Appendix E: Topographic Analysis

(1) Bird View

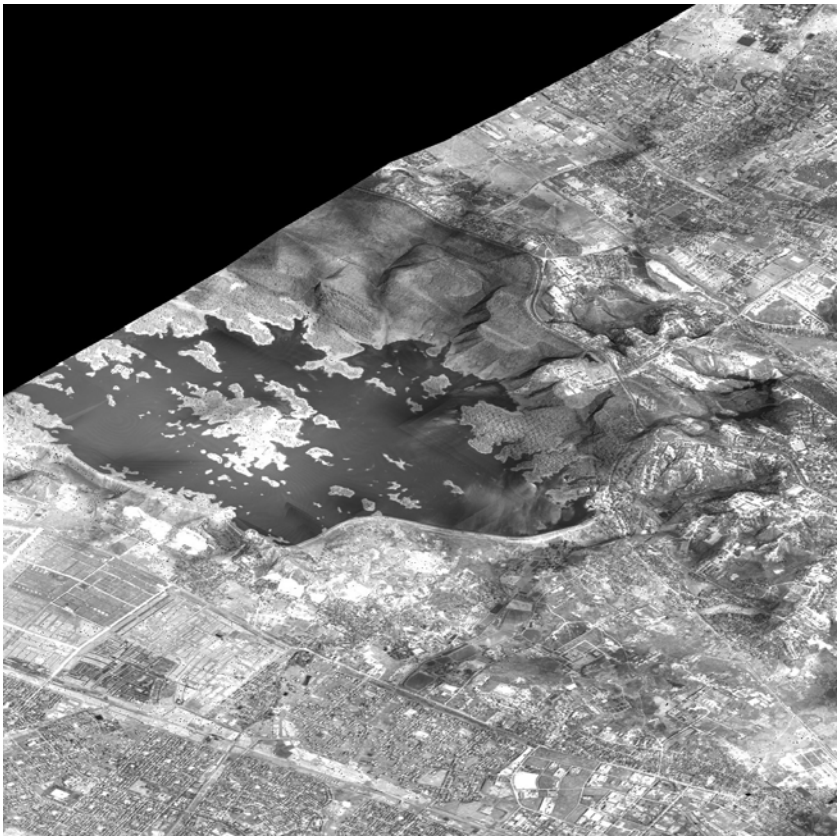

Fig. E-1 Bird view of HLAWGA Lake

(2) Gradient Tint Map

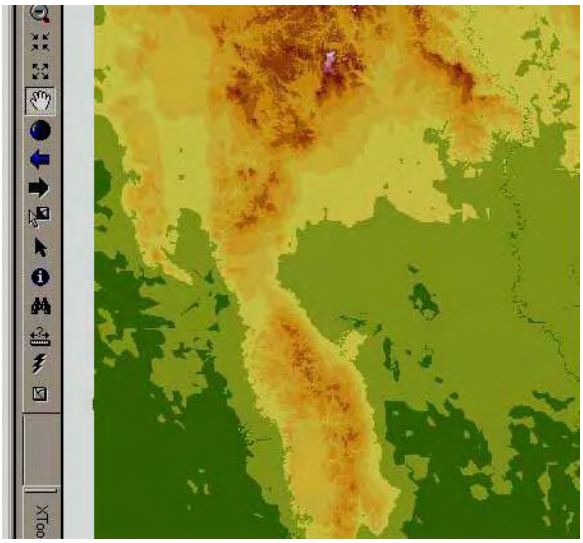

Fig. E-2 Gradient Tint Map of northern part of Yangon

(3) Counter Generation and Topographic Profile

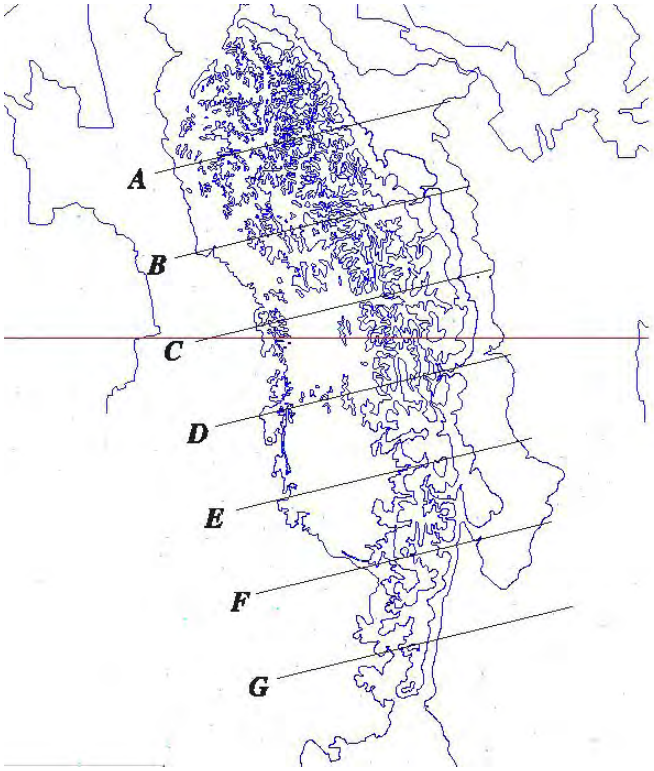

Fig E-3 Counter Map of northern part of Yangon

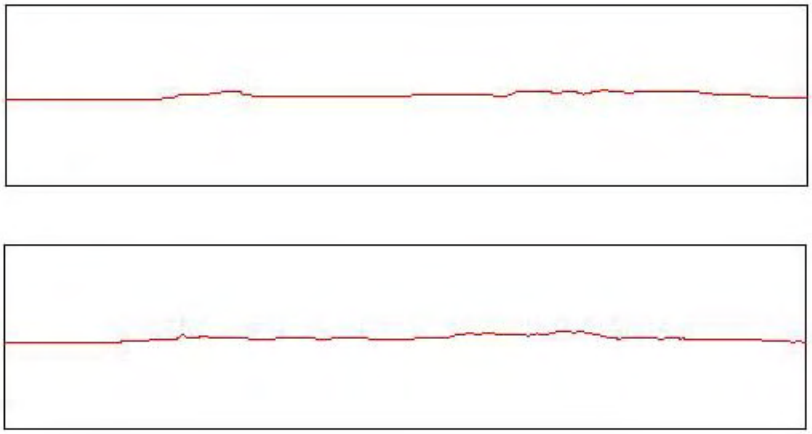

Fig E-4 Topographic Profile of above area

Appendix F:

Table F-1 List of the Education CD

	Title	Author	Organization
CD-1	Priciples of Remote Sensing and Geographic Information Systems	ITC	ITC
CD-2	Introduction to Visualization of spatial data	Koert Sijmons	ITC
CD-3	How to create an orthophote	Koert Sijmons	ITC
CD-4	Multimedia Tutorial on Multispectral Image Processing	ITC	ITC
CD-5	Application of Satellite and Airborne Image Data to Coastal Management	ITC	ITC
CD-6	Multimedia tutorial R/S Image and data Fusion	Prof. John van	ITC
CD-7	Map makng from Space	ITC	ITC
CD-8	Guidline of Technical Transfer on Geographic Information System	IDI	ITC
CD-9	Drafts of the standard for Geographic information / Geomatics	ISO/TC211	GSI
CD-10	GIS Application	ITC	IDI
CD-11	Global Mapping Forum in Okinawa 2003	GSI	GSI
CD-12	Global Map ″play it now!″ kit	GSI	GSI
CD-13	CEOS SAR Workshop 2001 Proceeding	NASDA	NASDA
CD-14	Global Rain Forest Mapping Project 1996. JERS-1 SAR Amazon Basin	NASDA	NASDA
CD-15	Global Rain Forest Mapping Project 1996-7. JERS-1 SAR West Africa	NASDA	NASDA
CD-16	Global Navigation Satellite System	GNSS	GNSS
CD-17	Distance Education GIS	JICA	JICA
CD-18	Distance Education Remote Sensing	JICA	JICA

Appendix G:

List of the reference books collected in the Study

Table G-1 List of the reference books collected in the Study

Bibliography	Name of books	Author	Publisher	Published	ISBN Code
GIS	ARC Macro Language : Developing ARC/INFO Menus and Macro with AML	ESRI	ESRI	1997	1-879102-18-8
GIS	Connecting Our World, GIS :Web Services	ESRI	ESRI	2003	1-58948-075-9
GIS	Enterprise GIS for Energy Companies	Christian Harder	ESRI	1999	1-879102-48-X
GIS	Extending ARCVIEW GIS	Tim Ormsby et al	ESRI	1999	1-879102-05-6
GIS	Getting to know ArcView GIS	Pat Breslin et al	ESRI	1999	1-879102-46-3
GIS	GIS means Business	Christian Harder	ESRI	1997	1-879102-51-X
GIS	GIS for Everyone:Exploring your neighborhood and your world with a GIS	David E.Davis	ESRI	2003	1-879102-91-9
GIS	GIS for Landscape Architects:GIS FROM LANDSCAPE ARCHITECTS	Karen C.Hanna	ESRI	1999	1-879102-64-1
GIS	Managing Natural Resources with GIS	Laura Laug	ESRI	1998	1-879102-53-6
GIS	The ESRI Guide to GIS Analysis: Vol1 Geographic Patterns & Relationship	Andy Mitchell	ESRI	1999	1-879102-06-4
GIS	Transportation GIS	ESRI	ESRI	1999	1-879102-47-1
GIS	Understanding GIS :The ARC/INFO Method	ESRI	ESRI	1997	1-879102-01-3
GIS	The Global Positioning System and GIS:An Introduction	Michael Kennedy	TAYLOR & FRANCIS		0-415-28608-5
GIS	A System for Survival:GIS and Sustinable Development	ESRI	ESRI	2002	1-58948-052-X
GIS	Modeling our World:The ESRI Guide to Geodatabase Design	Michael Zeiler	ESRI	1999	1-879102-62-5
GIS	Interoperating Geographic Information Systems	Andrej Vokovski et al	Springer	1999	3-540-65725-8
GIS	Geographic Information and Geographic Information System Standards	CCTA	HMSO	1994	0-11-330628-8
GIS	Web Cartography : Developments and Prospects	Menno-Jan KRAAK et al	TAYLOR & FRANCIS	2001	0-7484-0869-X
Photo-grammetry	Digital Photogrammerty	Michel Kasser et al	TAYLOR & FRANCIS	2002	0-748-40944-0
Photo-grammetry	Digital Photogrammerty	Michel Kasser et al	TAYLOR & FRANCIS	2002	0-748-40945-9
Photo-grammetry	Digital Photogrammetry: Theory and Application				
Photo-grammetry	Geoinformation: Remote Sensing, Photogrammetry and GIS	GOTTFRIED KONECNY	TAYLOR & FRANCIS	2003	0-415-23795-5
Photo-grammetry	Introduction to Modern Photogrammetry				
GIS	MANUAL OF GEOSPATIAL SCIENCE AND TECNOLOGY	John D.Bossler et al	TAYLOR & FRANCIS	2002	0-7484-0924-6
Photogrammetry	INTRODUCTION TO MODERN PHOTOGRAMMETRY	Edward M.Mikhail et al	JOHN WILLY & SONS,INC	2001	0-471-30924-9
GIS	Statistics and Data Analysis	John C. Davis	John Wily & SON, Inc.	1973	
Surveying	Geodesy	Wolfgang Torge	Walter de Gruyter	1980	
Surveying	Plane and geodetic surveying for engineers	J.E. Jackson	Constable	1973	
Surveying	Science of the Earth		Harper & RowA. J. Eardley	1972	
Surveying	Surveying with GPS	R. W. King et al	The university of new South Wales	1985	
GIS	Intrductoriey readings in Geographic Information Systems	Donna J. Peuquet and Duane F. Marble	TAYLOR & FRANCIS	1990	0-85066-857-3
Surveying	Surveying with GPS	Bouchard and Moffitt	International Textbook Company	1961	
Photo-grammetry	AERO-PHOTO SURVEY AND MAPPING OF THE FOREST OF THE IRRAWADDY DELTA	R. C. KEMP et al	MAYMYO	1925	
Photo-grammetry	Photogrammetry (a part)	Francis H. Moffitt	International Textbook Company		

Appendix H: METADATA

(1) Sample of METADATA

(2) Explanation of METADATA entity

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B.2 Metadata entity set information

- graphically shown in Figure 6.1 and A.2

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
1	MD_Metadata	Metadata	Information about the metadata	M	1	Class	Lines 2-22
2	fileIdentifier	fileID	Unique identifier for this metadata file	O	1	CharacterString	Free text
3	language	lang	Language used for documenting metadata	C / not defined by encoding?	1	Class	LanguageCode (ISO 639)
4	characterSet	charSet	Full name of the ISO character coding standard used for the metadata set	C/ISO 10646-2 not used?	1	Class	CharacterSetCode (ISO 10646-2 ISO 8859)
5	parentIdentifier	parID	Unique identifier of the parent metadata file	O	1	CharacterString	Free text
6	hierarchyLevel	hierLev	Scope to which the metadata applies (see informative Annex J for more information about metadata heirarchy levels)	C/ Scope is not equal to “dataset”?	1	Class	MD_Scope <<CodeList>>
7	hierarchyLevelName	hierLevName	Name of the hierarchy level	C/ Scope is not equal to “dataset”?	1	CharacterString	Free text
8	contact	contact	Party responsible for the metadata information	O	1	Class	CI_ResponsibleParty <<DataType>>
9	date	date	Date that the metadata were created or last updated	O	1	Date	ISO 19108
10	metadataStandardName	mdStanName	Name of the metadata standard used	O	1	CharacterString	Free text
11	metadataStandardVersion	mdStanVer	Version of the metadata standard used	O	1	CharacterString	Free text
12	*Role name:* spatialRepresentationInfo	spatRepInfo	Digital mechanism used to represent spatial information in the dataset	O	N	Association	MD_SpatialRepresentation
13	*Role name:* referenceSystemInfo	refSysInfo	Description of the spatial and temporal reference systems used in the dataset	O	N	Association	*RS_ReferenceSystem* <<Abstract>>
14	*Role name:* metadataExtensionInfo	metExtensInf	Information describing metadata extensions	O	N	Association	MD_MetadataExtensionInformation
15	*Role name:* identificationInfo	idInfo	Basic information about the resource for which the matadata is about	M	N	Association	MD_Identification
16	*Role name:* featureCollection	featColl	A collection of geographic data to which metadata applices	M	N	Association	FT_FeatureCollection
17	*Role name:* featureCatalogueInfo	featCatInfo	Provides information about a catalogue which defines and describes the feature types, functions, attributes, and relationships, occurring in a set of geographic data	O	N	Association	FC_FeatureCatalogueDescription
18	*Role name:* distributionInfo	distInfo	Provides information about the distributor of and options for obtaining the dataset	O	1	Association	MD_Distribution

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
19	*Role name:* dataQualityInfo	dataQualInfo	Provides overall assessment of quality of data..	O	N	Association	DQ_DataQualityInformation (ISO 19113)
20	*Role name:* portrayalCatalogueInfo	portCatInfo	Provides information about the catalogue of rules defined for the portrayal of data.	O	N	Association	MD_PortrayalCatalogueRef
21	*Role name:* metadataConstraints	metConst	Provides restrictions on the acess and use of data	O	N	Association	MD_DataConstraints
22	*Role name:* applicationSchemaInfo	appSchInf	Provides informaiton about the conceptual schema of a dataset.			Association	MD_ApplicationSchemaInfo
23	*Role name:* metadataMaintenance	metaMaint	Provides information about the frequency of metadata updates, and the scope of those updates.	O	1	Association	MD_MaintenanceInformation
24	*Role name:* propertyType	propTyp	Metadata is associated with the property of a feature.	O	N	Association	GF_PropertyType
25	*Role name:* featureType	featTyp	Metadata is associated with feature types.	O	N	Association	GF_FeatureType
26	*Role name:* featureAttribute	featAtt	Metadata is associated with the characteristic(s) of a feature.	O	N	Association	FT_FeatureAttribute
27	*Role name:* feature	feat	Metadata is associated with an abstraction of real world phenomena	O	N	Association	FT_Feature
28	*Role name:* aggregateDataset	aggDS	Metadata is associated with multiple datasets.	M	N	Association	DS_Aggregate

B.3 Identification information (includes image identification)

- graphically shown in A.2.1

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
29	MD_Identification	ID	Basic information about data	Use obligation from referencing object	Use maximum occurrence from referencing object	Class	Lines 23-48
30	language	lang	Language(s) used within the dataset	M	N	Class	LanguageCode (ISO 639)
31	characterSet	charSet	Full name of the ISO character coding standard used for the data	C/ISO 10646-2 not used?	1	Class	CharacterSetCode (ISO 10646-2 ISO 8859-1)
32	abstract	abstract	Brief narrative summary of the content of the dataset	M	1	CharacterString	Free text
33	purpose	purpose	Summary of the intentions with which the dataset was developed	O	1	CharacterString	Free text
34	supplementalInformation	suppInfo	Other descriptive information about the dataset. Example; Data Model	O	1	CharacterString	Free text
35	credit	credit	Recognition of those who contributed to the dataset	O	1	CharacterString	Free text
36	status	status	Status of dataset	O	1	Class	MD_ProgressCode <<CodeList>>
37	environment	envir	Description of the dataset in the producer's processing environment, including items such as the name of the software, the computer operating system, file name, and the dataset size	O	1	CharacterString	Free text
38	geographicBox	geoBox	Geographic areal domain of the dataset	C / used if geographicDescription is not used	N	Class	EX_GeographicBoundingBox
39	geographicDescription	geoDesc	Commonly used or well known name of a place, area or region which describes a spatial domain of the dataset	C / used if geographicBox is not used	N	Class	SI_LocationInstance
40	spatialResolution	spatRes	Factor which provides a general understanding of the density of spatial data in the dataset. Example: The denominator of the representative fraction or the mean ground sample distance	O	N	CharacterString	Free text
41	category	category	Keywords, describing a subject of a dataset	M	N	Class	MD_Category
42	datasetCitation	dsCitation	Recommended reference to be used for the dataset	M	1	Class	CI_Citation

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
43	datasetExtent	dsExt	Additional information about the bounding polygon, vertical, and temporal extent of the dataset	O	N	Class	EX_Extent
44	datasetPointOfContact	dsPOC	Identification of, and means of communication with, person(s) and organisations(s) associated with the dataset	O	N	Class	CI_ResponsibleParty <<DataType>>
45	*Role name:* datasetMaintenance	dsMaint	Provides information about the scope and frequency of updating	O	N	Association	MD_MaintenanceInformation
46	*Role name:* graphicOverview	graphOver	Provides a graphic that illustrates the dataset (should include a legend for the graphic)	O	N	Association	MD_BrowseGraphic
47	*Role name:* datasetFormat	dsFormat	Provides a description of the form of the data to be distributed	O	N	Association	MD_Format
48	*Role name:* descriptiveKeywords	descKey	Provides keywords, their type, and reference source	O	N	Association	MD_Keywords
49	*Role name:* datasetSpecificUse	dsSpecUse	Provides basic information about specific application(s) for which the dataset has been or is being used by different users.	C/is use different than purpose?	N	Association	MD_Use
50	*Role name: datasetConstraints*	dsConst	Provides information about constraints which the dataset must fall under	O	N	Association	MD_DataConstraints
51	MD_ImageIdentification	ImageID	Information required identifying a series of images.	C/ Image series exists?	1	Specified Class (MD_Identification)	Lines 24-26
52	passSequenceIdentifier	passSeqID	Number that uniquely identifies the pass performed by a platform	M	1	Integer	Integer
53	imageOrbitalIdentifier	imagOrbID	Unique identifier for the orbital path of a platform and the row along an orbital path of a platform	M	1	CharacterString	Free text
54	orbitNumber	orbNum	Numer of the orbit in which the image was taken	M	1	Integer	Integer

B.3.1 Browse graphic information

55	MD_BrowseGraphic	BrowGraph	Graphic that provides an illustration of the dataset (should include a legend for the graphic)	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Identification)	Lines 49-52
56	fileName	fileName	Name of the file that contains a graphic that provides an illustration of the dataset	M	1	CharacterString	Free text
57	fileDescription	fileDesc	Text description of the illustration	O	1	CharacterString	Free text
58	fileType	fileType	Graphic file type of a related graphic file Examples: CGM, EPS, GIF, JPEG, PBM, PS, TIFF, XWD	O	1	CharacterString	Free text

B.3.2 Keyword information

59	MD_Keywords	Keywords	Keywords, their type and reference source	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Identification)	Lines 53-56
60	keyword	keyword	Common-use word(s) or phrase(s) used to describe the subject	M	N	CharacterString	Free text
61	type	type	Method used to group similar keywords	O	1	Class	MD_KeywordType <<CodeList>>
62	thesaurusName	thesaName	Name of the formally registered thesaurus or a similar authoritative source of keywords	O	1	CharacterString	Free text

B.3.3 Location instance information

The data dictionary for Location Instance information is documented in ISO 19112, Location By Identifier.

B.3.4 Use information

63	MD_Use	Use	Brief description of ways in which the dataset is currently used.	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Identification)	Lines 57-61
64	specificUse	specUse	Brief description of the dataset and/or dataset series use	M	1	CharacterString	Free text
65	useDateTime	useDatTim	Date and time of the first occurrence or range of occurrences of the dataset and/or dataset series	O	1	DateTime	ISO 19108
66	userDefinedLimitations	usrDefLims	Applications for which the dataset and/or dataset series is not suitable	O	1	CharacterString	Free text
67	userContactInfo	usrContInfo	Identification of means of communicating with person(s) and organisation(s) using the dataset and/or dataset series	O	N	Class	CI_ResponsibleParty <<DataType>>

B.4 Data constraint information (includes legal and security)

- graphically shown in A.2.2

	Name	**Short Name**	**Definition**	**Obligation / Condition**	**Maximum occurrence**	**Data type**	**Domain**
68	MD_DataConstraints	DataConst	Restrictions on the access and use of a dataset or metadata	Use obligation from referencing object	Use maximum occurrence from referencing object	Class	Line 70
69	useLimitation	useLimit	Any limitation affecting the fitness for use of the dataset. Example, “not to be used for navigation”	O	N	CharacterString	Free text

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
70	MD_LegalConstraints	LegalConst	Restrictions and legal prerequisites for accessing and using the dataset.	O	N	Specified Class (MD_DataConstraints)	Lines 72-74
71	accessConstraints	accConst	Access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the dataset.	O	1	CharacterString	MD_Restrictions
72	useConstraints	useConst	Constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations or warnings on using the dataset –Examples: “copyright”, “license”, “non-commercial”, “none”	O	1	CharacterString	MD_Restrictions
73	otherConstraints	othConst	Other restrictions and legal prerequisites for accessing and using the dtaset			CharacterString	Free text
74	MD_SecurityInformation	SecInfo	Handling restrictions imposed on the dataset because of national security, privacy, or other concerns	O	N	Specified Class (MD_DataConstraints)	Lines 75-80
75	classification	class	Name of the handling restrictions on the dataset	M	1	Class	MD_Classification <<CodeList>>
76	userNote	userNote	Additional information about the classification	O	1	CharacterString	Free text
77	classificationSystem	classSys	Name of the classification system	O	1	CharacterString	Free text
78	handlingDescription	handDesc	Additional information about the restrictions on handling the dataset	O	1	CharacterString	Free text
79	otherUserDefined	otherUserDef	Handling restriction which is not defined in MD_Classification	C/classification equals “other”?	1	CharacterString	Free text

B.5 Maintenance information

- graphically shown in A.2.3

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
80	MD_MaintenanceInformation	MaintInfo	Information about the scope and frequency of updating	Use obligation from referencing object	Use maximum occurrence from referencing object	Class	Lines 2-5
81	maintenanceAndUpdateFreq	maintUpFreq	Frequency with which changes and additions are made to the dataset after the initial dataset is completed.	M	1	Class	MD_MaintenanceFrequency <<CodeList>>
82	otherMaintenancePeriod	othMaintPer	Maintenance period other than those defined	C/maintenanceAndUpdateFrequency = otherMaintenancePeriod	1	Class	TM_PeriodicTime

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
83	updateScope	upScp	Scope at which changes are applied	O	1	Class	MD_Scope <<CodeList>>
84	updateScopeDescription	upScpDesc	Additional information about the range or extent of the dtataset	O	1	Class	MD_ScopeDescription <<Union>>

B.5.1 Scope description information

85	MD_ScopeDescription	ScpDesc	Description of the class of information covered by the information	Use obligation from referencing object	Use maximum occurrence from referencing object	Class <<Union>>	Lines 7-12
86	attributes	attribs	Attributes to which the information applies	M	1	Set	GF_FeatureAttributeType
87	features	feats	Features to which the information applies	M	1	Set	GF_FeatureType
88	featureInstances	featInsts	Feature instances to which the information applies	M	1	Set	FT_Feature
89	attributeInstances	attribInsts	Attribute instances to which the information applies	M	1	Set	FT_FeatureAttribute
90	featureCollection	featColl	Feature collection to which the information applies	M	1	Class	FT_FeatureCollection
91	other	other	Class of information that does not fall into the other categories	M	1	CharacterString	Free text

B.6 Spatial representation information (includes image, raster and vector representation)

- graphically shown in A.2.4

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
92	MD_SpatialRepresentation	SpatRep	Digital mechanism used to represent spatial information	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Line 2
93	representationType	repType	Method used to represent geographic information	O	N	Class	MD_SpatialRepresentationType <<enumeration>>
94	MD_ImageSpatialRepresentation	ImgSpatRes	Relevant data about the image used to represent geographic information	C / SpatialRepresentationType equals “matrix”?	N	Specified Class (MD_SpatialRepresenation)	Lines 4-7
95	imageIdentifier	imageID	Unique discriptor for an image within a dataset series	C/hierarchyLevel equals datasetSeries?	1	CharacterString	Free text

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
96	imageType	imageType	Identifies the general kind of image represented by the data –Examples: visible, hyperspectral, multispectral, infrared, thermal infrared, radar	M	1	CharacterString	Free text
97	meanGroundSampleDistance	meanGrSampDst	Geometric mean of the across and along scan centre-to-centre distance between continuous ground samples in metres	O	1	Class	MD_GroundSpacing
98	groundToImageCoefficientAvailability	grToImgCoAvl	Code which indicates whether or not Ground-to-Image coefficients are available and contained within the product data	O	1	Boolean	0-no 1-yes
99	*Role name:* params	params	Provides the parameters defining the sensor that captured the image	O	1	Association	MD_SensorParameters
100	*Role name:* theImageSuitabilityDescription	imgSuitDesc	Provides information about the image's suitability for use	O	1	Association	MD_ImageSuitabilityDescription
101	MD_RasterSpatialRepresentation	RastSpatRep	Types and numbers of raster spatial objects in the dataset	C / SpatialRepresentationType equals "raster"?	N	Specified Class (MD_SpatialRepresentation)	Lines 9-16
102	cellType	cellType	Raster spatial objects used to locate zero-, two-, or three-dimensional locations in the dataset	M	1	Class	MD_RasterCellType <<Enumeration>>
103	cellOrigin	cellOrig	Location of pixel 1,1 (example NW corner)	O	1	CharacterString	Free text
104	rows	rows	Maximum number of raster objects along the ordinate (y) axis	O	1	Integer	> 0
105	columns	cols	Maximum number of raster objects along the abscissa (x) axis	O	1	Integer	> 0
106	verticals	verts	Maximum number of raster objects along the vertical (z) axis	O	1	Integer	> 0
107	ScanResolution	scanRes	Units used to express data density along the axes	O	1	Class	MD_ScanResolution
108	groundSpacing	grSpac	Unit of measurement used to describe the distance	O	1	Class	MD_GroundSpacingResolution
109	*Role name:* cellDomain	cellDom	Provides information about the domain of a raster cell	M	1	Association	MD_CellValueDomain
110	MD_VectorSpatialRepresentation	VectSpatRep	Information about the vector spatial objects in the dataset	C / SpatialRepresentationType equals "vector"?	N	Specified Class (MD_SpatialRepresentation)	Lines 18-20
111	geometricObjectType	geometObjTyp	Name of point and vector spatial objects used to locate zero-, one-, and two-dimensional spatial locations in the dataset	M	1	Set	MD_GeometricObjectTypes <<CodeList>>

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
112	geometricObjectCount	geometObjCnt	Total number of the point or vector object type occurring in the dataset	O	1	Integer	> 0
113	topologyLevel	topLevel	Code which identifies the degree of complexity of the spatial relationships	O	1	Class	MD_TopologyLevel <<Enumeration>>

B.6.1 Cell value domain information

114	MD_CellValueDomain	CellValDom	Information about the domain of the raster cell	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_RasterSpatialRepresentation)	Lines 22-25
115	toneGradation	toneGrad	Number of colours present in the image	O	1	Integer	Integer
116	bitsPerBand	bitsPB	Maximum number of significant bits for the value in each band of each pixel without compression	O	1	Integer	Integer
117	cellAttributeDescription	cellAttDesc	Description of the attribute described by the measurement value	M	1	CharacterString	Free text
118	cellUnit	cellUnit	Units of the cell attribute	M	1	CharacterString	Free text

B.6.2 Ground spacing information

119	MD_GroundSpacing	GrSpac	Geometric mean of the distance between continuous ground samples	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 55-56
120	spacing	spac	Center to center distance between continuous samples	M	1	Real	Real
121	unit	unit	Unit of measurement used to depict ground spacing	M	1	Class	MD_Length <<Enumeration>>

B.6.3 Ground spacing resolution information

122	MD_GroundSpacingResolution	GrSpacRes	The distance represented by a pixel in ground space units in up to 3 dimensions	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 58-60
123	xSpacing	xSpac	The distance represented by a pixel in the x direction on the ground	M	1	Class	MD_GroundSpacing
124	ySpacing	ySpac	The distance represented by a pixel in the y direction on the ground	M	1	Class	MD_GroundSpacing

125	zSpacing	zSpac	The distance represented by a pixel in a direction perpindicular to the x-y plane	M	1	Class	MD_GroundSpacing

B.6.4 Image suitability description information

126	MD_ImageSuitabilityDescription	ImagSuitDsc	Information about an image's suitability for use	O	1	Aggregated Class (MD_ImageSpatialRepresentation)	Lines 27-38
127	illuminationElevationAngle	illElevAng	Illumination elevation measured in degrees clockwise from the target plane at intersection of the optical line of sight with the earth's surface	O	1	Real	0.00 – 89.99
128	illuminationAzimuthAngle	illAziAng	Illumination azimuth measured in degrees clockwise from true north at the time the image is taken	O	1	Real	0,00 – 359,99
129	imageOrientationAngle	imgOrieAng	Angle from the first row of the image to true North in degrees, clockwise	O	1	Real	0 – 360
130	imagingCondition	imagCond	Code which indicates conditions which affect the quality of the image	O	1	Class	MD_ImagingConditionCode <<CodeList>>
131	imageQualityRatingSystem	imgQualRatSys	Rating system on which the Image Quality Code is based	O	1	CharacterString	Free text
132	imageQualityCode	imagQualcode	Specifies the image quality	O	1	CharacterString	Free text
133	cloudCoverPercentage	cloudCovPer	Area of the dataset obscured by clouds, expressed as a percentage of the spatial extent	O	1	Real	0.0 – 100.0
134	preProcessingTypeCode	prePrcTypCde	Image distributor's code that identifies the level of radiometric and geometric processing applied against the image –Examples: "LEVEL1A", "LEVEL1B", "SPOTVIEWORTHO", "SPOTVIEWPRECISIO"	O	1	CharacterString	Free text
135	compressionGenerationQuantity	compGenQuan	Counts the number of lossy compression cycles performed on the image	O	1	Integer	Integer
136	triangulationIndicator	triID	Code which indicates whether or not triangulation has been performed upon the image	O	1	Boolean	0-no 1-yes
137	radiometricDataAvailability	radDatAvail	Code which indicates whether or not Standard Radiometric Product data is available	O	1	Boolean	0-no 1-yes

138	ESDAvailability	ESDAvail	Indicates whether or not Image Exploitation Support Data (ESD) is available such as position and attitude information	O	1	Boolean	0-no 1-yes

B.6.5 Pixel resolution information

139	MD_PixelResolution	PixRes	Average unit of information in a grid cell	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 62-63
140	pixelsPerUnit	pixPerUnit	Number of pixels contained in one unit of measurement	M	1	Integer	Integer
141	unit	unit	Units of measure used to describe pixels \per unit	M	1	Class	MD_Length <<Enumeration>>

B.6.6 Scan resolution information

142	MD_ScanResolution	ScanRes	Units used to express data density along the axes	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 65-67
143	xResolution	xRes	Units used to express data density along the x axis.	M	1	Class	MD_PixelResolution
144	yResolution	yRes	Units used to express data density along the y axis.	M	1	Class	MD_PixelResolution
145	zResolution	zRes	Units used to express data density along the z axis.	M	1	Class	MD_PixelResolution

B.6.7 Sensor parameter information

146	MD_SensorParameters	SenPara	Identifies the parameters defining the sensor	O	1	Aggregated Class (MD_ImageSpatialRepresentation)	Lines 4-46
147	focalLength	focLen	Focal length of the lens in millimetres	O	1	Real	Real
148	obliquityAngle	oblAng	Angle off vertical of image in degrees	O	1	Real	Real
149	imageSensorTime	imgSenTime	The precise time at which the image was captured in the sensor's time system	O	1	Real	Real
150	sensorCategory	senCat	Identifies the specific category of imagery	O	1	CharacterString	Free text
151	sensorMode	senMode	Identifies the sensor mode used in capturing the image –Examples: FRAMING PUSHBROOM SPOT SWATH WHISKBROOM	O	1	CharacterString	Free text

152	spectralProperties	spectProp	Electromagnetic spectrum sensitivity of sensor	O	1	CharacterString	Free text
153	fieldOfView	fieldOView	Area of measurement of sensor	O	1	CharacterString	Free text
154	orientationOnPlatform	orieOnPlat	Orientation of instrument relative to platform	O	1	CharacterString	Free text
155	operationMode	opMode	Sensor status Examples: launch, survival, initialization, safe, diagnostic, standby, crosstrack, biaxial, solar calibration	O	1	CharacterString	Free text
156	*Role name:* band	band	Set of wavelengths that the sensor operates in	O	N	Association	MD_SensorBand

B.6.8 Sensor band information

157	MD_SensorBand	SenBand	Set of adjacent wavelengths in the electro-magnetic spectrum with a common characteristic, such as the visible band	O	N	Aggregated Class (MD_SensorParameters)	Lines 48-53
158	sequenceIdentifier	seqId	Number that uniquely identifies instances of bands of wavelengths on which a sensor operates	O	1	CharacterString	Free text
159	highWavelength	hiWavelen	Highest wavelength that the sensor is capable of collecting within a designated band in metres	O	1	Real	Real
160	lowWavelength	lowWavelen	Lowest wavelength that the sensor is capable of collecting within a designated band in metres	O	1	Real	Real
161	cameraCalibrationInfoAvailability	camCalInfAvl	Code which ndicates whether or not constants are available which allow for camera calibration corrections.	O	1	Boolean	0-no 1-yes
162	filmDistortionInfoAvailability	filmDistrtInfAvl	Code which indicates whether or not Calibration Reseau information is available	O	1	Boolean	0-no 1-yes
163	lensDistortionInfoAvailability	lensDistrtInfAvl	Code which indicates whether or not lens aberration correction information is available	O	1	Boolean	0-no 1-yes

B.7 Reference system information (includes temporal, by coordinates and using geoIDs)

- graphically shown in A.2.5

	Name	**Short Name**	**Definition**	**Obligation / Condition**	**Maximum occurrence**	**Data type**	**Domain**
164	*RS_ReferenceSystem*	Refsys	Description of the spatial and temporal reference systems used in the dataset	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<Abstract>>	Line 9-10
165	name	name	Name of reference system used	M	1	Class	RS_Identifier

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
166	domainOfValidity	domOValid	Range which is valid for the reference system	O	N	Class	EX_Extent
167	TM_ReferenceSystem	TMRefSys	Documented in ISO 19108 – Temporal schema	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (RS_ReferenceSystem)	Lines 12
168	SI_SpatialReferenceSystemUsingGeographicIdentifiers	SISpatRefSysGeoID	Documented in ISO 19112 – Location by identifier	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (RS_ReferenceSystem)	Lines 14-16
169	theme	theme	Documented in ISO 19112 – Location by identifier	M	1	CharacterString	Free text
170	overallOwner	overOwner	Documented in ISO 19112 – Location by identifier	M	1	Class	CI_ResponsiblePartY
171	*SC_CRS*	CRS	Documented in ISO 19111 – Spatial reference by coordinates	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (RS_ReferenceSystem) <<Abstract>>	Line 18
172	kindCode	kindCode	Documented in ISO 19111 – Spatial reference by coordinates	M	1	Class	SC_KindCode
173	remarks	remarks	Documented in ISO 19111 – Spatial reference by coordinates	O	1	CharacterString	Free text

B.8 Feature catalogue information

- graphically shown in A.2.6

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
174	FC_FeatureCatalogueDescription	FeatCatDesc	Information identifing the feature catalogue	C/ does dataset contain feature types?	N	Class	Lines 2-6
175	complianceCode	compCode	Indicates whether or not the cited feature catalogue complies with ISO 19110	M	1	Boolean	0-not compliant 1-compliant
176	languageCode	langCode	Language(s) used within the dataset	M	N	Class	LanguageCode (ISO 639)
177	includedWithDataset	incWithDS	Indicates whether ro not the feature catalogue is included with the dataset	M	1	Boolean	0=no 1=yes
178	featureTypes	featType	Subset of feature types from cited feature catalogue occurring in dataset	C/ dataset does not include all features contained in feature catalogue?	1	Class	GenericName
179	featureCatalogCitation	featCatCit	Complete bibliographic reference to one or more external feature catalogues	M	N	Class	CI_Citation

B.9 Portrayal catalogue information

- graphically shown in A.2.7

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
180	MD_PortrayalCatalogRef	PortCatRef	Information identifing the portrayal catalogue used	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 2-6
181	portrayalCatalogueCitation	portCatcit	Recommended reference to be used for the referring entity	M	N	Class	CI_Citation

B.10 Distribution information

- graphically shown in A.2.8

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
182	MD_Distribution	Dist	Information about the distributor of and options for obtaining the dataset	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 2-4
183	*Role name:* distributionFormat	distFormat	Provides a description of the form of the data to be distributed	M	N	Association	MD_Format
184	*Role name:* distributor	distributor	Provides information about the distributor	O	N	Association	MD_Distributor
185	*Role name:* transferOptions	distribTrnsOps	Provides information about technical means and media by which a dataset is obtained from the distributor	C / dataset will be transferred digitally?	N	Association	MD_DigitalTransferOptions

B.10.1 Digital transfer options information

186	MD_DigitalTransferOptions	DigTransOpts	Technical means and media by which a dataset is obtained from the distributor	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Distribution)	Lines 6-9
187	unitsOfDistribution	unitsODist	Tiles, layers, geographic areas, etc., in which data is available	O	1	CharacterString	Free text
188	transferSize	transSize	Estimated size of the transferred dataset in megabytes. The transfer size is > 0.0	O	1	Real	> 0.0
189	onLine	onLine	Information about online sources from which the dataset can be obtained	O	N	Class	CI_OnLineResource <<DataType>>
190	*Role name:* offLine	offLine	Information about offline sources from which the dataset can be obtained	O	1	Association	MD_Medium

B.10.2 Distributor information

191	MD_Distributor	Distributor	Information about the distributor	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Distribution)	Lines 11-13
192	*Role name:* distributionOrderProcess	distOrdProc	Provides information about how the dataset may be obtained, and related instructions and fee information	O	N	Association	MD_StandardOrderProcess
193	distributorContact	distCont	Party from whom the dataset may be obtained	M	1	Class	CI_ResponsibleParty <<DataType>>
194	*Role name:* distributorFormat	distFormat	Provides information about the Format in which the dataset may be obtained	M	N	Association	MD_Format

B.10.3 Format information

195	MD_Format	Format	Description of the form of the data to be distributed	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Distribution)	Lines 15-21
196	name	name	Name of the data transfer format(s) offered by the distributor for an available dataset. Example: SDTS	M	1	CharacterString	Free text
197	version	verNum	Version number of the format	M	1	CharacterString	Free text
198	amendmentNumber	amendNum	Amendment number of the format version	O	1	CharacterString	Free text
199	specification	spec	Name of a subset, profile, or product specification of the format	O	1	CharacterString	Free text
200	fileDecompressionTechnique	filDecmTech	Recommendations of algorithms or processes that can be applied to read or expand datasets to which data compression techniques have been applied	O	1	CharacterString	Free text
201	*Role name:* distributorFormat	distFormat	Provides information about the distributor's Format	O	N	Association	MD_Distributor

B.10.4 Medium information

202	MD_Medium	Medium	Information about the media on which the data can be distributed	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_DigitalTransferOptions)	Lines 23-28

203	name	name	Name of the media on which the dataset can be received –Examples:"CD-ROM", "3.5 inch floppy disk", "5.25 inch floppy disk", "9-track tape", "4 mm cartridge tape", "8 mm cartridge tape", "1/4 inch cartridge tape", "on-line", " satellite", "telephone link", "brochure"	O	1	CharacterString	Free text
204	density	density	Density in which the dataset can be recorded	O	N	Real	> 0.0
205	densityUnits	densityUn	Units of measure for the recording density	O	1	CharacterString	Free text
206	volumes	vols	Number of items in the media identified	C/are number of volumes >1?	1	Integer	Integer
207	mediaFormat	medFormat	Options available or method used to write the dataset to the medium –Examples: "cpio", "tar", "High Sierra", "ISO 9660", "ISO 9660 with Rock Ridge extensions", "ISO 9660 with Apple HFS extensions"	O	N	CharacterString	Free text
208	compatibility	compat	Description of other limitations or requirements for using the medium	O	1	CharacterString	Free text

B.10.5 Standard order process information

209	MD_StandardOrderProcess	StanOrdPrc	Common ways in which the dataset may be obtained or received, and related instructions and fee information	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Distributor)	Lines 30-33
210	fees	fees	Fees and terms for retrieving the dataset. Include monetary units.	O	1	CharacterString	Free text
211	plannedAvailableDateTime	plnAvlDatTim	Date and time when the dataset will be available.	O	1	DateTime	ISO 19108
212	orderingInstructions	ordInstr	General instructions , terms and services provided by the distributor when ordering the dataset	O	1	CharacterString	Free text
213	turnaround	turnaround	Typical turnaround time for the filling of an order	O	1	CharacterString	Free text

B.11 Metadata extension information

- graphically shown in A.2.9

214	MD_MetadataExtensionInformation	MetExtnsInf	Information describing metadata extensions	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Metadata)	Lines 8-9

215	*Role name:* extendedElementInformation	extnsEelInf	Provides information about a new metadata element, not found in ISO 19115, which is required to describe geographic data	O	N	Association	MD_ExtendedElementInformation
216	extensionOnlineResource	extnsOnliRes	Information about online sources containing the community profile name and the extended metadata elements. Information for all new metadata elements.	M	1	Class	CI_OnlineResource <<DataType>>

B.11.1 Extended element information

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
217	MD_ExtendedElementInformation	ExtendEleInf	New metadata element, not found in ISO 19115, which is required to describe geographic data	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_MetadataExtensionInformation)	Lines 11-21
218	name	name	Name of the extended metadata element. NOTE: Do not duplicate any other Standard element name.	M	1	CharacterString	Free text
219	identifier	identifier	Unique numeric identifier of the extended element NOTE: Do not duplicate another identifier used by the standard.	M	1	CharacterString	Free text
220	definition	defin	Definition of the extended element	M	1	CharacterString	Free text
221	obligation	oblig	Obligation and condition of the extended element	M	1	CharacterString	Free text
222	dataType	datType	Code which identifies the kind of value provided in the extended element	M	1	Class	TypeName
223	domainValue	domVal	Valid values that can be assigned to the extended element. The same rules as those for standard elements are applied here	M	1	CharacterString	Free text
224	maximumOccurrence	maxOcc	Maximum occurrence of the extended element within the "…"	M	1	CharacterString	Free text
225	parentEntity	parEnt	Name of the metadata entity(s) under which this extended metadata element may appear. The name(s) may be standard or other extended metadata element(s). (Must be the name of an existing standard or extended element.)	M	N	CharacterString	Free text
226	rule	rule	Relationship rule for the element, specified using the form given in this standard.	C /is this an extended element?	N	CharacterString	Free text
227	rationale	rationale	Reason for creating the extended element	O	N	CharacterString	Free text
228	source	source	Name of the entity creating the extended element	C/is this an extended element?	N	CharacterString	Free text

B.11.2 Local and type name information

The Local and Type Name Information data dictionary is documented in ISO 19103 – Conceptual Schema Language

B.12 Application schema information

- graphically shown in A.2.10

	Name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
229	MD_ApplicationSchemaInfo	AppSchInfo	Information about the application schema used to build the dataset			Class	Lines 2-8
230	name	name	Name of the application schema used	M	1	Class	CI_Citation
231	shemaLanguage	schLang	Identification of the schema language used	M	1	CharacterString	Free text
232	constraintLanguage	constrLang	Formal language used in Application Schema	M	1	CharacterString	Free text
233	schemaAscii	schAsc	Full application schema given as an ASCII file.	M	1	CharacterString	Free text
234	graphicsFileType	graFilTyp	Full application schema given as a graphics file.	M	1	CharacterString	Free text
235	softwareDevelopmentFile	swDevFile	Full application schema given as a software defelopment file.	M	1	Binary	
236	softwareDevelopmentFormat	swDevFormat	Software dependent format used for the application schema software dependent file.	M	1	CharacterString	Free text
237	*Role name:* featureCatalogSupplement	featCatSup	Information about the spatial attributes in the application schema for the feature types	M	1	Association	MD_SpatialAttributeSupplement

B.12.1 Feature type list information

238	MD_FeatureTypeList	FeatTypList	List of names of feature types witht eh same spatial representation (same as spatial attribute)			Aggregated Class (MD_SpatialAttributeSupplement)	Line 12-13
239	spatialObject	spatObj	Instance of a type defined in the spatial schema	M	1	CharacterString	Free text
240	spatialSchemaName	spatSchName	Name of the spatial schema used	M	1	CharacterString	Free text

B.12.2 Spatial attribute supplement information

241	MD_SpatialAttributeSupplement	SpatAttSup	Spatial attributes in the application schema for the feature types.			Aggregated Class (MD_ApplicationSchemaInfo)	Line 10
242	*Role name:* theFeatureTypeList	featTypList	Provides information about the list of feature types with the same spatial representation.	M	N	Association	MD_FeatureTypeList

B.13 Extent information

- graphically shown in A.2.11

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
243	EX_Extent	Extent	Information about spatial, vertical, and temporal extent	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 2-3
244	description	desc	Spatial and temporal extent for the referring object	O	1	CharacterString	Free text
245	*Role name:* element	ele	Provides a component of the extent	O	N	Association	EX_GeographicExtent <<Abstract>> EX_TemporalExtent EX_VerticalExtent

B.13.1 Geographic extent information

246	*EX_GeographicExtent*	GeoExt	Geographic area of the dataset	O	N	Aggregated Class (EX_Extent) <<Abstract>>	EX_BoundingPolygon Or EX_GeographicBoundingBox or SI_LocationInstance
247	extentType	extType	Identifies whether the bounding polygon encompasses an area covered by the data or an area where data is not present	C/ExtentType equals exclusion?	1	Class	EX_ExtentType <<CodeList>>
248	EX_BoundingPolygon	BoundPoly	Boundary enclosing the dataset expressed as the closed set of (x,y) coordinates of the polygon (last point replicates first point)	C/GeographicBoundingBox or LocationInstanceno t provided?	N	Specified Class (EX_Geographic Extent)	Line 14
249	polygon	poly	Sets of points in a particular coordinate reference system.	M	N	GM_Object	-90 to 90 latitude -180 to 180 longitude
250	EX_GeographicBoundingBox	GeoBndBox	Geographic area of the entire dataset referenced to WGS 84	C/BoundingPolygon or LocationInstanceno t provided?	N	Specified Class (EX_Geographic Extent)	Lines 16-19
251	westBoundLongitude	westBL	Western-most coordinate of the limit of the dataset extent expressed in longitude, in decimal degrees	M	1	Angle	-180.0 <= West Bounding Longitude Value <= 180.0
252	eastBoundLongitude	eastBL	Eastern-most coordinate of the limit of the dataset extent expressed in longitude, in decimal degrees	M	1	Angle	-180.0 <= East Bounding Longitude Value <= 180.0

253	southBoundLatitude	southBL	Southern-most coordinate of the limit of the dataset extent expressed in latitude, in decimal degrees	M	1	Angle	-90.0 <= South Bounding Latitude Value <= 90.0; South Bounding Latitude Value <= North bounding Latitude Value
254	northBoundLatitude	northBL	Northern-most coordinate of the limit of the dataset extent expressed in latitude, in decimal degrees	M	1	Angle	-90.0 <= North Bounding Latitude Value <= 90.0; North Bounding Latitude Value >= South Bounding Latitude Value
255	Set <SI_LocationInstance>	SetLocInst	Documented in ISO 19112 – Location by identifier	M	1	Specified Class (EX_Geographic Extent)	Line 21
256	*Role name:* elements	elements	Documented in ISO 19112 – Location by identifier	M	1	Association	SI_LocationInstance

B.13.2 Temporal extent information

257	EX_TemporalExtent	TempExt	Time period covered by the content of the dataset	O	N	Aggregated Class (EX_Extent)	Line 7
258	extent	extent	Date and time for the content of the dataset.	M	1	Class	TM_Primitive (ISO 19108)
259	EX_SpatialTemporalExtent	SpatTempExt	Extent with respect to date and time	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (EX_TemporalExtent) Aggregated Class (EX_Geographic Extent)	

B.13.3 Vertical extent information

260	EX_VerticalExtent	VertExt	Vertical domain of dataset	O	1	Aggregated Class (EX_Extent)	Lines 9-12
261	minimumValue	minVal	Lowest vertical extent contained in the dataset	M	1	Real	Real
262	maximumValue	maxVal	Highest vertical extent contained in the dataset	M	1	Real	Real
263	unitOfMeasure	uOfMeas	Vertical units used for vertical extent information Examples: metres, feet, millimetres	M	1	CharacterString	UomLength

264	*role name:* verticalDatum	vetDat	Provides information about the origin from which the maximum and minimum elevation values are measured	M	1	Association	SC_VerticalDatum

B.13.4 Vertical datum information

The Vertical Datum Information data dictionary is documented in ISO 19111 – Spatial reference by coordinates

B.14 Citation and responsibility information

- graphically shown in A.2.12

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
265	CI_Citation	Citation	Standardized resource reference	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<DataType>>	Lines 2-14
266	title	title	Name by which the cited information is known	M	1	CharacterString	Free text
267	alternateTitle	altTitle	Short name or other language name by which the cited information is known. –Example: "Digital Chart of the World" or "DCW"	O	N	CharacterString	Free text
268	date	date	Reference date for the cited information	M	1	Date	ISO 19108
269	dateType	dateType	Event used for reference data –Examples: "publication date", creation date", "revision date"	O	1	CharacterString	Free text
270	edition	edition	Version of the dataset	C/ edition other than first ?	1	CharacterString	Free text
271	editionDate	edDate	Date of the edition	O	1	Date	ISO 19108
272	identifier	citID	Unique identifier for the data referenced by the metadata EXAMPLE: Universal Price Code (UPC), National Stock Number (NSN)	O	N	CharacterString	Free text
273	identifierType	idType	Reference form of the unique identifier (ID) Example: NSN, URC	O	N	CharacterString	Free text
274	presentationForm	presForm	Mode in which the data is represented	O	N	Class	CI_PresentationFormCode <<CodeList>>
275	seriesName	serName	Name of the series of which the dataset is a part	C/ member of series ?	1	CharacterString	Free text
276	issueIdentification	issID	Information identifying the issue of the series publication of which the dataset is a part	C/ multiple issues ?	1	CharacterString	Free text
277	otherCitationDetails	otherCitDet	Other information required to complete the citation	O	1	CharacterString	Free text

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
278	citedResponsibleParty	citRespParty	Name and position information for an individual or organisation that is responsible for the resource.	O	N	Class	CI_ResponsiblePart y <<DataTy pe>>
279	collectiveTitle	collTitle	Common title with holdings note.	O	1	CharacterString	Free text
280	page	page	Details on which pages of the periodical the article was published.	O	1	CharacterString	Free text
281	ISBN	ISBN	International Standard Book Number.	O	1	CharacterString	Free text
282	ISSN	ISSN	International Standard Serial Number.	O	1	CharacterString	Free text

283	CI_ResponsibleParty	RespParty	Identification of, and means of communication with, person(s) and organisations associated with the dataset	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<DataType>>	Lines 16-21
284	mandatoryPartyInfo	mandPartyInfo	Individual, organisation, or position that is knowledgable about the dataset	M	1	Class	CI_Mand atoryParty <<Union> >
285	individualName	rpIndName	Name of the responsible person- SURNAME, given name, title separated by a delimiter	O	1	CharacterString	Free text
286	organisationName	rpOrgName	Name of the responsible organisation	O	1	CharacterString	Free text
287	positionName	rpPosName	Role or position of the responsible person	O	1	CharacterString	Free text
288	responsibility	resp	Function performed by the responsible party	O	N	Class	CI_Respo nsibilityCo de <<CodeLi st>>
289	contactInfo	contactInfo	Address of the responsible party	M	N	Class	CI_Conta ct

B.14.1 Address information

290	CI_Address	Address	Location of the responsible individual or organisation	C/Telephone or OnlineResource not provided?	1	Class <<DataType>>	Lines 29-34
291	deliveryPoint	postAdd	Address line for the physical address (Street name, box number, suite)	O	N	CharacterString	Free text
292	city	city	City of the physical address	O	1	CharacterString	Free text
293	administrativeArea	adminArea	State, province of the physical address	O	1	CharacterString	Free text
294	postalCode	postCode	ZIP or other postal code	O	1	CharacterString	Free text
295	country	country	Country of the physical address	O	1	CharacterString	ISO 3166
296	electronicMailAddress	electMailAdd	Address of the electronic mailbox of the responsible organisation or individual	O	N	CharacterString	Free text

B.14.2 Contact information

297	CI_Contact	Contact	Information required enabling contact with the responsible person and/or organisation	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<DataType>>	Lines 23-27
298	hoursOfService	hrsOfServ	Time period (including time zone) when individuals can contact the organisation or individual	O	1	CharacterString	Free text
299	contactInstructions	contInstr	Supplemental instructions on how or when to contact the individual or organisation	O	1	CharacterString	Free text
300	phone	phone	Telephone numbers at which the organisation or individual may be contacted	O	1	Class	CI_Telephone <<DataType>>
301	address	address	Physical and email address at which the organisation or individual may be contacted	O	1	Class	CI_Address <<DataType>>
302	onlineResource	onlineRes	Online information that can be used to contact the individual or organisation	O	1	Class	CI_OnlineResource <<DataType>>

B.14.3 Mandatory party information

303	CI_MandatoryParty	MandParty	Individual, organisation, or position that is knowledgeable about the resource	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<Union>>	Lines 36-38
304	individualName	mpIndName	Name of the responsible person- SURNAME, given name, title separated by a delimiter	C/organisation or position not identified?	1	CharacterString	Free text
305	organisationName	mpOrgName	Name of the responsible organisation	C/individual name or position not identified?	1	CharacterString	Free text
306	positionName	mpPosName	Role or position of the responsible person	C/individual name or organisation name not identified?	1	CharacterString	Free text

B.14.4 Online resource information

307	CI_OnlineResource	OnlinRes	Information about online sources from which the dataset, specification, or community profile name and extended metadata elements can be obtained.	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<DataType>>	Lines 40-45
308	linkage	linkage	Method, source, or location for online access. Example: a Uniform Resource Locator (URL) such as http://www,gii.getty.edu/tgn_browser/	M	1	Class	URL (IETF RFC1738 IETF RFC 2056)

309	functionCode	functCode	Function performed by the resource	O	1	Class	CI_OnLineFunction <<CodeList>>
310	protocol	protocol	Connection protocol to be used	O	1	CharacterString	Free text
311	applicationProfile	appProfile	Name of an application profile that can be used with the resource	O	1	CharacterString	Free text
312	name	name	Name of the resource	O	1	CharacterString	Free text
313	description	desc	Description of what the resource is/does	O	1	CharacterString	Free text

B.14.5 Telephone information

314	CI_Telephone	Telephone	Telephone numbers for contacting the responsible individual or organisation	C/Address or OnlineResource not provided?	N	Class <<DataType>>	Lines 47-50
315	voice	voice	Telephone number by which individuals can speak to the responsible organisation or individual	O	N	CharacterString	Free text
316	facsimile	fax	Telephone number of a facsimile machine for the responsible organisation or individual	O	N	CharacterString	Free text
317	other	other	Telephone number for contacting the responsible individual or organisation	C / phone other than voice or fax?	N	CharacterString	Free text
318	otherType	othType	Description of telephone number provided in “other” phone element	C / phone other than voice or fax?	N	CharacterString	Free text

B.15 Metadata application information

- graphically shown in Figure 6.1

	Name / Role name	**Short Name**	**Definition**	**Obligation / Condition**	**Maximum occurrence**	**Data type**	**Domain**
319	DS_Aggregate	DSAgg	Identifiable collection of datasets	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class <<Abstract>>	Lines 2-7
320	*Role name:* aggregateDatasetMetadata	aggDSMet	Provides metadata for the associated dataset	M	N	Association	MD_Metadata
321	*Role name: aggregate*	agg	Aggregate dataset composed of a datasets constitutent part	M	N	Association	DS_Dataset
322	*Role name: superset*	super	Aggregate dataset that is a superset of other aggregate datasets.	O	N	Association	DS_Aggregate
323	*Role name: subset*	sub	Aggregate dataset that is a subset of other aggregate datasets. Describes lower level aggregations, which are contained within a superset	O	N	Association	DS_Aggregate

	Name / Role name	Short Name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
324	DS_Dataset	DSDataset	Identifiable collection of data	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specialisation Class (FT_FeatureCollection)	Line 10
325	*Role name:* dataSet	dataset	Dataset is part of an aggregate dataset	M	N	Association	DS_Aggregate <<Abstract>>
326	DS_Initiative	DSInit	Activity in which datasets are aggregated	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (DS_Aggregate)	Line 12-13
327	initiativeType	initType	Type of aggregation activities	M	1	Class	DS_InitiativeType

B.15.1 Dataset series information

328	DS_Series	DSSer	Datasets adhering to the same product specification	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (DS_Aggregate)	
329	DS_Platform	Plat	Vehicle or other support base that holds a sensor. EXAMPLE: satellite, airplane, weather station	M	1	Specified Class (DS_Series)	
330	DS_ProductionSeries	ProdSer	Datasets derived from the same production procedures	M	1	Specified Class (DS_Series)	
331	DS_Sensor	Sen	Device or piece of equipment which detects and records information	M	1	Specified Class (DS_Series)	

B.15.2 Other dataset association information

332	DS_OtherAssociation	DSOthAssoc	Datasets related by other than series or initiative	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (DS_Aggregate)	Lines 15
333	associationType	assocType	Justification for the correlation of two datasets	M	1	Class	DS_AssociationTypeCode
334	DS_StereoMate	SterMate	Set of imagery that when used together, provides three-dimensional images	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Specified Class (DS_OtherAssociation)	Line 20
335	imageSpatialRepresentation	imgSpatRep	Relevant data about the image stereo mate	C / Type equals “image”?	N	**This was not defined in the UML diagrams**	**This was not defined in the UML diagrams**

B.16 Data quality information

The data dictionary for DataQuality information is documented in ISO 19113, Quality Principles.

B.17 CodeLists and enumerations

B.17.1 CI_OnLineFunction <<CodeList>>

	Name	Domain code	Definition
1	CI_OnLineFunction		Function performed by the resource
2	access	001	Online instructions provide the information necessary to acquire data
3	additionalInformation	002	Online instructions provide more information about the data
4	download	003	Online instructions provide the ability to transfer data from one storage device or system to another
5	order	004	Online instructions provide the ability to acquire data
6	search	005	Online instructions provide the ability to seek out information about a dataset

B.17.2 CI_PresentationFormCode <<CodeList>>

	Name	Domain code	Definition
1	CI_PresentationFormCode		Mode in which the data is represented
2	document	001	Piece of written or printed matter that provides a record or evidence of events, an agreement, ownership, identification, etc..
3	hardcopyMap	002	Representation of a map which is printed on paper, photographic material, or other media and can be interpreted directly by the human user
4	image	003	Permanent record of the likeness of any natural or man-made features, objects, and activities reproduced on photographic materials. This image can be acquired through the sensing of visual or any other segment of the electromagnetic spectrum by sensors, such as thermal infrared, and high resolution radar.
5	model	004	Representation in three dimensions of geospatial data
6	profile	005	Vertical cross-section of geospatial data
7	rasterMap	006	Geospatial data that has been digitized into a form that can be displayed on a cathode ray tube or printed.
8	table	007	Set of geospatial facts or figures systematically displayed, especially in columns.
9	vectorMap	008	Term used to describe an electronic map display product, in vector form.
10	view	009	

B.17.3 CI_ResponsibilityCode <<CodeList>>

	Name	Domain code	Definition
1	CI_ResponsibilityCode		Function performed by the responsible party
2	contentProvider	001	Party that supplies the data
3	custodian/Steward	002	Guardian or keeper responsible for maintaining the data
4	owner	003	Person who owns the data

	Name	Domain code	Definition
5	user	004	Person who uses the data
6	distributor	005	Person or organisation who distributes the data
7	metadataProvider	006	Responsible party who provides information about the metadata for a dataset
8	originator	007	Responsible party who created the dataset or metadata
9	pointOfContact	008	Responsible party who can be contacted for acquiring knowledge about or acquisition of the data.
10	principalInvestigator	009	Key person responsible for gathering information and conducting research
11	processor	010	Responsible party who has processed the data in a manner in which the data has been modified.
12	publisher	011	Responsible party who published the data

B.17.4 DS_AssociationTypeCode <<Codelist>>

	Name	Domain code	Definition
1	DS_AssociationTypeCode		Justification for the correlation of two datasets
2	crossReference	001	Reference from one dataset to another
3	largerWorkCitation	002	Reference to a master dataset of which this one is a part
4	partOfSeamlessDatabase	003	Part of a structured set of data held in a computer
5	source	004	Mapping and charting information from which the dataset ccontent originates
6	stereomate	005	Part of a set of imagery that when used together, provides three-dimensional images.
7	other	000	Association type different from the others listed in this class

B.17.5 DS_InitiativeType <<CodeList>>

	Name	Domain code	Definition
1	DS_InitiativeType		Type of aggregation activity
2	collection	001	Obtaining information in any manner, to include direct observation, liasion with offical agencies, or solicitation from offical, unofficiall, or public sources. The process of arranging for and obtaining existing data libraries.
3	mission	002	Sending out or being sent out with authority to perform a special service
4	study	003	Careful attention to, and critical examination and investigation of, any subject, event, etc.

B.17.6 EX_ExtentType <<CodeList>>

	Name	Domain code	Definition
1	EX_ExtentType		Identifies whether an extent type (geographic, temporal, or vetical extent) was included or excluded from the dataset

	Name	Domain code	Definition
2	inclusion	001	Indicates that an extent type was included within the dataset
3	exclusion	002	Indicates that an extent type was not inlcuded within the dataset

B.17.7 MD_Category <<CodeList>>

	Name	Domain code	Definition
1	MD_Category		High-level geospatial data thematic classification to assist in the grouping and search of available geospatial datasets
2	Agriculture / Farming	001	agriculture (cultivation of crops, rearing or raising animals); herding; irrigation; aquaculture (cultivation or rearing of aquatic plants or animals); pests and diseases affecting crops and livestock; plantations
3	**Aquaculture / Fishery**	002	Cultivation or rearing of aquatic plants or animals, fishing areas, fishing limits
4	Biota	003	biology (living organisms); botany (physiology, structure, genetics, distribution of plants); zoology (animals, animal behaviour, physiology, structure, and distribution of fauna); pests and diseases affecting natural flora and fauna (see farming for pests and diseases affecting agricultural crops and livestock); wildlife (non-domesticated birds, insects, fish, animals, etc.); ecology (relation of organisms to one another and their physical environment) Biozones; Biomes
5	Cadastral and legal land descriptions	004	Cadastral boundaries; addresses, land restrictions/easements; land inventory; crime and justice;
6	Climatology / Meteorolgy / Atmosphere	005	processes and phenomena of the atmosphere (cloud cover, precipitation, temperature); changes in climate
7	Communications	006	postal service, telecommunications (including artificial satellite), telegraph, radio, television, telephone, computer networks (local area networks, wide area networks)

	Name	Domain code	Definition
8	Economy	007	Historical, conditions, production, labour and revenue, unemployment, taxes; Econmic Activities: commerce (insurance, financial transactions, buying and selling on a large scale); industry; tourism; manufacturing (making of articles, including leather, tobacco, animal products, rubber, packaging); mining and metallurgy (exploration, extraction and processing of minerals); oil and gas (exploration, extraction and processing); forestry; hunting (other than for recreation); fishing; trade (including domestic and foreign trade); property valuation; business management boundaries (or sales territories)
9	Elevation and Derived Products	008	altitude (elevation, height above or below sea level);
10	Environment	009	protection (areas protected from industrial or domestic development to protect the flora, fauna and other resources, nature conservancy plans, environmental conseration); pollution (areas in which the environment has been contaminated or the sources of environmental contaminants); waste (unwanted of unusable remains or by-products, storage sites for waste); ecotourism; Environmental Impat Assessments; risks of veld/bush fires
11	Geoscientific information	010	geography (topography, toponomy); geomorphology (geophysical features of the surface of the earth including erosion and other processes); general geology (mineralogy, petrology, dynamic and structural geology, stratigraphic geology, palaeontology, composition, structure and origin of the earth's rocks, quarternary geology, glacial geology, engineering geology, hydrogeology); economic geology (ore, metals, industrial minerals, natural ston, gravel & crush, thermal energy); geophysics (properties and interactions of the earth's matter and energy, seismology, isostasy); soils; geochemistry (natural occurance of elements, ecogeochemistry); permafrost; geological processes (erosion, tectonics, depostion, metamorphism, volcanism, isostatic uplift/subsidence) palaeontology (paleobotany, paleobiology, paleozoology, paleoantopology, fossils); risks of earthquakes, volcanoes, sinkholes, landslides, avalanches

	Name	Domain code	Definition
12	Health	011	disease; illness; factors affecting health; geomedicine; human ecology; hygiene; public safety; substance abuse; mental and physical health; health services and medicine
13	Imagery / Base maps / Earth cover	012	remotely sensed information such as ground cover R.g. scans of the earth by satellite, aerial photographs and imagery; topographic maps, aeronautical, topocadastral maps, hydrographic charts; land use (land cover, public lands, land tenure, urban and regional land use plans)
14	Infrastructure	013	transportation (roads, highways, streets, airports, airstrips, air routes, water transportation, shipping routes, railways, automotive transportation, stage lines, ferries, systems of conveyance, tunnels); mines (opencast, oil platforms, etc.); buildings and structues; factories navigational aids (beacons, lights, satellites) nautical aids
15	Inland waters	014	rivers, lakes, glaciers, continental icesheets, snow; ground water; water utilisation plans; movement of water in relation to land; floods; dams; pans; vleis; swamps; reservoirs; marshes; drainage regions; swimming pools
16	Military infrastructure	015	military bases and installations
17	Oceans	016	salt water bodies and their features (excluding inland waters); bathymetry, tides, currents, tidal waves, nautical aids
18	Planning	017	Regional or local use plans, local authority plans. Projecting.
19	Political boundaries	018	Political and administrative boundaries

	Name	Domain code	Definition
20	Society	019	human settlements; development, structure and functioning of human society; anthropology (physical anthropology, ethnology, social and cultural anthropology); archaeology (human history and prehistory studied through excavation of sites and analysis of physical remains); education; traditional beliefs, manners and customs; language; population (demographic and census data); recreation (outdoor recreation, camping, hiking, wilderness experience parks and other locations for recreational activities (see economy for tourism); memorials; social impact assessments
21	Utilities	020	electricity, gas, sewage collection and disposal systems, saline water conversion systems, water purification and distribution); energy (hydrocarbons, wood, solar and nuclear energy, hydroelectrictiy, thermal energy); production and distribution (pipline routes)

B.17.8 MD_Classification <<CodeList>>

	Name	Domain code	Definition
1	MD_Classification		Name of the handling restrictions on the dataset
2	codeWord	001	Compartmentalised disclosure
3	confidential	002	Entrusted with information
4	secret	003	Kept or meant to be kept private, unknown, or hidden from all but a select group of people
5	topsecret	004	Of the highest secrecy
6	unclassified	005	Available for general disclosure
7	otherUserDefined	000	Classification other than those listed as a part of this class.

B.17.9 MD_GeometricObjectTypes <<CodeList>>

	Name	Domain code	Definition
1	MD_GeometricObjectTypes		Name of point and vector spatial objects used to locate zero-, one-, and two-dimensional spatial locations in the dataset
2	complexes	001	Set of geometric primitives such that the ir boundaries can be represented as a union of other primitives
3	composites	002	Connected set of curves, solids or surfaces.
4	curves	003	Bouncded, 1-dimensional geometric primitive, representing the continous image of a line
5	points	004	0-dimensional geometric primitive, representingj a positon but not having an extent

	Name	Domain code	Definition
6	solids	005	Bounded, connected 3-dimensional geometric primitive, prepresenting the continuous image of a region of space.
7	surfaces	006	Bounded, connected 2-dimensional geometric, representing the continuous image of a region of a plane

B.17.10 MD_ImagingConditionCode <<CodeList>>

	Name	Domain code	Definition
1	MD_ImagingConditionCode		Code which Indicates conditions which may affect the quality of the image
2	blurredImage	001	Portion of the image is blurred
3	cloud	002	Portion of the image is partially obscured by cloud cover
4	degradingObliquity	003	Acute angle between the plane of the eliptic (the plane of the earth's orbit) and the plane of the celestial equator
5	fog	004	Portion of the image is partially obscured by fog
6	heavySmokeOrDust	005	Portion of the image is partially obscured by heavy smoke or dust
7	night	006	Image was taken at night
8	rain	007	Image was taken during rainfall
9	semiDarkness	008	Image was taken during semi-dark conditions—twilight conditions
10	shadow	009	Portion of the image is obscured by shadow
11	snow	010	Portion of the image is obscured by snow
12	terrainMasking	011	The absence of collection data of a given point or area caused by the relative location of topographic features which obstruct the collection path between the collector(s) and the subject(s) of interest.

B.17.11 MD_KeywordType <<CodeList>>

	Name	Domain code	Definition
1	MD_KeywordType		Methods used to group similar keywords
2	discipline	001	Keyword identifies a branch of instruction or specialised learning
3	place	002	Keyword identifies a place
4	stratum	003	Keyword identifies the layer(s) of any deposited substance
5	temporal	004	Keyword identifies a time period related to the dataset
6	theme	005	Keyword identifies a particular subject or topic

B.17.12 MD_LengthUnit <<Enumeration>>

	Name	Domain code	Definition
1	MD_LengthUnit		Information about the image used to represent geographic information
2	arcMinute	001	One sixtieth of a degree
3	arcSecond	002	One sixtieth of an arcMinute
4	centimetre	003	Metric unit of length equal to one-hundredth of a metre

	Name	Domain code	Definition
5	degree	004	Unit of measurement of angles subtended by one-three-hundred-and-sixtieth of the circumference of a circle.
6	internationalFoot	005	Unit of linear measure equal to 12 inches (30.48 centimetres)
7	internationalInch	006	Unit of linear measure equl to 1/12 of a foot (2.54 centrimetres)
8	internationalMile	007	Unit of linear measure equal to 1760 yards (approx. 1.609 kilometres)
9	kilometre	008	Metric unit of measure equal to 1,000 metres.
10	metre	009	Metric unit and the base SI unit of linear measure, equal to 100 centimetres. (about 39.4 inches)
11	millimetre	010	Metric unit of measure equal to one-thousandth of a metre.
12	nauticalMile	011	Unit of measure approximately equal to 2,025 yards (1,852 metres)

B.17.13 MD_MaintenanceFrequency <<CodeList>>

	Name	Domain code	Definition
1	MD_MaintenanceFrequency		Frequency with which modifications and deletations are made to the data after it is first produced
2	annually	001	Data is updated every year
3	asNeeded	002	Data is updated as deemed necessary
4	biannually	003	Data is updated twice each year
5	continual	004	Data is updated on a continuous basis
6	daily	005	Data is update each day
7	irregular	006	Data is updated in intervals that are uneven in duration
8	monthly	007	Data is updated each month
9	notPlanned	008	There are no plans to update the data
10	weekly	009	Data is updated on a weekly basis.
11	unknown	998	Frequency of maintenance for the data is not known.
12	otherMaintenancePeriod	000	Maintenance period is other than those defined in the MaintenanceFrequencyCode class.

B.17.14 MD_ProgressCode <<CodeList>>

	Name	Domain code	Definition
1	MD_ProgressCode		Status of the dataset or progress of a review
2	completed	001	Collection of the data has been completed.
3	historicalArchive	002	Data has been stored in an offline storage facility.
4	obsolete	003	Data is no longer relevant.
5	onGoing	004	Data is continuously being updated.
6	planned	005	Fixed date has been established upon which the data will be created or updated.
7	required	006	Data needs to be generated or updated.
8	inWork	007	Data is currently in the process of being created or updated.

B.17.15 MD_RasterCellType << Codelist>>

	Name	Domain code	Definition

	Name	Domain code	Definition
1	MD_RasterCellType		Raster spatial objects used to locate zero-, two-, or three-dimensional locations in the dataset
2	matrixCoded	001	Particular format of spatial data which consists of a matrix of evenly spaced rows and columns of data points. The position within the rows and columns represents the geographic position, while the data point is the value of some spatial variable at that position.
3	matrixValues	002	Values of data which consists of a matrix of evenly spaced rows and columns of data points
4	pixelCodes	003	Data is captured in minute areas of uniform illumination of which an image on a display screen is composed.
5	pixelHSI	004	Hue Saturation Intensity
6	pixelHLS	005	Hue Luminance Saturation
7	pixelRGB	006	Red, Green, Blue
8	TekHVC	007	Hue-Value-Chroma (model Tektronic, DTP)

B.17.16 MD_Restrictions <<Codelist>>

	Name	Domain code	Definition
1	MD_Restrictions		Limitation(s) placed upon the access or use of the data
2	copyright	001	Exclusive right to the publication, prduction, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the used of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor
3	patent	002	Produced or sold as a proprietary product
4	patentPending	003	Produced or sold information awaiting a patent
5	license	004	Formal permission to do something
6	intellectualPropertyRights	005	Non-tangible property that is a result of creativity.
7	otherRestrictions	000	Other limitations not covered

B.17.17 MD_Scope <<CodeList>>

	Name	Domain code	Definition
1	MD_Scope		Class of information to which the referencing entity applies
2	attribute	001	Information applies to the attribute class
3	featureAttribute	002	Information applies to the feature attribute class
4	collectionHardware	003	Information applies to the collection hardware class
5	collectionSession	004	Information applies to the collection session
6	dataset	005	Information applies to the dataset
7	series	006	Information applies to the series
8	nonGeographicDataset	007	Information applies to non-geographic data
9	dimensionGroup	008	Information applies to a dimension group
10	featureCollection	009	Information applies to a feature collection
11	feature	010	Information applies to a feature
12	featureType	011	Information applies to a feature type.

	Name	Domain code	Definition
13	propertyType	012	Information applies to a property type
14	fieldSession	013	Information applies to a fiels session

B.17.18 MD_SpatialRepresentationType <<Enumeration>>

	Name	Domain code	Definition
1	MD_SpatialRepresentationType		Method used to represent geographic information in the dataset
2	matrix	001	Rectangular array of elements in rows and columns that is treated as a single entity.
3	raster	002	Pattern of scanning lines for a cathode ray tube picture.
4	text	003	Data in written form, especially as stored, processed, or displayed in a word processor.
5	vector	004	Quantity having direction as well as magnitude, especially as determining the position of one point in space relative to another.

B.17.19 MD_TopologyLevel <<Enumeration>>

	Name	Domain code	Definition
1	MD_TopologyLevel		Degree of complexity of the spatial relationships
2	fullTopology3D	001	Three dimensional toplogical complex whose geometric realisation is a subset of a plane
3	geometryOnly	002	Geometry objects only without any additional structure which describes topology
4	nonPlanarGraph1D	003	Topological complex with no restrictions on its realisation
5	planarGraph1D	004	One dimensional toplogical complex whose geometric realisation is a subset of a plane
6	planarGraph2D	005	Two dimensional toplogical complex whose geometric realisation is a subset of a plane

B.17.20 MD_TypeName <<CodeList>>

	Name	Domain code	Definition
1	MD_TypeName		Kind of value to be provided in the extended element

B.17.21 MD_UomLength <<CodeList>>

	Name	Domain code	Definition
1	MD_UomLength		Vertical units used for vertical extent information