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Addendum A.

Subtypes

The specified subtypes for the features

Attribute field	Subtypes
Control Valve	0 = Other 1 = Air gap 2 = Air Control 3 = Air Release 4 = Atmospheric Vacuum 5 = Altitude 6 = Backflow Control 7 = CV Combination 8 = Double Check 9 = Pressure Vacuum 10 = Reducer Pressure Backflow 11 = RPZ 12 = Simple Check 13 = Vacuum 14 = Vacuum Breaker 15 = Vacuum Release 16 = Marley Pressure Release Valve 17 = Marley Lacto Valve 18 = Marley Two Way Vent Valve
End Point Facilities	1 = Basin Taps 2 = Bath Taps 3 = Shower taps 4 = Urinal inlet 5 = Toilet inlet

	6 = Warm_Water_Closing_Valve 7 = Cold_Water_Closing_Valve
Fittings	0 = Other 1 = Bend 2 = Cap 3 = End Cap 4= Coupling 5 = Expansion Joint 6 = Flanged adaptor 7 = Offset 8 = Reducer 9 = uPVC reducer 10 = Steel reducer 11 = Riser 12 = Saddle 13 = Sleeve 14 = Tee 15 = Flanged tee 16 = Weld 17 = Wye 18 = Marley P-Trap 19 = Marley S-Trap 20 = Marley Above Ground With Inspection Eye 21 = Marley One Way Vent 22 = Marley Pipe Socket 23 = Marley Rodding Eye 24 = Marley Gulley P-Trap

	25 = Cross
Mains	1 = Distribution Main 2 = Lateral Main Cold Marley Underground Pipe 3 = Lateral Main Cold Marley Above Pipe 4 = Lateral Main Hot Water 5 = 25mm_Decending_Pipe_Cold 6 = 25mm_Decending_Pipe_Warm 7 = 42mm_Decending_Pipe_Cold 8 = 42mm_Decending_Pipe_Warm 9 = 25mm_Heavy_Duty_Cold 10 = 25mm_Heavy_Duty_Warm 11 = 42mm_Current_Line 12 = 50mm_Current_Line 13 = 42mm_Heavy_Duty_Warm 14 = 42mm_Heavy_Duty_Cold
PUK Rooms	0 = Sub Floor 01 1 = Sub Floor 02 2 = Ground Floor 3 = Floor 01 4 = Floor 02 5 = Floor 03 6 = Floor 04 7 = Floor 05 8 = Floor 06 9 = Floor 07 10 = Floor 08

	11 = Floor 09 12 = Floor 10
Pumps	0 = Other 1 = Axial flow 2 = Booster/Centrifugal 3 = Jet 4 = Reciprocating 5 = Rotary 6 = Screw 7 = Turbine
System Valve	0 = Other 1 = Ball 2 = Butterfly 3 = Cone 4 = Gate 5 = Plug 6 = 25mm_Closing_Valve_Cold 7 = 25mm_Closing_Valve_Warm 8 = 42mm_Closing_Valve_Cold 9 = 42mm_Closing_Valve_Warm
Thrust Protection	0 = Other 1 = Anchor 2 = Blocking 3 = Dead man 4 = Kicker

Addendum B.

Domains

The domains created for the geodatabase

Domain	Domain Type	Coded values = Description (Degrees)	Description
Angles_Degrees	Coded Values (Long Integer)	**1**= 11.25 **2** = 22.5 **3** = 45 4 = 90 **5** = 125 degrees **6** = 180 degrees **7** = 90x90x45 **8** = 90x45x45 **9** = 90x45x45 **10** = 90x90x90x90 **11** = 90x90x90x45 **12** = 90x90x45x45 **13** = 90x45x45x45 **14** = 90x90 **15** = 90x45 **16** = 45x45 **17** = 45x22.5 **18** = 90x22.5 **19** = 90x90x90 **20** = 90x90x90x90x90 **21** = 90x90x90x90x45 **22** = 90x90x90x45x45	Contains all the possible angles in range for the fittings in the geodatabase
Department	Coded Values (Long Integer)	**0** = School of Languages **1** = School of Social and Government studies **2** = School of Music **3** = Communication studies	A predefined list of all the departments in the geodatabase

		4 = Philosophy **5** = School of Physical and Chemical Sciences **6** = School of Environmental Sciences and Development **7** = School of Computer, Statisctical and Mathematical Sciences **8** = Center for Business Mathematics and Informatics **9** = Center for Environmental management **10** = Center for Human Metabonomics **11** = School for Biblical Studies and Bible Languages **12** = School for Ecclesiastical Studies **13** = School of Education **14** = School of Continuing Teacher Education **15** = School of Curriculum-based Studies **16** = Potchefstroom Business School **17** = School of Accounting Sciences **18** = School of Economics **19** = School of Business management **20** = School of Human Resources Sciences **21** = Center for Community Law and Development **22** = School of Chemical Engineering **23** = School of Electrical, Electronic and Computer Engineering **24** = School of Mechanical Engineering **25** = Post-graduate School of Nuclear Science and Engineering	

		26 = School of Biokinetics, Recreation and Sport Sciences **27** = School of Pharmacy **28** = School of Physiology, Nutrition and Consumer Sciences **29** = School of Psychological Behavioral Sciences **30** = School of Nursing **31** = Research focus area: Teaching-Learning Organizations **32** = Administrational	
Faculty	Coded Values (Long Integer)	**0** = Arts **1** = Natural Sciences **2** = Theology **3** = Education Sciences **4** = Economic and Management Sciences **5** = Law **6** = Engineering **7** = Health Sciences	A predefined list of all the faculties on the campus
Fitting Diamter Size (mm)	Coded Values (Long Integer)	**1** = 12 **2** = 19 **3** = 25 **4** = 50 **5** = 75 **6** = 90 **7** = 75x25 **8** = 75x75 **9** = 90x75 **10** = 90x90 **11** = 110x75	Predefined fitting diameter values for all pipe and fitting types in the system

		12 = 110x90 **13** = 110x110 **14** = 160x75 **15** = 160x90 **16** = 160x160 **17** = 200x75 **18** = 200x90 **19** = 200x110 **20** = 200x160 **21** = 200x200 **22** = 250x75 **23** = 250x90 **24** = 250x110 **25** = 250x160 **26** = 250x200 **27** = 250x250 **28** = 315x75 **29** = 315x90 **30** = 315x110 **31** = 315x160 **32** = 315x200 **33** = 315x250 **34** = 375x315 **35** = 20 **36** = 42 **37** = 50x50x50 **38** = 50x50x42 **39** = 50x42x42 **40** = 42x42x42	

		41 = 42x42x19 **42** = 42x25x25 **43** = 25x25x25 **44** = 25x25x19 **45** = 25x19x19 **46** = 19x19x19 **47** = 19x12x12 **48** = 12x12x12 **49** = 50x50x50x50 **50** = 50x50x50x42 **51**= 50x50x42x42 **52** = 50x42x42x42 **53** = 42x42x42x42 **54** = 42x42x42x25 **55** = 42x42x25x25 **56** = 42x25x25x25 **57** = 25x25x25x25 **58** = 25x25x25x19 **59** = 25x25x19x19 **60** = 25x19x19x19 **61** = 19x19x19x19 **62** = 19x19x19x12 **63** = 19x19x12x12 **64** = 19x12x12x12 **65** = 12x12x12x12 **66** = 50x50 **67** = 50x42 **68** = 42x42 **69** = 42x25	

		70 = 42x19 **71** = 25x25 **72** = 25x19 **73** = 25x12 **74** = 19x19 **75** = 19x12 **76** = 12x12 **77** = 42x42x25 **78** = 19x19x12 **79** = 50x42x25 **80** = 42x42x25x19 **81** = 42x42x25x25x25 **82** = 42x42x42x25x25	
Geyser Element Rating	Coded Values (Long Integer)	**1** = 2kW **2** = 3kW **3** = 4kW	Predefined values for the geyser element rating as contribution to the geyser specification
Geyser Mass (kg)	Coded Values (Text)	50_slim = 21kg 100_slim = 30kg 150_slim = 39kg 100_std = 31kg 150_std = 36kg 200_std = 47kg 250_std = 64kg	Predefined values for the weight of the geysers in the system
Geyser Size Liters	Coded Values (Long Integer)	**1** = 50 Liter Slimline **2** = 100 Liter Slimline **3** = 150 Liter Slimline **4** = 100 Liter Standard **5** = 150 Liter Standard	Predefined values for the geyser size in liters

		6 = 200 Liter Standard **7** = 250 Liter Standard **8** = 20 Liter Standard **9** = 7.5 Liter KwikBoil **10** = 2.5 Liter kitchen **11** = 5 liter kitchen **12** = 7.5 liter kitchen **13** = 15 liter kitchen **14** = 25 liter kitchen	
Geyser Type Code	Coded Values (Text)	50 litre slim = ESG-050 100 litre slim = ESG-100 150 litre slim = ESG-150 100 litre standard = EF100-2D 150 litre standard = EF150-2D 200 litre standard = EF200-2D 250 litre standard = EF250-RD 7.5 litre standard = EF7.5-RD Kitchen 2.5 litres = Kitchen 2.5 litres Kitchen 5 litres = Kitchen 5 litres Kitchen 7.5 litres = Kitchen 7.5 litres Kitchen 15 litres = Kitchen 15 litres Kitchen 25 litres = Kitchen 25 litres	A list of the different standard codes for the geyser types in the system

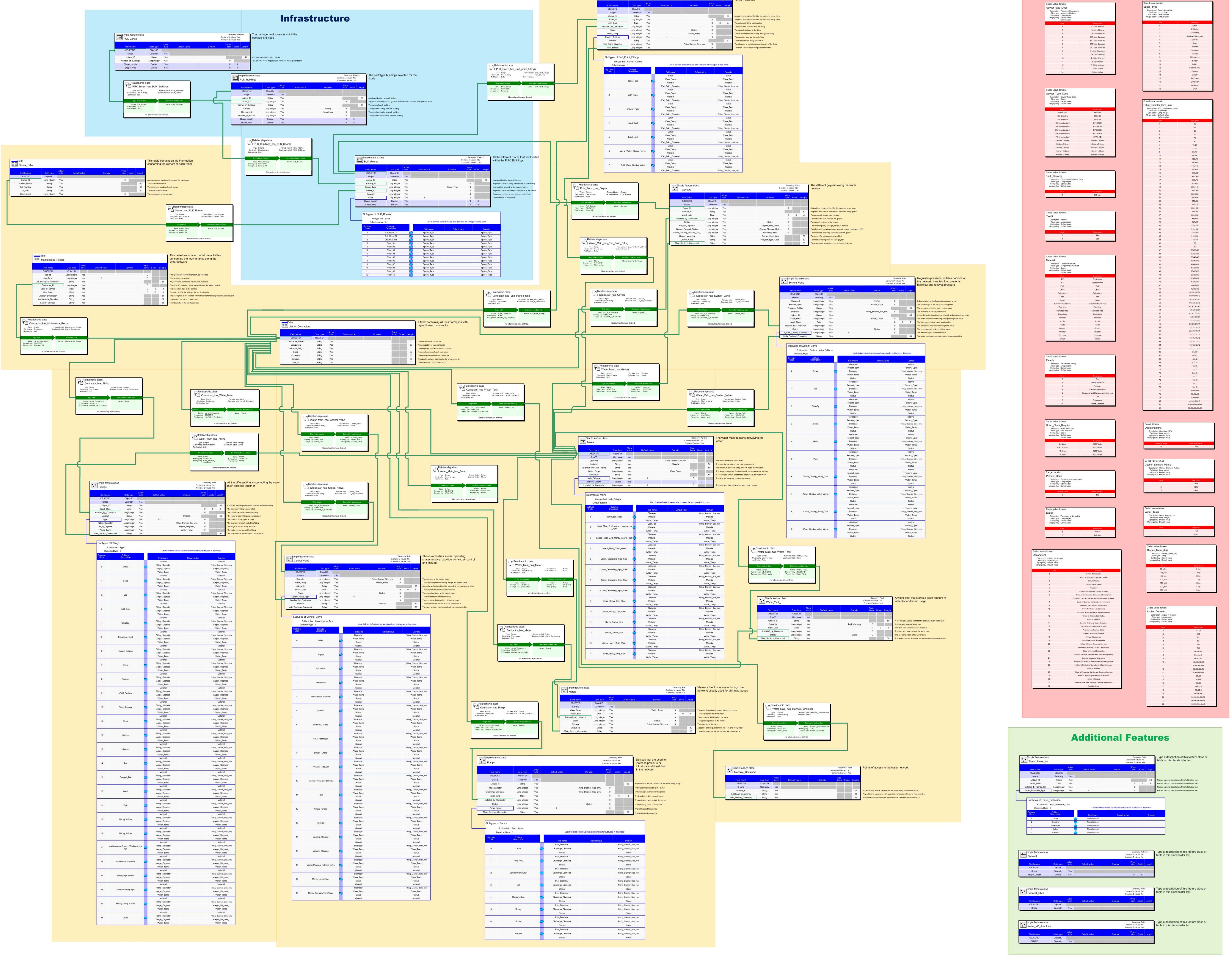
Material	Coded Values (Text)	PE = Polyethylene PY = Polybuthelene PVC = PVC CPVC = CPVC Galvanized = Galvanized Iron = Iron Steel = Steel Enameled Cast Iron = Enameled Cast Iron Cast Iron = Cast Iron Stainless steel = Stainless steel Fiberglass = Fiberglass Terrazza = Terrazza Acrylic = Acrylic Plastic = Plastic Copper = Copper Rubber = Rubber Concrete = Concrete Wood = Wood	A predefined list of all the possible material types that the components in the network are made of
Operating (kPa)	Range domain (Long Integer)	Range: 0 - 600	A specified range for operating pressure of the geysers
Percent Open	Range domain (Long Integer)	Range: 0 - 100	Predefined values for the percentage of a pump that is open

Space Type	Coded Values (Long Integer)	**0** = Office **1** = PC Labs **2** = Laboratory **3** = Seminar/Class room **4** = Corridor **5** = Steps **6** = Kitchen **7** = Bathroom **8** = Storage **9** = Utility room **10** = Empty **11** = Lobby **12** = Lobby **13** = Elevator **14** = Library **15** = Staff room **16** = Exhibition **17** = Museum **18** = Shaft	Predefined descriptions of the different space types in the study area
Status	Coded Values (Long Integer)	**0** = Inactive **1** = Active	Predefined values for indicating whether a component is active or inactive in the system
Water Temp	Coded Values (Long Integer)	**1** = Hot **2** = Cold	Predefined values for the water temperature
Yes/No	Coded Values (Long Integer)	**0** = Yes **1** = No	Predefined values for indicating whether a component applies positively or negatively to a field where applicable

Addendum C.

The Geodatabase Diagram as as summary of the geodatabase

Geodatabase Diagram of the PUK_Kampus5

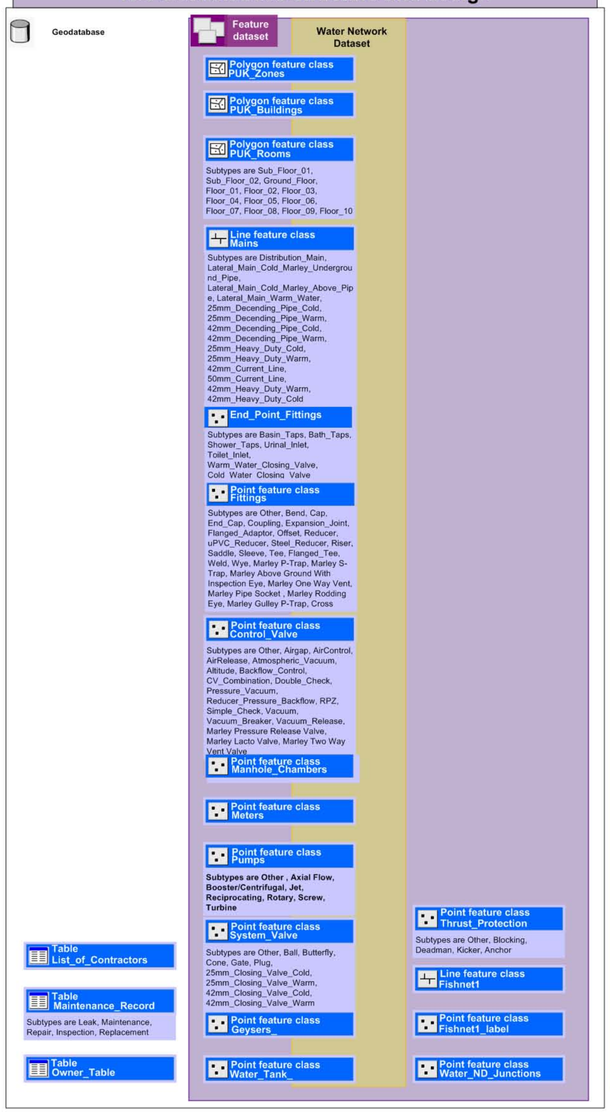


Addendum D.

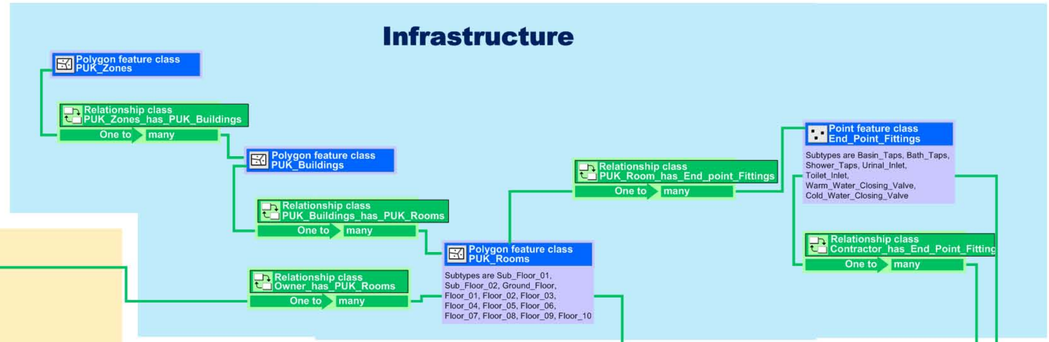
A summary of the Geodatabase Diagram

Summarized Diagram of the PUK_Kampus5

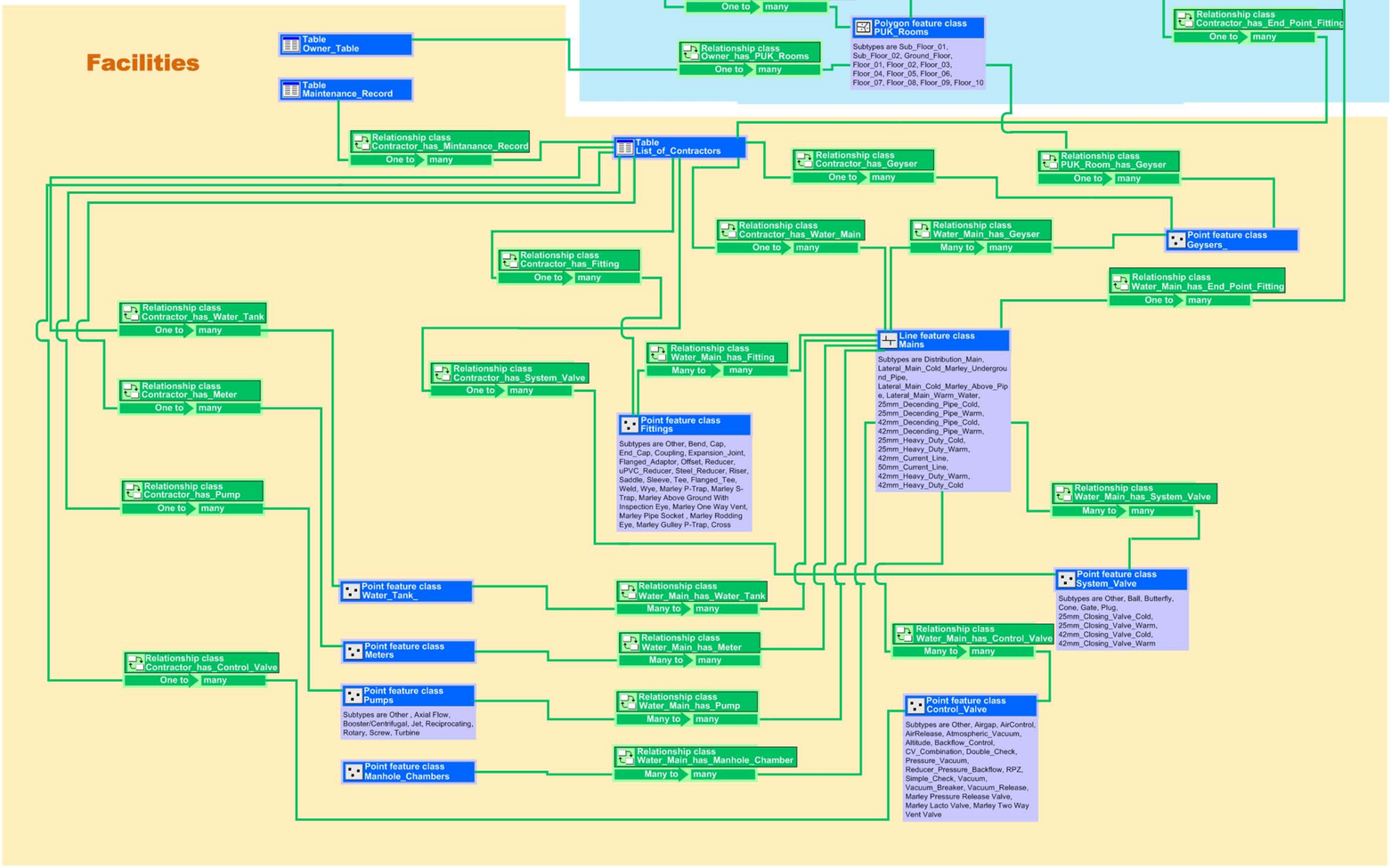
The Geodatabase structure and design



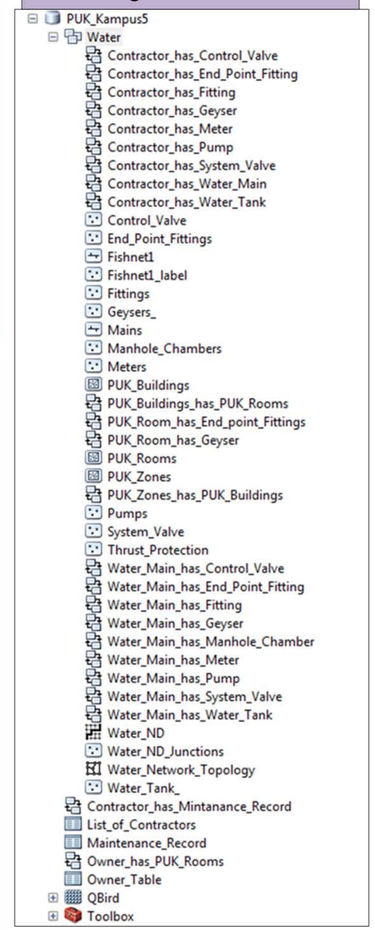
Infrastructure



Facilities



The catalog view of the geodatabase



Additional Features

Point feature class Thrust_Protection Subtypes are Other, Blocking, Deadman, Kicker, Anchor	Place a description of this feature class or table here.
Line feature class Fishnet1	Place a description of this feature class or table here.
Point feature class Fishnet1_label	Place a description of this feature class or table here.
Point feature class Water_ND_Junctions	Place a description of this feature class or table here.