipsoidHeightType**
properties	isRef 0 use optional
source	<xs:attribute name="ellipsoidHeight" type="ellipsoidHeightType" use="optional"/>

attribute **PointType/@latitude**

type	**latLongAngle**
properties	isRef 0 use optional
source	<xs:attribute name="latitude" type="latLongAngle" use="optional"/>

attribute **PointType/@longitude**

type	**latLongAngle**
properties	isRef 0 use optional
source	<xs:attribute name="longitude" type="latLongAngle" use="optional"/>

attribute **PointType/@zone**

type	**xs:string**
properties	isRef 0 use optional
source	<xs:attribute name="zone" type="xs:string" use="optional"/>

attribute **PointType/@northingStdError**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="northingStdError" type="xs:double" use="optional"/>

attribute **PointType/@eastingStdError**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="eastingStdError" type="xs:double" use="optional"/>

attribute **PointType/@elevationStdError**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="elevationStdError" type="xs:double" use="optional"/>

complexType **PointType3dReq**

diagram	LandXML-1.2Doc_p212.png
namespace	http://www.landxml.org/schema/LandXML-1.2
type	extension of **Point3dReq**
properties	base Point3dReq
used by	elements **Outlet** **RetWallPnt**
facets	minLength 0 maxLength 3

attributes

Name	Type	Use	Default	Fixed	annotation
name	**xs:string**				
desc	**xs:string**				
code	**xs:string**				
state	**stateType**				
pntRef	**pointNameRef**				
featureRef	**featureNameRef**	optional			
pointGeometry	**pointGeometryType**				
DTMAttribute	**DTMAttributeType**				
timeStamp	**xs:dateTime**	optional			
role	**surveyRoleType**	optional			

source

```
<xs:complexType name="PointType3dReq">
  <xs:simpleContent>
    <xs:extension base="Point3dReq">
      <xs:attribute name="name" type="xs:string"/>
```

```
      <xs:attribute name="desc" type="xs:string"/>
      <xs:attribute name="code" type="xs:string"/>
      <xs:attribute name="state" type="stateType"/>
      <xs:attribute name="pntRef" type="pointNameRef"/>
      <xs:attribute name="featureRef" type="featureNameRef" use="optional"/>
      <xs:attribute name="pointGeometry" type="pointGeometryType"/>
      <xs:attribute name="DTMAttribute" type="DTMAttributeType"/>
      <xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>
      <xs:attribute name="role" type="surveyRoleType" use="optional"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

attribute **PointType3dReq/@name**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="name" type="xs:string"/>

attribute **PointType3dReq/@desc**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="desc" type="xs:string"/>

attribute **PointType3dReq/@code**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="code" type="xs:string"/>

attribute **PointType3dReq/@state**

type	**stateType**
properties	isRef 0
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:attribute name="state" type="stateType"/>

attribute **PointType3dReq/@pntRef**

type	**pointNameRef**
properties	isRef 0
source	<xs:attribute name="pntRef" type="pointNameRef"/>

attribute **PointType3dReq/@featureRef**

type	**featureNameRef**
properties	isRef 0 use optional
source	<xs:attribute name="featureRef" type="featureNameRef" use="optional"/>

attribute **PointType3dReq/@pointGeometry**

type	**pointGeometryType**
properties	isRef 0
facets	enumeration point enumeration curve
source	<xs:attribute name="pointGeometry" type="pointGeometryType"/>

attribute **PointType3dReq/@DTMAttribute**

type	**DTMAttributeType**
properties	isRef 0
facets	enumeration determinebyfeature enumeration donotinclude enumeration spot enumeration spotandbreak enumeration void enumeration drapevoid enumeration breakvoid enumeration island enumeration boundary enumeration contour enumeration feature enumeration ground enumeration xsection enumeration user
source	<xs:attribute name="DTMAttribute" type="DTMAttributeType"/>

attribute **PointType3dReq/@timeStamp**

type	**xs:dateTime**
properties	isRef 0 use optional
source	<xs:attribute name="timeStamp" type="xs:dateTime" use="optional"/>

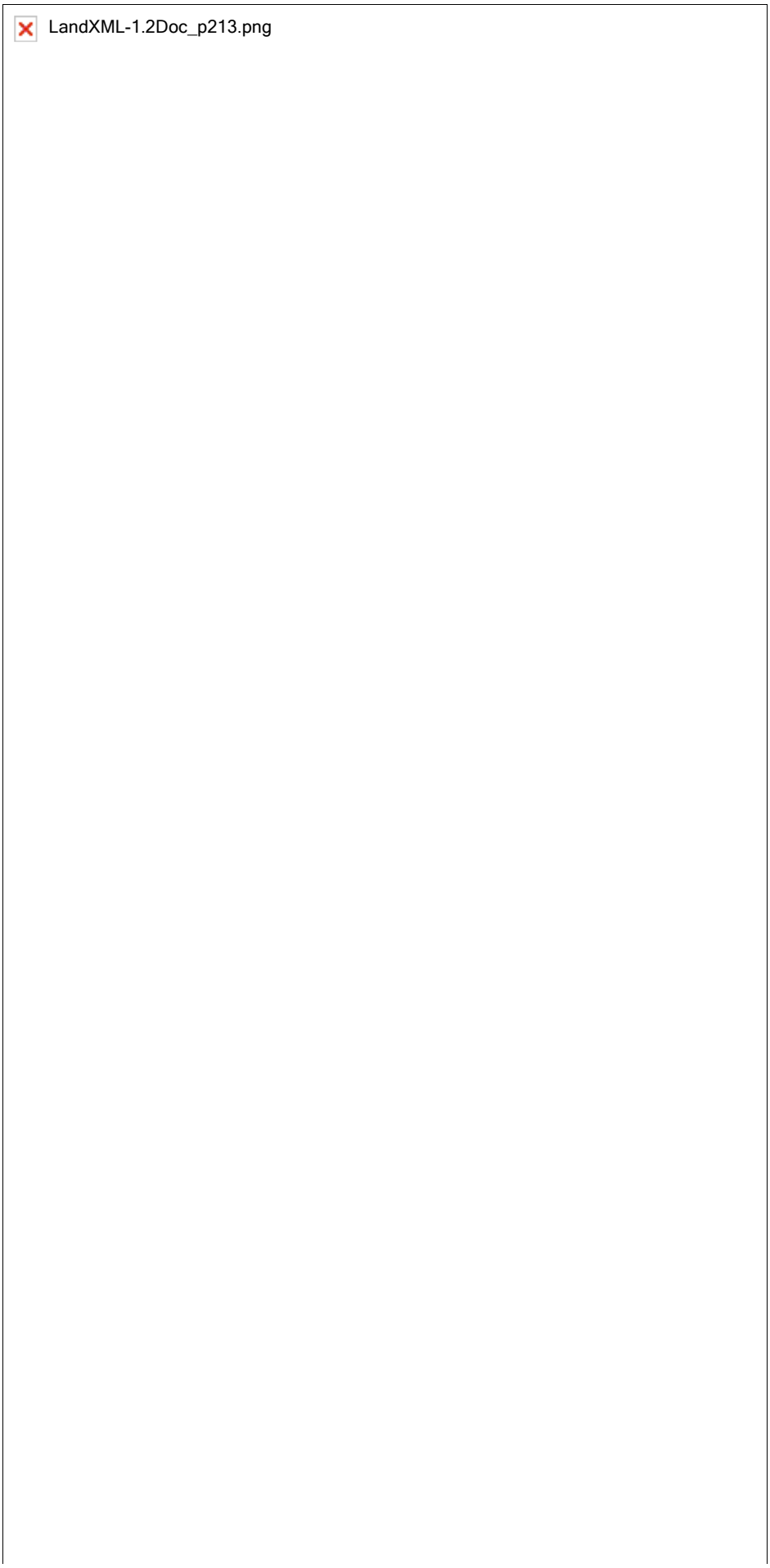
attribute **PointType3dReq/@role**

type	**surveyRoleType**
properties	isRef 0 use optional
facets	enumeration measured enumeration to stake out

	enumeration staked out enumeration calculated enumeration assistance point enumeration user entered point enumeration control point
source	<xs:attribute name="role" type="surveyRoleType" use="optional"/>

complexType **RawObservationType**

diagram



namespace	http://www.landxml.org/schema/LandXML-1.2
children	**TargetPoint** **OffsetVals** **FieldNote** **Feature**
used by	elements **RawObservation** **TestObservation**

attributes

Name	Type	Use	Default	Fixed	annotation
setupID	**xs:IDREF**				
targetSetupID	**xs:IDREF**				
setID					
purpose	**purposeType**				
targetHeight	**xs:double**				
horizAngle	**angle**	optional			
slopeDistance	**xs:double**	optional			
zenithAngle	**zenithAngle**	optional			
horizDistance	**xs:double**				
vertDistance	**xs:double**				
azimuth	**direction**	optional			
unused	**xs:boolean**				
directFace	**xs:boolean**				
coordGeomRefs	**coordGeomNameRefs**				
timeStamp	**xs:dateTime**				
alignRef	**alignmentNameRef**				
alignStationName	**xs:string**				
alignOffset	**offsetDistance**				
upperStadia	**xs:double**				
rod	**xs:double**				
lowerStadia	**xs:double**				
circlePositionSet	**xs:double**				
status	**observationStatusType**				

source

```
<xs:complexType name="RawObservationType">
  <xs:sequence>
    <xs:element ref="TargetPoint"/>
    <xs:element ref="OffsetVals" minOccurs="0"/>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="FieldNote" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="Feature" minOccurs="0" maxOccurs="unbounded"/>
    </xs:choice>
  </xs:sequence>
  <xs:attribute name="setupID" type="xs:IDREF"/>
  <xs:attribute name="targetSetupID" type="xs:IDREF"/>
  <xs:attribute name="setID"/>
  <xs:attribute name="purpose" type="purposeType"/>
  <xs:attribute name="targetHeight" type="xs:double"/>
```

```
  <xs:attribute name="horizAngle" type="angle" use="optional"/>
  <xs:attribute name="slopeDistance" type="xs:double" use="optional"/>
  <xs:attribute name="zenithAngle" type="zenithAngle" use="optional"/>
  <xs:attribute name="horizDistance" type="xs:double"/>
  <xs:attribute name="vertDistance" type="xs:double"/>
  <xs:attribute name="azimuth" type="direction" use="optional"/>
  <xs:attribute name="unused" type="xs:boolean"/>
  <xs:attribute name="directFace" type="xs:boolean"/>
  <xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>
  <xs:attribute name="timeStamp" type="xs:dateTime"/>
  <xs:attribute name="alignRef" type="alignmentNameRef"/>
  <xs:attribute name="alignStationName" type="xs:string"/>
  <xs:attribute name="alignOffset" type="offsetDistance"/>
  <xs:attribute name="upperStadia" type="xs:double"/>
  <xs:attribute name="rod" type="xs:double"/>
  <xs:attribute name="lowerStadia" type="xs:double"/>
  <xs:attribute name="circlePositionSet" type="xs:double"/>
  <xs:attribute name="status" type="observationStatusType"/>
  <!-- FDOT SURVEY ADDTIONS -->
  <!-- FDOT notes on RawObservations additions
Where:
alignRef is the name of the alignment.
alignStationName is the station value where the rod reading is taken.
alignOffset is the signed (+/-) distance from the CL of the referenced alignment.
3-wire level loop attributes:
upperStadia is the upper stadia hair rod reading.
rod is the middle hair rod reading.
lowerStadia is the lower stadia hair rod reading.
circlePositionSet represents the position of the reading circle.
              This optional attribute (assumed to be "1.0"), unless multiple reading
              circle positions were present from the same setup record.
             'unused' = boolean attribute to indicate the record is not used.
'directFace' = indicates the scope is flipped – true if the scope is not flipped, false if it is. -->
  <!-- coordGeomRefs identifies one or more 'name' values that link to specific <Line>, <Curve>,
<Spiral> or <IrregularLine> in a <CoordGeom> element. This allows linking an survey observation to
specific <Parcel>.<CoordGeom> based geometry. -->
</xs:complexType>
```

attribute **RawObservationType/@setupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="setupID" type="xs:IDREF"/>

attribute **RawObservationType/@targetSetupID**

type	**xs:IDREF**
properties	isRef 0
source	<xs:attribute name="targetSetupID" type="xs:IDREF"/>

attribute **RawObservationType/@setID**

properties	isRef 0
source	<xs:attribute name="setID"/>

attribute **RawObservationType/@purpose**

type	**purposeType**
properties	isRef 0
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration reciprocalObservation enumeration topo enumeration cutSheets enumeration asbuilt
source	<xs:attribute name="purpose" type="purposeType"/>

attribute **RawObservationType/@targetHeight**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="targetHeight" type="xs:double"/>

attribute **RawObservationType/@horizAngle**

type	**angle**
properties	isRef 0 use optional
source	<xs:attribute name="horizAngle" type="angle" use="optional"/>

attribute **RawObservationType/@slopeDistance**

type	**xs:double**
properties	isRef 0 use optional
source	<xs:attribute name="slopeDistance" type="xs:double" use="optional"/>

attribute **RawObservationType/@zenithAngle**

type	**zenithAngle**
properties	isRef 0 use optional
source	<xs:attribute name="zenithAngle" type="zenithAngle" use="optional"/>

attribute **RawObservationType/@horizDistance**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="horizDistance" type="xs:double"/>

attribute **RawObservationType/@vertDistance**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="vertDistance" type="xs:double"/>

attribute **RawObservationType/@azimuth**

type	**direction**
properties	isRef 0 use optional
source	<xs:attribute name="azimuth" type="direction" use="optional"/>

attribute **RawObservationType/@unused**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="unused" type="xs:boolean"/>

attribute **RawObservationType/@directFace**

type	**xs:boolean**
properties	isRef 0
source	<xs:attribute name="directFace" type="xs:boolean"/>

attribute **RawObservationType/@coordGeomRefs**

type	**coordGeomNameRefs**
properties	isRef 0
source	<xs:attribute name="coordGeomRefs" type="coordGeomNameRefs"/>

attribute **RawObservationType/@timeStamp**

type	**xs:dateTime**
properties	isRef 0
source	<xs:attribute name="timeStamp" type="xs:dateTime"/>

attribute **RawObservationType/@alignRef**

type	**alignmentNameRef**

properties	isRef 0
source	<xs:attribute name="alignRef" type="alignmentNameRef"/>

attribute **RawObservationType/@alignStationName**

type	**xs:string**
properties	isRef 0
source	<xs:attribute name="alignStationName" type="xs:string"/>

attribute **RawObservationType/@alignOffset**

type	**offsetDistance**
properties	isRef 0
source	<xs:attribute name="alignOffset" type="offsetDistance"/>

attribute **RawObservationType/@upperStadia**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="upperStadia" type="xs:double"/>

attribute **RawObservationType/@rod**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="rod" type="xs:double"/>

attribute **RawObservationType/@lowerStadia**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="lowerStadia" type="xs:double"/>

attribute **RawObservationType/@circlePositionSet**

type	**xs:double**
properties	isRef 0
source	<xs:attribute name="circlePositionSet" type="xs:double"/>

attribute **RawObservationType/@status**

type	**observationStatusType**
properties	isRef 0
facets	enumeration modified enumeration deleted

source	<xs:attribute name="status" type="observationStatusType"/>

simpleType **addressPointTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **AddressPoint/@addressPointType**
annotation	documentation This is a string to define the type of Geocode that the address point is for examplecentroid of parcel, Access Point etc. This will be a jurisdictionally based list.
source	<xs:simpleType name="addressPointTypeType"> <xs:annotation> <xs:documentation>This is a string to define the type of Geocode that the address point is for examplecentroid of parcel, Access Point etc. This will be a jurisdictionally based list.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **addressTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **LocationAddress/@addressType**
annotation	documentation This Type is to define a ljurisdictional specific list of address types such a primary addres, alias, secondary, historical etc.
source	<xs:simpleType name="addressTypeType"> <xs:annotation> <xs:documentation>This Type is to define a ljurisdictional specific list of address types such a primary addres, alias, secondary, historical etc.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **adminAreaTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **AdministrativeArea/@adminAreaType**
annotation	documentation This is a jurdictionally specific list of types and may include parish, town, local government, locality etc
source	<xs:simpleType name="adminAreaTypeType"> <xs:annotation> <xs:documentation>This is a jurdictionally specific list of types and may include parish, town, local government, locality etc</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **adminDateTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **AdministrativeDate/@adminDateType**
annotation	documentation This is the name of the admin date type for the Survey
source	<xs:simpleType name="adminDateTypeType"> <xs:annotation> <xs:documentation>This is the name of the admin date type for the Survey</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **adverseSEType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	element **AdverseSE**
facets	enumeration non-adverse enumeration adverse
source	<xs:simpleType name="adverseSEType"> <xs:restriction base="xs:string"> <xs:enumeration value="non-adverse"/> <xs:enumeration value="adverse"/> </xs:restriction> </xs:simpleType>

simpleType **alignmentNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **PipeNetwork/@alignmentRef** **GradeSurface/@alignmentRef** **CrossSectPnt/@alignRef** **ObservationGroup/@alignRef** **ReducedObservation/@alignRef** **ReducedArcObservation/@alignRef** **RawObservationType/@alignRef** **GradeSurface/@stationAlignmentRef**
annotation	documentation A reference name value referring to Alignment.name attribute.
source	<xs:simpleType name="alignmentNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to Alignment.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **alignmentNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
used by	attribute **Roadway/@alignmentRefs**
annotation	documentation A list of reference names values refering to one or more Alignment.name attributes.
source	<xs:simpleType name="alignmentNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more Alignment.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **angle**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **CrossSect/@angleSkew Backsight/@circle Curve/@delta ReducedObservation/@horizAngle RawObservationType/@horizAngle CoordinateSystem/@rotationAngle Spiral/@theta**
annotation	documentation Represents a normalized angular value in the specified Angular units. Assume 0 degrees = east
source	<xs:simpleType name="angle"> <xs:annotation> <xs:documentation>Represents a normalized angular value in the specified Angular units. Assume 0 degrees = east</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **angularType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Metric/@angularUnit Imperial/@angularUnit Metric/@directionUnit Imperial/@directionUnit**
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
annotation	documentation angular values expressed in "decimal dd.mm.ss" units have the numeric format "45.3025" representing 45 degrees 30 minutes and 25 seconds. Both the minutes and seconds must be two characters with a numeric range between 00 to 60.
source	<xs:simpleType name="angularType"> <xs:annotation> <xs:documentation>angular values expressed in "decimal dd.mm.ss" units have the numeric format "45.3025" representing 45 degrees 30 minutes and 25 seconds. Both the minutes and seconds

	must be two characters with a numeric range between 00 to 60. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="radians"/> <xs:enumeration value="grads"/> <xs:enumeration value="decimal degrees"/> <xs:enumeration value="decimal dd.mm.ss"/> </xs:restriction> </xs:simpleType>

simpleType **annotationType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Annotation/@type**
annotation	documentation An Annotation will be a specific type within a jurisdiction.
source	<xs:simpleType name="annotationType"> <xs:annotation> <xs:documentation>An Annotation will be a specific type within a jurisdiction. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **area**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
annotation	documentation Represents the geometric area of a closed boundary in numeric decimal form expressed in area units
source	<xs:simpleType name="area"> <xs:annotation> <xs:documentation>Represents the geometric area of a closed boundary in numeric decimal form expressed in area units</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **beaconProtectionType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Monument/@beaconProtection**
facets	enumeration cover enumeration cover and box enumeration fence enclosure enumeration marker post enumeration no protection enumeration other

	enumeration quadripod enumeration unknown
annotation	documentation Indicates any structure that protects the monument, these enumerations may need expanding
source	<xs:simpleType name="beaconProtectionType"> <xs:annotation> <xs:documentation>Indicates any structure that protects the monument, these enumerations may need expanding</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="cover"/> <xs:enumeration value="cover and box"/> <xs:enumeration value="fence enclosure"/> <xs:enumeration value="marker post"/> <xs:enumeration value="no protection"/> <xs:enumeration value="other"/> <xs:enumeration value="quadripod"/> <xs:enumeration value="unknown"/> </xs:restriction> </xs:simpleType>

simpleType **beaconType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Monument/@beacon**
facets	enumeration cairn enumeration chimney enumeration large quadripod enumeration lighthouse enumeration marine beacon enumeration mast enumeration mast with targets enumeration no beacon enumeration other enumeration pillar enumeration post enumeration small quadripod enumeration tower enumeration tripod enumeration unknown
annotation	documentation Indicates whether there is any physical structure for the monument - helps location, these enumerations may need expanding
source	<xs:simpleType name="beaconType"> <xs:annotation> <xs:documentation>Indicates whether there is any physical structure for the monument - helps location, these enumerations may need expanding </xs:documentation> </xs:annotation> <xs:restriction base="xs:string">

```
    <xs:enumeration value="cairn"/>
    <xs:enumeration value="chimney"/>
    <xs:enumeration value="large quadripod"/>
    <xs:enumeration value="lighthouse"/>
    <xs:enumeration value="marine beacon"/>
    <xs:enumeration value="mast"/>
    <xs:enumeration value="mast with targets"/>
    <xs:enumeration value="no beacon"/>
    <xs:enumeration value="other"/>
    <xs:enumeration value="pillar"/>
    <xs:enumeration value="post"/>
    <xs:enumeration value="small quadripod"/>
    <xs:enumeration value="tower"/>
    <xs:enumeration value="tripod"/>
    <xs:enumeration value="unknown"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **breakLineType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Breakline/@brkType**
facets	enumeration standard enumeration wall enumeration proximity enumeration nondestructive
source	<xs:simpleType name="breakLineType"> <xs:restriction base="xs:string"> <xs:enumeration value="standard"/> <xs:enumeration value="wall"/> <xs:enumeration value="proximity"/> <xs:enumeration value="nondestructive"/> </xs:restriction> </xs:simpleType>

simpleType **bridgeProjectType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **BridgeElement/@projectType**
facets	enumeration new enumeration existing
source	<xs:simpleType name="bridgeProjectType"> <xs:restriction base="xs:string"> <xs:enumeration value="new"/> <xs:enumeration value="existing"/> </xs:restriction> </xs:simpleType>

simpleType **cgPointsNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
annotation	documentation A reference name value referring to a CgPoints name attribute. An attribute if this type contains the value of a CgPoints element "name" attribute that exists elsewhere the instance data.
source	<xs:simpleType name="cgPointsNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to a CgPoints name attribute. An attribute if this type contains the value of a CgPoints element "name" attribute that exists elsewhere the instance data.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **cgPointsNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
annotation	documentation A list of reference names values refering to one or more CgPoints element name attributes.
source	<xs:simpleType name="cgPointsNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more CgPoints element name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **ChainType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **pointNameRef**
used by	element **Chain**
annotation	documentation A text value that is a space delimited list of CgPoint names that form a linear connected chain. example: <Chain>1 23 45 34</Chain> represents a linear connection between CgPoint name 1, 23, 45 and 34.
source	<xs:simpleType name="ChainType"> <xs:annotation> <xs:documentation>A text value that is a space delimited list of CgPoint names that form a linear connected chain. example: <Chain>1 23 45 34</Chain> represents a linear connection between CgPoint name 1, 23, 45 and 34. </xs:documentation> </xs:annotation> <xs:list itemType="pointNameRef"/> </xs:simpleType>

simpleType **clockwise**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **CantStation/@curvature Curve/@rot Spiral/@rot ReducedArcObservation/@rot**
facets	enumeration cw enumeration ccw
source	<xs:simpleType name="clockwise"> <xs:restriction base="xs:string"> <xs:enumeration value="cw"/> <xs:enumeration value="ccw"/> </xs:restriction> </xs:simpleType>

simpleType **connectionType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
facets	enumeration inner enumeration outer enumeration dayLight
source	<xs:simpleType name="connectionType"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="inner"/> <xs:enumeration value="outer"/> <xs:enumeration value="dayLight"/> </xs:restriction> </xs:simpleType>

simpleType **coordGeomNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
annotation	documentation A reference name value referring to CoordGeom.name attribute.
source	<xs:simpleType name="coordGeomNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to CoordGeom.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **coordGeomNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**

used by	attributes **GPSVector/@coordGeomRefs** **GPSPosition/@coordGeomRefs** **ObservationGroup/@coordGeomRefs** **ReducedObservation/@coordGeomRefs** **ReducedArcObservation/@coordGeomRefs** **RawObservationType/@coordGeomRefs**
annotation	documentation A list of reference names values refering to one or more CoordGeom.name attributes.
source	<xs:simpleType name="coordGeomNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more CoordGeom.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **cornerType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Corner/@type**
facets	enumeration unknown
source	<xs:simpleType name="cornerType"> <xs:restriction base="xs:string"> <xs:enumeration value="unknown"/> </xs:restriction> <!-- PLACEHOLDER NEED ENUMERATION VALUES ! --> </xs:simpleType>

simpleType **crashIntersectionRelation**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **CrashHistory/@intersectionRelation**
facets	enumeration unknown enumeration non-intersection-related enumeration intersection-related
source	<xs:simpleType name="crashIntersectionRelation"> <xs:restriction base="xs:string"> <xs:enumeration value="unknown"/> <xs:enumeration value="non-intersection-related"/> <xs:enumeration value="intersection-related"/> </xs:restriction> </xs:simpleType>

simpleType **crashSeverityType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **CrashHistory/@severity**

facets	enumeration fatal enumeration nonfatal enumeration propery-damage-only
source	<xs:simpleType name="crashSeverityType"> <xs:restriction base="xs:string"> <xs:enumeration value="fatal"/> <xs:enumeration value="nonfatal "/> <xs:enumeration value="propery-damage-only"/> </xs:restriction> </xs:simpleType>

simpleType **crossSectionPnt**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**Point2dReq**
used by	attributes **ZoneCrossSectStructure/@innerConnectPnt** **ZoneCrossSectStructure/@outerConnectPnt**
facets	length 2
annotation	documentation Attribute that represents a space delimited, cross section offset/elevation pair. Example: crossSectionPnt="12.0 723.3456"
source	<xs:simpleType name="crossSectionPnt"> <xs:annotation> <xs:documentation>Attribute that represents a space delimited, cross section offset/elevation pair. Example: crossSectionPnt="12.0 723.3456" </xs:documentation> </xs:annotation> <xs:restriction base="Point2dReq"/> </xs:simpleType>

simpleType **crossSectSurfaceArea**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **DesignCrossSectSurf/@area** **CrossSect/@areaCut** **CrossSect/@areaFill**
annotation	documentation Represents the cross sectional surface area in numeric decimal form expressed in area units
source	<xs:simpleType name="crossSectSurfaceArea"> <xs:annotation> <xs:documentation>Represents the cross sectional surface area in numeric decimal form expressed in area units</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **crossSectSurfaceVolume**

namespace	http://www.landxml.org/schema/LandXML-1.2

type	**xs:double**
used by	attributes **DesignCrossSectSurf/@volume** **CrossSect/@volumeCut** **CrossSect/@volumeFill**
annotation	documentation Represents the cross section surface volume from the previous station to the current station in numeric decimal form expressed in volume units
source	<xs:simpleType name="crossSectSurfaceVolume"> <xs:annotation> <xs:documentation>Represents the cross section surface volume from the previous station to the current station in numeric decimal form expressed in volume units</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **crossSlope**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **ZoneCutFill/@cutSlope** **ZoneCutFill/@fillSlope**
annotation	documentation This item is the cross slope, the slope of the traveled way as measure perpendicular to the horizontal alignment, negative when the shoulder has a lower elevation than the centerline. The unit of measure for this item is PERCENT %.
source	<xs:simpleType name="crossSlope"> <xs:annotation> <xs:documentation>This item is the cross slope, the slope of the traveled way as measure perpendicular to the horizontal alignment, negative when the shoulder has a lower elevation than the centerline. The unit of measure for this item is PERCENT %.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **curbType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Curb/@type**
facets	enumeration unknown
source	<xs:simpleType name="curbType"> <xs:restriction base="xs:string"> <xs:enumeration value="unknown"/> </xs:restriction> <!-- PLACEHOLDER NEED ENUMERATION VALUES ! --> </xs:simpleType>

simpleType **curveType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**

used by	attribute **Curve/@crvType**
facets	enumeration arc enumeration chord
source	<xs:simpleType name="curveType"> <xs:restriction base="xs:string"> <xs:enumeration value="arc"/> <xs:enumeration value="chord"/> </xs:restriction> </xs:simpleType>

simpleType **dataFormatType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **CrossSectPnt/@dataFormat**
facets	enumeration Offset Elevation enumeration Slope Distance
source	<xs:simpleType name="dataFormatType"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="Offset Elevation"/> <xs:enumeration value="Slope Distance"/> </xs:restriction> </xs:simpleType>

simpleType **designLocationType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
facets	enumeration Final Surface enumeration Datum enumeration Intermediate
source	<xs:simpleType name="designLocationType"> <xs:annotation> <xs:documentation/> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="Final Surface"/> <xs:enumeration value="Datum"/> <xs:enumeration value="Intermediate"/> </xs:restriction> </xs:simpleType>

simpleType **direction**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**

used by	attributes **Backsight/@azimuth** **ReducedObservation/@azimuth** **RawObservationType/@azimuth** **ReducedArcObservation/@chordAzimuth** **InstrumentSetup/@circleAzimuth** **IrregularLine/@dir** **Line/@dir** **Parcel/@dirClosure** **Curve/@dirEnd** **Spiral/@dirEnd** **Curve/@dirStart** **Spiral/@dirStart** **RectStruct/@lengthDir** **InstrumentSetup/@orientationAzimuth**
annotation	documentation Represents a normalized angular value that indicates a horizontal direction, expressed in the specified Direction units. Assume 0 degrees = north
source	<xs:simpleType name="direction"> <xs:annotation> <xs:documentation>Represents a normalized angular value that indicates a horizontal direction, expressed in the specified Direction units. Assume 0 degrees = north </xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **ditchBottomShape**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Ditch/@bottomShape**
facets	enumeration true-V enumeration rounded-V enumeration rounded-trapezoidal enumeration flat-trapezoidal
source	<xs:simpleType name="ditchBottomShape"> <xs:restriction base="xs:string"> <xs:enumeration value="true-V"/> <xs:enumeration value="rounded-V"/> <xs:enumeration value="rounded-trapezoidal"/> <xs:enumeration value="flat-trapezoidal"/> </xs:restriction> </xs:simpleType>

simpleType **documentStatusType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **SurveyHeader/@documentStatus**
annotation	documentation This field identifes the legal status for this document, for example it is the leagal record of survey, if was data captured from historical data etc. This is used to determine processing of the record
source	<xs:simpleType name="documentStatusType"> <xs:annotation> <xs:documentation>This field identifes the legal status for this document, for example it is the leagal record of survey, if was data captured from historical data etc. This is used to determine processing of the record</xs:documentation> </xs:annotation>

```
  <xs:restriction base="xs:string"/>
</xs:simpleType>
```

simpleType **drivewayDensity**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
annotation	documentation This item is the driveway density for both sides of the roadway combined. The unit of measure for this item is driveways/kilometer for Metric units and driveways/mile for Imperial.
source	<xs:simpleType name="drivewayDensity"> <xs:annotation> <xs:documentation>This item is the driveway density for both sides of the roadway combined. The unit of measure for this item is driveways/kilometer for Metric units and driveways/mile for Imperial. </xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **DTMAttributeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **CgPoints/@DTMAttribute Chain/@DTMAttribute DataPoints/@DTMAttribute PointType/@DTMAttribute PointType3dReq/@DTMAttribute**
facets	enumeration determinebyfeature enumeration donotinclude enumeration spot enumeration spotandbreak enumeration void enumeration drapevoid enumeration breakvoid enumeration island enumeration boundary enumeration contour enumeration feature enumeration ground enumeration xsection enumeration user
source	<xs:simpleType name="DTMAttributeType"> <xs:restriction base="xs:string"> <xs:enumeration value="determinebyfeature"/> <xs:enumeration value="donotinclude"/> <xs:enumeration value="spot"/> <xs:enumeration value="spotandbreak"/> <xs:enumeration value="void"/> <xs:enumeration value="drapevoid"/> <xs:enumeration value="breakvoid"/> <xs:enumeration value="island"/> <xs:enumeration value="boundary"/> <xs:enumeration value="contour"/> <xs:enumeration value="feature"/>

```
    <xs:enumeration value="ground"/>
    <xs:enumeration value="xsection"/>
    <xs:enumeration value="user"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **elevationType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Metric/@elevationUnit** **Imperial/@elevationUnit**
facets	enumeration meter enumeration kilometer enumeration feet enumeration miles
annotation	documentation Represents the elevation unit for elevation attribute values, such as ellipsoidHeight
source	<xs:simpleType name="elevationType"> <xs:annotation> <xs:documentation>Represents the elevation unit for elevation attribute values, such as ellipsoidHeight</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="meter"/> <xs:enumeration value="kilometer"/> <xs:enumeration value="feet"/> <xs:enumeration value="miles"/> </xs:restriction> </xs:simpleType>

simpleType **ellipsoidHeightType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attribute **PointType/@ellipsoidHeight**
annotation	documentation Represents the National Geodedic Survey ellipsiod height expressed in the unit height attribute value
source	<xs:simpleType name="ellipsoidHeightType"> <xs:annotation> <xs:documentation>Represents the National Geodedic Survey ellipsiod height expressed in the unit height attribute value</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **equipmentType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**

used by	attributes **ReducedObservation/@equipmentUsed** **ReducedArcObservation/@equipmentUsed** **RedHorizontalPosition/@equipmentUsed** **RedVerticalObservation/@equipmentUsed**
annotation	documentation This gives a list of equipment used for the observation this list of equipment is used to estimate the accuracy of the observation..
source	<xs:simpleType name="equipmentType"> <xs:annotation> <xs:documentation>This gives a list of equipment used for the observation this list of equipment is used to estimate the accuracy of the observation.. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **exclusType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Exclusions/@exclusionType**
annotation	documentation This is a jurisdictionally based list of exclusions for a Title example would be exclusions for Road, Track, Esplanade etc
source	<xs:simpleType name="exclusType"> <xs:annotation> <xs:documentation>This is a jurisdictionally based list of exclusions for a Title example would be exclusions for Road, Track, Esplanade etc </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **FaceType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:integer**
used by	element **F** attribute **F/@n**
source	<xs:simpleType name="FaceType"> <xs:list itemType="xs:integer"/> </xs:simpleType>

simpleType **featureNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **Monument/@featureRef** **PointType/@featureRef** **PointType3dReq/@featureRef**
annotation	documentation A Feature element name attribute reference value refering to one Feature.name attribute.
source	<xs:simpleType name="featureNameRef"> <xs:annotation> <xs:documentation>A Feature element name attribute reference value refering to one Feature.name attribute.</xs:documentation>

```
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
```

simpleType **flatTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **LocationAddress/@flatType**
annotation	documentation To define a Jurisdictional specific list of address living unit types for addressing
source	<xs:simpleType name="flatTypeType"> <xs:annotation> <xs:documentation>To define a Jurisdictional specific list of address living unit types for addressing</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **floorLevelTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **LocationAddress/@floorLevelType**
annotation	documentation To define a jurisdictionally specific list of floo level types for example, Lower Ground Floor
source	<xs:simpleType name="floorLevelTypeType"> <xs:annotation> <xs:documentation>To define a jurisdictionally specific list of floo level types for example, Lower Ground Floor</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **functionalClassType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Classification/@functionalClass**
facets	enumeration arterial enumeration collector enumeration local
source	<xs:simpleType name="functionalClassType"> <xs:restriction base="xs:string"> <xs:enumeration value="arterial"/> <xs:enumeration value="collector "/> <xs:enumeration value="local"/> </xs:restriction> </xs:simpleType>

simpleType **GPSSolutionFrequencyEnum**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **GPSQCInfoLevel1/@GPSSolnFreq** **GPSQCInfoLevel2/@GPSSolnFreq**
facets	enumeration Unknown enumeration L1 enumeration L2 enumeration L2 Squared enumeration Wide Lane enumeration Narrow Lane enumeration Iono Free
annotation	documentation The GPS solution frequency indicates the GPS frequencies used in the computed solution for a GPS vector or position
source	<xs:simpleType name="GPSSolutionFrequencyEnum"> <xs:annotation> <xs:documentation>The GPS solution frequency indicates the GPS frequencies used in the computed solution for a GPS vector or position </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="Unknown"/> <xs:enumeration value="L1"/> <xs:enumeration value="L2"/> <xs:enumeration value="L2 Squared"/> <xs:enumeration value="Wide Lane"/> <xs:enumeration value="Narrow Lane"/> <xs:enumeration value="Iono Free"/> </xs:restriction> </xs:simpleType>

simpleType **GPSSolutionTypeEnum**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **GPSQCInfoLevel1/@GPSSolnType** **GPSQCInfoLevel2/@GPSSolnType**

facets	enumeration Unknown enumeration Code enumeration Float enumeration Fixed enumeration Network Float enumeration Network Fixed enumeration WAAS Float enumeration WAAS Fixed
annotation	documentation The GPS solution type indicates the type of computed solution for a GPS vector or position
source	<xs:simpleType name="GPSSolutionTypeEnum"> <xs:annotation> <xs:documentation>The GPS solution type indicates the type of computed solution for a GPS vector or position</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="Unknown"/> <xs:enumeration value="Code"/> <xs:enumeration value="Float"/> <xs:enumeration value="Fixed"/> <xs:enumeration value="Network Float"/> <xs:enumeration value="Network Fixed"/> <xs:enumeration value="WAAS Float"/> <xs:enumeration value="WAAS Fixed"/> </xs:restriction> </xs:simpleType>

simpleType **GPSTime**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **GPSSetup/@startTime** **GPSQCInfoLevel2/@startTime** **GPSSetup/@stopTime** **GPSQCInfoLevel2/@stopTime**
annotation	documentation GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week.
source	<xs:simpleType name="GPSTime"> <xs:annotation> <xs:documentation> GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> <!-- GPS Time = Nbr of GPS weeks * 604800 (seconds in a week) + seconds in GPS week --> </xs:simpleType>

simpleType **gradeModelNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
annotation	documentation A reference name value referring to GradeModel.name attribute.

source	<xs:simpleType name="gradeModelNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to GradeModel.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **gradeModelNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
used by	attribute **Roadway/@gradeModelRefs**
annotation	documentation A list of reference names values refering to one or more GradeModel.name attributes.
source	<xs:simpleType name="gradeModelNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more GradeModel.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **headOfPowerType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **HeadOfPower/@name**
annotation	documentation Details the legislation or regulation under which the survey was conducted, for example the Land Title Act2003 This list will be juridictionnally specific.
source	<xs:simpleType name="headOfPowerType"> <xs:annotation> <xs:documentation>Details the legislation or regulation under which the survey was conducted, for example the Land Title Act2003 This list will be juridictionnally specific.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **impArea**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@areaUnit**
facets	enumeration acre enumeration squareFoot enumeration squareInch enumeration squareMiles

source
```
<xs:simpleType name="impArea">
  <xs:restriction base="xs:string">
    <xs:enumeration value="acre"/>
    <xs:enumeration value="squareFoot"/>
    <xs:enumeration value="squareInch"/>
    <xs:enumeration value="squareMiles"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **impDiameter**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@diameterUnit**
facets	enumeration foot enumeration USSurveyFoot enumeration inch

source
```
<xs:simpleType name="impDiameter">
  <xs:restriction base="xs:string">
    <xs:enumeration value="foot"/>
    <xs:enumeration value="USSurveyFoot"/>
    <xs:enumeration value="inch"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **impFlow**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@flowUnit**
facets	enumeration US_gallonPerDay enumeration IMP_gallonPerDay enumeration cubicFeetDay enumeration US_gallonPerMinute enumeration IMP_gallonPerMinute enumeration acreFeetDay enumeration cubicFeetSecond

source
```
<xs:simpleType name="impFlow">
  <xs:restriction base="xs:string">
    <xs:enumeration value="US_gallonPerDay"/>
    <xs:enumeration value="IMP_gallonPerDay"/>
    <xs:enumeration value="cubicFeetDay"/>
    <xs:enumeration value="US_gallonPerMinute"/>
    <xs:enumeration value="IMP_gallonPerMinute"/>
    <xs:enumeration value="acreFeetDay"/>
    <xs:enumeration value="cubicFeetSecond"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **impHeight**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@heightUnit**
facets	enumeration foot enumeration USSurveyFoot enumeration inch
source	<xs:simpleType name="impHeight"> <xs:restriction base="xs:string"> <xs:enumeration value="foot"/> <xs:enumeration value="USSurveyFoot"/> <xs:enumeration value="inch"/> </xs:restriction> </xs:simpleType>

simpleType **impLinear**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@linearUnit**
facets	enumeration foot enumeration USSurveyFoot enumeration inch enumeration mile
source	<xs:simpleType name="impLinear"> <xs:restriction base="xs:string"> <xs:enumeration value="foot"/> <xs:enumeration value="USSurveyFoot"/> <xs:enumeration value="inch"/> <xs:enumeration value="mile"/> </xs:restriction> </xs:simpleType>

simpleType **impPressure**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@pressureUnit**
facets	enumeration inchHG enumeration inHG
source	<xs:simpleType name="impPressure"> <xs:restriction base="xs:string"> <xs:enumeration value="inchHG"/> <xs:enumeration value="inHG"/> </xs:restriction> </xs:simpleType>

simpleType **impTemperature**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@temperatureUnit**
facets	enumeration fahrenheit enumeration kelvin
source	<xs:simpleType name="impTemperature"> <xs:restriction base="xs:string"> <xs:enumeration value="fahrenheit"/> <xs:enumeration value="kelvin"/> </xs:restriction> </xs:simpleType>

simpleType **impVelocity**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@velocityUnit**
facets	enumeration feetPerSecond enumeration milesPerHour
source	<xs:simpleType name="impVelocity"> <xs:restriction base="xs:string"> <xs:enumeration value="feetPerSecond"/> <xs:enumeration value="milesPerHour"/> </xs:restriction> </xs:simpleType>

simpleType **impVolume**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@volumeUnit**
facets	enumeration US_gallon enumeration IMP_gallon enumeration cubicInch enumeration cubicFeet enumeration cubicYard enumeration acreFeet
source	<xs:simpleType name="impVolume"> <xs:restriction base="xs:string"> <xs:enumeration value="US_gallon"/> <xs:enumeration value="IMP_gallon"/> <xs:enumeration value="cubicInch"/> <xs:enumeration value="cubicFeet"/> <xs:enumeration value="cubicYard"/> <xs:enumeration value="acreFeet"/> </xs:restriction> </xs:simpleType>

simpleType **impWidth**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Imperial/@widthUnit**
facets	enumeration foot enumeration USSurveyFoot enumeration inch
source	<xs:simpleType name="impWidth"> <xs:restriction base="xs:string"> <xs:enumeration value="foot"/> <xs:enumeration value="USSurveyFoot"/> <xs:enumeration value="inch"/> </xs:restriction> </xs:simpleType>

simpleType **inOut**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Invert/@flowDir**
facets	enumeration in enumeration out enumeration both
source	<xs:simpleType name="inOut"> <xs:restriction base="xs:string"> <xs:enumeration value="in"/> <xs:enumeration value="out"/> <xs:enumeration value="both"/> </xs:restriction> </xs:simpleType>

simpleType **intersectionConstructionType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Intersection/@contructionType**
facets	enumeration existing enumeration improvement enumeration new
source	<xs:simpleType name="intersectionConstructionType"> <xs:restriction base="xs:string"> <xs:enumeration value="existing"/> <xs:enumeration value="improvement"/> <xs:enumeration value="new"/> </xs:restriction> </xs:simpleType>

simpleType **jurisdictionType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **SurveyHeader/@jurisdiction**
annotation	documentation This is the name of the juridiction in which the Survey Lies (ie which state)
source	<xs:simpleType name="jurisdictionType"> <xs:annotation> <xs:documentation>This is the name of the juridiction in which the Survey Lies (ie which state) </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **laneTaperType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **TurnLane/@taperType**
facets	enumeration straight-line enumeration partial-tangent enumeration symmetrical-reverse-curve enumeration asymmetrical-reverse-curve
source	<xs:simpleType name="laneTaperType"> <xs:restriction base="xs:string"> <xs:enumeration value="straight-line"/> <xs:enumeration value="partial-tangent"/> <xs:enumeration value="symmetrical-reverse-curve"/> <xs:enumeration value="asymmetrical-reverse-curve"/> </xs:restriction> </xs:simpleType>

simpleType **latLongAngle**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **PointType/@latitude** **PointType/@longitude**
annotation	documentation Latitude/Longitude coordinate angular values expressed in latLongAngularUnit. Latitude (range -90 to +90) positive values for the northern hemispher, negative indicate the southern. Longitude (range -180 to +180) positive values are to the east of the prime meridian, negative values are to the west. Values expressed in "decimal dd.mm.ss" units have the numeric format "45.3025" representing 45 degrees 30 minutes and 25 seconds. Both the minutes and seconds must be two characters with a numeric range between 00 to 60.
source	<xs:simpleType name="latLongAngle"> <xs:annotation> <xs:documentation>Latitude/Longitude coordinate angular values expressed in latLongAngularUnit. Latitude (range -90 to +90) positive values for the northern hemispher, negative indicate the southern.

Longitude (range -180 to +180) positive values are to the east of the prime meridian, negative values are to the west. Values expressed in "decimal dd.mm.ss" units have the numeric format "45.3025" representing 45 degrees 30 minutes and 25 seconds. Both the minutes and seconds must be two characters with a numeric range between 00 to 60.</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:double"/>
</xs:simpleType>

simpleType **latLongAngularType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Metric/@latLongAngularUnit Imperial/@latLongAngularUnit**
facets	enumeration radians enumeration grads enumeration decimal degrees enumeration decimal dd.mm.ss
annotation	documentation Latitude/Longitude coordinate angular values. Latitude (range -90 to +90) positive values for the northern hemispher, negative indicate the southern. Longitude (range -180 to +180) positive values are to the east of the prime meridian, negative values are to the west. Values expressed in "decimal dd.mm.ss" units have the numeric format "45.3025" representing 45 degrees 30 minutes and 25 seconds. Both the minutes and seconds must be two characters with a numeric range between 00 to 60.
source	<xs:simpleType name="latLongAngularType"> <xs:annotation> <xs:documentation>Latitude/Longitude coordinate angular values. Latitude (range -90 to +90) positive values for the northern hemispher, negative indicate the southern. Longitude (range -180 to +180) positive values are to the east of the prime meridian, negative values are to the west. Values expressed in "decimal dd.mm.ss" units have the numeric format "45.3025" representing 45 degrees 30 minutes and 25 seconds. Both the minutes and seconds must be two characters with a numeric range between 00 to 60. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="radians"/> <xs:enumeration value="grads"/> <xs:enumeration value="decimal degrees"/> <xs:enumeration value="decimal dd.mm.ss"/> </xs:restriction> </xs:simpleType>

simpleType **maneuverType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **DecisionSightDistance/@maneuver**
facets	enumeration A-stop-on-rural-road enumeration C-speed-path-direction-change-on-rural-road
source	<xs:simpleType name="maneuverType"> <xs:restriction base="xs:string"> <xs:enumeration value="A-stop-on-rural-road"/> <xs:enumeration value="C-speed-path-direction-change-on-rural-road"/>

```
  </xs:restriction>
</xs:simpleType>
```

simpleType **metArea**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@areaUnit**
facets	enumeration hectare enumeration squareMeter enumeration squareMillimeter enumeration squareCentimeter
source	<xs:simpleType name="metArea"> <xs:restriction base="xs:string"> <xs:enumeration value="hectare"/> <xs:enumeration value="squareMeter"/> <xs:enumeration value="squareMillimeter"/> <xs:enumeration value="squareCentimeter"/> </xs:restriction> </xs:simpleType>

simpleType **metDiameter**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@diameterUnit**
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer
source	<xs:simpleType name="metDiameter"> <xs:restriction base="xs:string"> <xs:enumeration value="millimeter"/> <xs:enumeration value="centimeter"/> <xs:enumeration value="meter"/> <xs:enumeration value="kilometer"/> </xs:restriction> </xs:simpleType>

simpleType **metFlow**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@flowUnit**
facets	enumeration cubicMeterSecond enumeration literPerSecond enumeration literPerMinute
source	<xs:simpleType name="metFlow"> <xs:restriction base="xs:string">

```
    <xs:enumeration value="cubicMeterSecond"/>
    <xs:enumeration value="literPerSecond"/>
    <xs:enumeration value="literPerMinute"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **metHeight**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@heightUnit**
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer

source

```
<xs:simpleType name="metHeight">
  <xs:restriction base="xs:string">
    <xs:enumeration value="millimeter"/>
    <xs:enumeration value="centimeter"/>
    <xs:enumeration value="meter"/>
    <xs:enumeration value="kilometer"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **metLinear**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@linearUnit**
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer

source

```
<xs:simpleType name="metLinear">
  <xs:restriction base="xs:string">
    <xs:enumeration value="millimeter"/>
    <xs:enumeration value="centimeter"/>
    <xs:enumeration value="meter"/>
    <xs:enumeration value="kilometer"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **metPressure**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@pressureUnit**
facets	enumeration HPA enumeration milliBars

	enumeration mmHG enumeration millimeterHG
source	<xs:simpleType name="metPressure"> <xs:restriction base="xs:string"> <xs:enumeration value="HPA"/> <xs:enumeration value="milliBars"/> <xs:enumeration value="mmHG"/> <xs:enumeration value="millimeterHG"/> </xs:restriction> </xs:simpleType>

simpleType **metTemperature**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@temperatureUnit**
facets	enumeration celsius enumeration kelvin
source	<xs:simpleType name="metTemperature"> <xs:restriction base="xs:string"> <xs:enumeration value="celsius"/> <xs:enumeration value="kelvin"/> </xs:restriction> </xs:simpleType>

simpleType **metVelocity**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@velocityUnit**
facets	enumeration metersPerSecond enumeration kilometersPerHour
source	<xs:simpleType name="metVelocity"> <xs:restriction base="xs:string"> <xs:enumeration value="metersPerSecond"/> <xs:enumeration value="kilometersPerHour"/> </xs:restriction> </xs:simpleType>

simpleType **metVolume**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@volumeUnit**
facets	enumeration cubicMeter enumeration liter enumeration hectareMeter

source
```
<xs:simpleType name="metVolume">
  <xs:restriction base="xs:string">
    <xs:enumeration value="cubicMeter"/>
    <xs:enumeration value="liter"/>
    <xs:enumeration value="hectareMeter"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **metWidth**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Metric/@widthUnit**
facets	enumeration millimeter enumeration centimeter enumeration meter enumeration kilometer

source
```
<xs:simpleType name="metWidth">
  <xs:restriction base="xs:string">
    <xs:enumeration value="millimeter"/>
    <xs:enumeration value="centimeter"/>
    <xs:enumeration value="meter"/>
    <xs:enumeration value="kilometer"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **monumentCategory**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Monument/@category**
facets	enumeration benchmark enumeration central enumeration reference enumeration rural enumeration standard traverse enumeration urban standard traverse
annotation	documentation This indicates the category of a geodetic Monument

source
```
<xs:simpleType name="monumentCategory">
  <xs:annotation>
    <xs:documentation>This indicates the category of a geodetic Monument</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="benchmark"/>
    <xs:enumeration value="central"/>
    <xs:enumeration value="reference"/>
    <xs:enumeration value="rural"/>
    <xs:enumeration value="standard traverse"/>
    <xs:enumeration value="urban standard traverse"/>
```

```
  </xs:restriction>
</xs:simpleType>
```

simpleType **monumentCondition**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Monument/@condition**
annotation	documentation This gives a list of allowable local conditions defined by regulation can be defined by the jurisdiction.
source	<xs:simpleType name="monumentCondition"> <xs:annotation> <xs:documentation>This gives a list of allowable local conditions defined by regulation can be defined by the jurisdiction. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **monumentNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **SurveyMonument/@mntRef**
annotation	documentation A reference name value referring to monument.name attribute.
source	<xs:simpleType name="monumentNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to monument.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **monumentPurpose**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **SurveyMonument/@purpose**
annotation	documentation This is a list of purposes that the monument was used for on this survey. The desired list may be based on local regulations.
source	<xs:simpleType name="monumentPurpose"> <xs:annotation> <xs:documentation>This is a list of purposes that the monument was used for on this survey. The desired list may be based on local regulations. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **monumentState**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **SurveyMonument/@state** **Monument/@state**
annotation	documentation This is a list of states for a monument each jurisdiction may haqve a list defined by regulation.
source	<xs:simpleType name="monumentState"> <xs:annotation> <xs:documentation>This is a list of states for a monument each jurisdiction may haqve a list defined by regulation. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **monumentType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Monument/@type**
annotation	documentation This is a list of allowable monument types that can be used or identified for a survey, ie peg, spike, pillar etc. Local custom will define this list.
source	<xs:simpleType name="monumentType"> <xs:annotation> <xs:documentation>This is a list of allowable monument types that can be used or identified for a survey, ie peg, spike, pillar etc. Local custom will define this list.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **observationStatusType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Chain/@status** **InstrumentSetup/@status** **RawObservationType/@status**
facets	enumeration modified enumeration deleted
source	<xs:simpleType name="observationStatusType"> <xs:restriction base="xs:string"> <xs:enumeration value="modified"/> <xs:enumeration value="deleted"/> </xs:restriction> </xs:simpleType>

simpleType **observationType**

namespace	http://www.landxml.org/schema/LandXML-1.2

type	**xs:string**
used by	attributes **ReducedObservation/@angleType** **ReducedObservation/@azimuthType** **ReducedObservation/@distanceType**
annotation	documentation This is a list of defined observation types, different jurisdictions may have a list defined by regulation can be defined by the jurisdiction.
source	<xs:simpleType name="observationType"> <xs:annotation> <xs:documentation>This is a list of defined observation types, different jurisdictions may have a list defined by regulation can be defined by the jurisdiction. </xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **offsetDistance**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **ObservationGroup/@alignOffset** **ReducedObservation/@alignOffset** **ReducedArcObservation/@alignOffset** **RawObservationType/@alignOffset** **ZoneCrossSectStructure/@endOffset** **TwoWayLeftTurnLane/@endOffset** **OffsetLane/@fullOffset** **WideningLane/@offset** **ObstructionOffset/@offset** **RoadSign/@offset** **ZoneCrossSectStructure/@startOffset** **TwoWayLeftTurnLane/@startOffset**
annotation	documentation Represents a linear offset distance. When associated with horizontal (planametric) road or coordinate geometry, the offset is a 2D distance measured perpendicular to the road centerline or coordinate geometry used as the origin. When used in cross sections of long section (profile) the offset is a 2d linear measurement from the origin of the cross section or long section. In all cases a positive value indicates an offset to the RIGHT of the origin and negative values indicate and offset to the LEFT of the origin. The value is in decimal form expressed in length units.
source	<xs:simpleType name="offsetDistance"> <xs:annotation> <xs:documentation>Represents a linear offset distance. When associated with horizontal (planametric) road or coordinate geometry, the offset is a 2D distance measured perpendicular to the road centerline or coordinate geometry used as the origin. When used in cross sections of long section (profile) the offset is a 2d linear measurement from the origin of the cross section or long section. In all cases a positive value indicates an offset to the RIGHT of the origin and negative values indicate and offset to the LEFT of the origin. The value is in decimal form expressed in length units.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **offsetElevation**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **ZoneCrossSectStructure/@endOffsetElev** **ZoneCrossSectStructure/@startOffsetElev**
annotation	documentation

	Represents a vertical offset distance or elevational shift. In all cases a positive value indicates a vertical elevational shift above the origin and negative values indicate a vertical elevational shift below the origin. The value is in decimal form expressed in length units.
source	<xs:simpleType name="offsetElevation"> <xs:annotation> <xs:documentation>Represents a vertical offset distance or elevational shift. In all cases a positive value indicates a vertical elevational shift above the origin and negative values indicate a vertical elevational shift below the origin. The value is in decimal form expressed in length units.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **parcelClass**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Parcel/@class**
annotation	documentation This is a list of parcel classes which may be jurisdictionally specific defined by regulation and legislation.
source	<xs:simpleType name="parcelClass"> <xs:annotation> <xs:documentation>This is a list of parcel classes which may be jurisdictionally specific defined by regulation and legislation.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **parcelFormat**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Parcel/@parcelFormat**
annotation	documentation Parcel Format describes how the parcel is described , ie Standard (2D), Volumertric (3D)
source	<xs:simpleType name="parcelFormat"> <xs:annotation> <xs:documentation>Parcel Format describes how the parcel is described , ie Standard (2D), Volumertric (3D)</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **parcelNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **CrossSectPnt/@parcelRef** **Parcel/@pclRef**

annotation	documentation A reference name value referring to Parcel.name attribute.
source	<xs:simpleType name="parcelNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to Parcel.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **parcelNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
used by	attributes **AdministrativeArea/@pclRef Annotation/@pclRef RoadName/@pclRef**
annotation	documentation A list of reference names values refering to one or more Parcel.name attributes.
source	<xs:simpleType name="parcelNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more Parcel.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **parcelStateType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Parcel/@state**
facets	enumeration affected enumeration created enumeration encroached enumeration extinguished enumeration referenced enumeration proposed enumeration existing enumeration adjoining
annotation	documentation This is an extension of the LandXML state type, but is specific to parcels
source	<xs:simpleType name="parcelStateType"> <xs:annotation> <xs:documentation>This is an extension of the LandXML state type, but is specific to parcels</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="affected"/> <xs:enumeration value="created"/> <xs:enumeration value="encroached"/> <xs:enumeration value="extinguished"/> <xs:enumeration value="referenced"/>

```
    <xs:enumeration value="proposed"/>
    <xs:enumeration value="existing"/>
    <xs:enumeration value="adjoining"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **pavementSurfaceType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
facets	enumeration high-type enumeration intermediate-type enumeration low-type
source	<xs:simpleType name="pavementSurfaceType"> <xs:restriction base="xs:string"> <xs:enumeration value="high-type"/> <xs:enumeration value="intermediate-type"/> <xs:enumeration value="low-type"/> </xs:restriction> </xs:simpleType>

simpleType **pipeNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Invert/@refPipe**
annotation	documentation A reference name value referring to Pipe.name attribute.
source	<xs:simpleType name="pipeNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to Pipe.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **pipeNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
annotation	documentation A list of reference names values refering to one or more Pipe.name attributes.
source	<xs:simpleType name="pipeNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more Pipe.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **pipeNetworkType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **PipeNetwork/@pipeNetType**
facets	enumeration sanitary enumeration storm enumeration water enumeration other
source	<xs:simpleType name="pipeNetworkType"> <xs:restriction base="xs:string"> <xs:enumeration value="sanitary"/> <xs:enumeration value="storm"/> <xs:enumeration value="water"/> <xs:enumeration value="other"/> </xs:restriction> </xs:simpleType>

simpleType **planFeatureNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **CrossSectPnt/@planFeatureRef**
annotation	documentation A reference name value referring to PlanFeature.name attribute.
source	<xs:simpleType name="planFeatureNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to PlanFeature.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **planFeatureNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
annotation	documentation A list of reference names values refering to one or more PlanFeature.name attributes.
source	<xs:simpleType name="planFeatureNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more PlanFeature.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **Point**

namespace	http://www.landxml.org/schema/LandXML-1.2

type	list of **xs:double**
used by	elements **CircCurve** **PntList2D** **PntList3D** simpleTypes **Point2dReq** **Point3dOpt** **Point3dReq**
annotation	documentation A text value that is a space delimited list of doubles. It is used as the base type to define point coordinates in the form of "northing easting" or "northing easting elevation" as well as point lists of 2D or 3D points with items such as surface boundaries or "station elevation", "station offset" lists for items such as profiles and cross sections: Example, "1632.546 2391.045 240.30"
source	<xs:simpleType name="Point"> <xs:annotation> <xs:documentation>A text value that is a space delimited list of doubles. It is used as the base type to define point coordinates in the form of "northing easting" or "northing easting elevation" as well as point lists of 2D or 3D points with items such as surface boundaries or "station elevation", "station offset" lists for items such as profiles and cross sections: Example, "1632.546 2391.045 240.30"</xs:documentation> </xs:annotation> <xs:list itemType="xs:double"/> </xs:simpleType>

simpleType **Point2dReq**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **Point**
used by	elements **ParaCurve** **PVI** **UnsymParaCurve** simpleType **crossSectionPnt**
facets	length 2
source	<xs:simpleType name="Point2dReq"> <xs:restriction base="Point"> <xs:length value="2"/> </xs:restriction> </xs:simpleType>

simpleType **Point3dOpt**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **Point**
used by	complexType **PointType**
facets	minLength 0 maxLength 3
source	<xs:simpleType name="Point3dOpt"> <xs:restriction base="Point"> <xs:minLength value="0"/> <xs:maxLength value="3"/> </xs:restriction> </xs:simpleType>

simpleType **Point3dReq**

namespace	http://www.landxml.org/schema/LandXML-1.2

type	restriction of **Point**
used by	complexType **PointType3dReq**
facets	minLength 0 maxLength 3
source	<xs:simpleType name="Point3dReq"> <xs:restriction base="Point"> <xs:minLength value="0"/> <xs:maxLength value="3"/> </xs:restriction> </xs:simpleType>

simpleType **pointGeometryType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Chain/@pointGeometry DataPoints/@pointGeometry PointType/@pointGeometry PointType3dReq/@pointGeometry**
facets	enumeration point enumeration curve
source	<xs:simpleType name="pointGeometryType"> <xs:restriction base="xs:string"> <xs:enumeration value="point"/> <xs:enumeration value="curve"/> </xs:restriction> </xs:simpleType>

simpleType **pointNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	simpleType **ChainType** attributes **GPSPosition/@pntRef Monument/@pntRef DataPoints/@pntRef PointType/@pntRef PointType3dReq/@pntRef**
annotation	documentation A reference name value referring to a PointType derived name attribute. An attribute if this type contains the value of a PointType derived element "name" attribute that exists elsewhere the instance data.
source	<xs:simpleType name="pointNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to a PointType derived name attribute. An attribute if this type contains the value of a PointType derived element "name" attribute that exists elsewhere the instance data.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **pointNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2

type	list of **xs:string**
used by	attribute **GradeSurface/@cgPointRefs**
annotation	documentation A list of reference names values refering to one or more PointType derived name attributes.
source	<xs:simpleType name="pointNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more PointType derived name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **purposeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **SurveyHeader/@purpose** **GPSVector/@purpose** **ObservationGroup/@purpose** **ReducedObservation/@purpose** **ReducedArcObservation/@purpose** **RedHorizontalPosition/@purpose** **RedVerticalObservation/@purpose** **RawObservationType/@purpose**
facets	enumeration normal enumeration check enumeration backsight enumeration foresight enumeration traverse enumeration sideshot enumeration resection enumeration levelLoop enumeration digitalLevel enumeration remoteElevation enumeration recipricalObservation enumeration topo enumeration cutSheets enumeration asbuilt
annotation	documentation Used by many of the Survey elements
source	<xs:simpleType name="purposeType"> <xs:annotation> <xs:documentation>Used by many of the Survey elements</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="normal"/> <xs:enumeration value="check"/> <xs:enumeration value="backsight"/> <xs:enumeration value="foresight"/> <xs:enumeration value="traverse"/> <xs:enumeration value="sideshot"/> <xs:enumeration value="resection"/> <xs:enumeration value="levelLoop"/> <xs:enumeration value="digitalLevel"/> <xs:enumeration value="remoteElevation"/>

```
    <xs:enumeration value="recipricalObservation"/>
    <xs:enumeration value="topo"/>
    <xs:enumeration value="cutSheets"/>
    <xs:enumeration value="asbuilt"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **purpSurvType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **PurposeOfSurvey/@name**
annotation	documentation This is a jurisdictionally based list of purposes of Survey and can be jurisdictionally specific for example Subdivision, Identification (re-peg), Amalgamation (Consolidation) etc
source	<xs:simpleType name="purpSurvType"> <xs:annotation> <xs:documentation>This is a jurisdictionally based list of purposes of Survey and can be jurisdictionally specific for example Subdivision, Identification (re-peg), Amalgamation (Consolidation) etc</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **registrationType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Personnel/@regType**
annotation	documentation This is a jurisdictionally based list of classes of registration for a surveyor. This allows validation of the surveyors role in the survey for legal traceablity.
source	<xs:simpleType name="registrationType"> <xs:annotation> <xs:documentation>This is a jurisdictionally based list of classes of registration for a surveyor. This allows validation of the surveyors role in the survey for legal traceablity.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **roadNameSuffixType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **RoadName/@roadNameSuffix**
annotation	documentation to Allow a list of specific road suffixes to be specified, ie east, upper etc (ie Fred Street East)
source	<xs:simpleType name="roadNameSuffixType"> <xs:annotation>

```
    <xs:documentation>to Allow a list of specific road suffixes to be specified, ie east, upper etc (ie Fred Street East)</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
```

simpleType **roadNameTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **RoadName/@roadNameType**
annotation	documentation to define a jurisdictionally specific list of Road name types such a street, road, avenue etc.
source	<xs:simpleType name="roadNameTypeType"> <xs:annotation> <xs:documentation>to define a jurisdictionally specific list of Road name types such a street, road, avenue etc.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **roadSignType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **RoadSign/@type**
facets	enumeration regulatory enumeration guide enumeration warning enumeration specificService enumeration tourist enumeration recreation-cultural enumeration emergencyManagement
source	<xs:simpleType name="roadSignType"> <xs:restriction base="xs:string"> <xs:enumeration value="regulatory"/> <xs:enumeration value="guide"/> <xs:enumeration value="warning"/> <xs:enumeration value="specificService"/> <xs:enumeration value="tourist"/> <xs:enumeration value="recreation-cultural"/> <xs:enumeration value="emergencyManagement"/> </xs:restriction> </xs:simpleType>

simpleType **roadTerrainType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Roadway/@roadTerrain**

facets	enumeration flat enumeration rolling enumeration mountainous
source	<xs:simpleType name="roadTerrainType"> <xs:restriction base="xs:string"> <xs:enumeration value="flat"/> <xs:enumeration value="rolling"/> <xs:enumeration value="mountainous"/> </xs:restriction> </xs:simpleType>

simpleType **roadTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **RoadName/@roadType**
annotation	documentation To define if the road is a public or private road.
source	<xs:simpleType name="roadTypeType"> <xs:annotation> <xs:documentation>To define if the road is a public or private road.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **roadwayNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **Intersection/@intersectingRoadwayRef Intersection/@roadwayRef**
annotation	documentation A reference name value referring to Raodway.name attribute.
source	<xs:simpleType name="roadwayNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to Raodway.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **roadwayNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
annotation	documentation A list of reference names values refering to one or more Roadway.name attributes.
source	<xs:simpleType name="roadwayNameRefs"> <xs:annotation>

```
    <xs:documentation>A list of reference names values refering to one or more Roadway.name
attributes. </xs:documentation>
  </xs:annotation>
  <xs:list itemType="xs:string"/>
</xs:simpleType>
```

simpleType **shoulderCategoryType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
facets	enumeration usable enumeration graded
source	<xs:simpleType name="shoulderCategoryType"> <xs:restriction base="xs:string"> <xs:enumeration value="usable"/> <xs:enumeration value="graded"/> </xs:restriction> </xs:simpleType>

simpleType **shoulderMaterialType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
facets	enumeration turf enumeration gravel enumeration paved enumeration composite
source	<xs:simpleType name="shoulderMaterialType"> <xs:restriction base="xs:string"> <xs:enumeration value="turf"/> <xs:enumeration value="gravel"/> <xs:enumeration value="paved"/> <xs:enumeration value="composite"/> </xs:restriction> </xs:simpleType>

simpleType **sideofRoadType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **DesignCrossSectSurf/@side Zones/@side NoPassingZone/@sideofRoad PostedSpeed/@sideofRoad Curb/@sideofRoad RoadSign/@sideofRoad BikeFacilities/@sideofRoad ObstructionOffset/@sideofRoad WideningLane/@sideofRoad OffsetLane/@sideofRoad ClimbLane/@sideofRoad TwoWayLeftTurnLane/@sideofRoad TurnLane/@sideofRoad PassingLane/@sideofRoad ThruLane/@sideofRoad PeakHour/@sideofRoad DesignSpeed85th/@sideofRoad**
facets	enumeration right enumeration left enumeration both

source	<xs:simpleType name="sideofRoadType"> <xs:restriction base="xs:string"> <xs:enumeration value="right"/> <xs:enumeration value="left"/> <xs:enumeration value="both"/> </xs:restriction> </xs:simpleType>

simpleType **sideType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
facets	enumeration right enumeration left
source	<xs:simpleType name="sideType"> <xs:restriction base="xs:string"> <xs:enumeration value="right"/> <xs:enumeration value="left"/> </xs:restriction> </xs:simpleType>

simpleType **slope**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	element **FullSuperelev**
annotation	documentation This item is the slope. Unit of measure for this item is PERCENT %.
source	<xs:simpleType name="slope"> <xs:annotation> <xs:documentation>This item is the slope. Unit of measure for this item is PERCENT %.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **speed**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	attributes **DesignSpeed/@speed** **DesignSpeed85th/@speed** **PostedSpeed/@speedLimit**
annotation	documentation This item is the speed or velocity of travel. The unit of measure for this item is kilometers/hour for Metric units and miles/hour for Imperial.
source	<xs:simpleType name="speed"> <xs:annotation> <xs:documentation>This item is the speed or velocity of travel. The unit of measure for this item is kilometers/hour for Metric units and miles/hour for Imperial. </xs:documentation> </xs:annotation>

```
  <xs:restriction base="xs:double"/>
</xs:simpleType>
```

simpleType **spiralType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Spiral/@spiType** **CantStation/@transitionType**
facets	enumeration biquadratic enumeration bloss enumeration clothoid enumeration cosine enumeration cubic enumeration sinusoid enumeration revBiquadratic enumeration revBloss enumeration revCosine enumeration revSinusoid enumeration sineHalfWave enumeration biquadraticParabola enumeration cubicParabola enumeration japaneseCubic enumeration radioid enumeration weinerBogen

source

```
<xs:simpleType name="spiralType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="biquadratic"/>
    <xs:enumeration value="bloss"/>
    <xs:enumeration value="clothoid"/>
    <xs:enumeration value="cosine"/>
    <xs:enumeration value="cubic"/>
    <xs:enumeration value="sinusoid"/>
    <xs:enumeration value="revBiquadratic"/>
    <xs:enumeration value="revBloss"/>
    <xs:enumeration value="revCosine"/>
    <xs:enumeration value="revSinusoid"/>
    <xs:enumeration value="sineHalfWave"/>
    <xs:enumeration value="biquadraticParabola"/>
    <xs:enumeration value="cubicParabola"/>
    <xs:enumeration value="japaneseCubic"/>
    <xs:enumeration value="radioid"/>
    <xs:enumeration value="weinerBogen"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **stateType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Parcels/@state** **VolumeGeom/@state** **Alignments/@state** **Alignment/@state** **Profile/@state** **ProfSurf/@state** **ProfAlign/@state** **PipeNetworks/@state** **PipeNetwork/@state** **Pipe/@state** **Struct/@state** **PlanFeatures/@state** **PlanFeature/@state** **GradeModel/@state** **GradeSurface/@state** **Zones/@state**

	Zone/@state Roadways/@state Roadway/@state Cant/@state PointType/@state PointType3dReq/@state CgPoints/@state IrregularLine/@state Chain/@state Curve/@state Spiral/@state CoordGeom/@state Line/@state CrossSects/@state CrossSectSurf/@state DesignCrossSectSurf/@state Project/@state Survey/@state ReducedObservation/@state ReducedArcObservation/@state Monuments/@state Surfaces/@state Surface/@state DataPoints/@state Boundary/@state Breakline/@state RetWall/@state Faces/@state
facets	enumeration abandoned enumeration destroyed enumeration existing enumeration proposed
source	<xs:simpleType name="stateType"> <xs:restriction base="xs:string"> <xs:enumeration value="abandoned"/> <xs:enumeration value="destroyed"/> <xs:enumeration value="existing"/> <xs:enumeration value="proposed"/> </xs:restriction> </xs:simpleType>

simpleType **station**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
used by	elements **BeginRunoffSta BeginRunoutSta EndofRunoutSta FullSuperSta RunoffSta StartofRunoutSta** attributes **CrossSectPnt/@alignRefStation OffsetLane/@beginFullWidthSta WideningLane/@beginFullWidthSta ClimbLane/@beginFullWidthSta TwoWayLeftTurnLane/@beginFullWidthSta TurnLane/@beginFullWidthSta PassingLane/@beginFullWidthSta PassingLane/@endFullWidthSta OffsetLane/@endFullWidthSta TwoWayLeftTurnLane/@endFullWidthSta ClimbLane/@endFullWidthSta WideningLane/@endFullWidthSta CrashHistory/@intersectionLocation Intersection/@intersectRoadwayPI CrashHistory/@location-1 CrashHistory/@location-2 ZoneSlope/@parabolicEndStation ZoneSlope/@parabolicStartStation CrossSectPnt/@parcelRefStation CrossSectPnt/@planFeatureRefStation Intersection/@roadwayPI PassingLane/@staEnd ClimbLane/@staEnd TwoWayLeftTurnLane/@staEnd TurnLane/@staEnd OffsetLane/@staEnd WideningLane/@staEnd Ditch/@staEnd ObstructionOffset/@staEnd BikeFacilities/@staEnd DrivewayDensity/@staEnd HazardRating/@staEnd Curb/@staEnd Corner/@staEnd PostedSpeed/@staEnd NoPassingZone/@staEnd BridgeElement/@staEnd ZoneHinge/@staEnd DesignSpeed/@staEnd Classification/@staEnd DesignSpeed85th/@staEnd ZoneSlope/@staEnd DailyTrafficVolume/@staEnd ZoneCutFill/@staEnd ZoneWidth/@staEnd DesignHour/@staEnd Roadway/@staEnd PeakHour/@staEnd Zone/@staEnd Superelevation/@staEnd ThruLane/@staEnd ZoneMaterial/@staEnd HazardRating/@staStart ZoneCutFill/@staStart ZoneMaterial/@staStart DrivewayDensity/@staStart Curb/@staStart ZoneHinge/@staStart Corner/@staStart ZoneSlope/@staStart ZoneWidth/@staStart PostedSpeed/@staStart NoPassingZone/@staStart Zone/@staStart BridgeElement/@staStart TwoWayLeftTurnLane/@staStart PeakHour/@staStart ClimbLane/@staStart DesignHour/@staStart DailyTrafficVolume/@staStart OffsetLane/@staStart DesignSpeed85th/@staStart WideningLane/@staStart Superelevation/@staStart TurnLane/@staStart ThruLane/@staStart PassingLane/@staStart DesignSpeed/@staStart Classification/@staStart Ditch/@staStart ObstructionOffset/@staStart Roadway/@staStart BikeFacilities/@staStart**

	DecisionSightDistance/@station Chain/@station TurnRestriction/@station TurnSpeed/@station Volume/@station Timing/@station TrafficControl/@station RoadSign/@station
annotation	documentation Represents the actual measured distance along the geometry in numeric decimal form expressed in linear units. Also known as the internal station value where no station equations are applied.
source	<xs:simpleType name="station"> <xs:annotation> <xs:documentation>Represents the actual measured distance along the geometry in numeric decimal form expressed in linear units. Also known as the internal station value where no station equations are applied.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **stationIncrementDirectionType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **StaEquation/@staIncrement**
facets	enumeration increasing enumeration decreasing
source	<xs:simpleType name="stationIncrementDirectionType"> <xs:restriction base="xs:string"> <xs:enumeration value="increasing"/> <xs:enumeration value="decreasing"/> </xs:restriction> </xs:simpleType>

simpleType **structNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **Pipe/@refEnd Pipe/@refStart**
annotation	documentation A reference name value referring to Struct.name attribute.
source	<xs:simpleType name="structNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to Struct.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **structNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**

annotation	documentation A list of reference names values refering to one or more Struct.name attributes.
source	<xs:simpleType name="structNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more Struct.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **surfaceNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attributes **GradeSurface/@surfaceRef** **SurfVolume/@surfBase** **SurfVolume/@surfCompare**
annotation	documentation A reference name value referring to Surface.name attribute.
source	<xs:simpleType name="surfaceNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to Surface.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **surfaceNameRefs**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:string**
used by	attributes **GradeSurface/@surfaceRefs** **Roadway/@surfaceRefs**
annotation	documentation A list of reference names values refering to one or more Surface.name attributes.
source	<xs:simpleType name="surfaceNameRefs"> <xs:annotation> <xs:documentation>A list of reference names values refering to one or more Surface.name attributes.</xs:documentation> </xs:annotation> <xs:list itemType="xs:string"/> </xs:simpleType>

simpleType **surfBndType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Boundary/@bndType**
facets	enumeration outer enumeration void enumeration island

annotation	documentation Surface boundaries can be one of three types: outer, void, island
source	<xs:simpleType name="surfBndType"> <xs:annotation> <xs:documentation>Surface boundaries can be one of three types: outer, void, island</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="outer"/> <xs:enumeration value="void"/> <xs:enumeration value="island"/> </xs:restriction> </xs:simpleType>

simpleType **surfFaceType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	list of **xs:positiveInteger**
annotation	documentation Represents a face on a 3D surface by referencing points from the Pnts collection" documentation The number of poitns are determined by the surfType attrinute: 3 for TIN, 4 for grid documentation Note: TIN is the acronym for "triangulated irregular network" documentation The point references are stored as a space delimited text value in the form of "id id id" documentation Example, "62 68 44" for TIN, ""62 68 44 71" for Grid
source	<xs:simpleType name="surfFaceType"> <xs:annotation> <xs:documentation>Represents a face on a 3D surface by referencing points from the Pnts collection"</xs:documentation> <xs:documentation>The number of poitns are determined by the surfType attrinute: 3 for TIN, 4 for grid</xs:documentation> <xs:documentation>Note: TIN is the acronym for "triangulated irregular network"</xs:documentation> <xs:documentation>The point references are stored as a space delimited text value in the form of "id id id"</xs:documentation> <xs:documentation>Example, "62 68 44" for TIN, ""62 68 44 71" for Grid</xs:documentation> </xs:annotation> <xs:list itemType="xs:positiveInteger"/> </xs:simpleType>

simpleType **surfTypeEnum**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Definition/@surfType**
facets	enumeration TIN enumeration grid
annotation	documentation

	TIN is the acronym for "triangulated irregular network", a surface comprised of 3 point faces documentation grid is a surface comprised of 4 point faces.
source	<xs:simpleType name="surfTypeEnum"> <xs:annotation> <xs:documentation>TIN is the acronym for "triangulated irregular network", a surface comprised of 3 point faces</xs:documentation> <xs:documentation>grid is a surface comprised of 4 point faces.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="TIN"/> <xs:enumeration value="grid"/> </xs:restriction> </xs:simpleType>

simpleType **surfVolCMethodType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **SurfVolumes/@surfVolCalcMethod**
facets	enumeration grid enumeration composite
source	<xs:simpleType name="surfVolCMethodType"> <xs:restriction base="xs:string"> <xs:enumeration value="grid"/> <xs:enumeration value="composite"/> </xs:restriction> </xs:simpleType>

simpleType **surveyFormatType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **SurveyHeader/@surveyFormat**
annotation	documentation Describes the format of the survey and is a jurisdictionally specific list for example a stand format survey, Building Format Survey.
source	<xs:simpleType name="surveyFormatType"> <xs:annotation> <xs:documentation>Describes the format of the survey and is a jurisdictionally specific list for example a stand format survey, Building Format Survey.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **surveyorRoleType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Personnel/@role**

annotation	documentation This is a jurisdictionally based list of roles that a surveyor can undertake within a survey for example field hand, authorising surveyor, technician.
source	<xs:simpleType name="surveyorRoleType"> <xs:annotation> <xs:documentation>This is a jurisdictionally based list of roles that a surveyor can undertake within a survey for example field hand, authorising surveyor, technician.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **surveyRoleType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Chain/@role PointType/@role PointType3dReq/@role**
facets	enumeration measured enumeration to stake out enumeration staked out enumeration calculated enumeration assistance point enumeration user entered point enumeration control point
source	<xs:simpleType name="surveyRoleType"> <xs:restriction base="xs:string"> <xs:enumeration value="measured"/> <xs:enumeration value="to stake out"/> <xs:enumeration value="staked out"/> <xs:enumeration value="calculated"/> <xs:enumeration value="assistance point"/> <xs:enumeration value="user entered point"/> <xs:enumeration value="control point"/> </xs:restriction> </xs:simpleType>

simpleType **surveyStatusType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **SurveyHeader/@surveyStatus**
annotation	documentation Defines the status of this version of the file and will be a jurisdictionally specific list, for example "survey Record Only", Suitable for Registration" etc
source	<xs:simpleType name="surveyStatusType"> <xs:annotation> <xs:documentation>Defines the status of this version of the file and will be a jurisdictionally specific list, for example "survey Record Only", Suitable for Registration" etc</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **surveyType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **SurveyHeader/@type**
facets	enumeration compiled enumeration computed enumeration surveyed
annotation	documentation This enumeration indicates whether the survey was acutally performed in the field, compiled from a series of existing surveys, or simply computed using known observations and maths
source	<xs:simpleType name="surveyType"> <xs:annotation> <xs:documentation>This enumeration indicates whether the survey was acutally performed in the field, compiled from a series of existing surveys, or simply computed using known observations and maths</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="compiled"/> <xs:enumeration value="computed"/> <xs:enumeration value="surveyed"/> </xs:restriction> </xs:simpleType>

simpleType **survPntType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **CgPoint/@pntSurv**
facets	enumeration monument enumeration control enumeration sideshot enumeration boundary enumeration natural boundary enumeration traverse enumeration reference enumeration administrative
annotation	documentation Optional COGO Point attribute to designate the survey point type.
source	<xs:simpleType name="survPntType"> <xs:annotation> <xs:documentation>Optional COGO Point attribute to designate the survey point type.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"> <xs:enumeration value="monument"/> <xs:enumeration value="control"/> <xs:enumeration value="sideshot"/> <xs:enumeration value="boundary"/> <xs:enumeration value="natural boundary"/>

```
    <xs:enumeration value="traverse"/>
    <xs:enumeration value="reference"/>
    <xs:enumeration value="administrative"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **titleTypeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
annotation	documentation Describes the type of title interest this parcel represents, the list will be jurisdictionally specific
source	<xs:simpleType name="titleTypeType"> <xs:annotation> <xs:documentation>Describes the type of title interest this parcel represents, the list will be jurisdictionally specific</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **trafficControlPosition**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **TrafficControl/@controlPosition**
facets	enumeration side enumeration overhead
source	<xs:simpleType name="trafficControlPosition"> <xs:restriction base="xs:string"> <xs:enumeration value="side"/> <xs:enumeration value="overhead"/> </xs:restriction> </xs:simpleType>

simpleType **trafficControlType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **TrafficControl/@controlType**
facets	enumeration none enumeration signal enumeration stop enumeration yield
source	<xs:simpleType name="trafficControlType"> <xs:restriction base="xs:string"> <xs:enumeration value="none"/> <xs:enumeration value="signal"/> <xs:enumeration value="stop"/> <xs:enumeration value="yield"/>

```
  </xs:restriction>
</xs:simpleType>
```

simpleType **trafficTurnRestriction**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **TurnRestriction/@type**
facets	enumeration none enumeration no-left-turn enumeration no-right-turn enumeration no-U-turn enumeration no-turn
source	<xs:simpleType name="trafficTurnRestriction"> <xs:restriction base="xs:string"> <xs:enumeration value="none"/> <xs:enumeration value="no-left-turn"/> <xs:enumeration value="no-right-turn"/> <xs:enumeration value="no-U-turn "/> <xs:enumeration value="no-turn "/> </xs:restriction> </xs:simpleType>

simpleType **turnLaneType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **TurnLane/@type**
facets	enumeration left enumeration right
source	<xs:simpleType name="turnLaneType"> <xs:restriction base="xs:string"> <xs:enumeration value="left"/> <xs:enumeration value="right"/> </xs:restriction> </xs:simpleType>

simpleType **useOfParcelType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Parcel/@useOfParcel**
annotation	documentation Describes what the parcel is used for. This would be a jurisdictionally specific list.
source	<xs:simpleType name="useOfParcelType"> <xs:annotation> <xs:documentation>Describes what the parcel is used for. This would be a jurisdictionally specific list.</xs:documentation> </xs:annotation>

```
  <xs:restriction base="xs:string"/>
</xs:simpleType>
```

simpleType **volume**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:double**
annotation	documentation Represents the geometric volume (area * height) of a closed boundary numeric decimal form expressed in volume units
source	<xs:simpleType name="volume"> <xs:annotation> <xs:documentation>Represents the geometric volume (area * height) of a closed boundary numeric decimal form expressed in volume units</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **waterShedNameRef**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	**xs:string**
used by	attribute **Outlet/@refWS**
annotation	documentation A reference name value referring to WaterShed.name attribute.
source	<xs:simpleType name="waterShedNameRef"> <xs:annotation> <xs:documentation>A reference name value referring to WaterShed.name attribute.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

simpleType **xsVolCalcMethodType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **CrossSects/@calcMethod**
facets	enumeration AverageEndArea enumeration Prismoidal
source	<xs:simpleType name="xsVolCalcMethodType"> <xs:restriction base="xs:string"> <xs:enumeration value="AverageEndArea"/> <xs:enumeration value="Prismoidal"/> </xs:restriction> </xs:simpleType>

simpleType **zenithAngle**

namespace	http://www.landxml.org/schema/LandXML-1.2

type	**xs:double**
used by	attributes **PointResults/@meanzenithAngle ReducedObservation/@zenithAngle RawObservationType/@zenithAngle**
annotation	documentation Represents zenith angles with the 0 origin as straight up and measured in a clockwise direction in the specified Angular units.
source	<xs:simpleType name="zenithAngle"> <xs:annotation> <xs:documentation>Represents zenith angles with the 0 origin as straight up and measured in a clockwise direction in the specified Angular units.</xs:documentation> </xs:annotation> <xs:restriction base="xs:double"/> </xs:simpleType>

simpleType **zoneCategoryType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **Zone/@category**
facets	enumeration road surface enumeration road subsurface enumeration road shoulder enumeration road foreSlope enumeration road backSlope enumeration road curb-gutter enumeration bridge surface enumeration bridge body enumeration sidewalk enumeration ground enumeration ditch enumeration wall enumeration channel enumeration bike facilities enumeration obstruction offset enumeration longitudinal barrier enumeration sound barrier enumeration bridge abutment enumeration vertical pillar
source	<xs:simpleType name="zoneCategoryType"> <xs:restriction base="xs:string"> <xs:enumeration value="road surface"/> <xs:enumeration value="road subsurface"/> <xs:enumeration value="road shoulder"/> <xs:enumeration value="road foreSlope"/> <xs:enumeration value="road backSlope"/> <xs:enumeration value="road curb-gutter"/> <xs:enumeration value="bridge surface"/> <xs:enumeration value="bridge body"/> <xs:enumeration value="sidewalk"/> <xs:enumeration value="ground"/>

```
    <xs:enumeration value="ditch"/>
    <xs:enumeration value="wall"/>
    <xs:enumeration value="channel"/>
    <xs:enumeration value="bike facilities"/>
    <xs:enumeration value="obstruction offset"/>
    <xs:enumeration value="longitudinal barrier"/>
    <xs:enumeration value="sound barrier"/>
    <xs:enumeration value="bridge abutment"/>
    <xs:enumeration value="vertical pillar"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **zoneHingeType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **ZoneHinge/@hingeType**
facets	enumeration center enumeration left edge enumeration right edge
source	<xs:simpleType name="zoneHingeType"> <xs:restriction base="xs:string"> <xs:enumeration value="center"/> <xs:enumeration value="left edge"/> <xs:enumeration value="right edge"/> </xs:restriction> </xs:simpleType>

simpleType **zoneMaterialType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **ZoneMaterial/@material**
facets	enumeration pavement-high-type enumeration pavement-intermediate-type enumeration pavement-low-type enumeration soil enumeration concrete enumeration stone enumeration riprap enumeration turf enumeration gravel enumeration paved enumeration metal enumeration metal grate enumeration composite enumeration timber enumeration other
source	<xs:simpleType name="zoneMaterialType"> <xs:restriction base="xs:string"> <xs:enumeration value="pavement-high-type"/>

```
    <xs:enumeration value="pavement-intermediate-type"/>
    <xs:enumeration value="pavement-low-type"/>
    <xs:enumeration value="soil"/>
    <xs:enumeration value="concrete"/>
    <xs:enumeration value="stone"/>
    <xs:enumeration value="riprap"/>
    <xs:enumeration value="turf"/>
    <xs:enumeration value="gravel"/>
    <xs:enumeration value="paved"/>
    <xs:enumeration value="metal"/>
    <xs:enumeration value="metal grate"/>
    <xs:enumeration value="composite"/>
    <xs:enumeration value="timber"/>
    <xs:enumeration value="other"/>
  </xs:restriction>
</xs:simpleType>
```

simpleType **zoneNumberType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:positiveInteger**
used by	attributes **CgPoints/@zoneNumber** **CgPoint/@zoneNumber**
facets	minInclusive 1 maxInclusive 99
source	<xs:simpleType name="zoneNumberType"> <xs:restriction base="xs:positiveInteger"> <xs:minInclusive value="1"/> <xs:maxInclusive value="99"/> </xs:restriction> </xs:simpleType>

simpleType **zoneOffsetType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **ZoneCrossSectStructure/@offsetMode**
facets	enumeration centerline enumeration zone
source	<xs:simpleType name="zoneOffsetType"> <xs:restriction base="xs:string"> <xs:enumeration value="centerline"/> <xs:enumeration value="zone"/> </xs:restriction> </xs:simpleType>

simpleType **zonePlacementType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **ZoneCrossSectStructure/@placement**

facets	enumeration dependent enumeration independent
source	<xs:simpleType name="zonePlacementType"> <xs:restriction base="xs:string"> <xs:enumeration value="dependent"/> <xs:enumeration value="independent"/> </xs:restriction> </xs:simpleType>

simpleType **zoneSurfaceType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **GradeSurface/@surfaceType**
facets	enumeration finalSurface enumeration subgrade
source	<xs:simpleType name="zoneSurfaceType"> <xs:restriction base="xs:string"> <xs:enumeration value="finalSurface"/> <xs:enumeration value="subgrade"/> </xs:restriction> </xs:simpleType>

simpleType **zoneTransitionType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attribute **ZoneCrossSectStructure/@transition**
facets	enumeration parallel enumeration linear
source	<xs:simpleType name="zoneTransitionType"> <xs:restriction base="xs:string"> <xs:enumeration value="parallel"/> <xs:enumeration value="linear"/> </xs:restriction> </xs:simpleType>

simpleType **zoneVertType**

namespace	http://www.landxml.org/schema/LandXML-1.2
type	restriction of **xs:string**
used by	attributes **Zone/@endVertType** **ZoneSlope/@endVertType** **Zone/@startVertType** **ZoneSlope/@startVertType**
facets	enumeration slope enumeration vertical distance
source	<xs:simpleType name="zoneVertType"> <xs:restriction base="xs:string"> <xs:enumeration value="slope"/>

```
    <xs:enumeration value="vertical distance"/>
  </xs:restriction>
</xs:simpleType>
```

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