LEGEND

- Existing network pipes
- Existing bulk supply pipeline
- Existing reservoirs / towers
- Existing pumping station
- Existing zone valve
- Existing non-return valve
- Existing pressure reducing valve
- Existing Water Treatment Plant (WTP)
- Existing flow control valve
- Abandon reservoir
- Abandon pumping station
- Abandon PRV
- Master plan item
- Future network pipes
- Future reservoir
- Future pumping station
- Future PRV
- Future zone valve
- Future flow control valve
- Cadastral boundaries
- Railway line
- River

Future Development Areas

- Affordable housing
- Business/Commercial
- Group housing 40 to 60
- Industrial
- Parks & sportfields
- Res 500
- Res 1000
- Res >2000

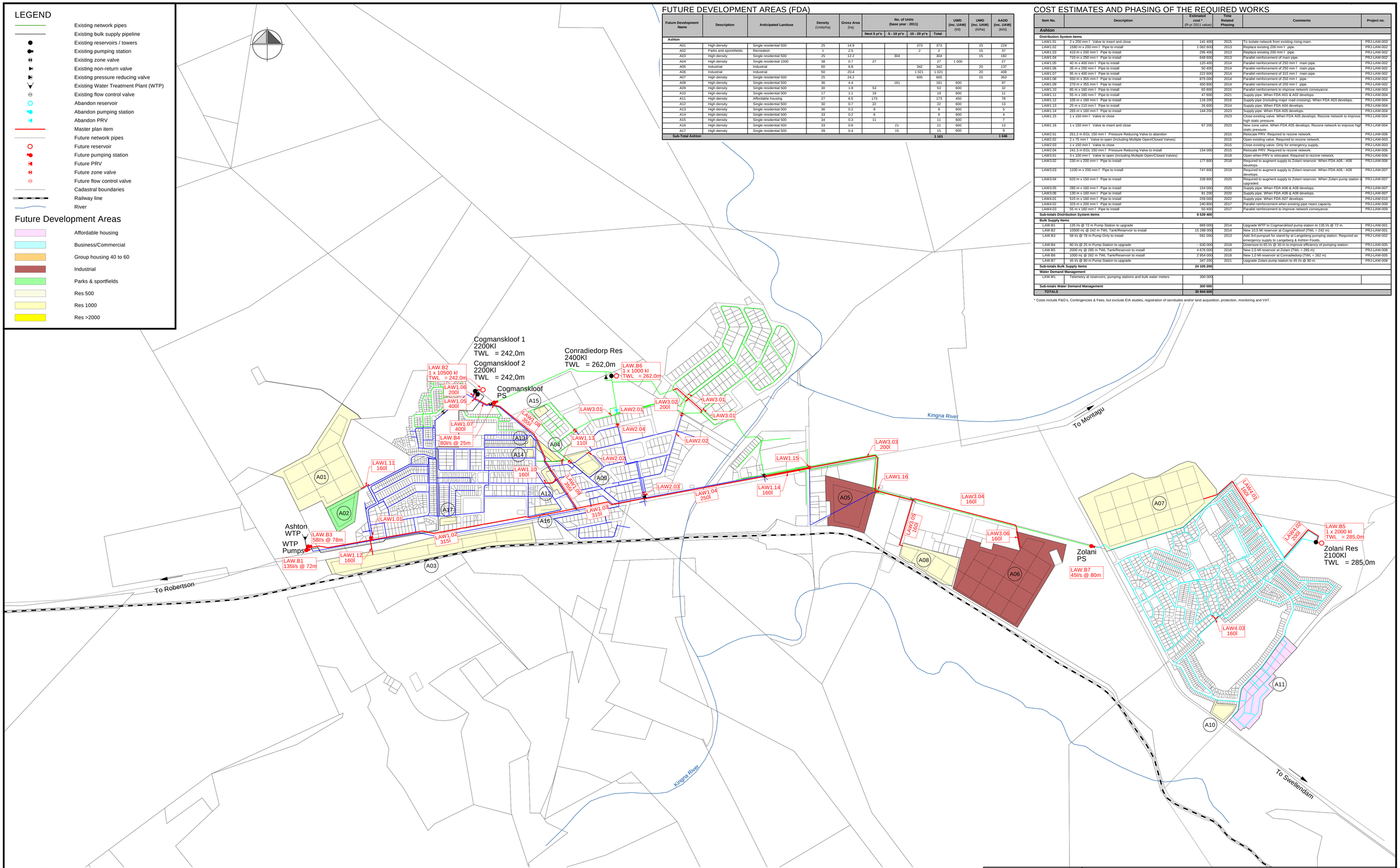
FUTURE DEVELOPMENT AREAS (FDA)

Future Development Name	Description	Anticipated Landuse	Density (Units/ha)	Gross Area (ha)	No. of Units (base year : 2011)				UWD (inc. UAW) (l/d)	UWD (inc. UAW) (kl/ha)	AADD (inc. UAW) (kl/d)
					Next 5 yr's	5 - 10 yr's	10 - 20 yr's	Total			
Ashton											
A01	High density	Single residential 500	25	14.9			373	373		15	224
A02	Parks and sportsfields	Recreation	1	2.5			2	2		15	37
A03	High density	Single residential 500	25	12.2		304		304		15	182
A04	High density	Single residential 1000	38	0.7	27			27	1 000		27
A05	Industrial	Industrial	50	6.8			342	342		20	137
A06	Industrial	Industrial	50	20.4			1 021	1 021		20	408
A07	High density	Single residential 500	25	24.2			605	605		15	363
A08	High density	Single residential 500	36	4.4		161		161	600		97
A09	High density	Single residential 500	30	1.8	53			53	600		32
A10	High density	Single residential 500	17	1.1	19			19	600		11
A11	High density	Affordable housing	27	6.5	173			173	450		78
A12	High density	Single residential 500	30	0.7	22			22	600		13
A13	High density	Single residential 500	36	0.2	8			8	600		5
A14	High density	Single residential 500	33	0.2	6			6	600		4
A15	High density	Single residential 500	34	0.3	11			11	600		7
A16	High density	Single residential 500	33	0.6		21		21	600		13
A17	High density	Single residential 500	39	0.4		15		15	600		9
Sub-Total Ashton								**3 163**			**1 646**

COST ESTIMATES AND PHASING OF THE REQUIRED WORKS

Item No.	Description	Estimated cost * (R-yr 2011 value)	Time Related Phasing	Comments	Project no.
Ashton					
Distribution System Items					
LAW.I.01	2 x 200 mm l Valve to insert and close	141 400	2015	To isolate network from existing rising main.	PRJ-LAW-003
LAW.I.02	1580 m x 200 mm l Pipe to install	1 062 600	2013	Replace existing 200 mm l pipe.	PRJ-LAW-001
LAW.I.03	410 m x 200 mm l Pipe to install	295 400	2013	Replace existing 200 mm l pipe.	PRJ-LAW-002
LAW.I.04	710 m x 250 mm l Pipe to install	649 600	2013	Parallel reinforcement of main pipe.	PRJ-LAW-002
LAW.I.05	40 m x 400 mm l Pipe to install	120 400	2014	Parallel reinforcement of 250 mm l main pipe.	PRJ-LAW-002
LAW.I.06	35 m x 200 mm l Pipe to install	50 400	2014	Parallel reinforcement of 250 mm l main pipe.	PRJ-LAW-002
LAW.I.07	95 m x 400 mm l Pipe to install	222 600	2014	Parallel reinforcement of 315 mm l main pipe.	PRJ-LAW-002
LAW.I.08	550 m x 355 mm l Pipe to install	875 000	2014	Parallel reinforcement of 250 mm l pipe.	PRJ-LAW-002
LAW.I.09	270 m x 355 mm l Pipe to install	450 800	2014	Parallel reinforcement of 200 mm l pipe.	PRJ-LAW-002
LAW.I.10	85 m x 160 mm l Pipe to install	65 800	2015	Parallel reinforcement to improve network conveyance.	PRJ-LAW-003
LAW.I.11	55 m x 160 mm l Pipe to install	47 600	2021	Supply pipe. When FDA A01 & A02 develops.	PRJ-LAW-004
LAW.I.12	105 m x 160 mm l Pipe to install	118 200	2016	Supply pipe (including major road crossing). When FDA A03 develops.	PRJ-LAW-004
LAW.I.13	25 m x 110 mm l Pipe to install	26 600	2014	Supply pipe. When FDA A04 develops.	PRJ-LAW-004
LAW.I.14	265 m x 160 mm l Pipe to install	144 200	2023	Supply pipe. When FDA A05 develops.	PRJ-LAW-004
LAW.I.15	1 x 150 mm l Valve to close	-	2023	Close existing valve. When FDA A05 develops. Rezone network to improve high static pressure.	PRJ-LAW-004
LAW.I.16	1 x 150 mm l Valve to insert and close	67 200	2023	New zone valve. When FDA A05 develops. Rezone network to improve high static pressure.	PRJ-LAW-004
LAW.2.01	251.2 m EGL 150 mm l Pressure Reducing Valve to abandon	-	2015	Relocate PRV. Required to rezone network.	PRJ-LAW-006
LAW.2.02	2 x 75 mm l Valve to open (including Multiple Open/Closed Valves)	-	2015	Open existing valve. Required to rezone network.	PRJ-LAW-003
LAW.2.03	1 x 150 mm l Valve to close	-	2015	Close existing valve. Only for emergency supply.	PRJ-LAW-003
LAW.2.04	241.1 m EGL 150 mm l Pressure Reducing Valve to install	154 000	2015	Relocate PRV. Required to rezone network.	PRJ-LAW-006
LAW.3.01	3 x 100 mm l Valve to open (including Multiple Open/Closed Valves)	-	2018	Open when PRV is relocated. Required to rezone network.	PRJ-LAW-006
LAW.3.02	230 m x 200 mm l Pipe to install	177 800	2018	Required to augment supply to Zolani reservoir. When FDA A06 - A08 develops.	PRJ-LAW-006
LAW.3.03	1100 m x 200 mm l Pipe to install	747 600	2019	Required to augment supply to Zolani reservoir. When FDA A06 - A08 develops.	PRJ-LAW-007
LAW.3.04	620 m x 150 mm l Pipe to install	338 800	2020	Required to augment supply to Zolani reservoir. When Zolani pump station is upgraded.	PRJ-LAW-007
LAW.3.05	285 m x 160 mm l Pipe to install	154 000	2020	Supply pipe. When FDA A06 & A08 develops.	PRJ-LAW-007
LAW.3.06	130 m x 160 mm l Pipe to install	81 200	2020	Supply pipe. When FDA A06 & A08 develops.	PRJ-LAW-007
LAW.4.01	515 m x 160 mm l Pipe to install	259 000	2022	Supply pipe. When FDA A07 develops.	PRJ-LAW-010
LAW.4.02	325 m x 200 mm l Pipe to install	240 800	2017	Parallel reinforcement when existing pipe nears capacity.	PRJ-LAW-009
LAW.4.03	55 m x 160 mm l Pipe to install	50 400	2017	Parallel reinforcement to improve network conveyance.	PRJ-LAW-009
Sub-totals Distribution System Items		**6 539 400**			
Bulk Supply Items					
LAW.B1	135 l/s @ 72 m Pump Station to upgrade	889 000	2014	Upgrade WTP to Cogmanskloof pump station to 135 l/s @ 72 m.	PRJ-LAW-001
LAW.B2	10500 m³ @ 242 m TWL Tank/Reservoir to install	15 288 000	2014	New 10,5 Ml reservoir at Cogmanskloof (TWL = 242 m)	PRJ-LAW-001
LAW.B3	58 l/s @ 78 m Pump Only to install	581 000	2013	Add 3rd pumpset for stand-by at Langeberg pumping station. Required as emergency supply to Langeberg & Ashton Foods.	PRJ-LAW-002
LAW.B4	80 l/s @ 25 m Pump Station to upgrade	630 000	2018	Downsize to 65 l/s @ 30 m to improve efficiency of pumping station.	PRJ-LAW-005
LAW.B5	2000 m³ @ 285 m TWL Tank/Reservoir to install	4 676 000	2016	New 2,0 Ml reservoir at Zolani (TWL = 285 m)	PRJ-LAW-008
LAW.B6	1000 m³ @ 262 m TWL Tank/Reservoir to install	2 954 000	2018	New 1,0 Ml reservoir at Conradiedorp (TWL = 262 m)	PRJ-LAW-005
LAW.B7	45 l/s @ 80 m Pump Station to upgrade	347 200	2021	Upgrade Zolani pump station to 45 l/s @ 80 m.	PRJ-LAW-008
Sub-totals Bulk Supply Items		**24 105 200**			
Water Demand Management					
LAW.M1	Telemetry at reservoirs, pumping stations and bulk water meters	300 000			
Sub-totals Water Demand Management		**300 000**			
TOTALS		**30 944 600**			

* Costs include P&G's, Contingencies & Fees, but exclude EIA studies, registration of servitudes and/or land acquisition, protection, monitoring and VAT.



March 2012

Water Master Plan Langeberg Municipality

100 200 400 800 meters

Scale 1:10000

gls consulting

Figure LBW 6.5a

Future required works - Ashton