

APPENDIX C

Facility Illustration(s)



LOCALITY PLAN
1:15 000

LEGEND:

— NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16

The Master held at Aurecon bears the signature of approval



DETAIL A
1:2500

DETAIL B
1:2500

CLIENT

REVISIONS

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE AS SHOWN | **SIZE** A1

WORK IN PROGRESS

DRAWN L.BLIGNAUT | **APPROVED** L.BLIGNAUT

DESIGNED L.BLIGNAUT | **DATE** 20/04/19

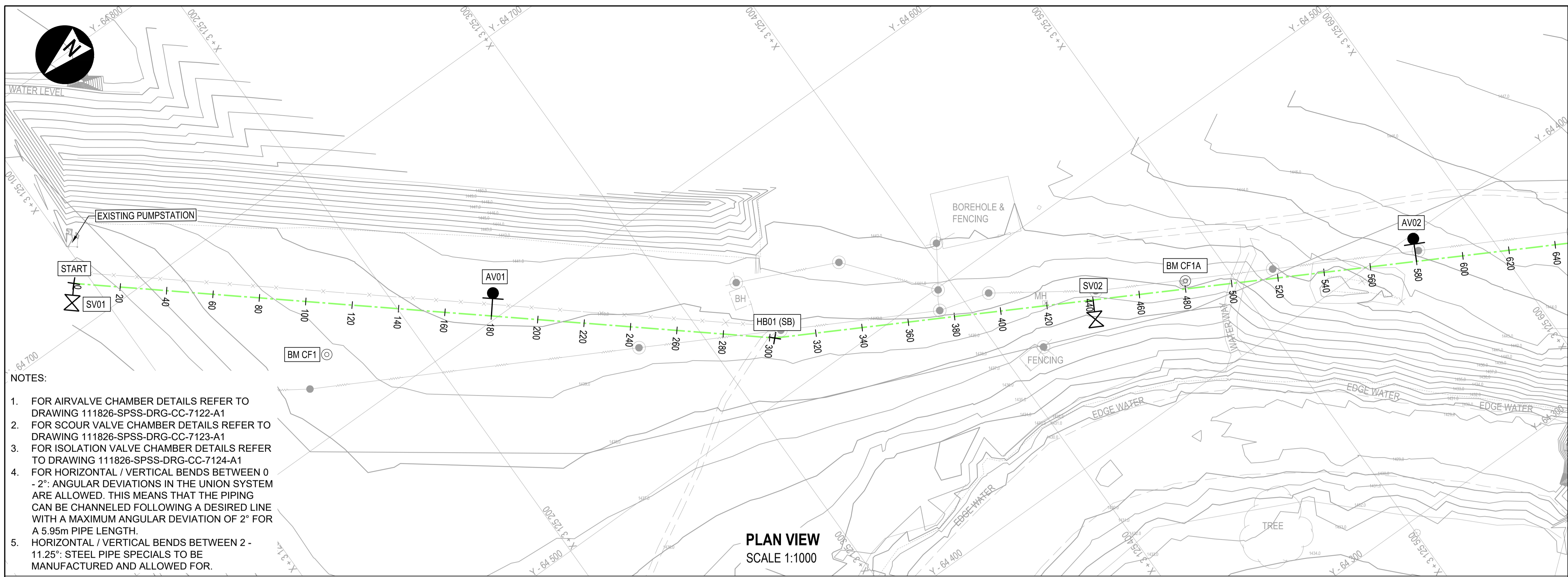
REVIEWED W.BARNARD | **Pr Tech Eng** 200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: LOCALITY PLAN

DRAWING NUMBER

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	0001	A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27 HORIZONTAL ALIGNMENT

POINT	Y	X
START	-64 717.710	3 125 093.230
HB01	-64 523.290	3 125 324.570

CO-ORDINATES: WGS LO 27 BENCHMARKS

POINT	Y	X	LEVEL
BM CF1	-64 629.607	3 125 163.882	1438.847
BM CF1A	-64 440.485	3 125 482.391	1440.262

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1430



STRUCTURE REFERENCE	START SV01	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB02	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB03 AV01	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB04	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB05	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								HB01	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB06 SV02	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB07	500mm DIA PVC-O CLASS 12.5 / 16 PIPE								VB08
CHAINAGE (m)	0.00	20.00	40.00	60.00	80.00	100.00	120.00	140.00	160.00	180.00	200.00	220.00	240.00	260.00	280.00	300.00	302.19	320.00	340.00	360.00	380.00	400.00	420.00	440.00	460.00	480.00	500.00																																														
GROUND LEVEL	1436.65	1437.03	1437.62	1438.31	1438.87	1439.07	1439.22	1439.53	1439.88	1440.09	1440.13	1439.99	1439.77	1439.59	1439.53	1439.52	1439.52	1439.53	1439.70	1439.91	1439.93	1439.75	1439.26	1438.82	1439.37	1439.90	1439.70																																														
PIPE INVERT LEVEL	1434.90	1435.34	1435.79	1436.23	1436.67	1436.89	1437.06	1437.41	1437.75	1438.10	1438.44	1438.29	1437.99	1437.92	1437.86	1437.79	1437.78	1437.68	1437.57	1437.46	1437.35	1437.24	1437.13	1437.02	1437.38	1437.74	1437.88																																														
TRENCH DEPTH	1.89	1.82	1.97	2.22	2.34	2.32	2.29	2.26	2.26	2.13	1.83	1.93	1.88	1.91	1.81	1.87	1.88	1.98	2.27	2.59	2.71	2.65	2.27	1.94	2.13	2.30	1.95																																														
SLOPE & SLOPE DISTANCE (m)		1:45.36 90.02				1:57.95 90.01				-1:133.34 60.00				-1:295.08 60.00				-1:181.54 140.00				1:55.59 40.01				1:134.31 20.00																																															
CHANGE IN DIRECTION		0.27°				1.42°				0.24°				0.12°				11.25°				1.35°				0.60°				1.94°																																											

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 0m - 500m



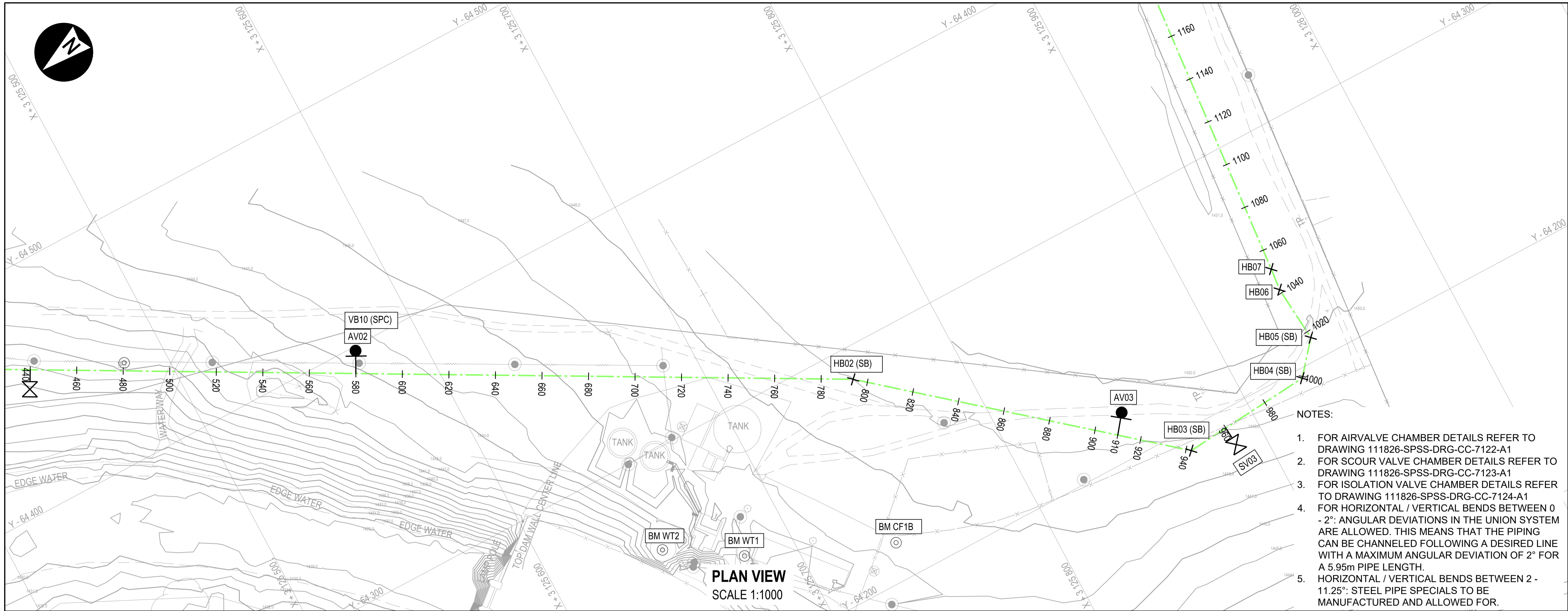
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED
DRAWN	L.BLIGNAUT	DATE
DESIGNED	L.BLIGNAUT	20/04/19
REVIEWED	L.BLIGNAUT	Pr Tech Eng
W BARNARD	W BARNARD	200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 0 - CH 500m)

DRAWING NUMBER					
PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7101	-A1



PLAN VIEW
SCALE 1:1000

- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

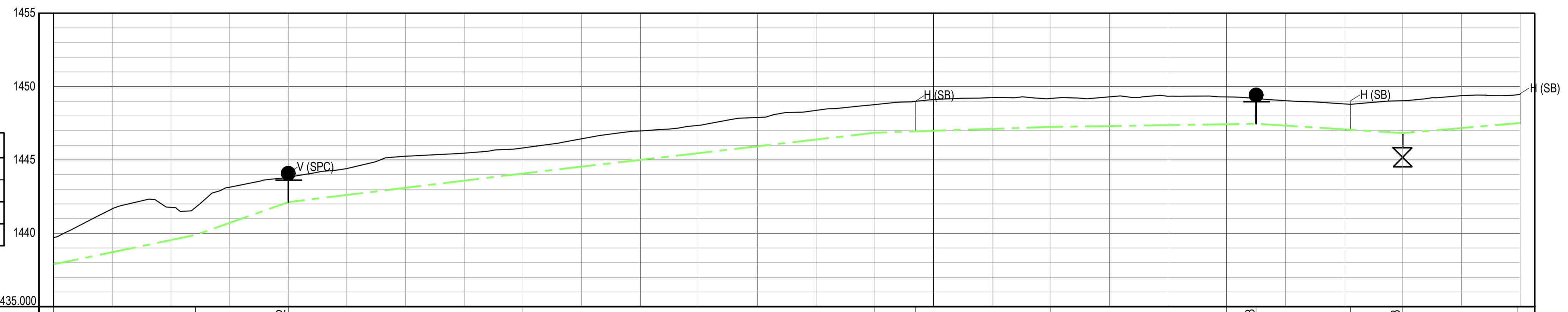
The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB02	-64 286.578	3 125 755.397
HB03	-64 191.069	3 125 869.137
HB04	-64 196.033	3 125 925.878
HB05	-64 209.685	3 125 937.334
HB06	-64 234.158	3 125 935.192
HB07	-64 243.614	3 125 936.228

POINT	Y	X	LEVEL
BM CF1A	-64 440.485	3 125 482.391	1440.262
BM WT1	-64 241.623	3 125 678.489	1445.331
BM WT2	-64 260.547	3 125 648.568	1444.871
BM CF1B	-64 215.957	3 125 738.614	1447.168

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1435.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE																			
	VB08	VB09	VB10	AV02	VB11	VB12	HB02	VB13	VB14	AV03	HB03	VB15	SV03	HB04																		
CHAINAGE (m)	500.00	520.00	540.00	548.41	560.00	600.00	620.00	640.00	660.00	680.00	700.00	720.00	740.00	760.00	780.00	793.76	800.00	820.00	840.00	860.00	880.00	900.00	910.00	920.00	940.00	942.28	960.00	980.00	999.24	1000.00		
GROUND LEVEL	1439.70	1441.67	1441.76	1441.77	1443.14	1442.12	1443.82	1444.41	1444.44	1445.25	1445.46	1445.82	1446.44	1446.97	1447.36	1447.89	1448.38	1448.77	1449.04	1449.19	1449.30	1449.34	1449.29	1449.19	1449.04	1448.82	1448.79	1448.83	1449.04	1449.38	1449.45	1449.48
PIPE INVERT LEVEL	1437.88	1438.71	1439.54	1439.89	1440.71	1442.12	1443.10	1442.61	1443.10	1443.59	1444.08	1444.54	1445.04	1445.54	1446.03	1446.52	1446.99	1447.46	1447.92	1448.38	1448.84	1449.30	1449.76	1450.22	1450.68	1451.14	1451.60	1452.06	1452.52	1452.98	1453.44	1453.90
TRENCH DEPTH	1.95	3.09	2.35	2.01	2.56	1.83	1.93	2.28	2.00	1.87	2.03	2.10	2.02	2.09	2.12	2.05	2.18	2.25	2.26	2.07	2.12	2.10	1.99	1.85	1.83	1.87	1.87	2.34	2.33	2.08	2.09	
SLOPE & SLOPE DISTANCE (m)	1:24.17 48.46		1:14.13 31.66		1:40.93 80.02				1:43.23 120.03				1:151.68 60.00				1:328.44 70.00				-1:79.06 50.00				1:58.22 60.01							
CHANGE IN DIRECTION	HOR																															
	VER	1.94°	1.68°		2.65°	0.07°				0.95°	11.25°	0.20°				0.90°	45.00°	1.71°	45.00°													

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 500m - 1000m

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CLIENT
Setsoto Local Municipality

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

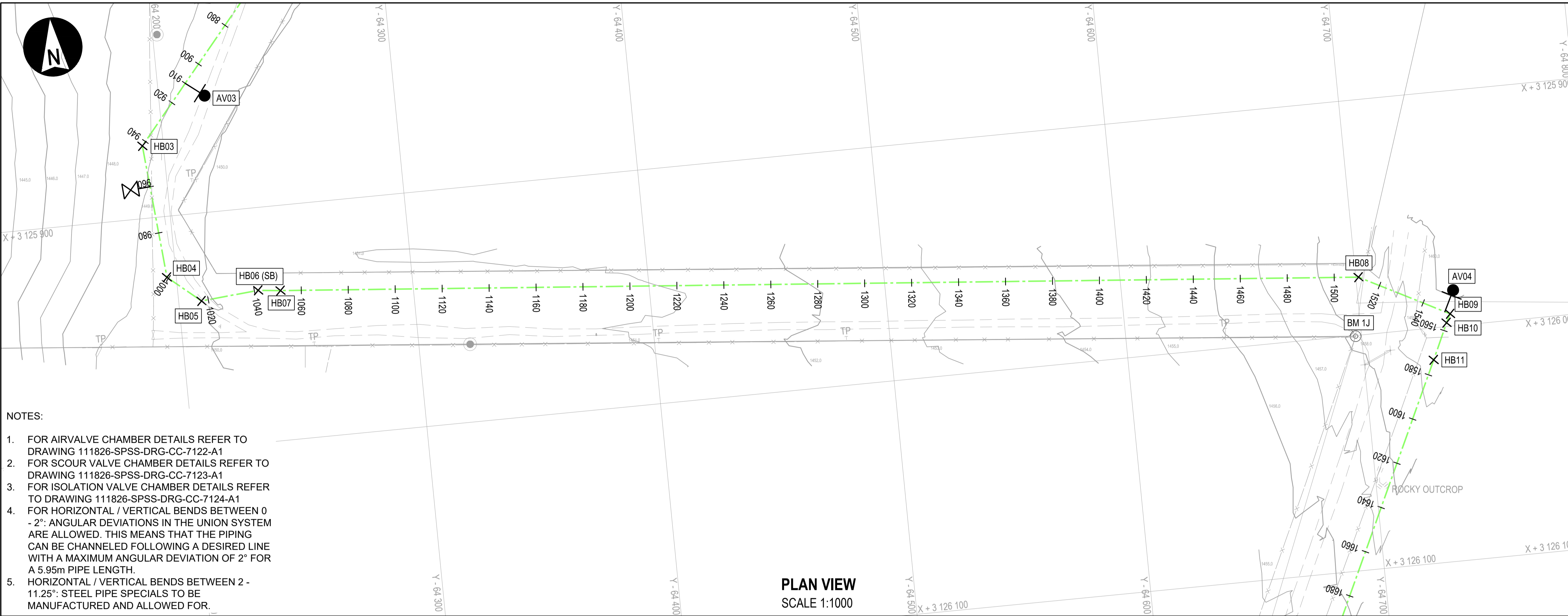
SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED

DRAWN	DESIGNED	REVIEWED	DATE
L.BIGNAUT	L.BIGNAUT	W.BARNARD	20/04/19

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 500 - CH 1000m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7102	A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNELLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

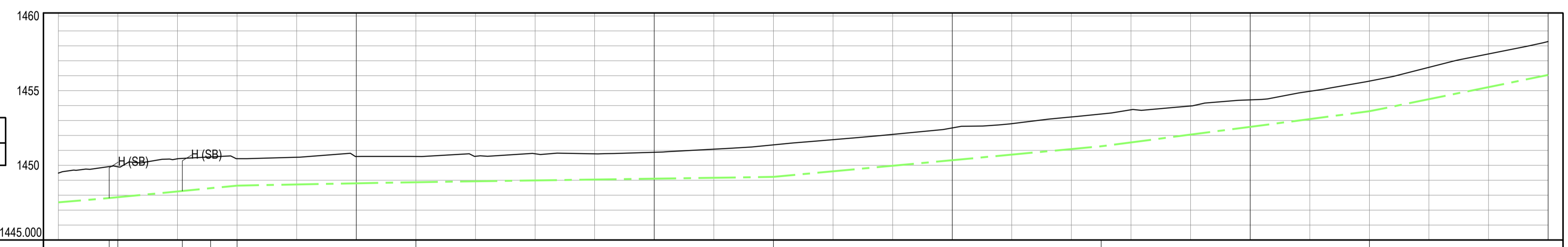
- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB07	-64 243.614	3 125 936.228
HB08	-64 701.169	3 125 975.372
HB09	-64 738.487	3 125 994.716
HB10	-64 736.605	3 125 998.347
HB11	-64 729.611	3 126 013.589

POINT	Y	X	LEVEL
BM 1J	-64 697.489	3 126 000.339	1458.149



SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1445.000

STRUCTURE REFERENCE	1000.00	1017.06	1020.00	1040.00	1041.63	1051.14	1060.00	1080.00	1100.00	1120.00	1140.00	1160.00	1180.00	1200.00	1220.00	1240.00	1260.00	1280.00	1300.00	1320.00	1340.00	1350.00	1360.00	1380.00	1400.00	1420.00	1439.99	1460.00	1480.00	1500.00
CHAINAGE (m)	1000.00	1017.06	1020.00	1040.00	1041.63	1051.14	1060.00	1080.00	1100.00	1120.00	1140.00	1160.00	1180.00	1200.00	1220.00	1240.00	1260.00	1280.00	1300.00	1320.00	1340.00	1350.00	1360.00	1380.00	1400.00	1420.00	1439.99	1460.00	1480.00	1500.00
GROUND LEVEL	1449.48	1449.91	1449.90	1450.44	1450.46	1450.56	1450.44	1450.54	1450.59	1450.59	1450.60	1450.77	1450.76	1450.87	1451.08	1451.37	1451.72	1452.07	1452.50	1452.79	1453.24	1453.44	1453.72	1453.97	1454.38	1454.96	1455.63	1456.56	1457.46	1458.29
PIPE INVERT LEVEL	1447.52	1447.81	1447.86	1448.25	1448.28	1448.47	1448.64	1448.71	1448.79	1448.87	1448.93	1448.99	1449.05	1449.11	1449.17	1449.22	1449.37	1449.57	1450.34	1450.72	1451.09	1451.27	1451.53	1452.06	1452.58	1453.10	1453.62	1454.43	1455.24	1456.05
TRENCH DEPTH	2.09	2.24	2.17	2.32	2.31	2.23	1.94	1.96	1.94	1.86	1.81	1.92	1.85	1.90	2.05	2.28	2.25	2.24	2.30	2.21	2.29	2.30	2.32	2.05	1.94	1.99	2.15	2.27	2.36	2.37
SLOPE & SLOPE DISTANCE (m)	1:58.22 60.01		1:51.38 40.01		1:262.48 60.02		1:335.75 119.98		1:53.68 110.02		1:38.38 90.02		1:24.68 110.10																	
CHANGE IN DIRECTION	HOR	45.00°		11.25°	1.36°																									
	VER	0.13°																												

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 1000m - 1500m

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CLIENT
 Setsoto Local Municipality

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

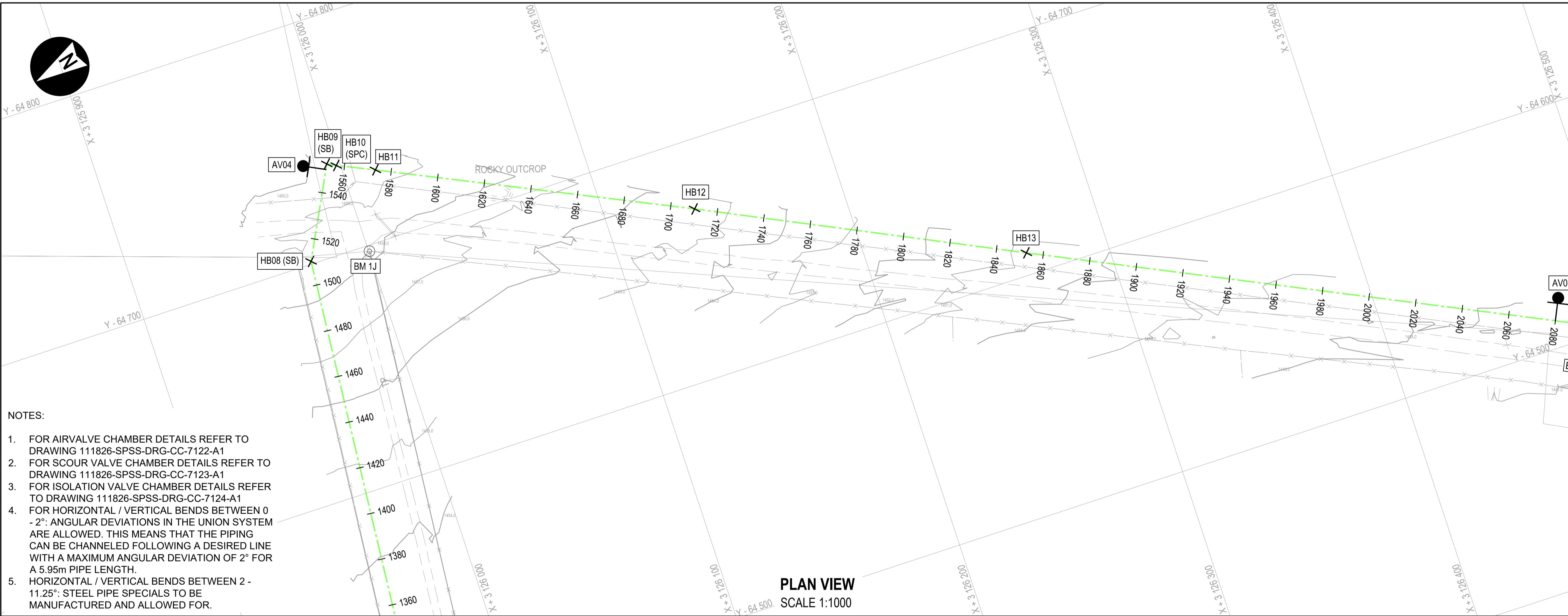
SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	

DRAWN	DESIGNED	REVIEWED	DATE
L.BLIGNAUT	L.BLIGNAUT	W.BARNARD	20/04/19

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 1000 - CH 1500m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7103	-A1



- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

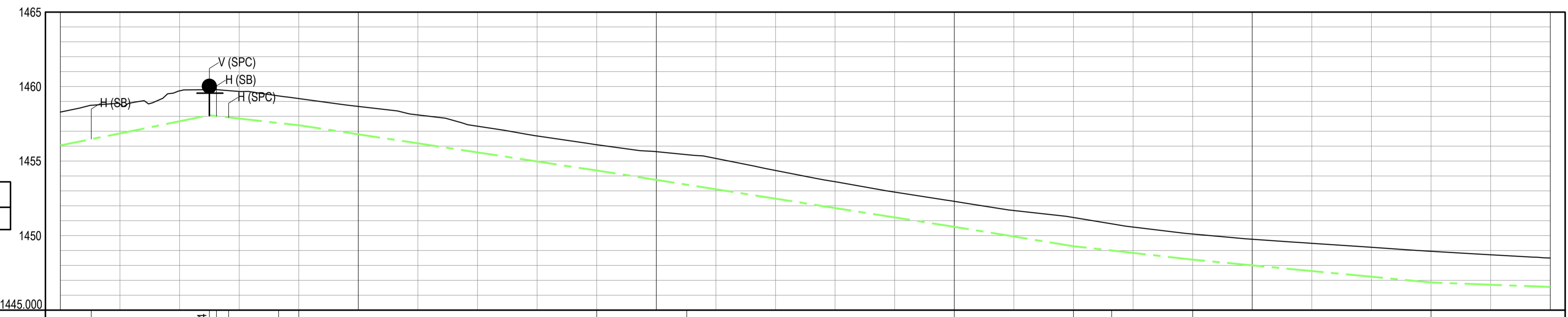
The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB11	-64 729.611	3 126 013.589
HB12	-64 671.318	3 126 137.535
HB13	-64 609.350	3 126 265.942

POINT	Y	X	LEVEL
BM 1J	-64 697.489	3 126 000.339	1458.149

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1445.000



STRUCTURE REFERENCE	1500.00	1510.37	1520.00	1540.00	1550.00	1552.40	1556.49	1573.26	1580.00	1600.00	1620.00	1640.00	1660.00	1680.00	1700.00	1710.23	1720.00	1740.00	1760.00	1780.00	1800.00	1820.00	1840.00	1852.81	1860.00	1880.00	1900.00	1920.00	1940.00	1960.00	1980.00	2000.00
CHAINAGE (m)	1500.00	1510.37	1520.00	1540.00	1550.00	1552.40	1556.49	1573.26	1580.00	1600.00	1620.00	1640.00	1660.00	1680.00	1700.00	1710.23	1720.00	1740.00	1760.00	1780.00	1800.00	1820.00	1840.00	1852.81	1860.00	1880.00	1900.00	1920.00	1940.00	1960.00	1980.00	2000.00
GROUND LEVEL	1458.29	1458.74	1458.83	1459.71	1459.79	1459.80	1459.73	1459.37	1459.19	1458.66	1458.10	1457.34	1456.68	1456.10	1455.63	1455.43	1455.18	1454.37	1453.62	1452.92	1452.30	1451.68	1451.21	1450.79	1450.57	1450.10	1449.76	1449.48	1449.22	1448.95	1448.71	1448.50
PIPE INVERT LEVEL	1456.05	1456.47	1456.86	1457.67	1458.08	1458.02	1457.93	1457.55	1457.40	1456.80	1456.19	1455.58	1454.98	1454.37	1453.74	1453.42	1453.11	1452.48	1451.85	1451.22	1450.59	1449.94	1449.29	1448.84	1448.44	1448.39	1448.01	1447.62	1447.24	1446.86	1446.70	1446.55
TRENCH DEPTH	2.37	2.41	2.10	2.17	1.85	1.91	1.93	1.95	1.93	2.00	2.04	1.89	1.84	1.86	2.03	2.15	2.21	2.02	1.90	1.84	1.84	1.88	2.06	1.92	1.87	1.85	1.89	1.99	2.12	2.23	2.14	2.08
SLOPE & SLOPE DISTANCE (m)	1:24.68 110.10		-1:44.65 30.01		-1:32.96 100.05		-1:31.74 120.06		-1:30.77 40.02		-1:44.42 40.01		-1:52.17 80.01		-1:132.44 120.00																	
CHANGE IN DIRECTION	HOR 22.50°		VER 3.80°		HOR 90.00°		VER 2.75°		HOR 0.54°		VER 0.45°		HOR 0.07°		VER 0.06°		HOR 0.57°		VER 0.23°		HOR 0.19°		VER 0.67°									

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 1500m - 2000m

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CLIENT
Setso Local Municipality

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED

DRAWN	DESIGNED	REVIEWED	DATE
L.BIGNAUT	L.BIGNAUT	W.BARNARD	20/04/19

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 1500 - CH 2000m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7104	-A1



- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNELLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

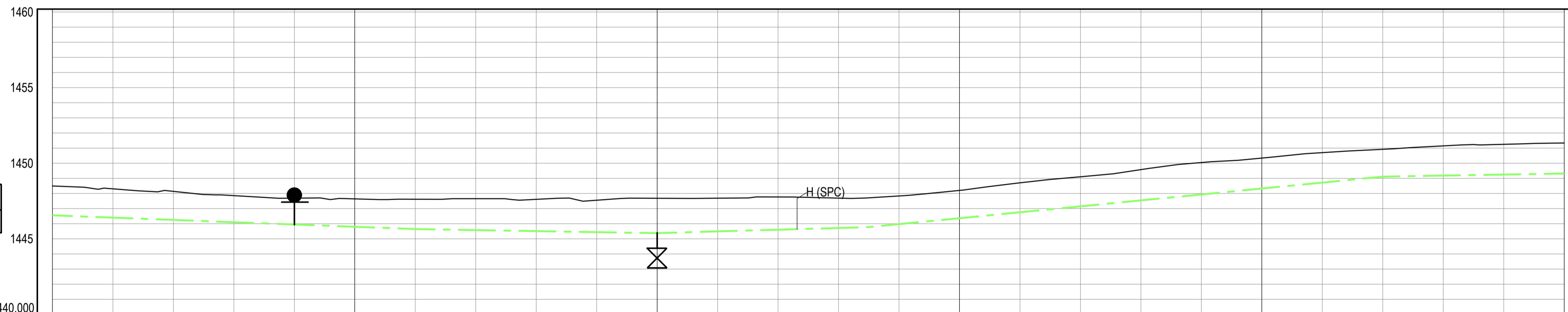
The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27 HORIZONTAL ALIGNMENT

POINT	Y	X
HB14	-64 496.400	3 126 502.365
HB15	-64 437.523	3 126 619.907
HB16	-64 310.692	3 126 851.114
HB17	-64 306.203	3 126 860.057
HB18	-64 277.318	3 126 923.960

POINT	Y	X	LEVEL
BM CF32	-64 491.387	3 126 495.612	1447.739

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1440.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE																																																																																																																		
	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)																																																																																																														
	2000.00	1448.50	1446.55	2.08	-1:132.44 / 120.00	2020.00	1448.31	1446.40	2.04	-1:132.44 / 40.00	2040.00	1448.14	1446.25	2.03	-1:296.80 / 80.00	2060.00	1447.85	1446.10	1.89	1:176.33 / 70.00	2080.00	1447.69	1445.95	1.88	1:50.92 / 170.03	2100.00	1447.64	1445.80	1.98	1:292.01 / 160.00	2120.00	1447.62	1445.65	2.11		2140.00	1447.65	1445.58	2.21		2160.00	1447.61	1445.51	2.24		2180.00	1447.55	1445.44	2.24		2200.00	1447.68	1445.38	2.44		2220.00	1447.69	1445.49	2.33		2240.00	1447.77	1445.60	2.30		2260.00	1447.76	1445.64	2.25		2280.00	1447.71	1445.72	2.11		2300.00	1447.84	1445.97	2.07		2320.00	1448.20	1446.36	1.98		2340.00	1448.10	1447.15	2.09		2360.00	1449.58	1447.54	2.17		2380.00	1450.04	1447.93	2.24		2400.00	1450.34	1448.33	2.15		2420.00	1450.70	1448.72	2.12		2440.00	1450.92	1449.11	1.95		2460.00	1451.15	1449.18	2.10		2480.00	1451.25	1449.25	2.14		2500.00	1451.34	1449.32	2.16	

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 2000m - 2500m

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Setsoto Local Municipality

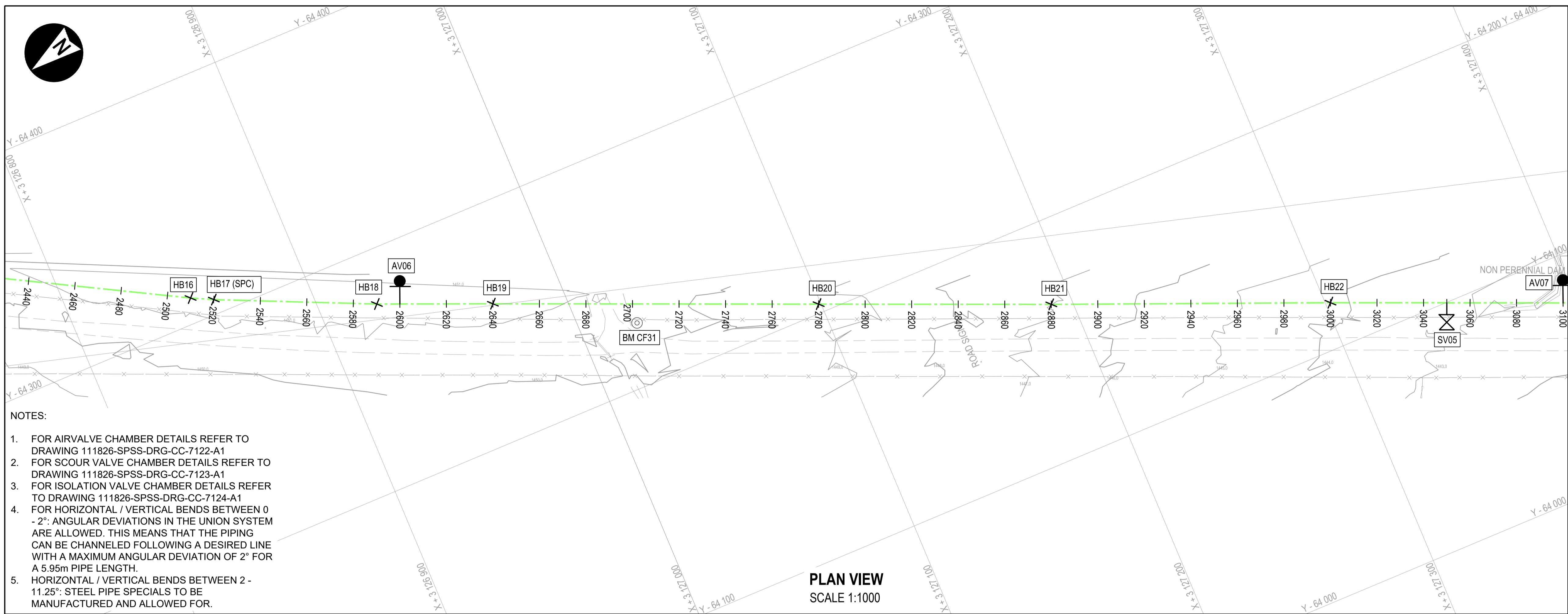
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 2000 - CH 2500m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7105	-A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

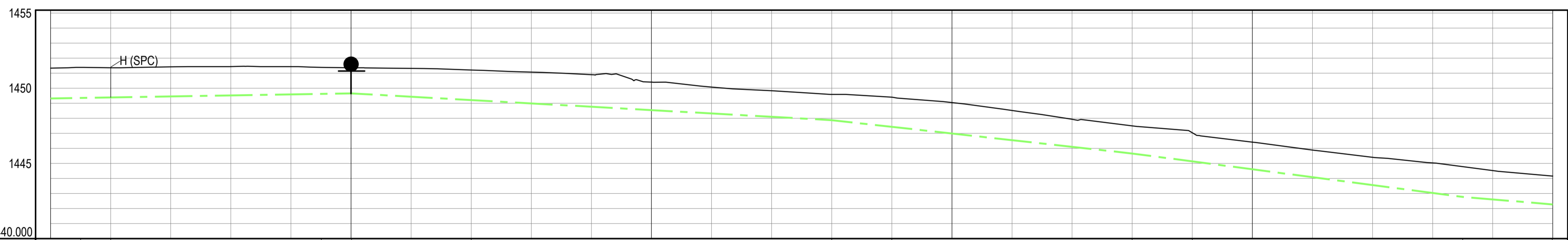
The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB18	-64 277.318	3 126 923.960
HB19	-64 258.129	312 6969.986
HB20	-64 203.805	312 7099.016
HB21	-64 165.004	312 7191.181
HB22	-64 119.316	3 127 301.926

POINT	Y	X	LEVEL
BM CF31	-64 226.541	3 127 023.936	1450.279

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1440.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			500mm DIA PVC-O CLASS 12.5 / 16 PIPE			500mm DIA PVC-O CLASS 12.5 / 16 PIPE			500mm DIA PVC-O CLASS 12.5 / 16 PIPE																				
	HB16	HB17	VB34 AV06	HB18	VB35	HB20	VB36	HB21	VB37	VB38	HB22																			
CHAINAGE (m)	2500.00	2510.00	2520.00	2540.00	2560.00	2580.00	2590.13	2600.00	2620.00	2640.00	2660.00	2680.00	2700.00	2720.00	2740.00	2760.00	2780.00	2800.00	2820.00	2840.00	2860.00	2880.00	2900.00	2920.00	2940.00	2960.00	2970.00	2980.00	2999.80	
GROUND LEVEL	1451.34	1451.39	1451.37	1451.42	1451.44	1451.44	1451.39	1451.36	1451.32	1451.22	1451.07	1450.90	1450.41	1450.08	1449.83	1449.59	1449.40	1449.05	1448.52	1447.93	1447.50	1447.04	1446.42	1445.89	1445.40	1445.03	1444.78	1444.52	1444.16	
PIPE INVERT LEVEL	1449.32	1449.35	1449.39	1449.46	1449.52	1449.59	1449.63	1449.66	1449.44	1449.21	1448.99	1448.77	1448.55	1448.32	1448.10	1447.88	1447.43	1446.99	1446.55	1446.10	1445.66	1445.13	1444.61	1444.08	1443.56	1443.03	1442.77	1442.61	1442.28	
TRENCH DEPTH	2.16	2.17	2.11	2.10	2.06	1.98	1.90	1.84	2.02	2.14	2.21	2.27	2.00	1.89	1.87	1.84	2.10	2.20	2.11	1.97	1.98	2.04	1.94	1.94	1.98	2.13	2.15	2.05	2.02	
SLOPE & SLOPE DISTANCE (m)	1:292.01 160.00			-1:89.71 160.01			-1:45.10 100.02			-1:38.10 110.04			-1:59.93 80.01																	
CHANGE IN DIRECTION	HOR	2.09°	2.33°			1.69°		0.20°					0.63°	0.21°								0.41°							0.55°	0.40°
	VER																													

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 2500m - 3000m



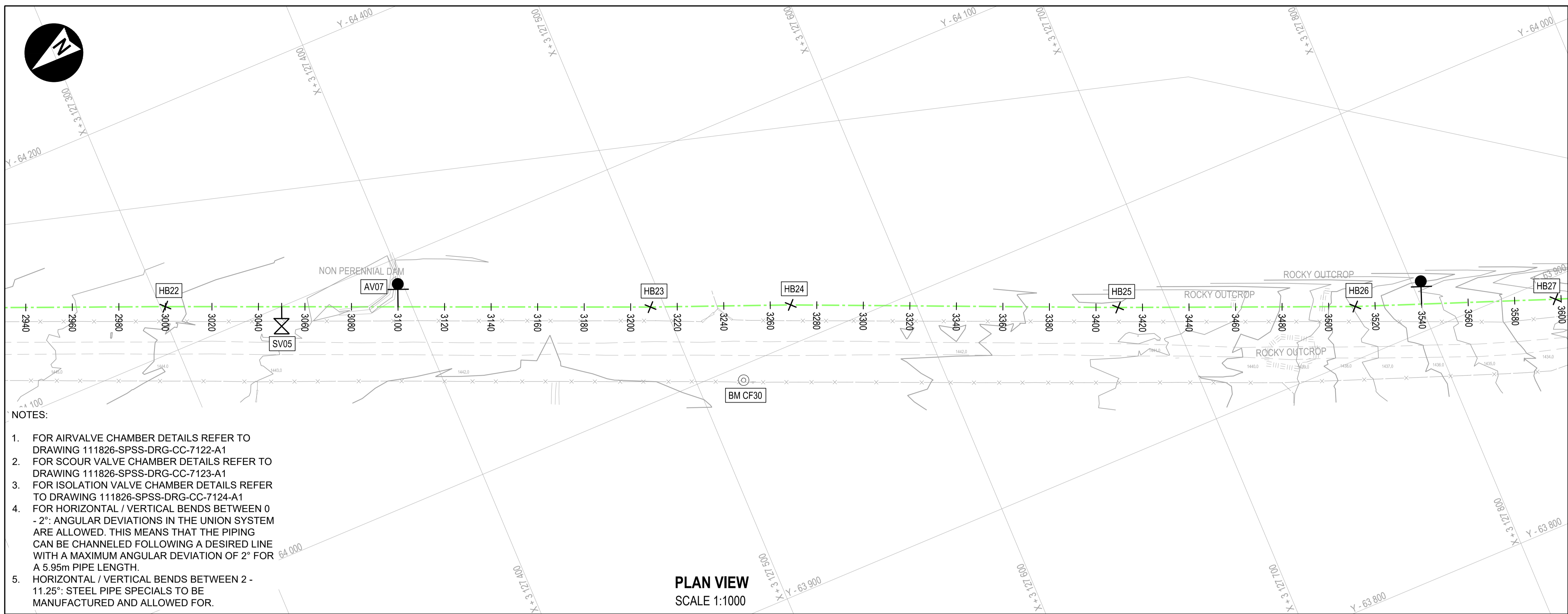
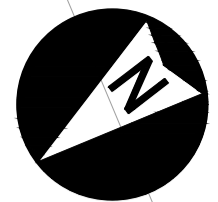
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED
DRAWN L.BLIGNAUT		DATE 20/04/19
DESIGNED L.BLIGNAUT		Pr Tech Eng 200970086
REVIEWED W BARNARD		W BARNARD

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 2500 - CH 3000m)

DRAWING NUMBER					
PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	- SPSS	- DRG	- CC	- 7106	-A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

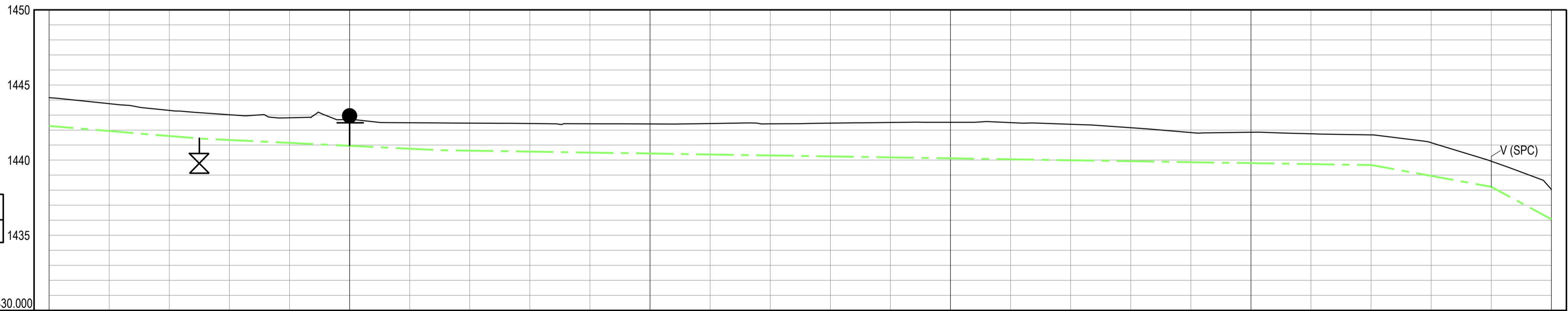
The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB22	-64 119.316	3 127 301.926
HB23	-64 038.369	3 127 494.286
HB24	-64 015.913	3 127 550.229
HB25	-63 960.415	3 127 679.559
HB26	-63 921.344	3 127 773.730
HB27	-63 890.947	3 127 854.298

POINT	Y	X	LEVEL
BM CF30	-63 993.911	3 127 519.075	1442.308

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1430.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE																			
	VB37	SV05	AV07	VB38	HB23	HB24	HB25	VB39	VB40	HB25	VB39	VB40	VB40	VB40																
CHAINAGE (m)	3000.00	3020.00	3040.00	3060.00	3080.00	3100.00	3120.00	3130.01	3140.00	3160.00	3180.00	3200.00	3208.50	3220.00	3240.00	3260.00	3268.78	3280.00	3300.00	3320.00	3340.00	3360.00	3380.00	3400.00	3409.51	3420.00	3440.00	3460.00	3480.00	3500.00
GROUND LEVEL	1444.16	1443.75	1443.31	1443.16	1443.02	1442.82	1442.71	1442.47	1442.46	1442.44	1442.42	1442.41	1442.40	1442.43	1442.41	1442.46	1442.48	1442.51	1442.52	1442.50	1442.39	1442.15	1441.83	1441.85	1441.81	1441.75	1441.68	1441.16	1439.93	1438.06
PIPE INVERT LEVEL	1442.27	1441.94	1441.60	1441.44	1441.34	1441.15	1440.95	1440.66	1440.63	1440.57	1440.50	1440.44	1440.41	1440.38	1440.31	1440.25	1440.22	1440.18	1440.12	1440.06	1439.99	1439.93	1439.86	1439.80	1439.77	1439.74	1439.67	1438.95	1438.22	1436.06
TRENCH DEPTH	2.02	1.95	1.84	1.86	1.82	1.81	1.89	1.86	1.94	1.96	2.00	2.05	2.13	2.19	2.24	2.35	2.40	2.46	2.54	2.58	2.53	2.36	2.10	2.19	2.18	2.15	2.14	2.35	1.84	2.13
SLOPE & SLOPE DISTANCE (m)	-1.59 93 / 80.01		-1.103 35 / 30.00		-1.103 35 / 50.01							-1.312 72 / 309.99					-1.27 63 / 40.03		-1.9 25 / 27.12											
CHANGE IN DIRECTION	HOR	0.40°														0.95°		1.35°		0.69°		1.89°		4.10°						
	VER	0.40°														0.37°														

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 3000m - 3500m

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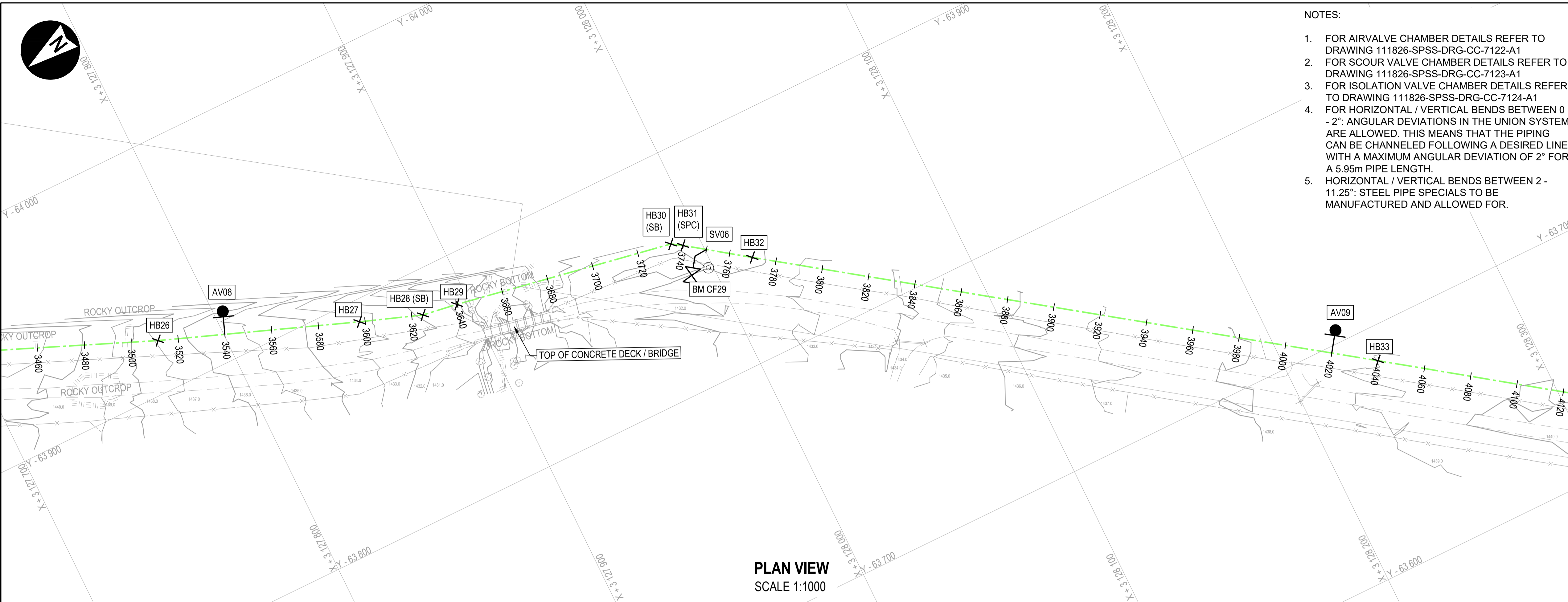
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	
DRAWN		
DESIGNED		
REVIEWED		DATE
W BARNARD		20/04/19
W BARNARD		Pr Tech Eng
W BARNARD		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 3000 - CH 3500m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7107	A1



- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

PLAN VIEW
SCALE 1:1000

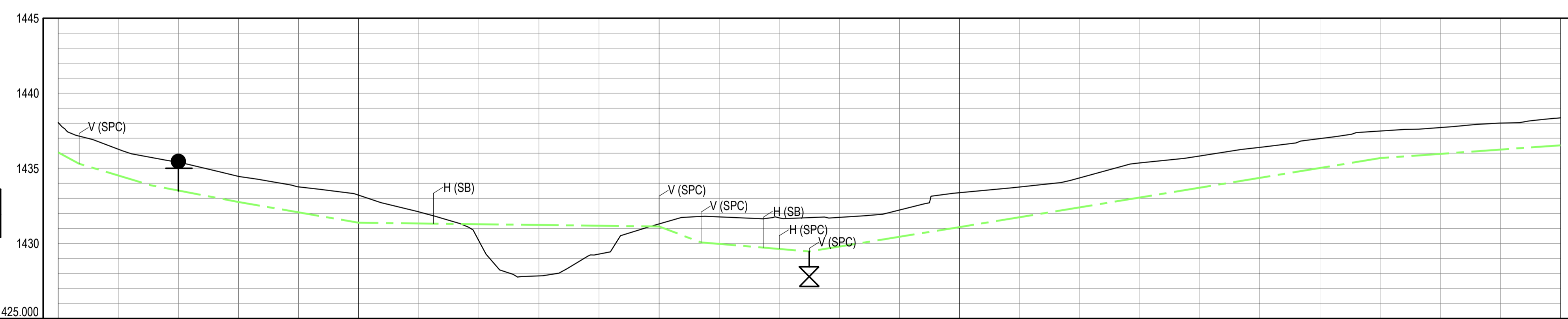
The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB27	-63 890.947	3 127 854.298
HB28	-63 881.671	3 127 879.950
HB29	-63 879.401	3 127 894.872
HB30	-63 862.577	3 127 988.048
HB31	-63 859.778	3 127 992.441
HB32	-63 842.204	3 128 016.741
HB33	-63 685.807	3 128 236.984

POINT	Y	X	LEVEL
BM CF29	-63 846.421	3 127 997.985	1431.977

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1425.000



STRUCTURE REFERENCE	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION
VB41	3500.00	1438.06	1436.06	2.13	-1.1	2.73°
VB26	3506.96	1437.15	1435.31	1.88	9.25	1.86°
VB42	3520.00	1436.92	1435.04	1.88	-1:16.63	
VB42	3520.00	1436.27	1434.53	1.88	24.03	
VB43	3530.95	1435.73	1433.87	1.99	-1:26.23	1.26°
VB43	3540.00	1435.40	1433.52	2.01	29.07	
	3560.00	1434.46	1432.76	1.84	-1:29.00	0.21°
	3580.00	1433.77	1432.07	1.83	40.02	
HB27	3597.58	1433.34	1431.46	2.01		0.79°
VB44	3600.00	1433.21	1431.38	1.97		1.83°
HB28	3620.00	1432.10	1431.33	0.91	100.01 (RIVER CROSSING)	11.25°
HB28	3624.86	1431.85	1431.32	0.67		1.59°
HB29	3639.95	1430.19	1431.28	0.95		
	3660.00	1427.84	1431.23	3.26		
	3680.00	1429.30	1431.18	1.75		
VB45	3700.00	1431.30	1431.13	0.31		4.20°
VB46	3713.97	1431.80	1430.07	1.87		3.99°
VB46	3720.00	1431.77	1429.97	1.94		
HB30	3734.63	1431.64	1429.72	2.05		22.50°
HB31	3739.84	1431.71	1429.64	2.21		3.38°
VB47	3750.00	1431.72	1429.47	2.39		2.82°
VB47	3760.00	1431.74	1429.79	2.08		
HB32	3769.83	1431.87	1430.11	1.89		0.50°
VB48	3780.00	1432.23	1430.44	1.92		
VB48	3800.00	1433.38	1431.09	2.42		0.02°
	3820.00	1433.76	1431.75	2.15		
	3840.00	1434.37	1432.40	2.10		
	3860.00	1435.36	1433.06	2.44		
	3880.00	1435.83	1433.71	2.25	1:30.49	
	3900.00	1436.40	1434.37	2.17	140.08	
	3920.00	1436.98	1435.03	2.09		
	3940.00	1437.49	1435.68	1.94		
	3960.00	1437.72	1435.97	1.89		
	3980.00	1438.02	1436.25	1.90		
	4000.00	1438.37	1436.54	1.97		

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 3500m - 4000m



CLIENT



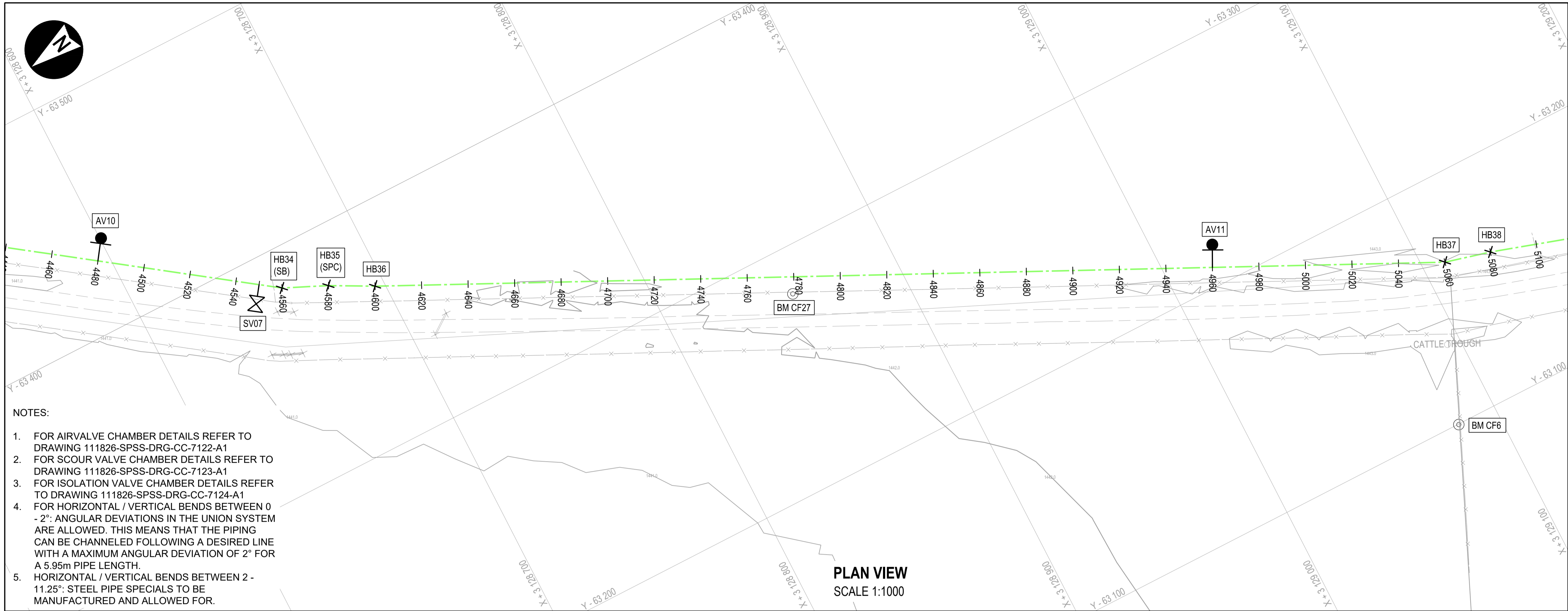
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	
DRAWN	L.BIGNAUT	APPROVED
DESIGNED	L.BIGNAUT	DATE
REVIEWED	W BARNARD	20/04/19
		Pr Tech Eng
		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 3500 - CH 4000m)

DRAWING NUMBER					
PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7108	-A1



- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

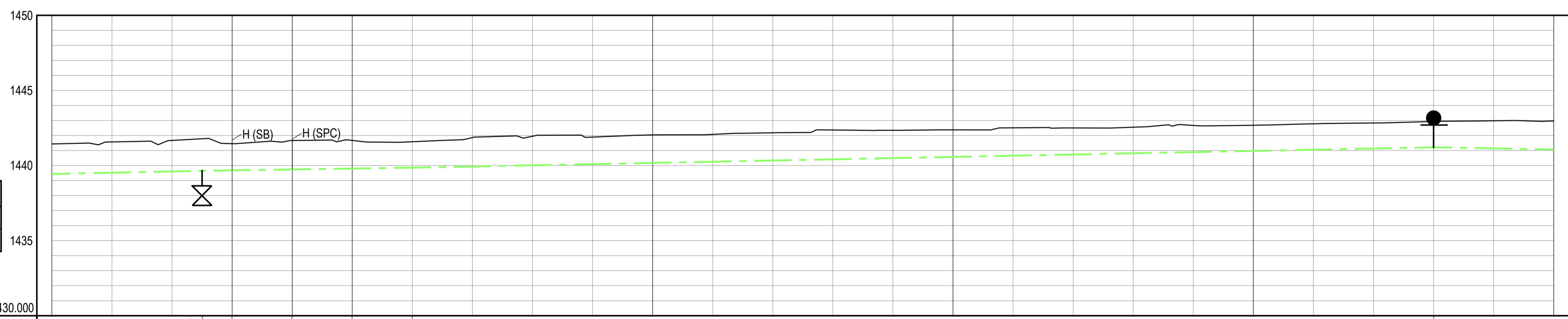
The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB35	-63 375.078	3 128 678.154
HB36	-63 365.690	3 128 695.826
HB37	-63 164.538	3 129 109.514
HB38	-63 159.482	3 129 128.855

POINT	Y	X	LEVEL
BM CF27	-63 280.572	3 128 854.058	1442.624
BM CF6	-63 099.739	3 129 082.938	1442.928

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1430.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE	
	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION				
SV07	4500.00	1441.43	1439.44	2.13	1:241.38 / 70.00	0.07°	4550.00	1441.57	1439.52	2.19	1:241.38 / 70.00	11.25°	4600.00	1441.67	1439.60	2.20	1:241.38 / 70.00	3.73°				
HB34	4550.00	1441.79	1439.65	2.27	1:241.38 / 70.00	11.25°	4559.95	1441.46	1439.68	1.91	1:241.38 / 70.00	3.73°	4609.95	1441.66	1439.74	2.06	1:241.38 / 70.00	2.05°				
HB35	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	3.73°	4589.95	1441.67	1439.80	2.01	1:241.38 / 70.00	2.05°	4639.95	1441.58	1439.86	1.86	1:241.38 / 70.00	0.06°				
HB36	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	3.73°	4639.95	1441.58	1439.86	1.86	1:241.38 / 70.00	0.06°	4689.95	1441.87	1439.94	2.07	1:241.38 / 70.00					
VB55	4620.00	1441.58	1439.86	1.86	1:241.38 / 70.00	0.06°	4670.00	1442.04	1440.17	2.00	1:241.38 / 70.00		4720.00	1442.08	1440.25	1.96	1:241.38 / 70.00					
	4640.00	1441.87	1440.01	2.07	1:241.38 / 70.00		4740.00	1442.19	1440.33	1.99	1:241.38 / 70.00		4780.00	1442.34	1440.49	1.98	1:241.38 / 70.00					
	4660.00	1441.95	1440.09	1.93	1:241.38 / 70.00		4800.00	1442.37	1440.41	2.09	1:241.38 / 70.00		4840.00	1442.37	1440.57	1.93	1:241.38 / 70.00					
	4680.00	1441.89	1440.09	1.93	1:241.38 / 70.00		4860.00	1442.55	1440.81	1.87	1:241.38 / 70.00		4900.00	1442.68	1440.97	1.84	1:241.38 / 70.00					
	4700.00	1442.04	1440.17	2.00	1:241.38 / 70.00		4880.00	1442.67	1440.89	1.91	1:241.38 / 70.00		4920.00	1442.78	1441.05	1.86	1:241.38 / 70.00					
	4720.00	1442.08	1440.25	1.96	1:241.38 / 70.00		4900.00	1442.68	1440.97	1.84	1:241.38 / 70.00		4940.00	1442.83	1441.13	1.83	1:241.38 / 70.00					
	4740.00	1442.19	1440.33	1.99	1:241.38 / 70.00		4920.00	1442.78	1441.05	1.86	1:241.38 / 70.00		4960.00	1442.98	1441.14	1.97	1:241.38 / 70.00					
	4760.00	1442.37	1440.41	2.09	1:241.38 / 70.00		4940.00	1442.83	1441.13	1.83	1:241.38 / 70.00		4980.00	1442.98	1441.14	1.97	1:241.38 / 70.00					
	4780.00	1442.34	1440.49	1.98	1:241.38 / 70.00		4960.00	1442.94	1441.21	1.86	1:241.38 / 70.00	0.43°	5000.00	1442.97	1441.07	2.03	1:241.38 / 70.00					
	4800.00	1442.37	1440.57	1.93	1:241.38 / 70.00																	
	4820.00	1442.51	1440.65	1.99	1:241.38 / 70.00																	
	4840.00	1442.50	1440.73	1.90	1:241.38 / 70.00																	
	4860.00	1442.55	1440.81	1.87	1:241.38 / 70.00																	
	4880.00	1442.67	1440.89	1.91	1:241.38 / 70.00																	
	4900.00	1442.68	1440.97	1.84	1:241.38 / 70.00																	
	4920.00	1442.78	1441.05	1.86	1:241.38 / 70.00																	
	4940.00	1442.83	1441.13	1.83	1:241.38 / 70.00																	
	4960.00	1442.94	1441.21	1.86	1:241.38 / 70.00	0.43°																
	4980.00	1442.98	1441.14	1.97	1:241.38 / 70.00																	
	5000.00	1442.97	1441.07	2.03	1:241.38 / 70.00																	

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 4500m - 5000m

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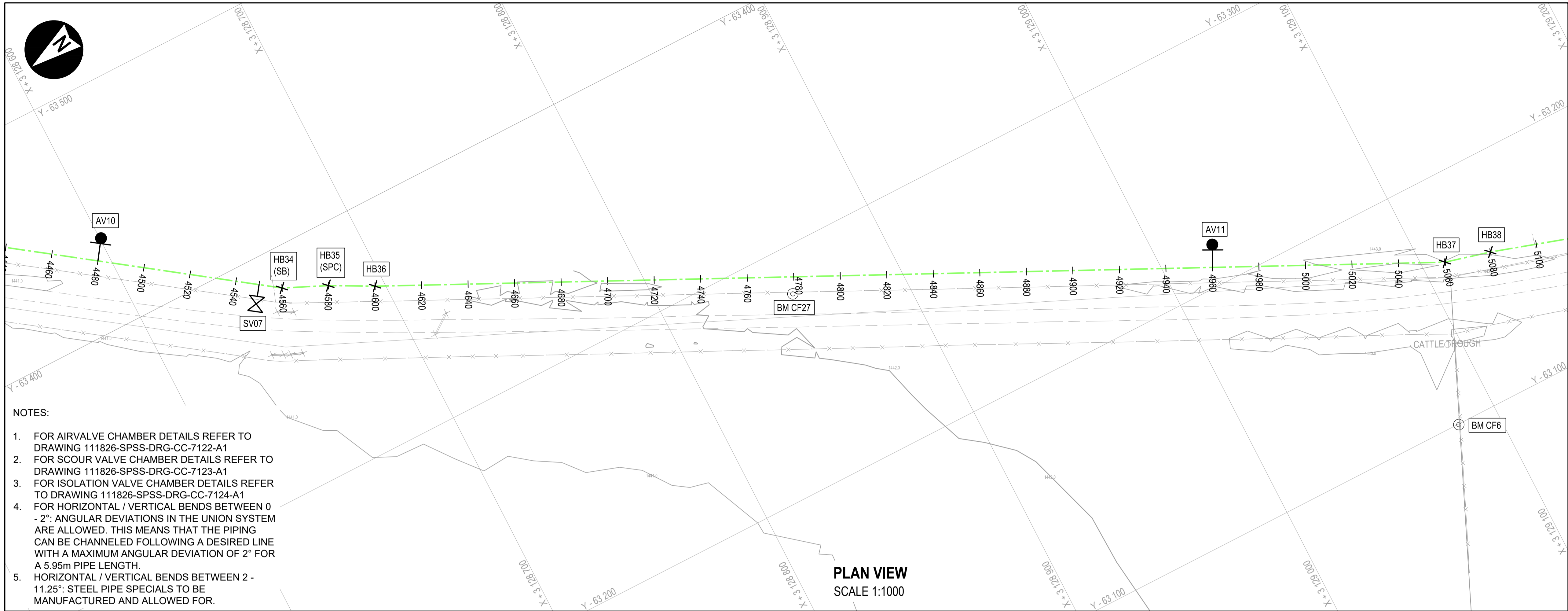
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 4500 - CH 5000m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7110	-A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

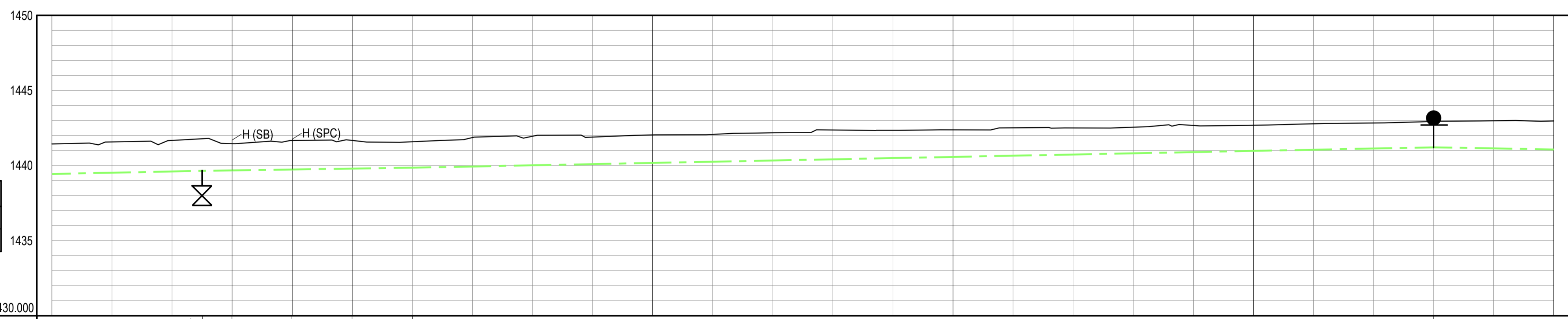
The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB35	-63 375.078	3 128 678.154
HB36	-63 365.690	3 128 695.826
HB37	-63 164.538	3 129 109.514
HB38	-63 159.482	3 129 128.855

POINT	Y	X	LEVEL
BM CF27	-63 280.572	3 128 854.058	1442.624
BM CF6	-63 099.739	3 129 082.938	1442.928

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1430.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE	
	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION	CHAINAGE (m)	GROUND LEVEL	PIPE INVERT LEVEL	TRENCH DEPTH	SLOPE & SLOPE DISTANCE (m)	CHANGE IN DIRECTION				
SV07	4500.00	1441.43	1439.44	2.13	1:241.38 / 70.00	0.07°	4500.00	1441.43	1439.44	2.13	1:241.38 / 70.00	0.07°	4500.00	1441.43	1439.44	2.13	1:241.38 / 70.00	0.07°				
HB34	4520.00	1441.57	1439.52	2.19	1:241.38 / 70.00	11.25°	4520.00	1441.57	1439.52	2.19	1:241.38 / 70.00	11.25°	4520.00	1441.57	1439.52	2.19	1:241.38 / 70.00	11.25°				
HB35	4540.00	1441.67	1439.60	2.20	1:241.38 / 70.00	3.73°	4540.00	1441.67	1439.60	2.20	1:241.38 / 70.00	3.73°	4540.00	1441.67	1439.60	2.20	1:241.38 / 70.00	3.73°				
HB36	4550.00	1441.79	1439.65	2.27	1:241.38 / 70.00	2.05°	4550.00	1441.79	1439.65	2.27	1:241.38 / 70.00	2.05°	4550.00	1441.79	1439.65	2.27	1:241.38 / 70.00	2.05°				
VB55	4559.95	1441.46	1439.68	1.91	1:241.38 / 70.00	0.06°	4559.95	1441.46	1439.68	1.91	1:241.38 / 70.00	0.06°	4559.95	1441.46	1439.68	1.91	1:241.38 / 70.00	0.06°				
VB55	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	0.06°	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	0.06°	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	0.06°				
VB55	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	0.06°	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	0.06°	4579.94	1441.66	1439.74	2.06	1:241.38 / 70.00	0.06°				
VB55	4599.95	1441.67	1439.80	2.01	1:241.38 / 70.00	0.06°	4599.95	1441.67	1439.80	2.01	1:241.38 / 70.00	0.06°	4599.95	1441.67	1439.80	2.01	1:241.38 / 70.00	0.06°				
VB55	4620.00	1441.58	1439.86	1.86	1:241.38 / 70.00	0.06°	4620.00	1441.58	1439.86	1.86	1:241.38 / 70.00	0.06°	4620.00	1441.58	1439.86	1.86	1:241.38 / 70.00	0.06°				
VB55	4640.00	1441.87	1439.94	2.07	1:241.38 / 70.00	0.06°	4640.00	1441.87	1439.94	2.07	1:241.38 / 70.00	0.06°	4640.00	1441.87	1439.94	2.07	1:241.38 / 70.00	0.06°				
VB55	4660.00	1441.95	1440.01	2.07	1:241.38 / 70.00	0.06°	4660.00	1441.95	1440.01	2.07	1:241.38 / 70.00	0.06°	4660.00	1441.95	1440.01	2.07	1:241.38 / 70.00	0.06°				
VB55	4680.00	1441.89	1440.09	1.93	1:241.38 / 70.00	0.06°	4680.00	1441.89	1440.09	1.93	1:241.38 / 70.00	0.06°	4680.00	1441.89	1440.09	1.93	1:241.38 / 70.00	0.06°				
VB55	4700.00	1442.04	1440.17	2.00	1:241.38 / 70.00	0.06°	4700.00	1442.04	1440.17	2.00	1:241.38 / 70.00	0.06°	4700.00	1442.04	1440.17	2.00	1:241.38 / 70.00	0.06°				
VB55	4720.00	1442.08	1440.25	1.96	1:241.38 / 70.00	0.06°	4720.00	1442.08	1440.25	1.96	1:241.38 / 70.00	0.06°	4720.00	1442.08	1440.25	1.96	1:241.38 / 70.00	0.06°				
VB55	4740.00	1442.19	1440.33	1.99	1:241.38 / 70.00	0.06°	4740.00	1442.19	1440.33	1.99	1:241.38 / 70.00	0.06°	4740.00	1442.19	1440.33	1.99	1:241.38 / 70.00	0.06°				
VB55	4760.00	1442.37	1440.41	2.09	1:241.38 / 70.00	0.06°	4760.00	1442.37	1440.41	2.09	1:241.38 / 70.00	0.06°	4760.00	1442.37	1440.41	2.09	1:241.38 / 70.00	0.06°				
VB55	4780.00	1442.34	1440.49	1.98	1:241.38 / 70.00	0.06°	4780.00	1442.34	1440.49	1.98	1:241.38 / 70.00	0.06°	4780.00	1442.34	1440.49	1.98	1:241.38 / 70.00	0.06°				
VB55	4800.00	1442.37	1440.57	1.93	1:241.38 / 70.00	0.06°	4800.00	1442.37	1440.57	1.93	1:241.38 / 70.00	0.06°	4800.00	1442.37	1440.57	1.93	1:241.38 / 70.00	0.06°				
VB55	4820.00	1442.51	1440.65	1.99	1:241.38 / 70.00	0.06°	4820.00	1442.51	1440.65	1.99	1:241.38 / 70.00	0.06°	4820.00	1442.51	1440.65	1.99	1:241.38 / 70.00	0.06°				
VB55	4840.00	1442.50	1440.73	1.90	1:241.38 / 70.00	0.06°	4840.00	1442.50	1440.73	1.90	1:241.38 / 70.00	0.06°	4840.00	1442.50	1440.73	1.90	1:241.38 / 70.00	0.06°				
VB55	4860.00	1442.55	1440.81	1.87	1:241.38 / 70.00	0.06°	4860.00	1442.55	1440.81	1.87	1:241.38 / 70.00	0.06°	4860.00	1442.55	1440.81	1.87	1:241.38 / 70.00	0.06°				
VB55	4880.00	1442.67	1440.89	1.91	1:241.38 / 70.00	0.06°	4880.00	1442.67	1440.89	1.91	1:241.38 / 70.00	0.06°	4880.00	1442.67	1440.89	1.91	1:241.38 / 70.00	0.06°				
VB55	4900.00	1442.68	1440.97	1.84	1:241.38 / 70.00	0.06°	4900.00	1442.68	1440.97	1.84	1:241.38 / 70.00	0.06°	4900.00	1442.68	1440.97	1.84	1:241.38 / 70.00	0.06°				
VB55	4920.00	1442.78	1441.05	1.86	1:241.38 / 70.00	0.06°	4920.00	1442.78	1441.05	1.86	1:241.38 / 70.00	0.06°	4920.00	1442.78	1441.05	1.86	1:241.38 / 70.00	0.06°				
VB55	4940.00	1442.83	1441.13	1.83	1:241.38 / 70.00	0.06°	4940.00	1442.83	1441.13	1.83	1:241.38 / 70.00	0.06°	4940.00	1442.83	1441.13	1.83	1:241.38 / 70.00	0.06°				
VB55	4960.00	1442.94	1441.21	1.86	1:241.38 / 70.00	0.06°	4960.00	1442.94	1441.21	1.86	1:241.38 / 70.00	0.06°	4960.00	1442.94	1441.21	1.86	1:241.38 / 70.00	0.06°				
VB55	4980.00	1442.98	1441.14	1.97	1:241.38 / 70.00	0.06°	4980.00	1442.98	1441.14	1.97	1:241.38 / 70.00	0.06°	4980.00	1442.98	1441.14	1.97	1:241.38 / 70.00	0.06°				
VB55	5000.00	1442.97	1441.07	2.03	1:241.38 / 70.00	0.06°	5000.00	1442.97	1441.07	2.03	1:241.38 / 70.00	0.06°	5000.00	1442.97	1441.07	2.03	1:241.38 / 70.00	0.06°				

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 4500m - 5000m

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CLIENT
 Setsoto Local Municipality

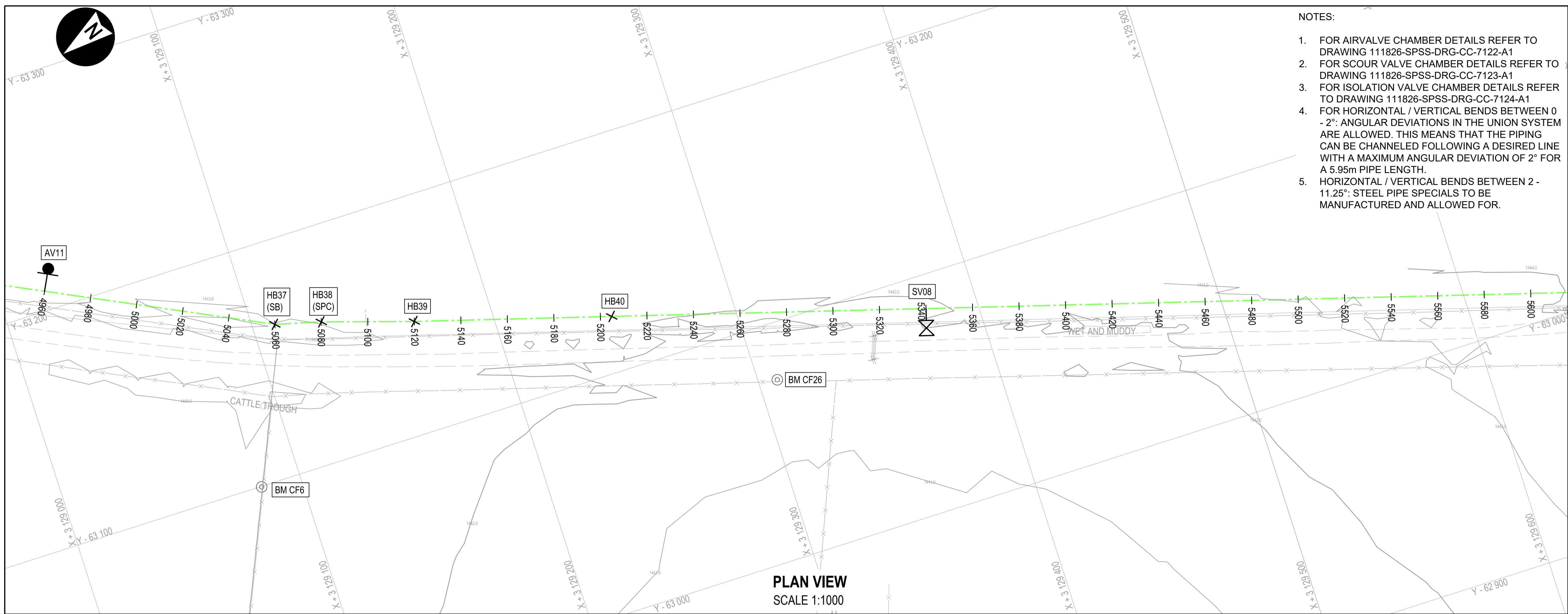
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	
DRAWN		
DESIGNED		
REVIEWED		
W BARNARD		DATE 20/04/19 Pr Tech Eng 200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 4500 - CH 5000m)

DRAWING NUMBER					
PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7110	-A1



PLAN VIEW
SCALE 1:1000

- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø O-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

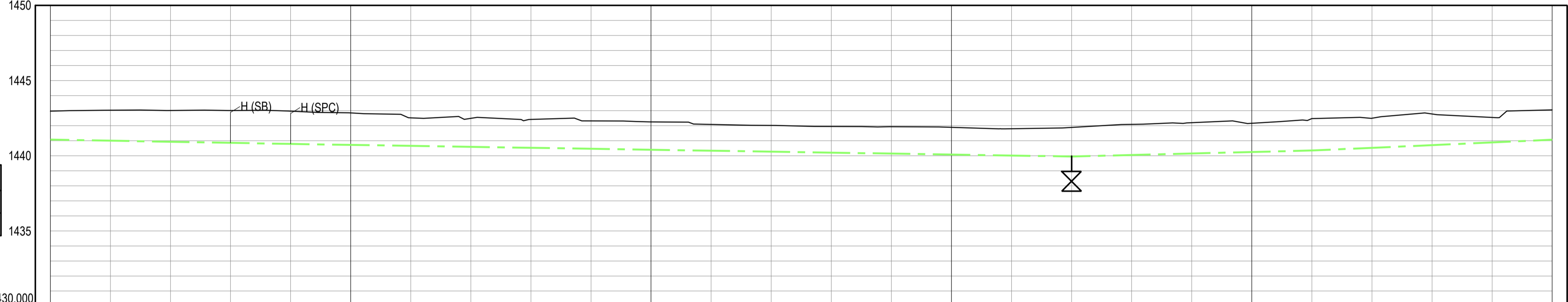
The Master held at Aurecon bears the signature of approval

CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB38	-63 159.482	3 129 128.855
HB39	-63 147.450	3 129 167.014
HB40	-63 123.670	3 129 248.507

POINT	Y	X	LEVEL
BM CF26	-63 076.028	3 129 308.007	1441.676
BM CF6	-63 099.739	3 129 082.938	1442.928

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1430.000



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE															
	HB37	VB57	HB38	HB39	HB40	VB58	SV08	VB59	VB60	VB61	VB62	VB63	VB64	VB65	VB66													
CHAINAGE (m)	5000.00	5020.00	5040.00	5069.95	5079.95	5100.00	5119.96	5140.00	5160.00	5180.00	5200.00	5204.85	5220.00	5240.00	5260.00	5280.00	5300.00	5320.00	5340.00	5360.00	5380.00	5400.00	5420.00	5440.00	5460.00	5480.00	5500.00	
GROUND LEVEL	1442.97	1443.02	1443.01	1443.00	1442.97	1442.85	1442.52	1442.49	1442.41	1442.31	1442.25	1442.24	1442.08	1442.02	1441.94	1441.93	1441.89	1441.80	1441.88	1442.09	1442.20	1442.16	1442.35	1442.49	1442.77	1442.54	1443.05	
PIPE INVERT LEVEL	1441.07	1441.00	1440.93	1440.86	1440.79	1440.72	1440.66	1440.59	1440.53	1440.46	1440.40	1440.38	1440.34	1440.27	1440.21	1440.14	1440.08	1440.01	1439.95	1440.05	1440.15	1440.25	1440.35	1440.53	1440.70	1440.88	1441.06	
TRENCH DEPTH	2.03	2.16	2.21	2.28	2.32	2.27	2.00	2.03	2.02	1.98	1.98	1.99	1.88	1.88	1.87	1.92	1.94	1.92	2.07	2.17	2.19	2.05	2.26	2.10	2.21	1.80	2.12	
SLOPE & SLOPE DISTANCE (m)	-1:279.86 120.00				-1:310.72 260.00				1:200.68 80.00				1:112.05 80.00															
CHANGE IN DIRECTION	HOR		VER		HOR		VER		HOR		VER		HOR		VER		HOR		VER		HOR		VER		HOR		VER	
			11.25°		0.02° 2.85°		1.23°		0.15°				0.47°				0.23°				0.19°							

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 5000m - 5500m

aurecon
www.aurecongroup.com

CLIENT
Setsoto Local Municipality

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

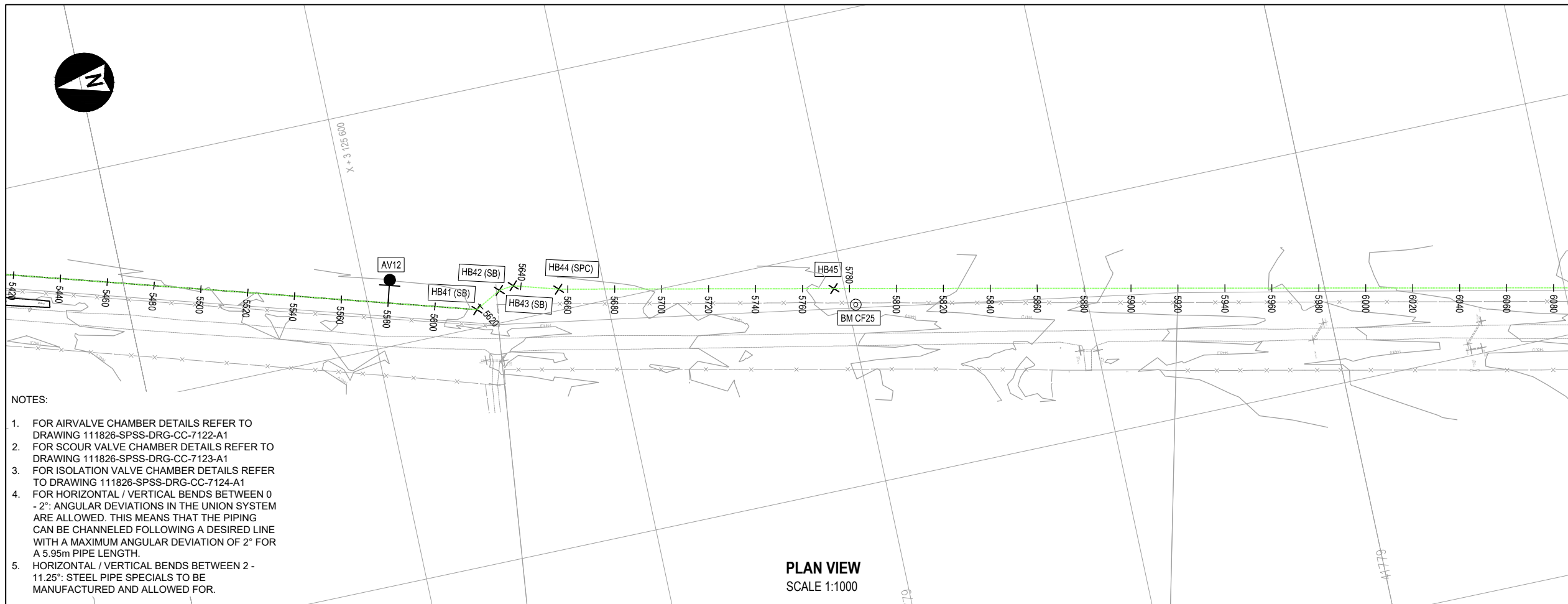
SCALE	SIZE	WORK IN PROGRESS
1 : 1000	A1	APPROVED

DATE: 20/04/19
Pr Tech Eng: 200970086
W BARNARD

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 5000 - CH 5500m)

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7111	-A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

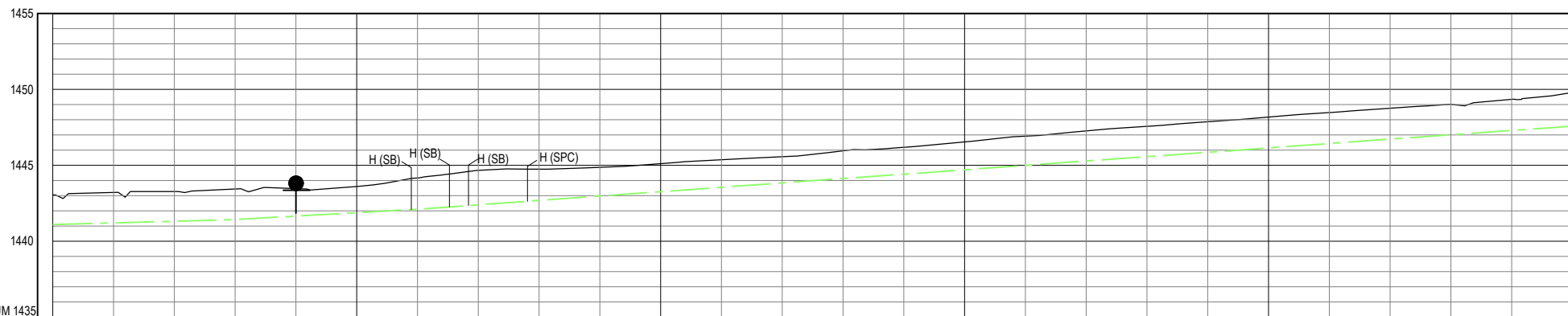
**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB41	-63 007.645	3 129 644.973
HB42	-63 013.670	3 129 655.978
HB43	-63 014.347	3 129 662.212
HB44	-63 008.903	3 129 680.830
HB45	-62 984.630	3 129 795.571

**CO-ORDINATES: WGS LO 27
BENCHMARKS**

POINT	Y	X	LEVEL
BM CF25	-62 976.027	3 129 803.148	1446.353

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1435



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE					500mm DIA PVC-O CLASS 12.5 / 16 PIPE																			
	VP60				VP61	AV12				VP62	HB41	HB42	HB43	HB44		HB45				VP63										
CHAINAGE (m)	5500.00	5520.00	5540.00	5560.00	5580.00	5600.00	5617.94	5630.49	5636.76	5640.00	5656.16	5660.00	5680.00	5700.00	5720.00	5740.00	5760.00	5773.44	5780.00	5800.00	5820.00	5840.00	5860.00	5880.00	5900.00	5920.00	5940.00	5960.00	5980.00	6000.00
GROUND LEVEL	1443.05	1443.21	1443.28	1443.44	1443.47	1443.60	1444.13	1444.43	1444.59	1444.66	1444.75	1444.75	1444.86	1445.11	1445.37	1445.56	1445.95	1446.09	1446.18	1446.54	1446.92	1447.26	1447.56	1447.86	1448.18	1448.47	1448.75	1449.01	1449.33	1449.80
PIPE INVERT LEVEL	1441.09	1441.21	1441.32	1441.43	1441.66	1441.88	1442.08	1442.26	1442.35	1442.40	1442.63	1442.69	1442.97	1443.26	1443.55	1443.84	1444.13	1444.32	1444.42	1444.70	1444.99	1445.28	1445.57	1445.86	1446.15	1446.43	1446.72	1447.01	1447.30	1447.57
TRENCH DEPTH	2.08	2.13	2.09	2.14	1.94	1.85	2.18	2.30	2.37	2.40	2.25	2.19	2.02	1.98	1.95	1.85	1.96	1.90	1.89	1.97	2.06	2.11	2.12	2.13	2.17	2.16	2.16	2.13	2.17	2.36
SLOPE & SLOPE DISTANCE (m)	1:178.68 60.00		1:89.20 57.95												1:69.37 362.10										1:73.57 212.94					
CHANGE IN DIRECTION	HOR																													
	VER	0.19°	0.32°		0.18°/45.01°		22.50°	22.50°	4.36°		0.05°														0.05°					

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 5500m - 6000m



REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

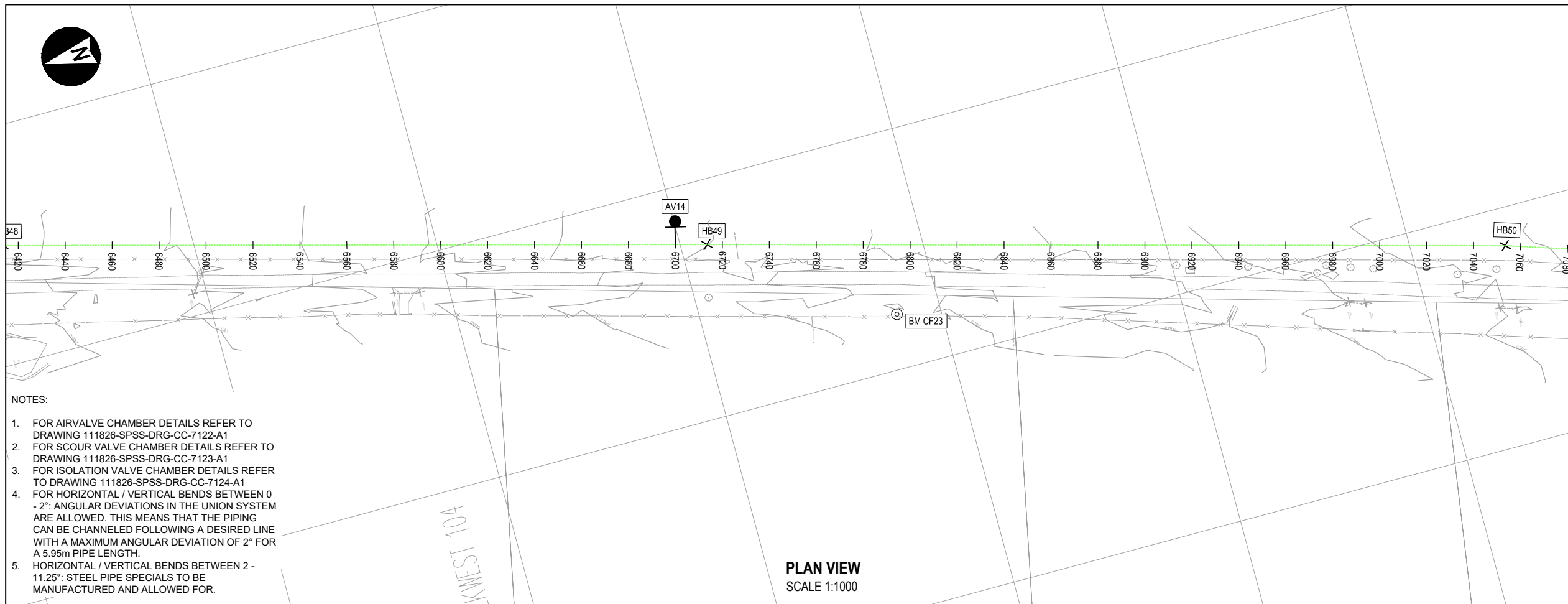
SCALE 1:1000	SIZE A1	WORK IN PROGRESS APPROVED DATE 20/04/19 Pr Tech Eng 200970086
DRAWN T.MOKOENA		
DESIGNED T.MOKOENA		
REVIEWED W BARNARD		

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 5500 - CH 6000m)

DRAWING NUMBER

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7112	-A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HBO1 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HBO1 (SP) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

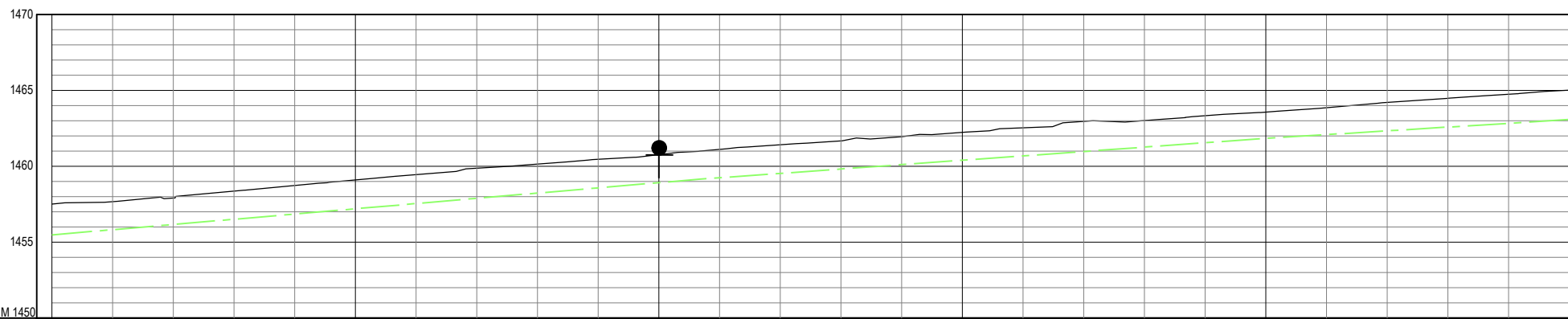
CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB49	-62 772.721	3 130 711.089

CO-ORDINATES: WGS LO 27
BENCHMARKS

POINT	Y	X	LEVEL
BM CF23	-62 723.083	3 130 781.467	1461.874

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1450



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										
CHAINAGE (m)	6500.00	6520.00	6540.00	6560.00	6580.00	6600.00	6620.00	6640.00	6660.00	6680.00	6700.00	6713.44	6720.00	6740.00	6760.00	6780.00	6800.00	6820.00	6840.00	6860.00	6880.00	6900.00	6920.00	6940.00	6960.00	6980.00	7000.00				
GROUND LEVEL	1457.51	1457.67	1457.90	1458.36	1458.73	1459.10	1459.45	1459.87	1460.14	1460.45	1460.76	1460.99	1461.10	1461.41	1461.67	1461.94	1462.23	1462.52	1462.95	1463.01	1463.33	1463.56	1463.85	1464.20	1464.48	1464.74	1465.02				
PIPE INVERT LEVEL	1455.48	1455.82	1456.16	1456.51	1456.85	1457.20	1457.54	1457.88	1458.23	1458.57	1458.92	1459.15	1459.24	1459.53	1459.82	1460.11	1460.39	1460.68	1460.97	1461.26	1461.55	1461.83	1462.08	1462.33	1462.58	1462.82	1463.07				
TRENCH DEPTH	2.16	1.98	1.87	1.98	2.01	2.03	2.04	2.12	2.04	2.01	1.98	1.97	1.99	2.01	1.99	1.97	1.97	1.97	2.11	1.88	1.91	1.86	1.90	2.00	2.03	2.04	2.07				
SLOPE & SLOPE DISTANCE (m)	1:58.14 233.47										1:69.43 186.58										1:80.76 100.01										1:73.94 53.46
CHANGE IN DIRECTION	0.16°										0.16°										0.12°										0.07°
	HOR										VER										HOR										VER

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 6500m - 7000m



CLIENT



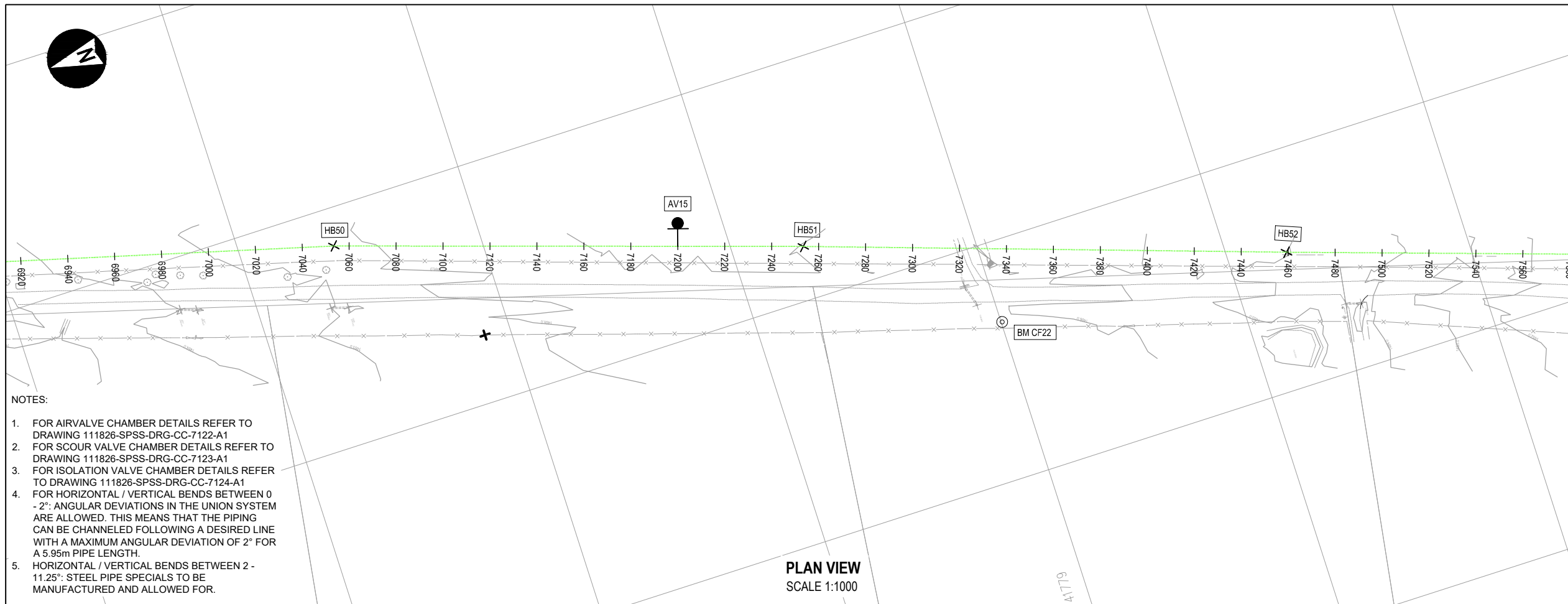
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED
DRAWN	T.MOKOENA	DATE
DESIGNED	T.MOKOENA	20/04/19
REVIEWED	W BARNARD	Pr Tech Eng
		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 6500 - CH 7000m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7114
				-A1



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HBOI (SB) HORIZONTAL BEND, (STANDARD BEND)
- HBOI (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

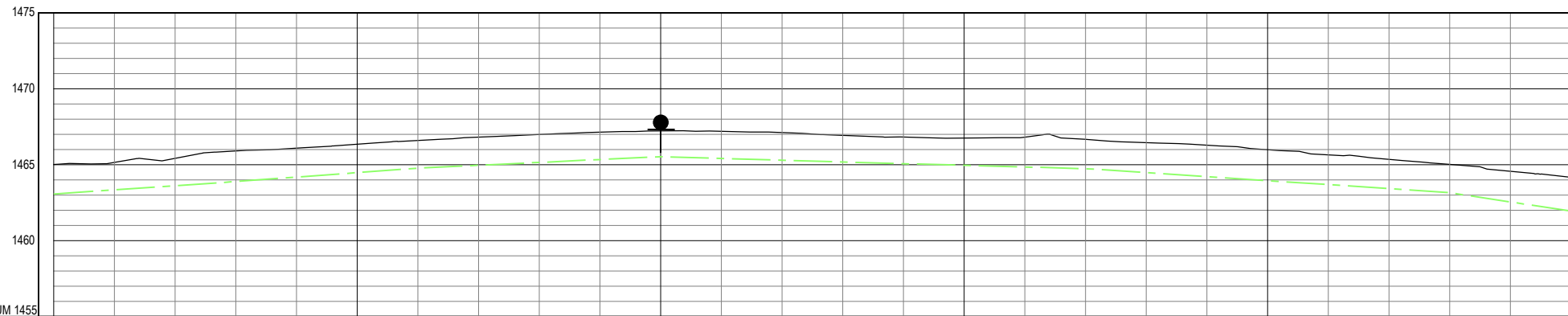
**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB50	-62 684.011	3 131 039.332
HB51	-62 622.526	3 131 229.646
HB52	-62 557.080	3 131 424.832

**CO-ORDINATES: WGS LO 27
BENCHMARKS**

POINT	Y	X	LEVEL
BM CF22	-62 565.934	3 131 300.341	1466.405

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1455



STRUCTURE REFERENCE	VB73	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			VB74 HB50	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			VB75	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			VB76 AV15	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			VB77 HB51	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			VB78	500mm DIA PVC-O CLASS 12.5 / 16 PIPE			VB79 HB52	500mm DIA PVC-O CLASS 12.5 / 16 PIPE		
CHAINAGE (m)	7000.00	7020.00	7040.00	7063.46	7080.00	7100.00	7120.00	7140.00	7160.00	7180.00	7200.00	7220.00	7240.00	7260.00	7280.00	7300.00	7320.00	7340.00	7360.00	7380.00	7400.00	7420.00	7440.00	7469.32	7480.00	7500.00		
GROUND LEVEL	1465.02	1465.14	1465.41	1465.83	1465.91	1466.09	1466.35	1466.60	1466.82	1466.98	1467.14	1467.20	1467.11	1466.98	1466.83	1466.76	1466.82	1466.66	1466.45	1466.28	1465.98	1465.64	1465.36	1465.03	1464.57	1464.16		
PIPE INVERT LEVEL	1463.07	1463.34	1463.61	1463.80	1463.89	1464.18	1464.48	1464.77	1464.96	1465.15	1465.34	1465.41	1465.29	1465.21	1465.07	1464.96	1464.85	1464.74	1464.48	1464.21	1463.95	1463.69	1463.43	1463.17	1462.55	1461.95		
TRENCH DEPTH	2.07	1.93	1.93	2.17	2.15	2.04	2.00	1.96	1.99	1.96	1.93	1.83	1.92	1.95	1.90	1.88	1.89	1.93	2.10	2.05	2.11	2.19	2.06	1.99	2.15	2.35		
SLOPE & SLOPE DISTANCE (m)	1:30.76 100.01	1:73.94 53.46		1:68.22 66.55			1:105.66 80.00			-1:168.84 53.46			-1:182.84 86.54			-1:76.20 119.33			-1:33.21 100.72									
CHANGE IN DIRECTION	HOR 0.07°	VER 0.08° 2.78°			0.30°			0.88°			0.03° 0.63°			0.44°			0.97° 0.30°											

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 7000m - 7500m



CLIENT

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

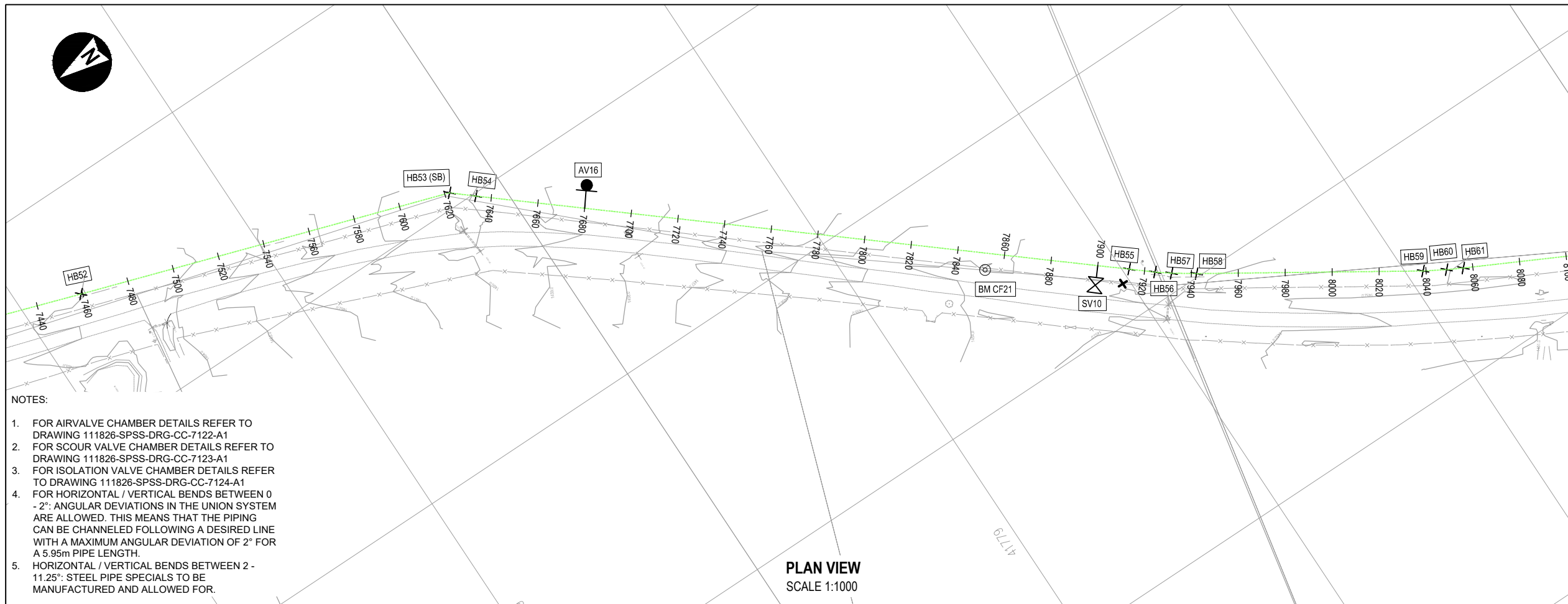
SCALE 1 : 1000	SIZE A1	WORK IN PROGRESS
DRAWN T.MOKOENA	APPROVED	
DESIGNED T.MOKOENA	DATE 20/04/19	
REVIEWED W BARNARD	Pr Tech Eng 200970086	

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 7000 - CH 7500m)

DRAWING NUMBER

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7115	-A1



NOTES:

- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
- FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
- FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
- FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
- HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- Eskom OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- H/B01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- H/B01 (SP) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

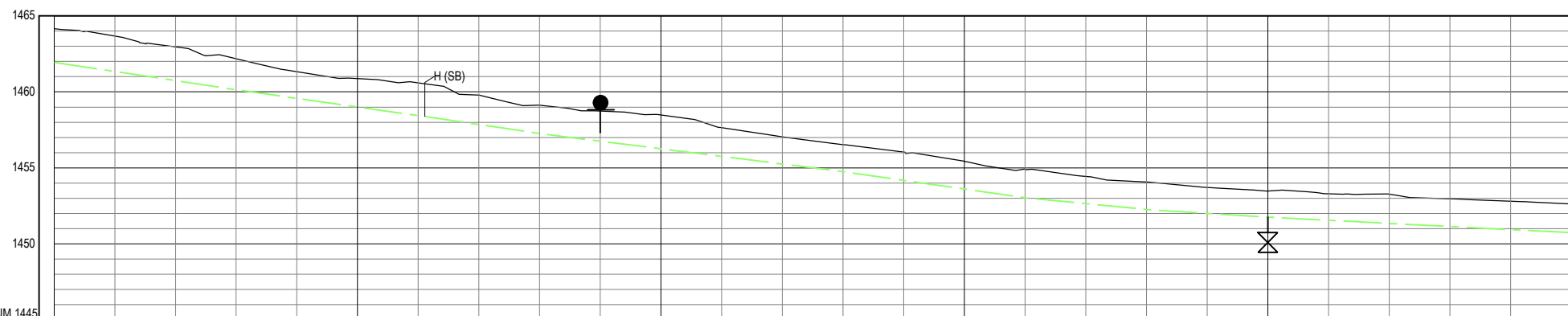
CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB53	-62 506.123	3 131 579.463
HB54	-62 498.758	3 131 588.026
HB55	-62 318.935	3 131 802.658
HB56	-62 311.785	3 131 811.131
HB57	-62 307.497	3 131 816.764
HB58	-62 301.472	3 131 825.542

CO-ORDINATES: WGS LO 27
BENCHMARKS

POINT	Y	X	LEVEL
BM CF21	-62 352.619	3 131 751.264	1454.203

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1445



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE																
	VB80	VB81	VB82	VB83	VB84	VB85	VB86	VB87	VB88	VB89	VB90	VB91	VB92	VB93	VB94														
CHAINAGE (m)	7500.00	7520.00	7540.00	7560.00	7580.00	7600.00	7620.00	7640.00	7660.00	7680.00	7700.00	7720.00	7740.00	7760.00	7780.00	7800.00	7820.00	7840.00	7860.00	7880.00	7900.00	7920.00	7940.00	7960.00	7980.00	8000.00			
GROUND LEVEL	1464.16	1463.67	1462.96	1462.19	1461.33	1460.88	1460.53	1459.83	1459.78	1459.13	1458.74	1458.48	1457.64	1457.04	1456.53	1456.04	1455.43	1454.92	1454.43	1454.07	1453.71	1453.47	1453.41	1453.26	1453.26	1453.19	1452.95	1452.81	1452.62
PIPE INVERT LEVEL	1461.95	1461.34	1460.74	1460.14	1459.57	1459.00	1458.38	1458.04	1457.85	1457.26	1456.75	1456.25	1455.75	1455.25	1454.75	1454.18	1453.60	1453.03	1452.54	1452.25	1452.00	1451.75	1451.61	1451.50	1451.43	1451.32	1451.13	1450.93	1450.74
TRENCH DEPTH	2.35	2.46	2.35	2.18	1.89	2.00	2.29	1.92	2.07	2.00	2.12	2.36	2.02	1.92	1.91	2.00	1.96	2.02	1.92	1.94	1.83	1.84	1.92	1.89	1.96	2.00	1.95	2.01	2.01
SLOPE & SLOPE DISTANCE (m)	-1.33.21 100.72		-1.35.23 62.16		-1.33.83 37.88		-1.39.84 100.03		-1.35.02 60.02		-1.51.37 40.01		-1.79.72 40.00		-1.96.92 80.00		-1.107.98 80.00												
CHANGE IN DIRECTION	HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		HORIZONTAL		
	VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		VERTICAL		
	0.10°		0.07°		0.74°		0.26°		0.20°		0.52°		0.40°		0.13°		0.20°		2.88°		2.82°		1.54°		0.06°				

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 7500m - 8000m



CLIENT



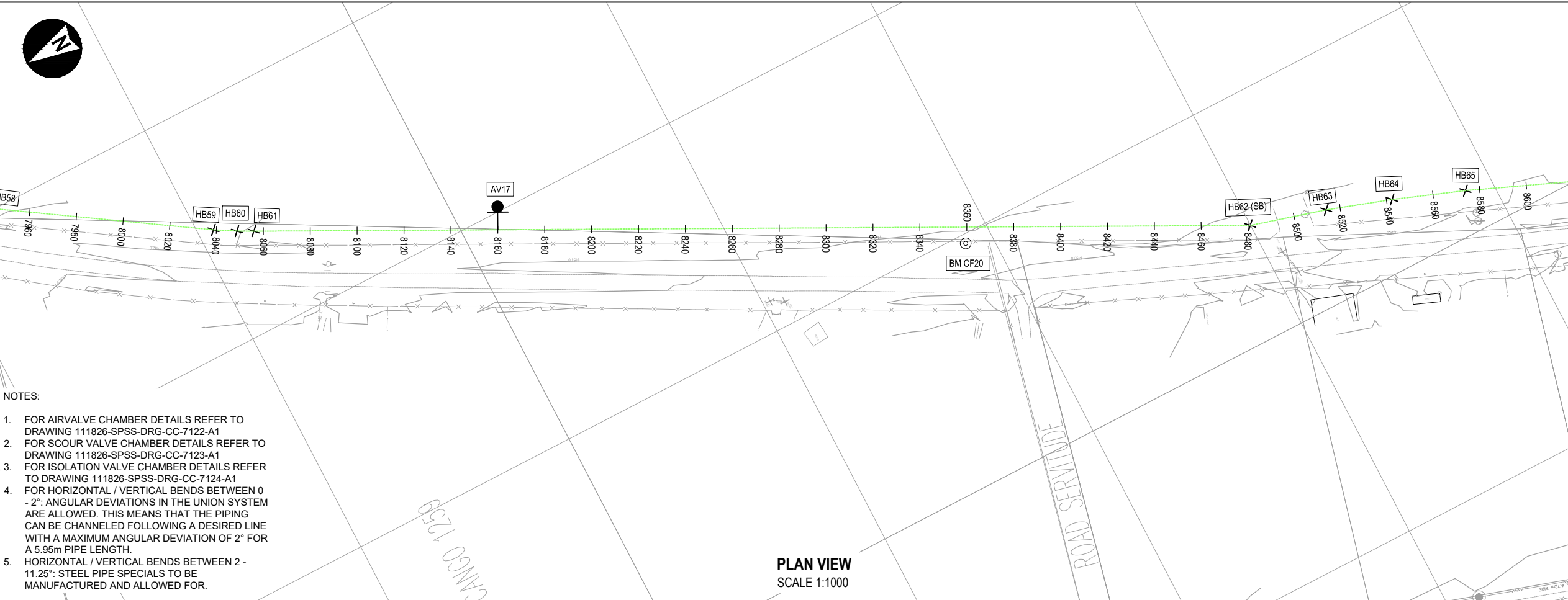
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED
DRAWN	T.MOKOENA	DATE
DESIGNED	T.MOKOENA	20/04/19
REVIEWED	W BARNARD	Pr Tech Eng
		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 7500 - CH 8000m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7116
				-A1



- NOTES:**
1. FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 2. FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 3. FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 4. FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 5. HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- H/B01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- H/B01 (SP) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

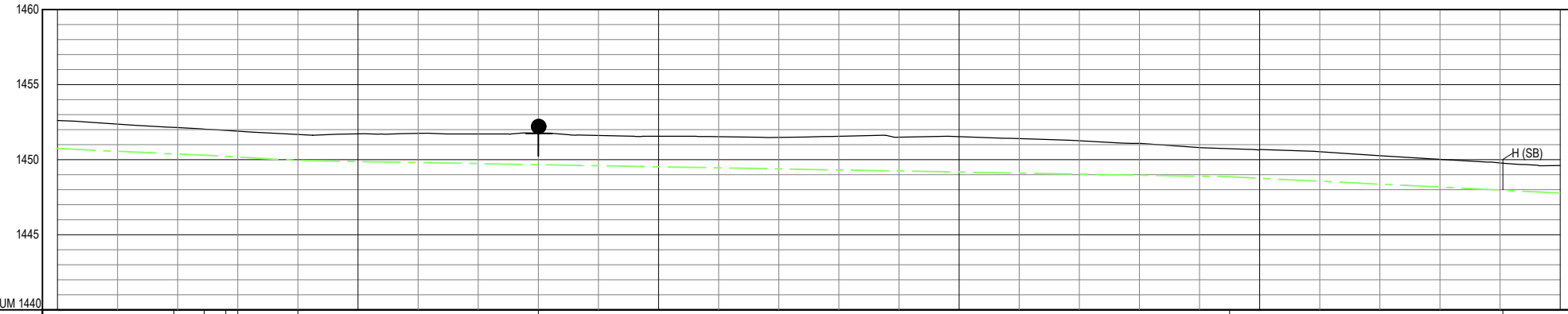
**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB59	-62 249.033	3 131 906.523
HB60	-62 243.952	3 131 915.194
HB61	-62 240.593	3 131 921.531
HB62	-62 047.042	3 132 299.863

**CO-ORDINATES: WGS LO 27
BENCHMARKS**

POINT	Y	X	LEVEL
BM CF20	-62 096.132	3 132 188.552	1450.728

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1440



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE									500mm DIA PVC-O CLASS 12.5 / 16 PIPE									500mm DIA PVC-O CLASS 12.5 / 16 PIPE										
	HB59	HB60	HB61	VB88	VB89	AV17	HB62	HB63	HB64	VB89	VB90	VB91	VB92	VB93	VB94	VB95	VB96	VB97	VB98	VB99	HB62								
CHAINAGE (m)	8000.00	8020.00	8038.72	8048.77	8055.95	8060.00	8080.00	8100.00	8120.00	8140.00	8160.00	8180.00	8200.00	8220.00	8240.00	8260.00	8280.00	8300.00	8320.00	8340.00	8360.00	8380.00	8399.95	8400.00	8420.00	8440.00	8460.00	8480.91	8500.00
GROUND LEVEL	1452.62	1452.37	1452.15	1452.04	1451.95	1451.90	1451.68	1451.72	1451.76	1451.71	1451.77	1451.61	1451.56	1451.53	1451.49	1451.56	1451.50	1451.53	1451.40	1451.26	1451.08	1450.81	1450.73	1450.67	1450.53	1450.26	1450.02	1449.77	1449.62
PIPE INVERT LEVEL	1450.74	1450.56	1450.38	1450.29	1450.22	1450.19	1449.95	1449.88	1449.81	1449.74	1449.67	1449.60	1449.53	1449.46	1449.39	1449.32	1449.25	1449.18	1449.11	1449.04	1448.97	1448.90	1448.86	1448.77	1448.57	1448.37	1448.18	1447.97	1447.78
TRENCH DEPTH	2.01	1.95	1.89	1.87	1.85	1.84	1.87	1.98	2.08	2.10	2.23	2.14	2.16	2.20	2.23	2.37	2.39	2.48	2.42	2.35	2.25	2.04	2.00	2.03	2.09	2.02	1.97	1.93	1.97
SLOPE & SLOPE DISTANCE (m)	-1:107.98 80.00			-1:83.35 20.00			-1:286.20 309.95									-1:101.86 210.06													
CHANGE IN DIRECTION	HOR		2.55°		2.45°		0.83°		0.16°		0.49°													11.24°					
	VER																												

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 8000m - 8500m



CLIENT

Setsoto Local Municipality

REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED

DRAWN	DESIGNED	REVIEWED	DATE
T.MOKOENA	T.MOKOENA	W BARNARD	20/04/19

Pr Tech Eng
200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

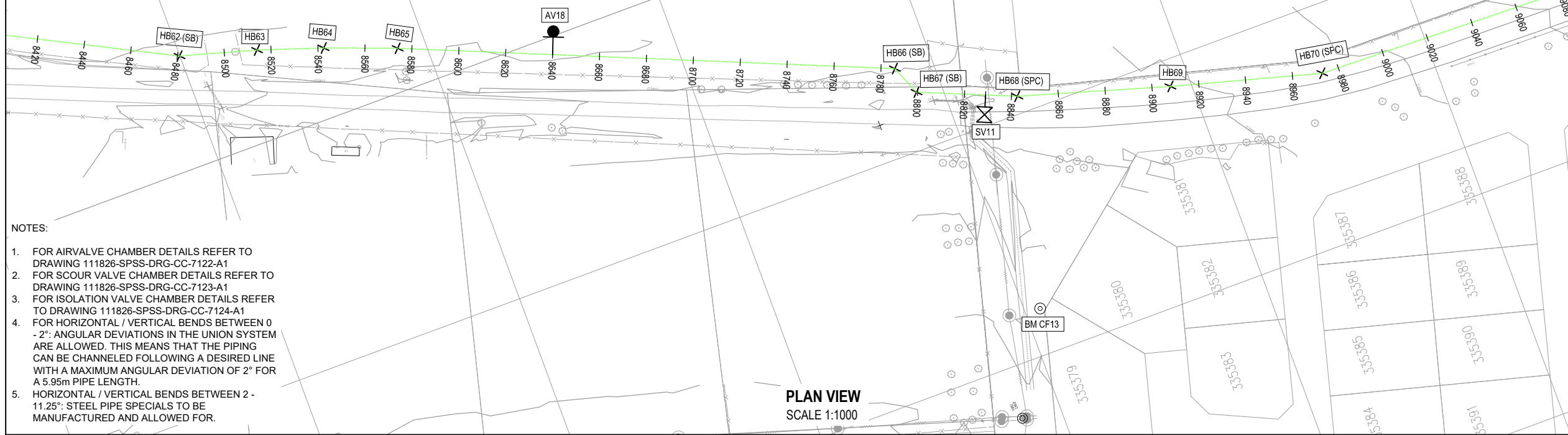
TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 8000 - CH 8500m)

DRAWING NUMBER

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
111826	SPSS	DRG	CC	7117	-A1

CO-ORDINATES: WGS LO 27
BENCHMARKS

POINT	Y	X	LEVEL
BM CF13	-61 819.336	3 132 606.515	1445.490



NOTES:

- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
- FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
- FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
- FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
- HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- X — FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- ⊗ SCOUR VALVE CHAMBER
- ⊗ ISOLATION VALVE CHAMBER
- ⊙ ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- ⊙ BENCHMARK
- ⊗ HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- ⊗ HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

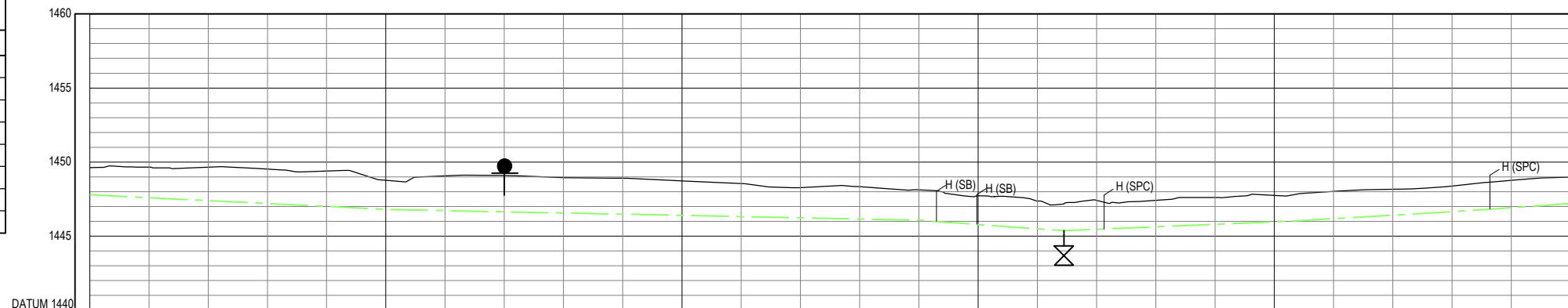
- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- ⊗ SCOUR VALVE CHAMBER

The Master held at Aurecon
bears the signature of approval

CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT

POINT	Y	X
HB63	-62 038.009	3 132 331.679
HB64	-62 028.985	3 132 358.665
HB65	-62 017.958	3 132 388.159
HB66	-61 936.471	3 132 583.851
HB67	-61 923.885	3 132 589.038
HB68	-61 907.362	3 132 628.732
HB69	-61 888.692	3 132 691.361
HB70	-61 871.530	3 132 753.989

SCALES:
Horizontal 1:1000
Vertical 1:200



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE				500mm DIA PVC-O CLASS 12.5 / 16 PIPE																			
CHAINAGE (m)	8500.00	8513.99	8520.00	8542.44	8560.00	8573.93	8580.00	8600.00	8620.00	8640.00	8660.00	8680.00	8700.00	8720.00	8740.00	8760.00	8780.00	8800.00	8820.00	8828.97	8840.00	8842.52	8860.00	8880.00	8900.00	8907.87	8920.00	8940.00	8960.00	8972.81	8980.00	9000.00		
GROUND LEVEL	1449.52	1449.86	1449.65	1449.67	1449.52	1449.35	1449.39	1448.77	1449.06	1449.09	1448.95	1448.90	1448.72	1448.54	1448.27	1448.33	1448.12	1448.06	1448.06	1447.73	1447.37	1447.19	1447.41	1447.29	1447.41	1447.60	1447.74	1447.84	1448.02	1448.16	1448.37	1448.64	1448.76	1448.98
PIPE INVERT LEVEL	1447.78	1447.65	1447.59	1447.37	1447.19	1447.06	1447.00	1446.80	1446.72	1446.64	1446.56	1446.47	1446.39	1446.31	1446.23	1446.15	1446.06	1445.98	1445.78	1445.49	1445.36	1445.45	1445.47	1445.62	1445.79	1445.96	1446.03	1446.17	1446.40	1446.64	1446.82	1446.92	1447.19	
TRENCH DEPTH	1.97	2.15	2.20	2.43	2.46	2.42	2.52	2.10	2.47	2.58	2.52	2.56	2.46	2.36	2.17	2.31	2.18	2.21	2.08	2.01	1.96	2.08	1.94	1.92	1.94	1.91	1.94	1.98	1.88	1.86	1.95	1.97	1.92	
SLOPE & SLOPE DISTANCE (m)				-1:101.86 210.06						-1:243.71 180.00						-1:69.61 48.97						1:118.39 78.91			1:84.97 52.13			1:72.35 140.01						
CHANGE IN DIRECTION	HOR	2.64°	2.01°	2.11°																														
	VER					0.33°											0.59°	45.00°	45.00°	1.31°			6.00°			0.19°	1.28°		0.12°		13.80°			

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 8500m - 9000m



CLIENT



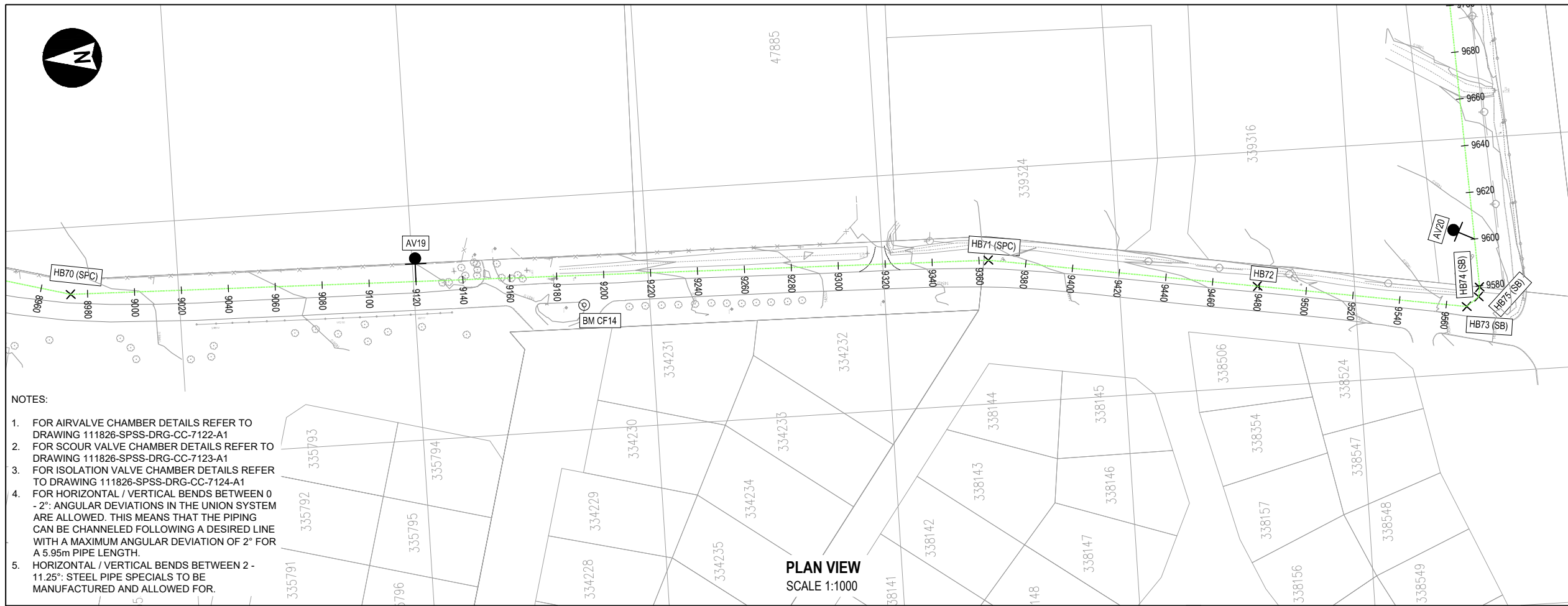
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED
DRAWN	T.MOKOENA	DATE
DESIGNED	T.MOKOENA	20/04/19
REVIEWED	W BARNARD	Pr Tech Eng 200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 8500 - CH 9000m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7118
				-A1



NOTES:

- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
- FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
- FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
- FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
- HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

PLAN VIEW
SCALE 1:1000

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø U-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SP) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SP) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

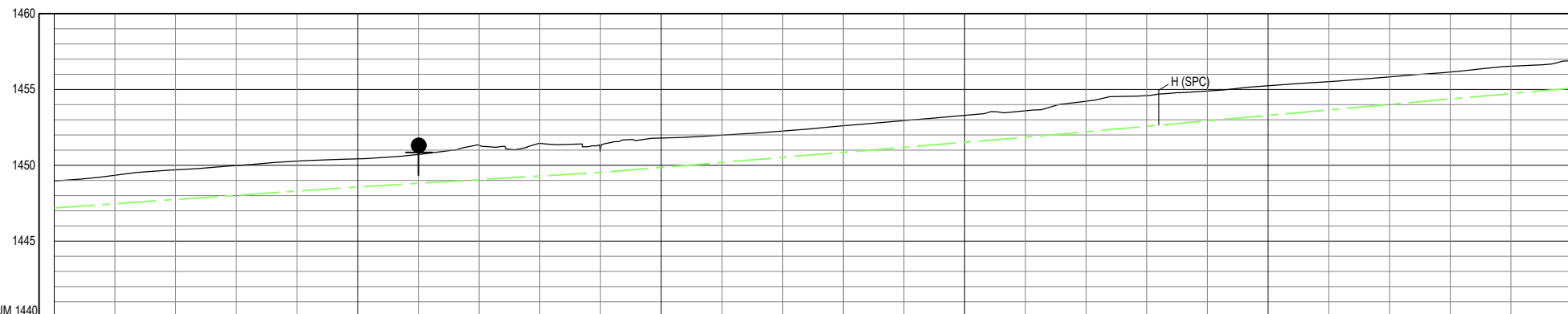
**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
HB71	-61 861.150	3 133 145.050
HB72	-61 842.820	3 133 258.737

**CO-ORDINATES: WGS LO 27
BENCHMARKS**

POINT	Y	X	LEVEL
BM CF14	-61 853.053	3 132 971.964	1451.170

SCALES:
Horizontal 1:1000
Vertical 1:200
DATUM 1440



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE									
	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE									
CHAINAGE (m)	9000.00	9020.00	9040.00	9060.00	9080.00	9100.00	9120.00	9140.00	9160.00	9180.00	9200.00	9220.00	9240.00	9260.00	9280.00	9300.00	9320.00	9340.00	9360.00	9380.00	9400.00	9420.00	9440.00	9460.00	9479.16	9500.00														
GROUND LEVEL	1448.98	1449.34	1449.70	1449.98	1450.27	1450.43	1450.71	1451.31	1451.43	1451.08	1451.79	1451.99	1452.26	1452.61	1452.95	1453.29	1453.59	1454.22	1454.60	1454.69	1454.90	1455.24	1455.51	1455.83	1456.15	1456.52	1456.89													
PIPE INVERT LEVEL	1447.19	1447.47	1447.75	1448.02	1448.30	1448.57	1448.81	1449.05	1449.29	1449.53	1449.86	1450.19	1450.52	1450.85	1451.18	1451.52	1451.85	1452.21	1452.57	1452.64	1452.93	1453.29	1453.65	1454.01	1454.37	1454.71	1455.09													
TRENCH DEPTH	1.92	2.00	2.08	2.09	2.10	1.99	2.03	2.39	2.27	1.69	2.06	1.93	1.86	1.89	1.89	1.91	1.87	2.15	2.16	2.18	2.10	2.08	1.99	1.95	1.91	1.93	1.94													
SLOPE & SLOPE DISTANCE (m)	1:72.35 140.01					1:83.93 80.01					1:60.34 140.02					1:55.56 220.04																								
CHANGE IN DIRECTION	HOR		VER		HOR		VER		HOR		VER		HOR		VER		HOR		VER		HOR		VER		HOR		VER													
					0.11°				0.27°						0.08°				7.64°						0.04°															

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 9000m - 9500m



CLIENT



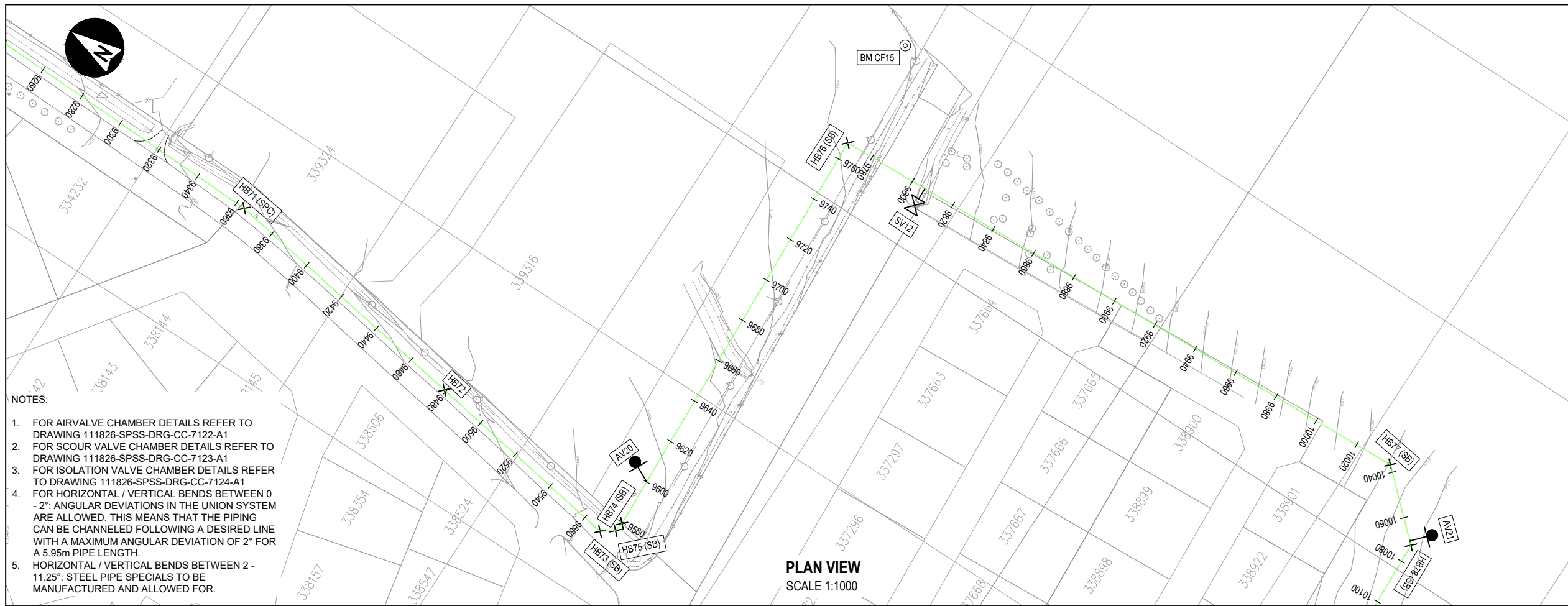
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED
DRAWN	T.MOKOENA	DATE
DESIGNED	T.MOKOENA	20/04/19
REVIEWED	W BARNARD	Pr Tech Eng
		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 9000 - CH 9500m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7119
				-A1



- NOTES:
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPD) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

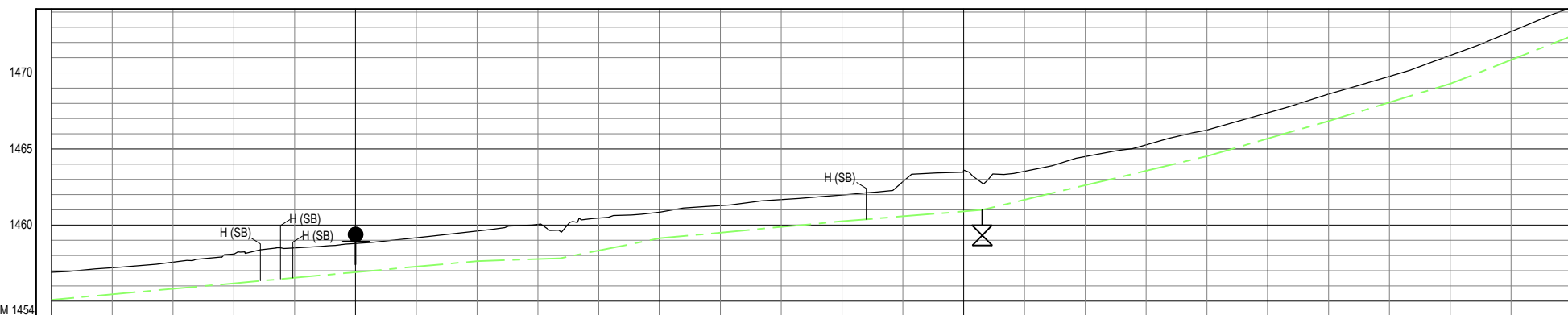
POINT	Y	X
HB73	-61 828.500	3 133 347.150
HB74	-61 832.348	3 133 352.486
HB75	-61 836.413	3 133 353.144
HB76	-62 024.760	3 133 345.350

**CO-ORDINATES: WGS LO 27
BENCHMARKS**

POINT	Y	X	LEVEL
BM CF15	-62 072.822	3 133 343.255	1462.765

SCALES:
Horizontal 1:1000
Vertical 1:200

DATUM 1454



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										500mm DIA PVC-O CLASS 12.5 / 16 PIPE										
	VB99	HB73	HB74	HB75	AV20	VB100	VB101	VB102	VB103	HB76	SV12	VB104	VB105	VB106	VB107	VB108	VB109	VB110	VB111	VB112	VB113	VB114	VB115	VB116	VB117	VB118	VB119	VB120			
CHAINAGE (m)	9500.00	9520.00	9540.00	9560.00	9568.73	9575.31	9579.42	9600.00	9620.00	9640.00	9660.00	9667.28	9680.00	9700.00	9720.00	9740.00	9760.00	9767.93	9780.00	9800.00	9806.13	9820.00	9840.00	9860.00	9880.00	9900.00	9920.00	9940.00	9960.00	9980.00	10000.00
GROUND LEVEL	1456.09	1457.19	1457.56	1458.09	1458.37	1458.50	1458.49	1458.78	1459.16	1459.61	1460.04	1459.59	1460.45	1460.84	1461.28	1461.67	1461.97	1462.12	1462.86	1463.59	1462.75	1463.52	1464.50	1465.26	1466.24	1467.37	1468.59	1469.77	1471.15	1472.71	1474.28
PIPE INVERT LEVEL	1455.09	1455.45	1455.81	1456.17	1456.33	1456.45	1456.53	1456.90	1457.26	1457.63	1457.76	1457.81	1458.32	1459.13	1459.50	1459.87	1460.25	1460.37	1460.57	1460.89	1460.99	1461.66	1462.61	1463.57	1464.53	1465.68	1466.83	1468.06	1469.28	1470.85	1472.41
TRENCH DEPTH	1.94	1.88	1.88	2.05	2.17	2.18	2.09	2.01	2.03	2.11	2.41	1.90	2.26	1.85	1.92	1.93	1.86	1.87	2.42	2.82	1.89	2.00	2.02	1.82	1.85	1.82	1.89	1.85	2.00		
SLOPE & SLOPE DISTANCE (m)	1:55.56 220.04		1:54.96 100.02			1:146.49 27.28		1:24.95 32.74		1:53.52 60.01			1:61.84 46.13			1:20.90 73.96			1:17.35 40.07		1:16.34 40.07		1:12.76 80.25								
CHANGE IN DIRECTION	0.01°		45.00°			11.57°		0.65°		1.90°			1.22°			0.14°			90.00°			1.81°			0.56°		0.20°		0.98°		
	HOR																														
VER																															

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 9500m - 10000m



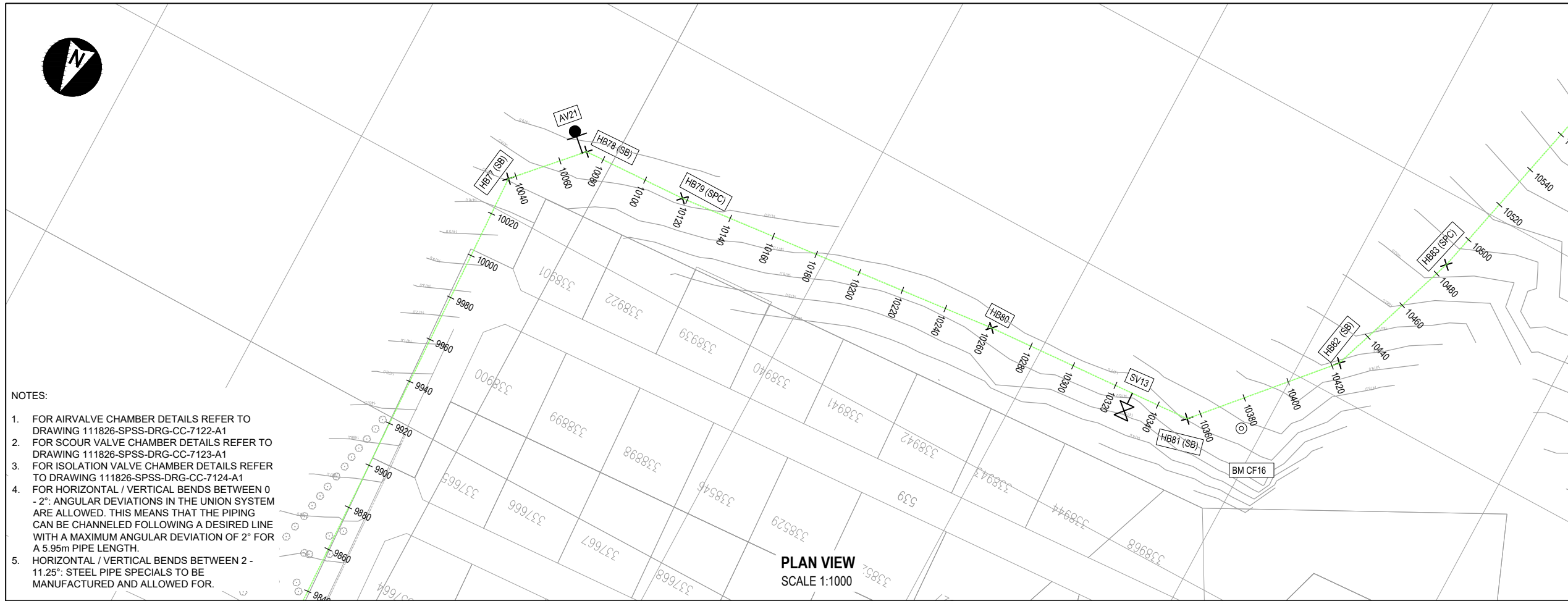
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED
DRAWN	T.MOKOENA	DATE
DESIGNED	T.MOKOENA	20/04/19
REVIEWED	W BARNARD	Pr Tech Eng
		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 9500 - CH 10000m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7120



- NOTES:**
- FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
 - FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
 - FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
 - FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
 - HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H / V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H / V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

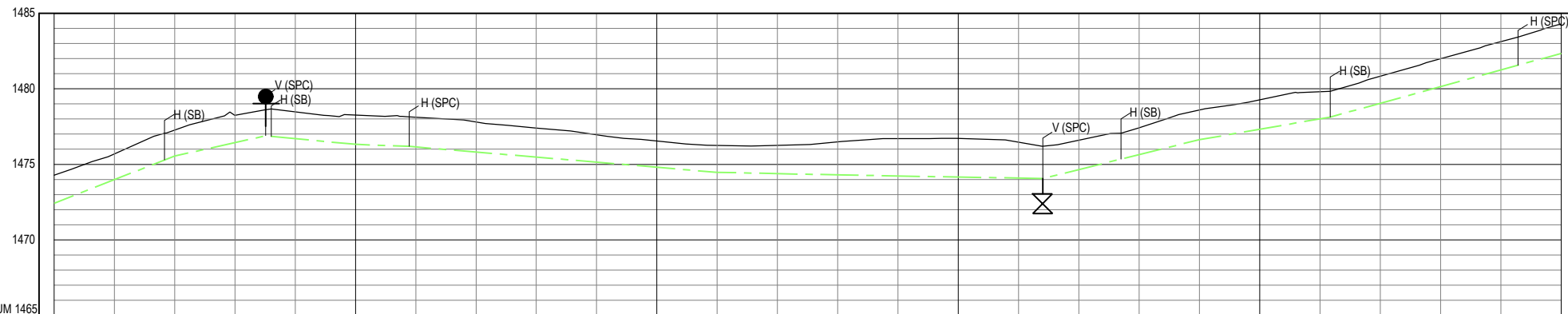
POINT	Y	X
HB77	-62 035.879	3 133 613.855
HB78	-62 011.902	3 133 639.903
HB79	-61 966.200	3 133 641.810
HB80	-61 823.213	3 133 655.792
HB81	-61 730.932	3 133 661.306
HB82	-61 684.824	3 133 713.240
HB83	-61 664.430	3 133 772.132

**CO-ORDINATES: WGS LO 27
BENCHMARKS**

POINT	Y	X	LEVEL
BM CF16	-61 708.493	3 133 668.656	1477.743

SCALES:
Horizontal 1:1000
Vertical 1:200

DATUM 1465



STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE							500mm DIA PVC-O CLASS 12.5 / 16 PIPE		500mm DIA PVC-O CLASS 12.5 / 16 PIPE		500mm DIA PVC-O CLASS 12.5 / 16 PIPE		500mm DIA PVC-O CLASS 12.5 / 16 PIPE		500mm DIA PVC-O CLASS 12.5 / 16 PIPE																		
	HB77	VB108	VB109	VB110	VB111	VB112	VB113	VB114	VB115	VB116	VB117	VB118	VB119	VB120	VB121	VB122	VB123																	
CHAINAGE (m)	10000.00	10036.67	10040.00	10060.00	10070.18	10072.07	10100.00	10117.81	10140.00	10160.00	10180.00	10200.00	10220.00	10240.00	10261.48	10280.00	10300.00	10320.00	10327.99	10340.00	10360.00	10380.00	10400.00	10420.00	10423.37	10440.00	10460.00	10480.00	10485.70	10500.00				
GROUND LEVEL	1474.28	1475.69	1477.05	1477.27	1478.25	1478.61	1478.67	1478.27	1478.15	1477.80	1477.41	1476.95	1476.54	1476.26	1476.51	1476.70	1476.71	1476.46	1476.20	1476.60	1477.05	1477.43	1478.00	1479.28	1479.81	1479.85	1480.84	1482.00	1483.13	1483.44	1484.29			
PIPE INVERT LEVEL	1472.41	1473.98	1475.29	1475.55	1476.43	1476.89	1476.85	1476.32	1476.19	1475.81	1475.48	1475.14	1474.80	1474.47	1474.29	1474.23	1474.16	1474.09	1474.06	1474.66	1475.34	1475.64	1476.63	1477.32	1478.01	1478.13	1479.05	1480.15	1481.25	1481.57	1482.35			
TRENCH DEPTH	2.00	1.84	1.89	1.85	1.95	1.85	1.95	2.07	2.09	2.12	2.06	1.94	1.86	1.92	2.00	2.35	2.60	2.68	2.50	2.27	2.07	1.84	1.91	2.10	2.08	1.93	1.84	1.98	2.01	2.00	2.07			
SLOPE & SLOPE DISTANCE (m)	1:12.76 80.25		1:22.60 30.21		-1:53.10 29.82		-1:130.49 17.81		-1:59.45 102.20			-1:235.65 41.48		-1:287.89 66.51		1:20.23 52.08		1:28.94 43.40		1:18.15 116.80														
CHANGE IN DIRECTION	HOR		45.00°		1.96°		3.61°		44.98°		0.64°		0.52°		3.19°		0.72°		0.04°		2.17°		3.03°		44.98°		0.85°		1.17°		22.50°		6.04°	

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 10000m - 10500m



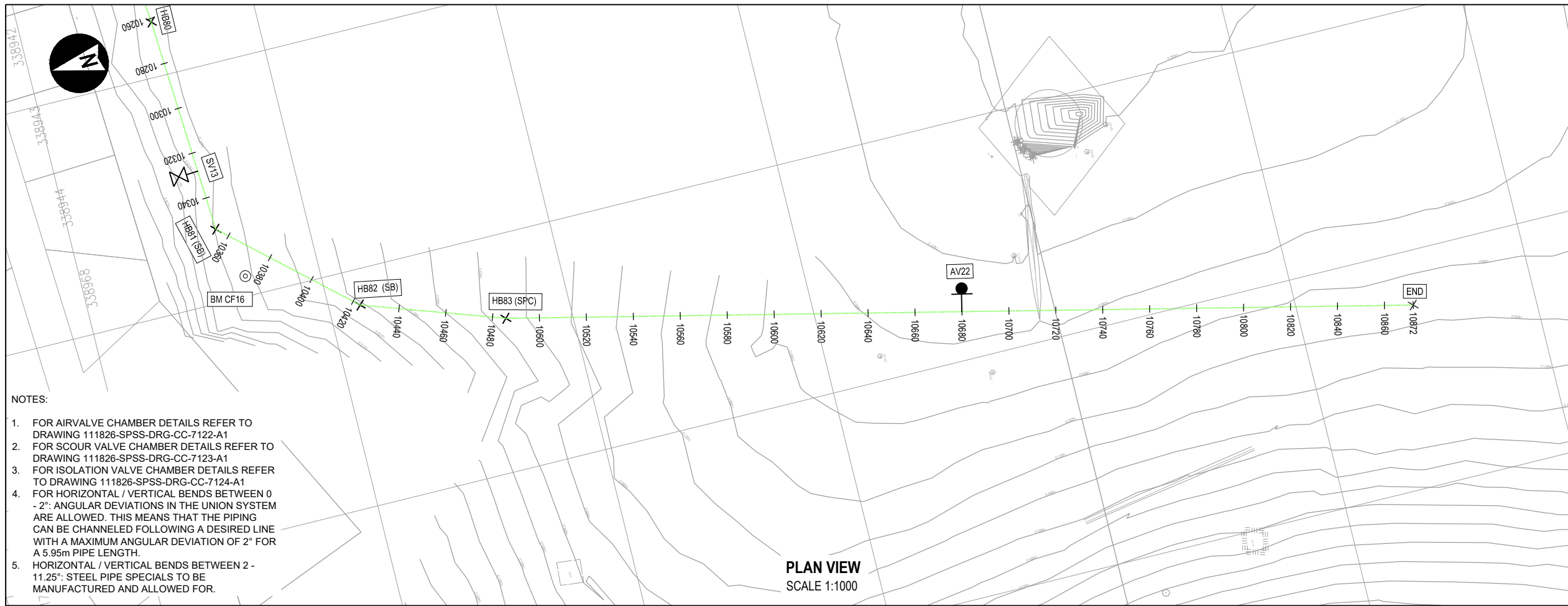
REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	APPROVED
DRAWN	T.MOKOENA	DATE
DESIGNED	T.MOKOENA	20/04/19
REVIEWED	W BARNARD	Pr Tech Eng
		200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 10000 - CH 10500m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7121
				-A1



NOTES:

1. FOR AIRVALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7122-A1
2. FOR SCOUR VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7123-A1
3. FOR ISOLATION VALVE CHAMBER DETAILS REFER TO DRAWING 111826-SPSS-DRG-CC-7124-A1
4. FOR HORIZONTAL / VERTICAL BENDS BETWEEN 0 - 2°: ANGULAR DEVIATIONS IN THE UNION SYSTEM ARE ALLOWED. THIS MEANS THAT THE PIPING CAN BE CHANNLED FOLLOWING A DESIRED LINE WITH A MAXIMUM ANGULAR DEVIATION OF 2° FOR A 5.95m PIPE LENGTH.
5. HORIZONTAL / VERTICAL BENDS BETWEEN 2 - 11.25°: STEEL PIPE SPECIALS TO BE MANUFACTURED AND ALLOWED FOR.

LEGEND: (PLAN VIEW)

- GRIDLINE
- FENCE
- NEW 500mm Ø 0-PVC PIPELINE CLASS PN12.5 / PN16
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER
- ISOLATION VALVE CHAMBER
- ESKOM OVERHEAD POWER LINE AND POLE
- ROAD
- BENCHMARK
- HB01 (SB) HORIZONTAL BEND, (STANDARD BEND)
- HB01 (SPC) HORIZONTAL BEND, (SPECIAL BEND)

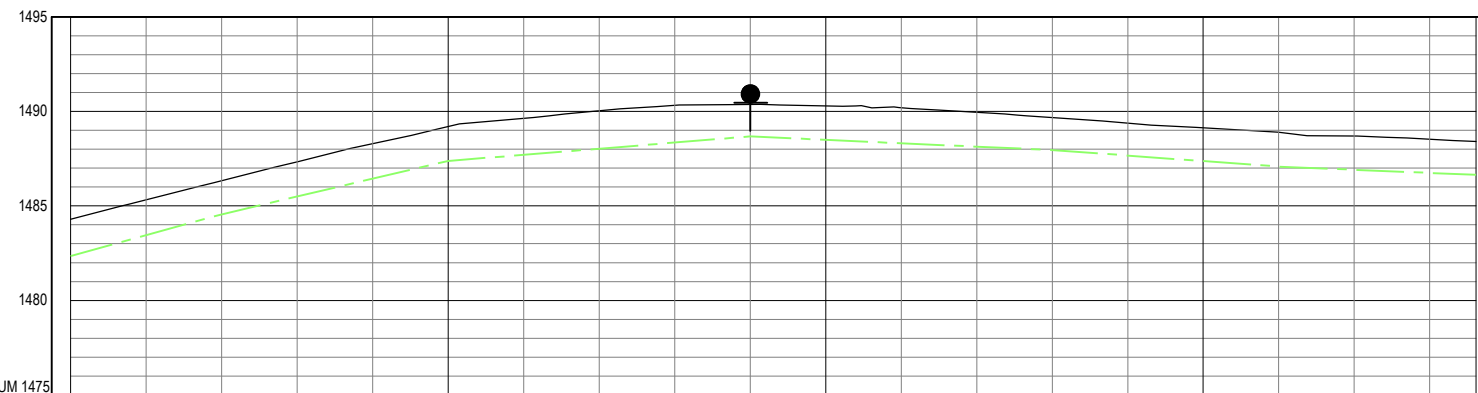
LEGEND: (LONG SECTION)

- NATURAL GROUND LEVEL
- NEW 500mm Ø U-PVC PIPELINE
- H/V (SB) HORIZONTAL OR VERTICAL BEND REQUIRED (STANDARD BEND)
- H/V (SPC) HORIZONTAL OR VERTICAL BEND REQUIRED (SPECIAL BEND)
- AIR VALVE CHAMBER
- SCOUR VALVE CHAMBER

The Master held at Aurecon bears the signature of approval

**CO-ORDINATES: WGS LO 27
HORIZONTAL ALIGNMENT**

POINT	Y	X
END	-61 577.080	3 134 148.704



SCALES:
Horizontal 1:1000
Vertical 1:200

DATUM 1475

STRUCTURE REFERENCE	500mm DIA PVC-O CLASS 12.5 / 16 PIPE VB117			500mm DIA PVC-O CLASS 12.5 / 16 PIPE VB118			500mm DIA PVC-O CLASS 12.5 / 16 PIPE VB119/AV22			500mm DIA PVC-O CLASS 12.5 / 16 PIPE VB120			500mm DIA PVC-O CLASS 12.5 / 16 PIPE VB121			500mm DIA PVC-O CLASS 12.5 / 16 PIPE VB122 END				
CHAINAGE (m)	10500.00	10520.00	10540.00	10560.00	10580.00	10600.00	10620.00	10640.00	10660.00	10680.00	10700.00	10720.00	10740.00	10760.00	10780.00	10800.00	10820.00	10840.00	10860.00	10872.27
GROUND LEVEL	1484.29	1485.32	1486.34	1487.34	1488.30	1489.20	1489.64	1490.04	1490.32	1489.38	1490.30	1490.20	1489.95	1489.68	1489.38	1489.14	1488.90	1488.70	1488.53	1488.41
PIPE INVERT LEVEL	1482.35	1483.46	1484.56	1485.50	1486.44	1487.38	1487.71	1488.03	1488.36	1488.68	1489.50	1488.32	1488.14	1487.96	1487.67	1487.38	1487.09	1486.92	1486.75	1486.65
TRENCH DEPTH	2.07	2.00	1.91	1.97	1.99	1.95	2.06	2.14	2.10	1.83	1.93	2.01	1.94	1.84	1.84	1.89	1.94	1.91	1.91	1.89
SLOPE & SLOPE DISTANCE (m)	1:18.15 116.80			1:21.24 60.07			1:61.61 80.01			-1:111.37 80.00			-1:68.46 60.01			-1:119.49 52.26				
CHANGE IN DIRECTION	HOR																			
	VER		0.46°			1.77°			1.44°			0.32°			0.36°			0.44°		

CYFERFONTEIN 500mmØ CLASS PN12.5 / 16 PIPELINE LONGSECTION
CHAINAGE 10500m - 10872.269m



CLIENT



REV	DATE	REVISION DETAILS	APPROVED
A1	20/04/19	ISSUED FOR DISCUSSION	W BARNARD

SCALE	SIZE	WORK IN PROGRESS
1:1000	A1	
DRAWN	APPROVED	
T.MOKOENA	DATE	
DESIGNED	20/04/19	
T.MOKOENA		
REVIEWED		
W BARNARD	W.BARNARD	Pr Tech Eng 200970086

PROJECT
UPGRADING OF BULK WATER SUPPLY IN SENEKAL

TITLE
CYFERFONTEIN DAM TO CENTRAL WATER TREATMENT WORKS: PLAN AND LONGITUDINAL SECTION (CH 10500 - CH 10872.269m)

DRAWING NUMBER				
PROJECT No.	WBS	TYPE	DISC	NUMBER
111826	SPSS	DRG	CC	7122
				REV
				-A1