

NOTE:
ALL ELEVATIONS REFER TO THE TOP OF CONCRETE (TOC) AT THE FOUNDATION LEVEL OF EACH STRUCTURE

POINTS				
DESCRIPTION	STRUCTURE	Y	X	Z
B1	PRIMARY CLARIFIER A	-2 632 863.012	46 263.455	1184.250
B2	PRIMARY CLARIFIER A	-2 632 852.892	46 253.334	1187.830
B3	PRIMARY CLARIFIER B	-2 632 841.781	46 284.668	1184.250
B4	PRIMARY CLARIFIER B	-2 632 831.669	46 274.557	1187.830

NOTES

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ZAKUMI
Consulting Engineers

21 COMPENSATIE STR, POLOKWANE, LIMPOPO, 0699
PO BOX 3154, POLOKWANE, LIMPOPO, 0700

WEBSITE: www.zoe.com
TEL: +27 15 291 1176
FAX: +27 15 291 1993

CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T.BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

PROJECT

**POLOKWANE REGIONAL
WASTE WATER TREATMENT
WORKS**

DRAWING DESCRIPTION

**PRIMARY CLARIFIERS
SETTING OUT**

CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-06	1:100	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-1010	0	



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POINTS				
DESCRIPTION	STRUCTURE	Y	X	Z
F1	SECONDARY CLARIFIER A	-2 632 717.764	46 140.027	1177.525
F2	SECONDARY CLARIFIER A	-2 632 702.114	46 140.027	1183.125
F3	SECONDARY CLARIFIER B	-2 632 689.480	46 111.730	1177.525
F4	SECONDARY CLARIFIER B	-2 632 674.180	46 111.691	1183.125

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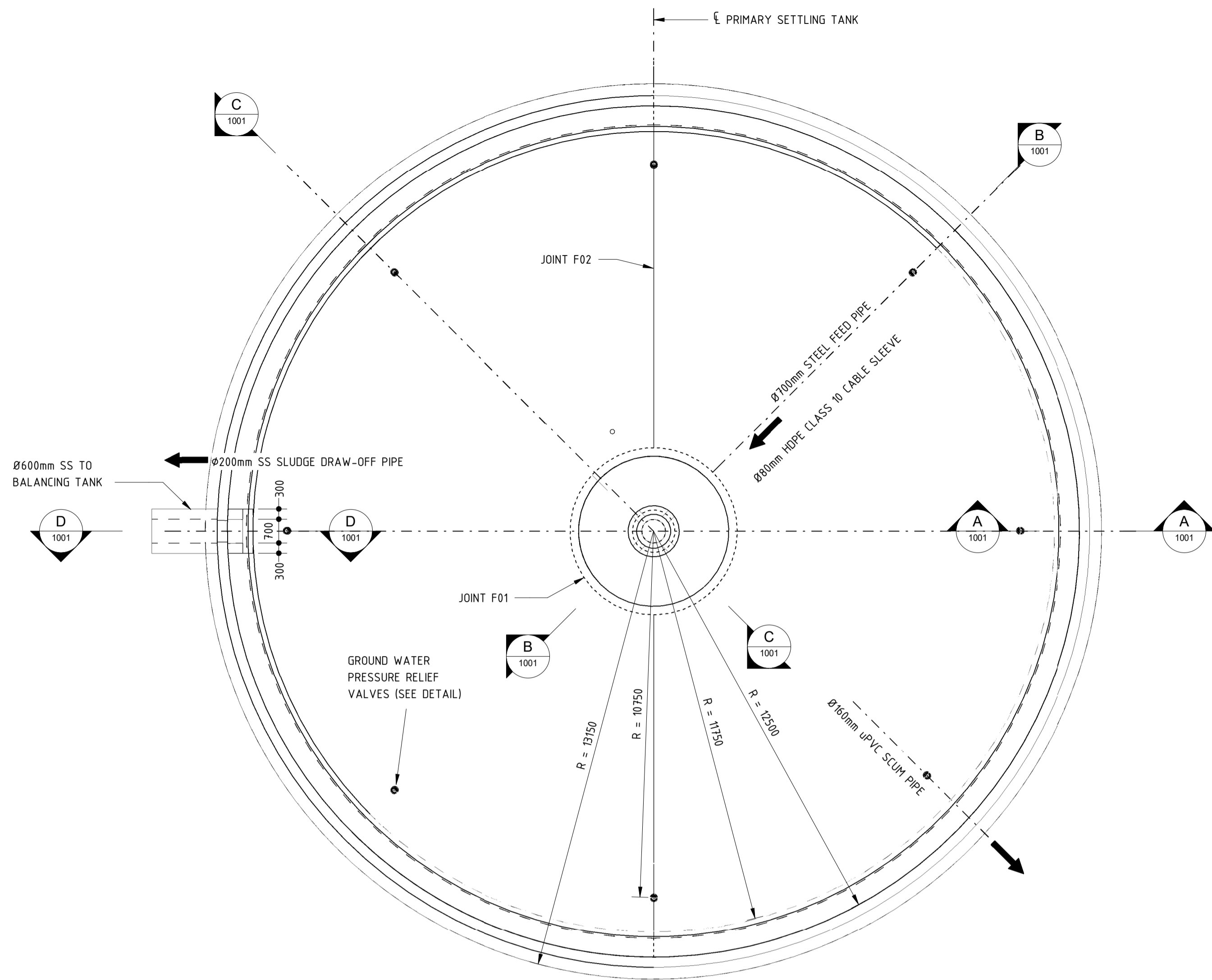
PROJECT

POLOKWANE REGIONAL WASTE WATER TREATMENT WORKS

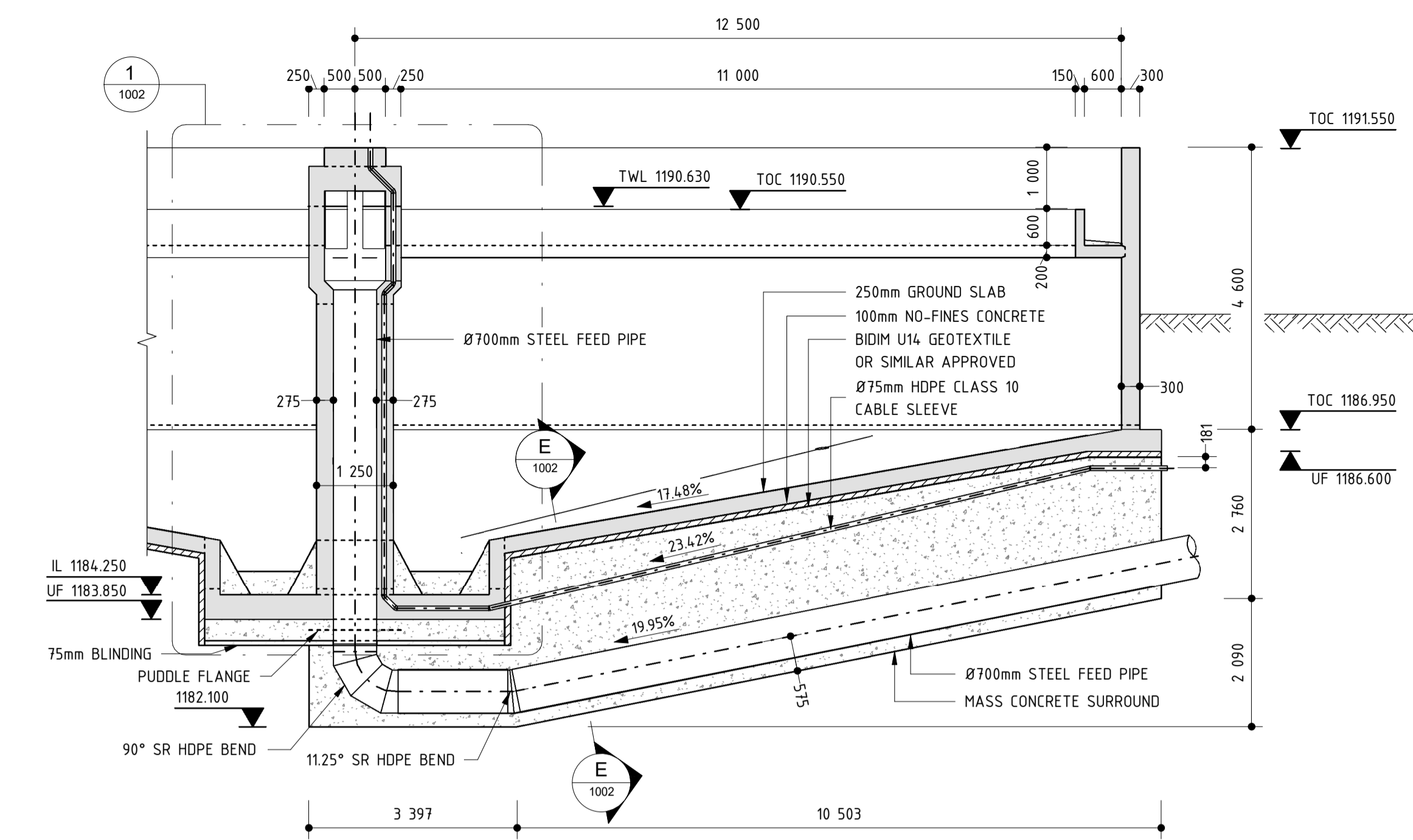
DRAWING DESCRIPTION

SECONDARY CLARIFIERS SETTING OUT

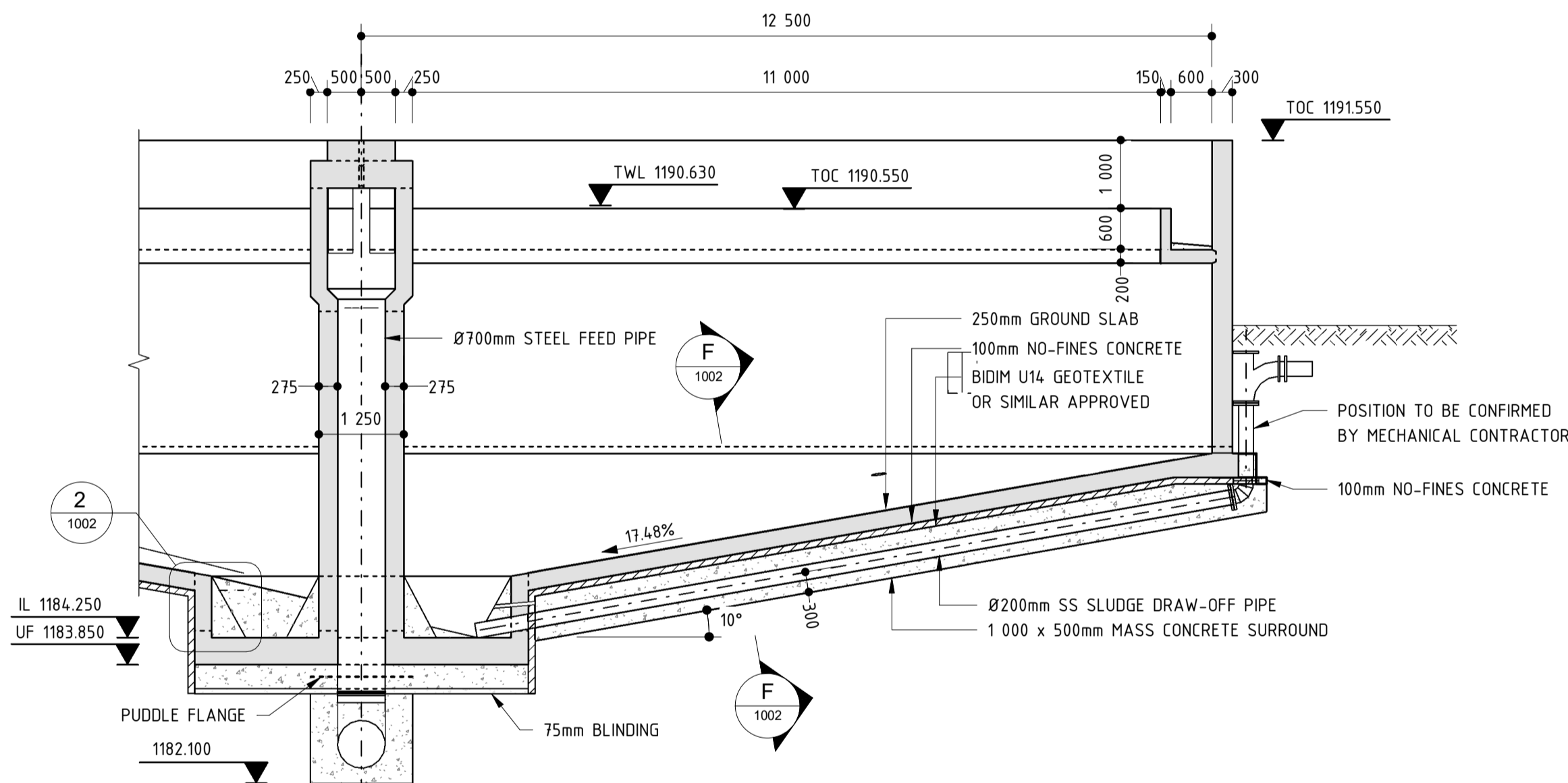
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Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
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DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-1011	0	



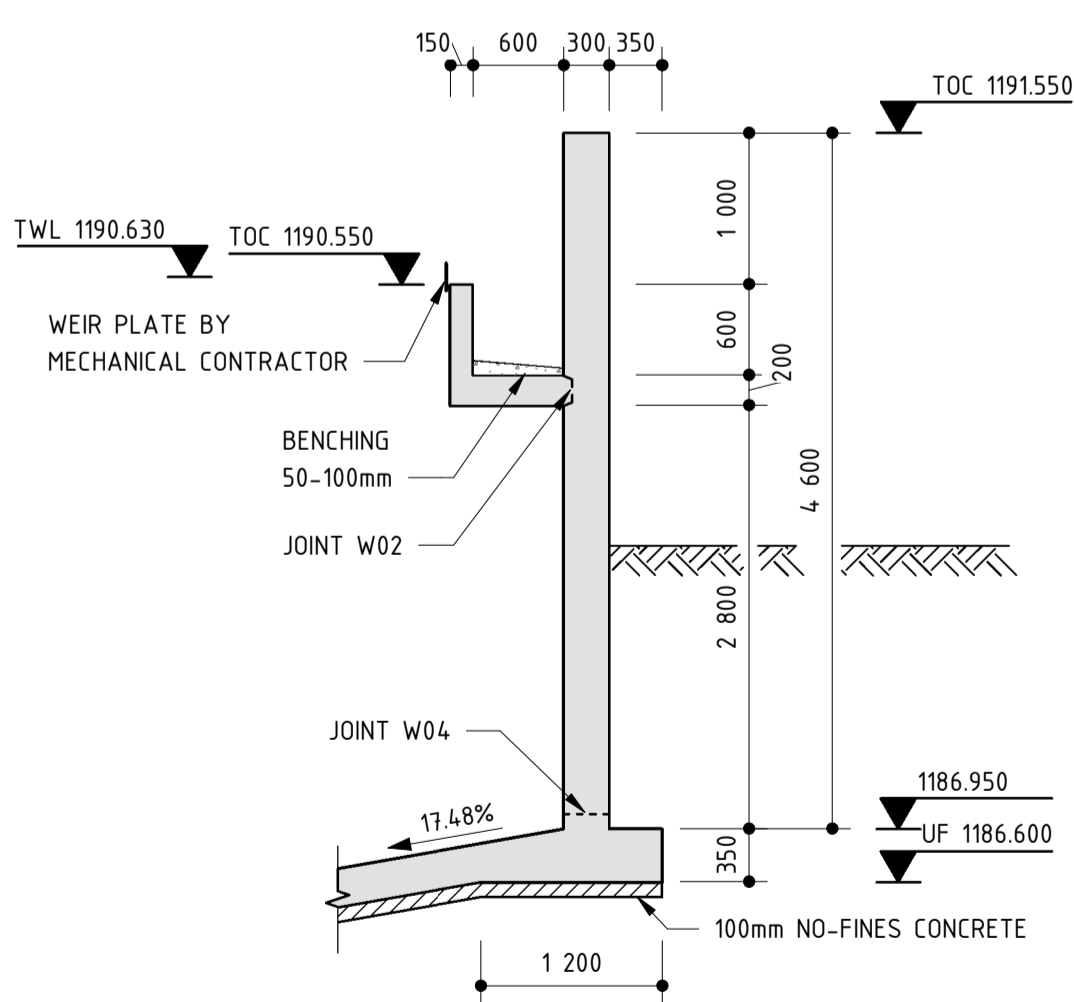
PLAN
1 : 100



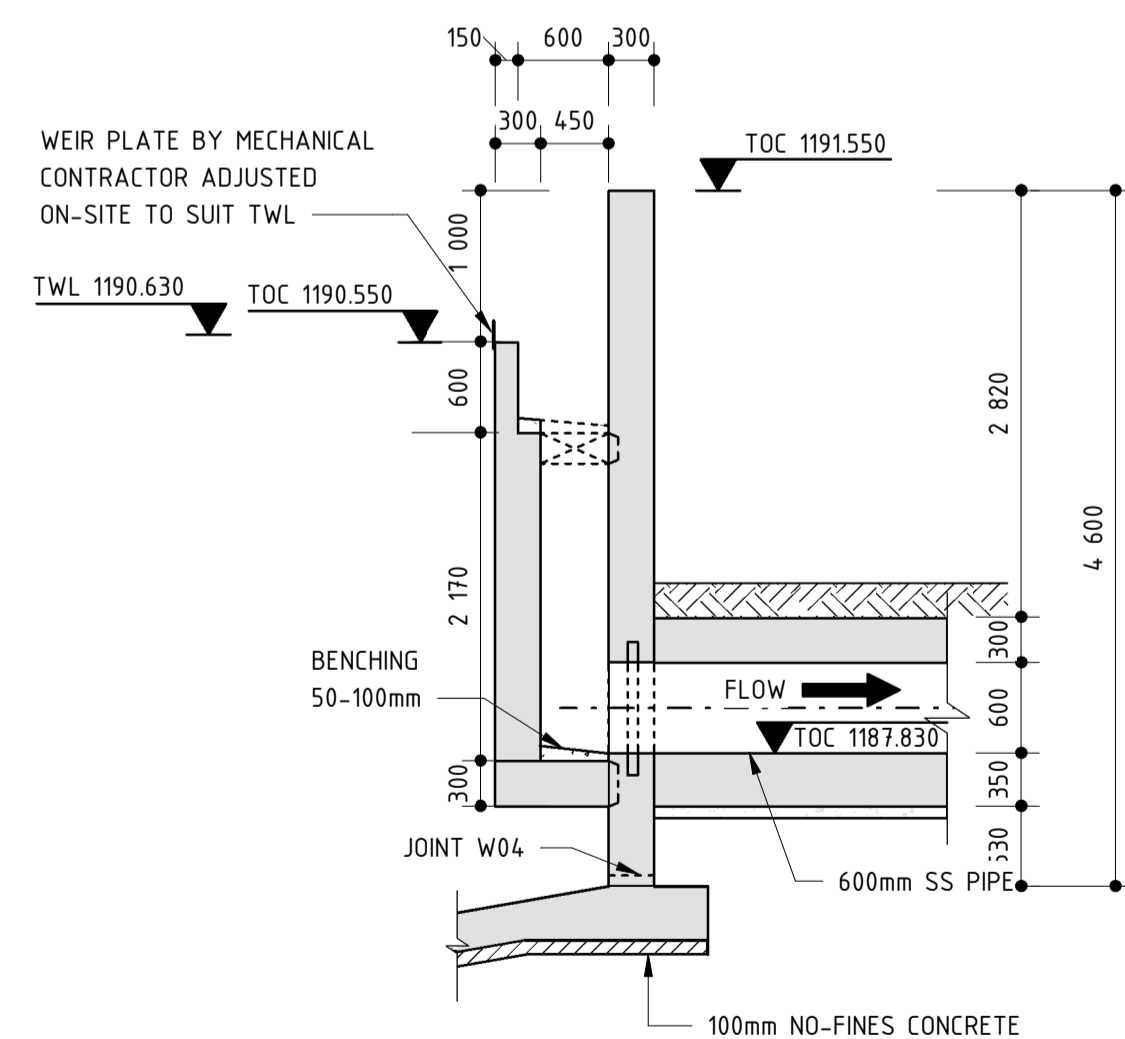
SECTIONAL ELEVATION B-B
1 : 75



SECTIONAL ELEVATION C-C
1 : 75



SECTION A-A
1 : 50



SECTION D-D
1 : 50

GENERAL NOTES:

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CONCRETE NOTES:

- THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCEMENT IS PROPERLY HELD IN POSITION AND SHALL ALSO MAINTAIN THE CORRECT CONCRETE COVER UTILIZING APPROVED PATENT SPACERS (NOT STONES, OFFCUT REINFORCEMENT, BRICKS ETC.) AT ALL TIMES.
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- ALL EXPOSED CORNERS TO HAVE A 20 x 20mm CHAMFER.
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- DRAWING TO BE READ IN CONJUNCTION WITH DRAWING No.: PK278-SP-2B-PST-502 FOR JOINT DETAILS SEE DRAWING PK278-SP-2B-ST-1001.

LEGEND:

- CJ = CONSTRUCTION JOINT
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CONSTRUCTION DRAWING

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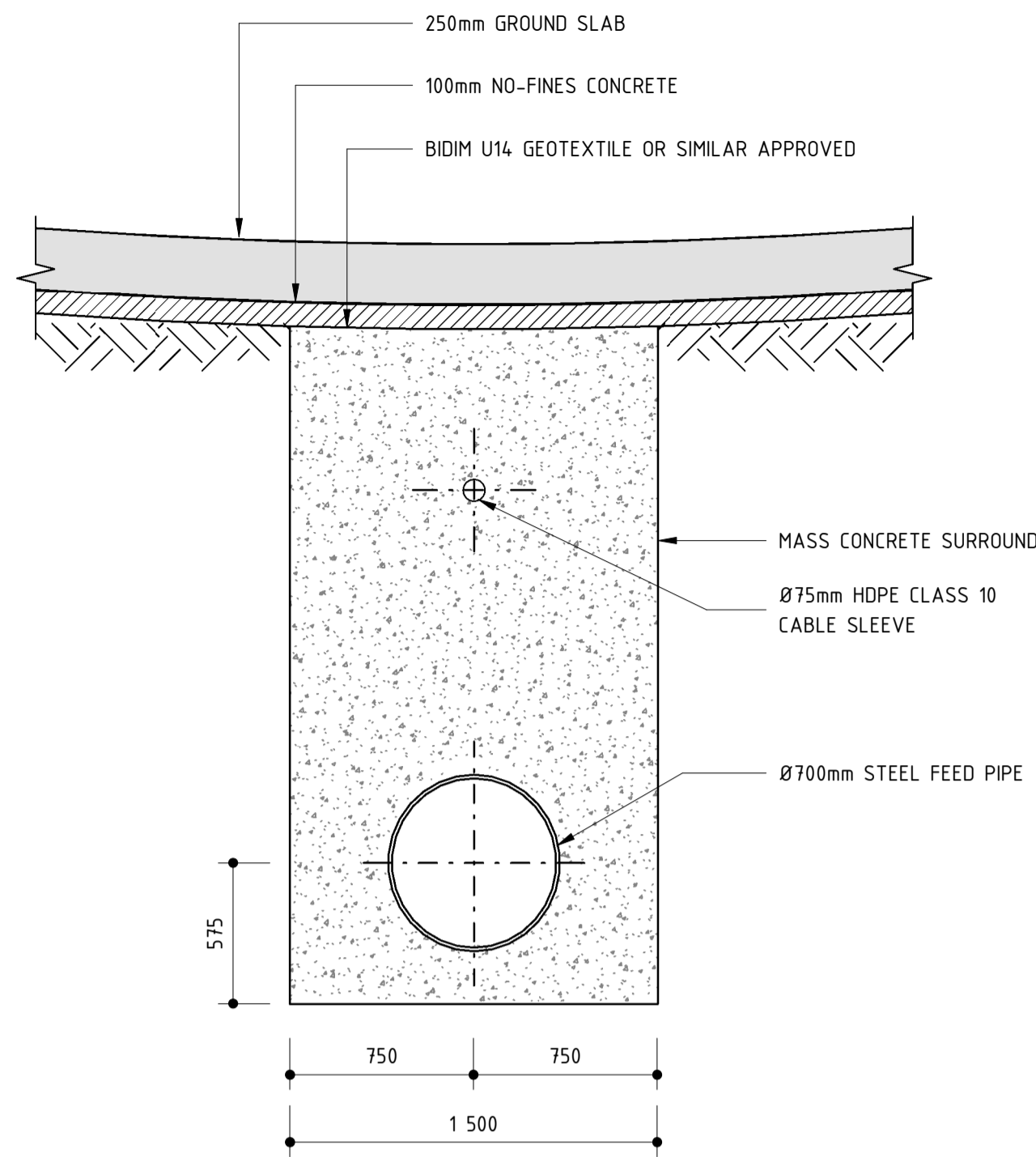
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T.BANDA
ENGINEER
PR ENG no. DATE
CLIENT DATE

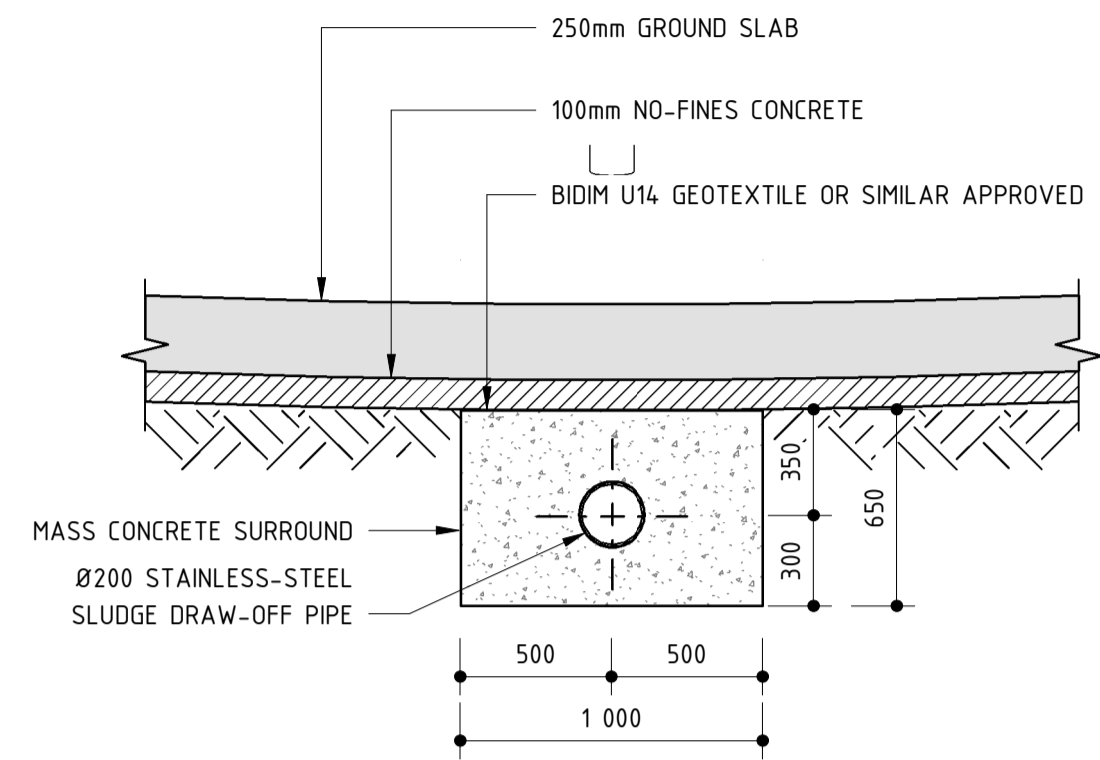
PROJECT
POLOKWANE
REGIONAL WWTW
CONTRACT 2B

DRAWING DESCRIPTION
PRIMARY SETTLING TANKS
CONCRETE DETAILS

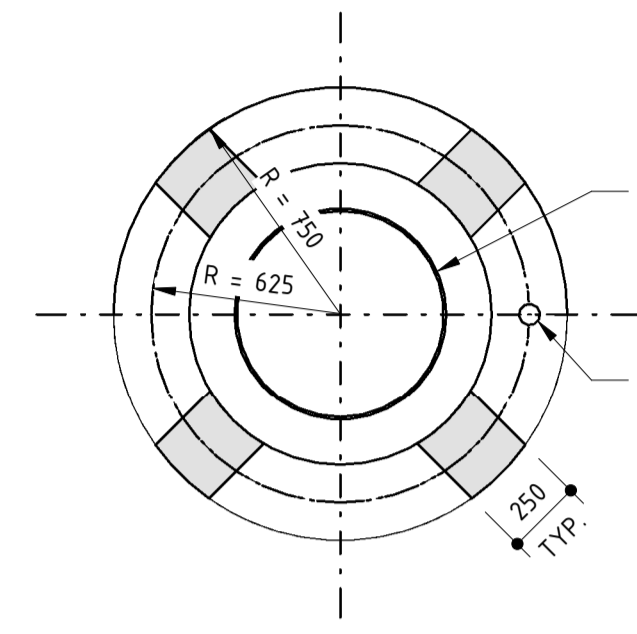
DESIGNED	DRAWN	CHECKED
J.A.B. GALANTE	R.GASNOLA	R.K. DICKSON
REV DATE	SCALE	ORIGINAL SIZE
2023/06	As indicated	A1
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PK278-01-STR-DRG-0010-1001	0	



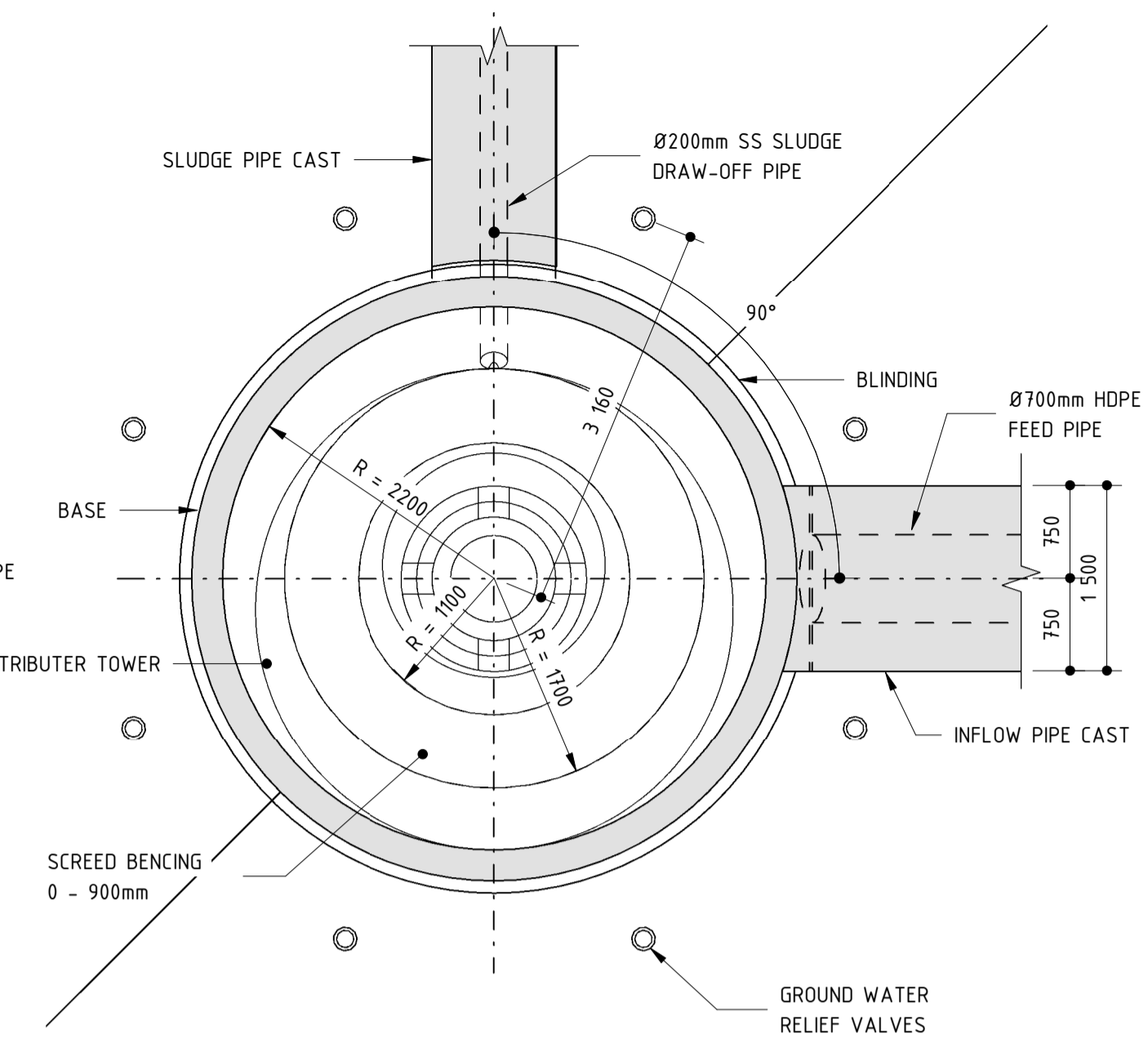
SECTION E-E: FEED PIPE
1:25



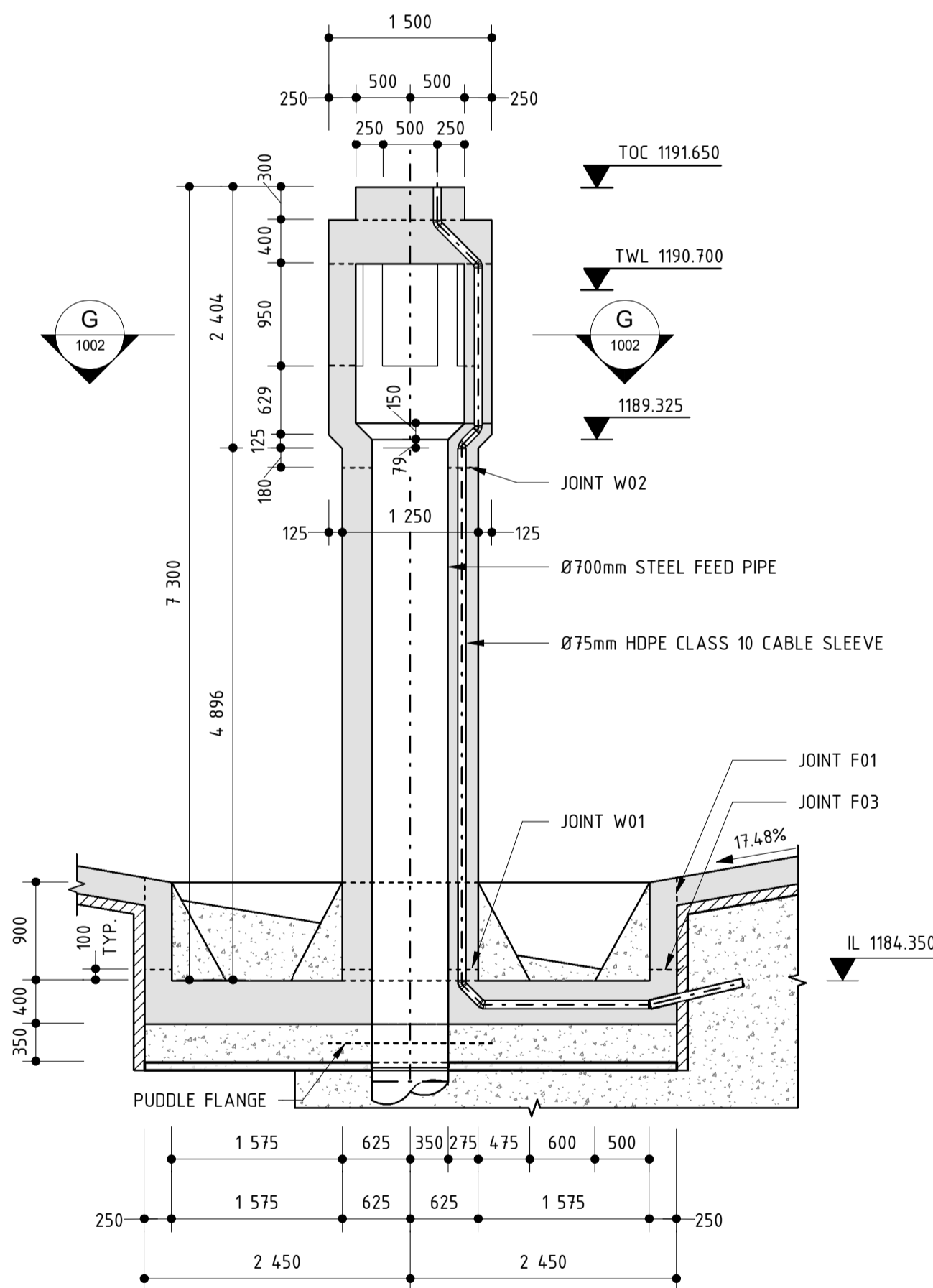
SECTION F-F: SLUDGE DRAW-OFF PIPE
1:25



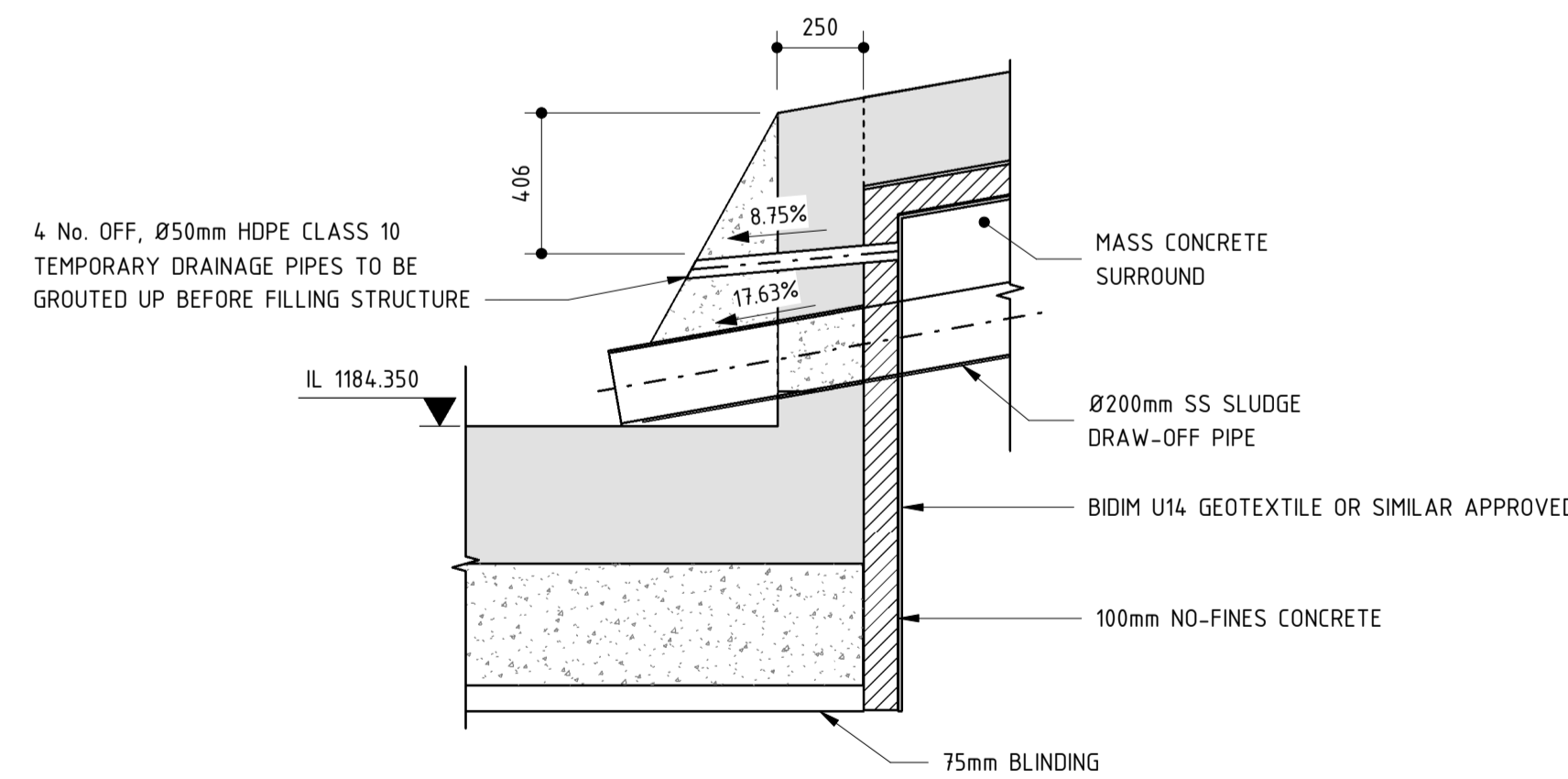
SECTION G-G
1:25



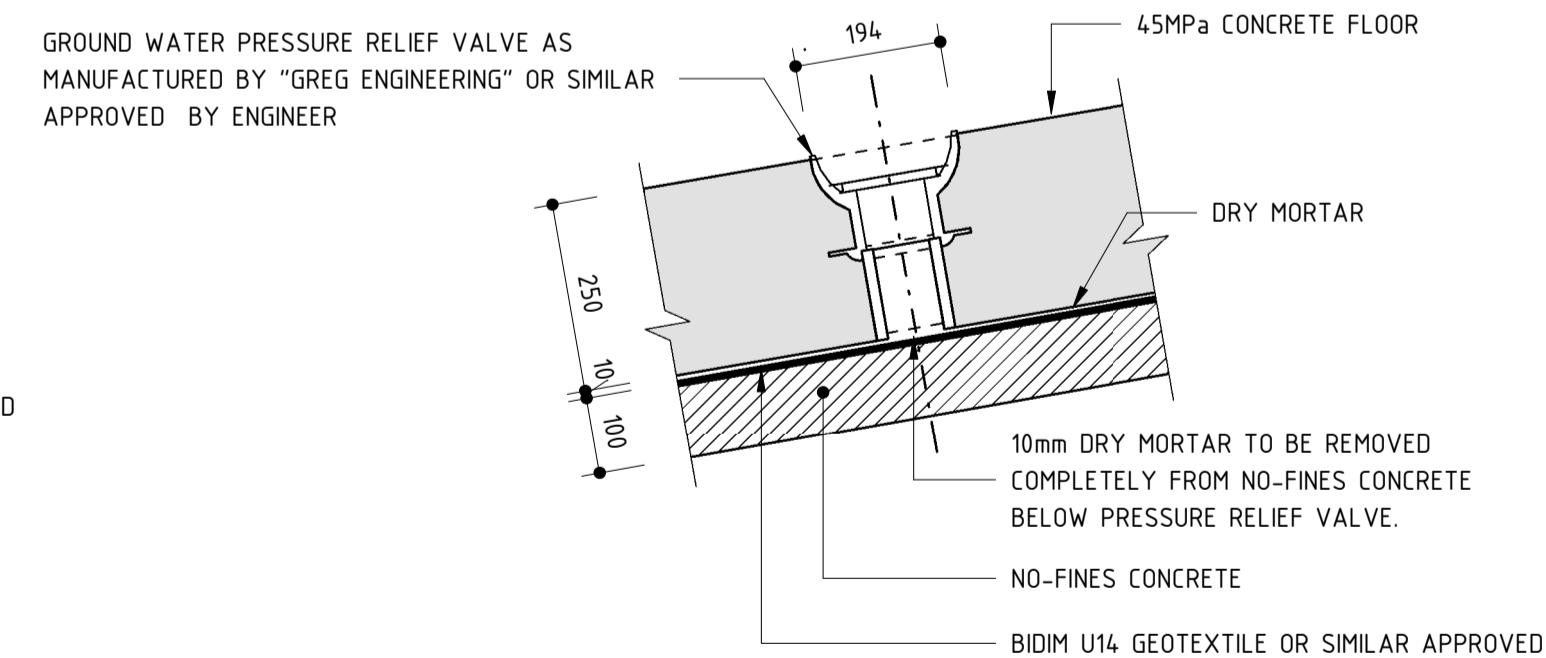
DETAIL CENTRAL HOPPER
1:50



DETAIL 1
1:50



DETAIL 2
1:20



GROUND WATER PRESSURE RELIEF VALVE DETAIL
1:10

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T.BANDA
ENGINEER

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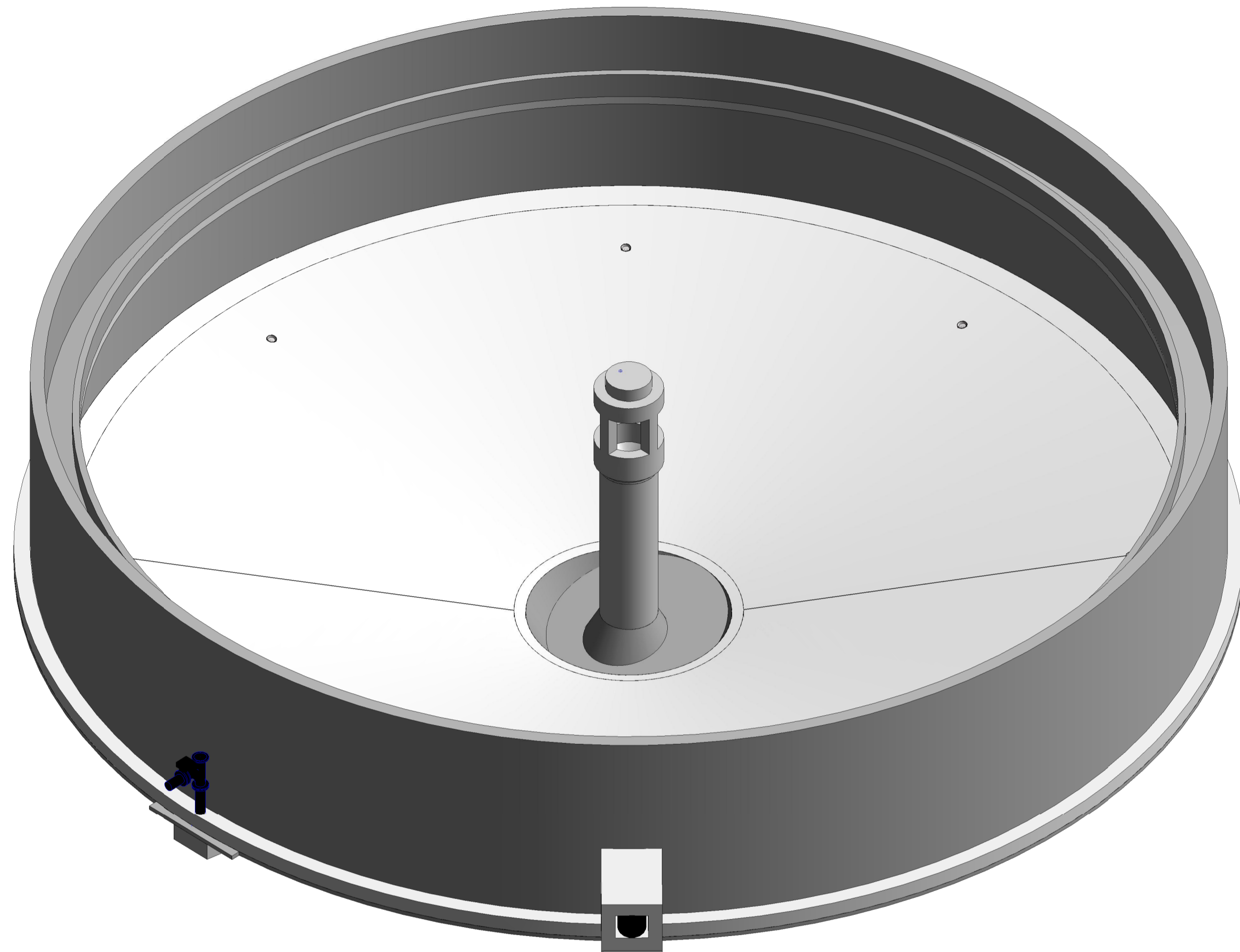
PROJECT

**POLOKWANE
REGIONAL WWTW
CONTRACT 2B**

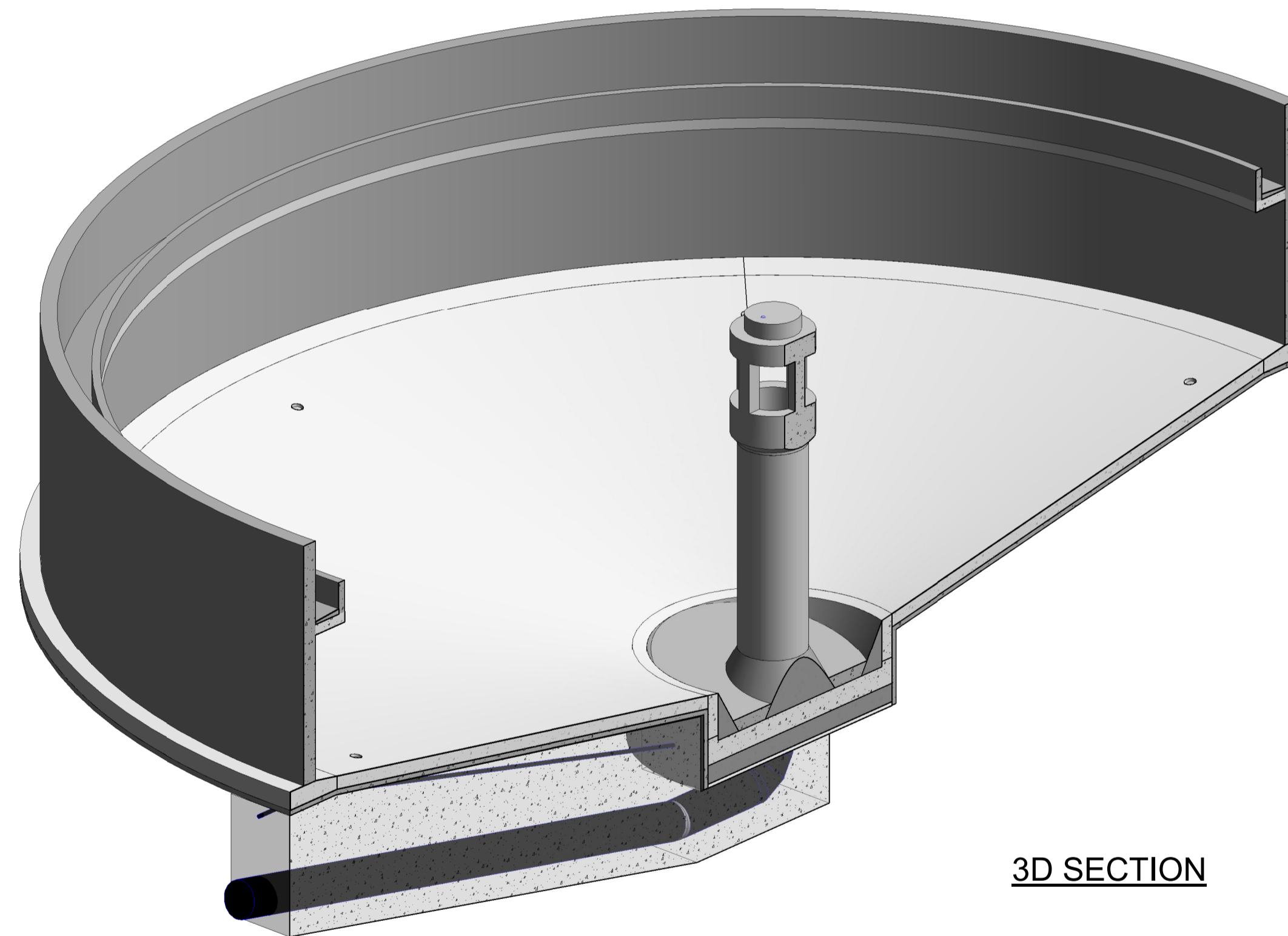
DRAWING DESCRIPTION

**PRIMARY SETTLING TANKS
CONCRETE DETAILS 2**

DESIGNED	DRAWN	CHECKED
J.A.B. GALANTE	R. GASHNOLA	R.K. DICKSON
REV DATE	SCALE	ORIGINAL SIZE
2023/06	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0010-1002	0	



3D VIEW



3D SECTION

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J.A.B. GALANTE	R GASNOLA	R.K. DICKSON
REV DATE	SCALE	ORIGINAL SIZE
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DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-010-1003	0	

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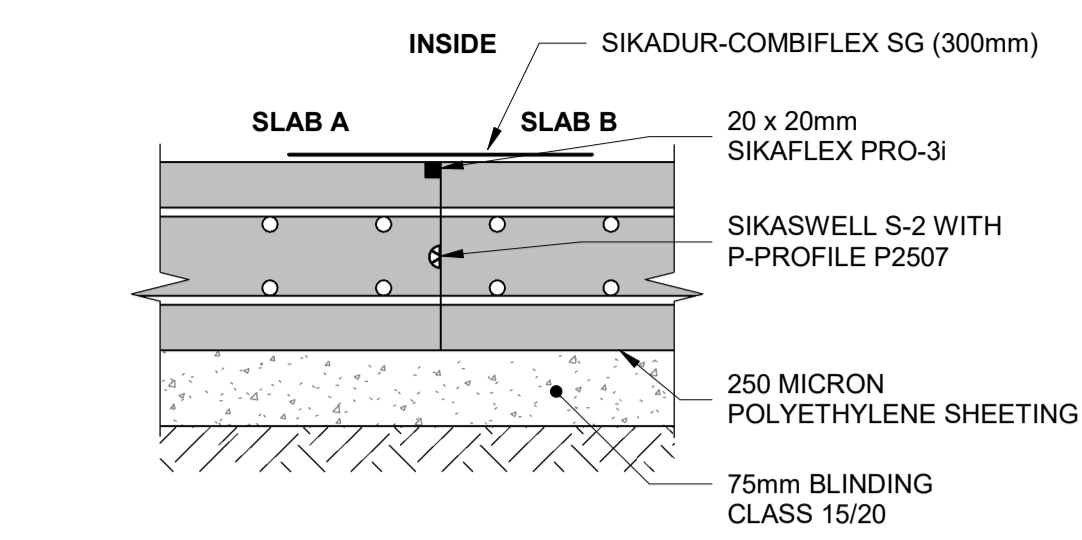
PROJECT

**POLOKWANE
REGIONAL WWTW
CONTRACT 2B**

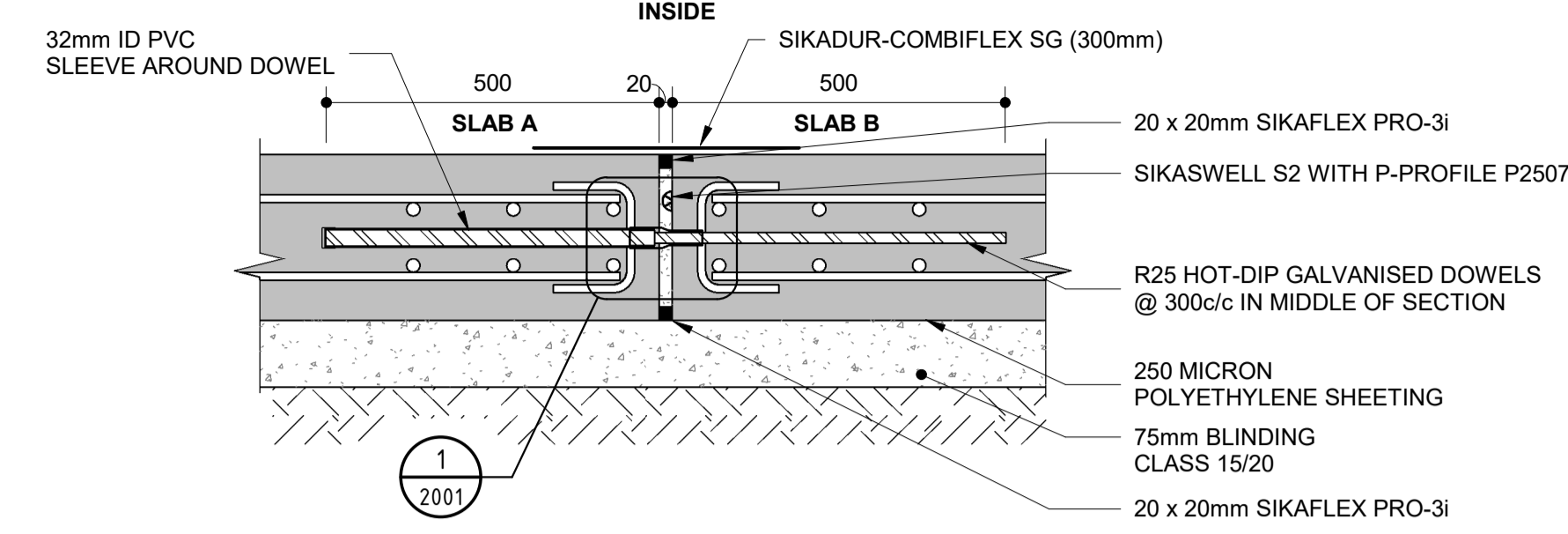
DRAWING DESCRIPTION

PRIMARY SETTLING TANKS

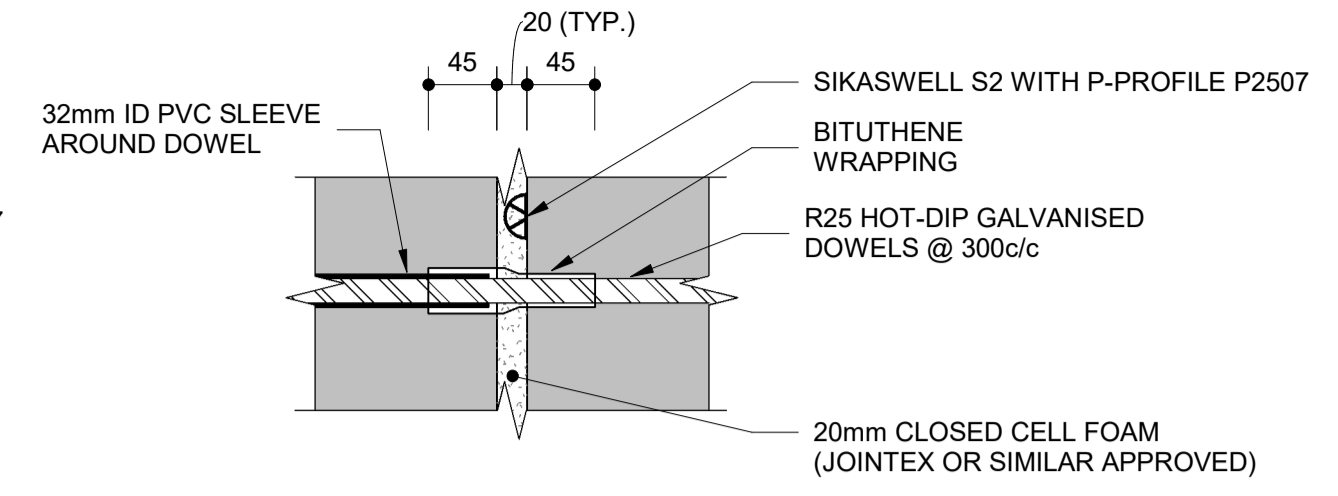
3D VIEWS



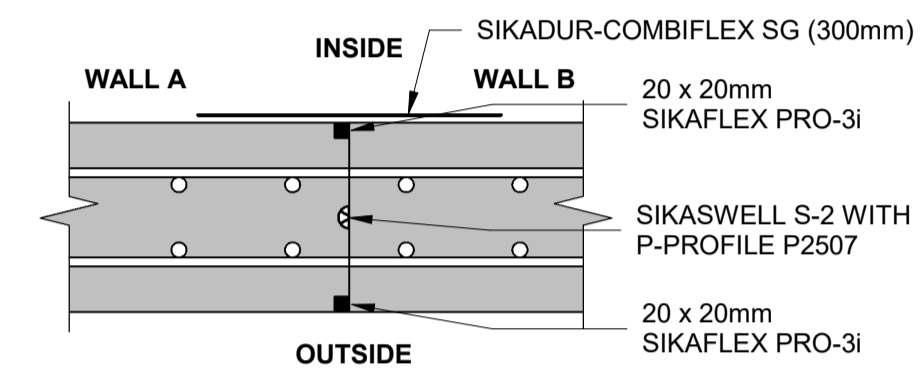
FLOOR CONSTRUCTION JOINT
SCALE 1 : 10



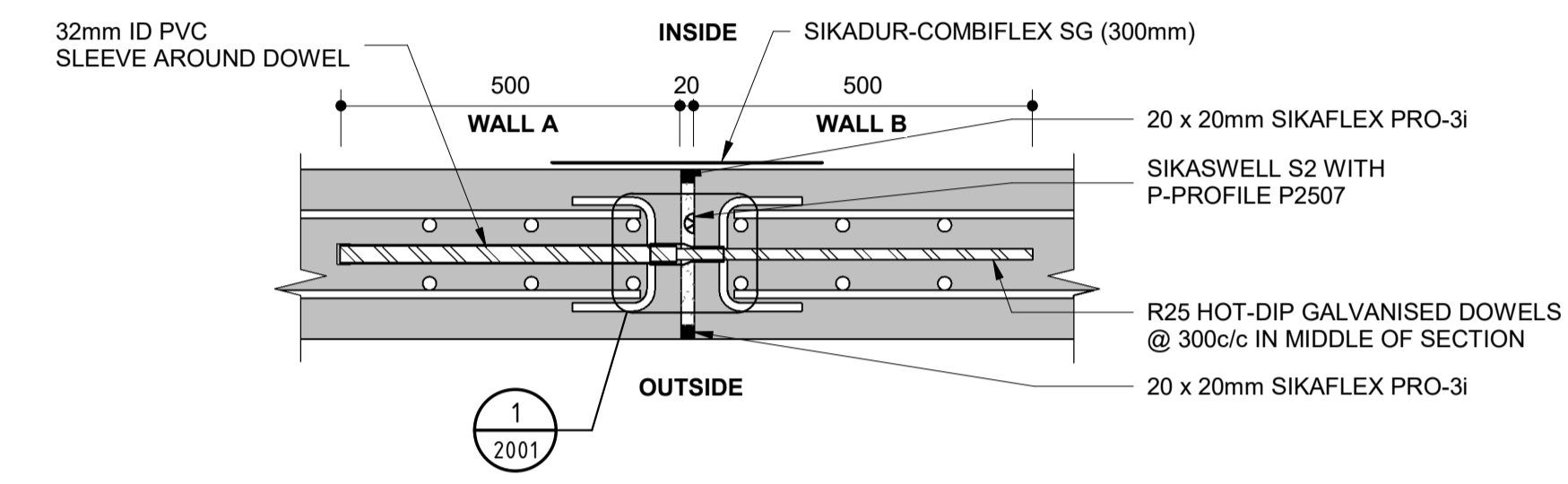
FLOOR MOVEMENT JOINT
SCALE 1 : 10



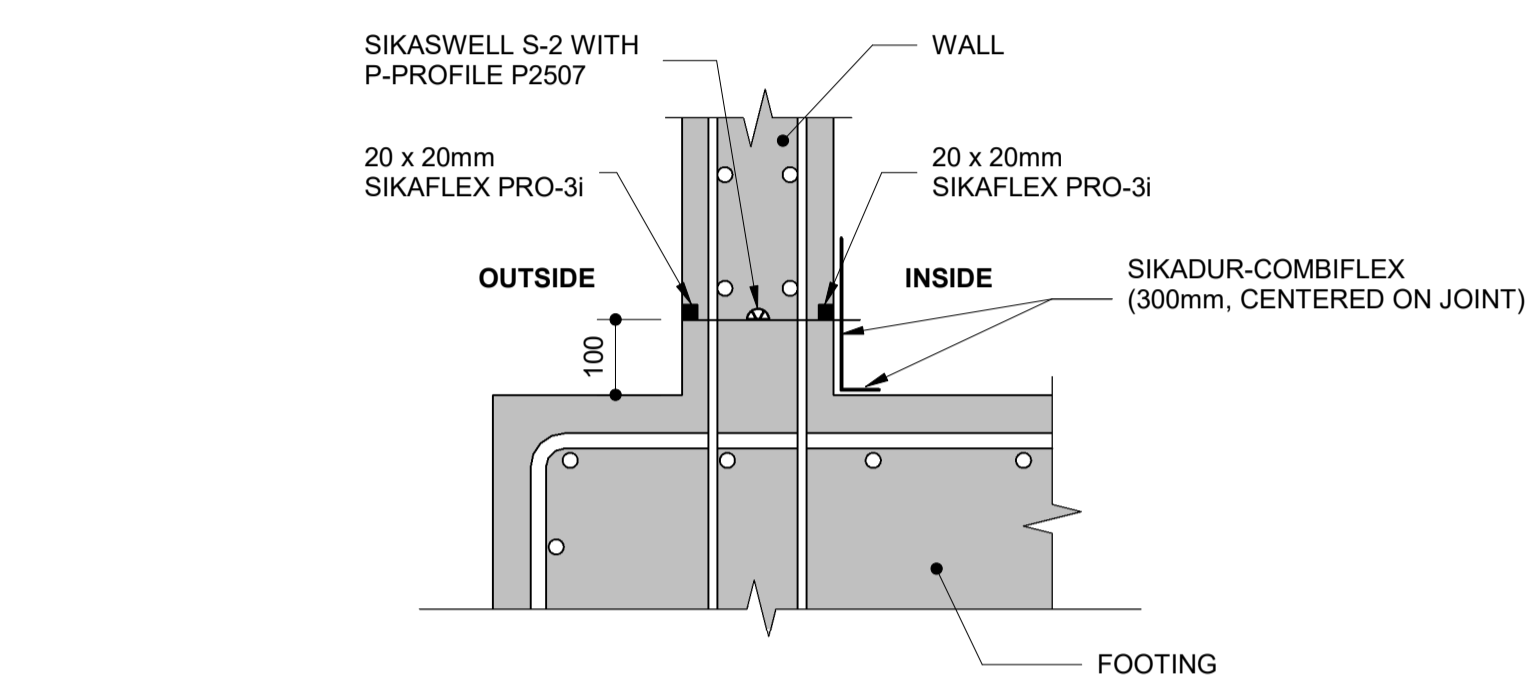
1
2001 **DOWEL DETAIL**
SCALE 1 : 5



WALL CONSTRUCTION JOINT (VERTICAL)
SCALE 1 : 10

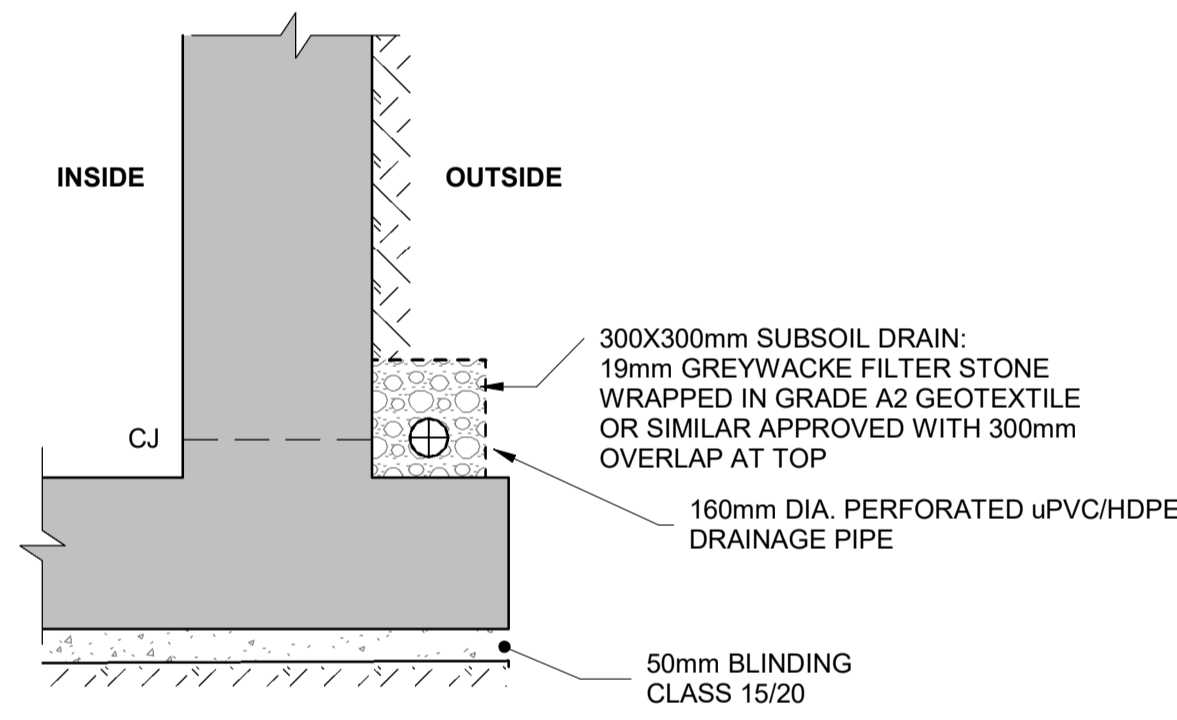


WALL MOVEMENT JOINT (VERTICAL)
SCALE 1 : 10



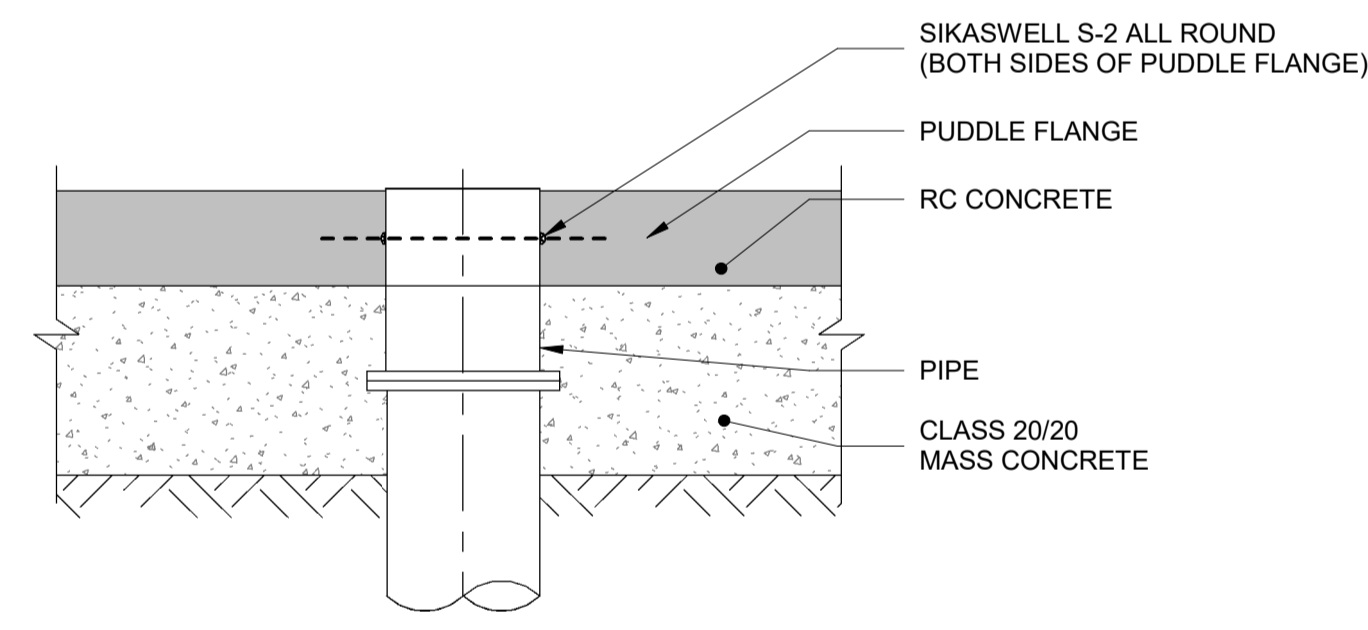
WALL CONSTRUCTION JOINT AT KICKER (HORIZONTAL)
SCALE 1 : 10

NOTE: SURFACE PREPARATION: EXPOSE AGGREGATE USING HYDRO DEMOLITION OR GRIT BLASTING TO ENGINEERS APPROVAL.

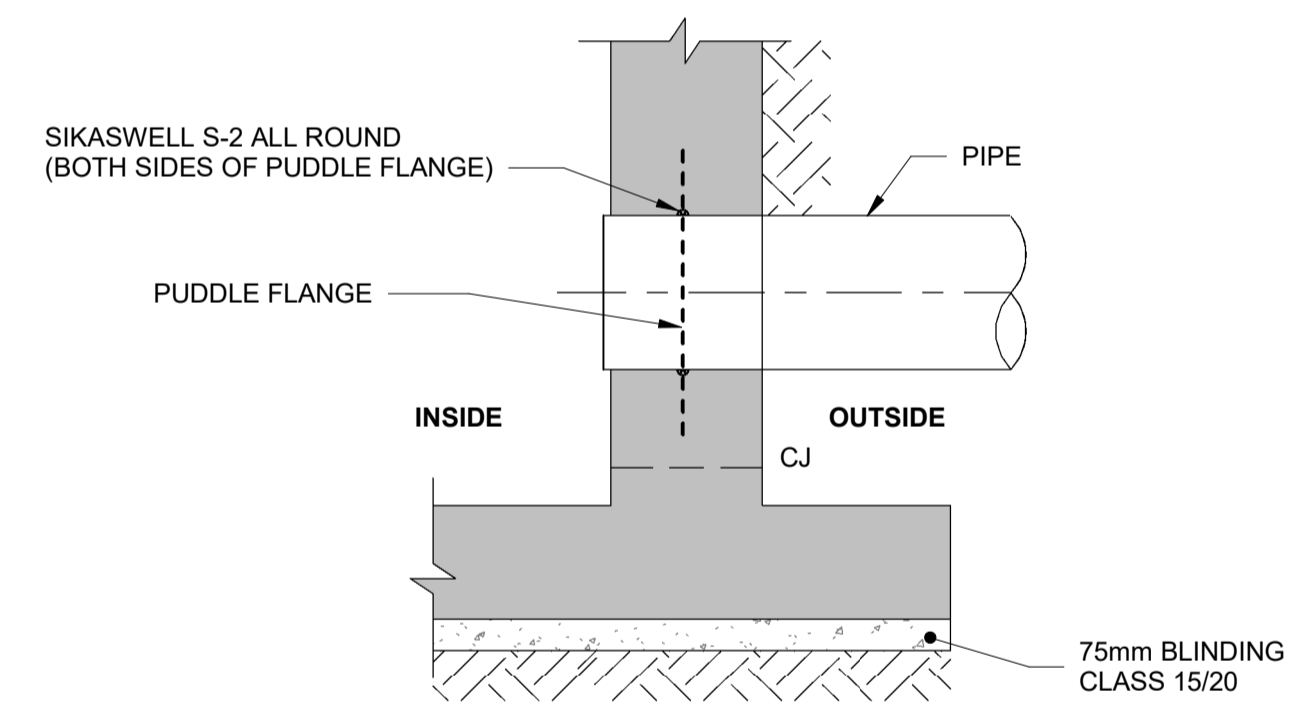


SUB-SOIL DRAIN
SCALE 1 : 20

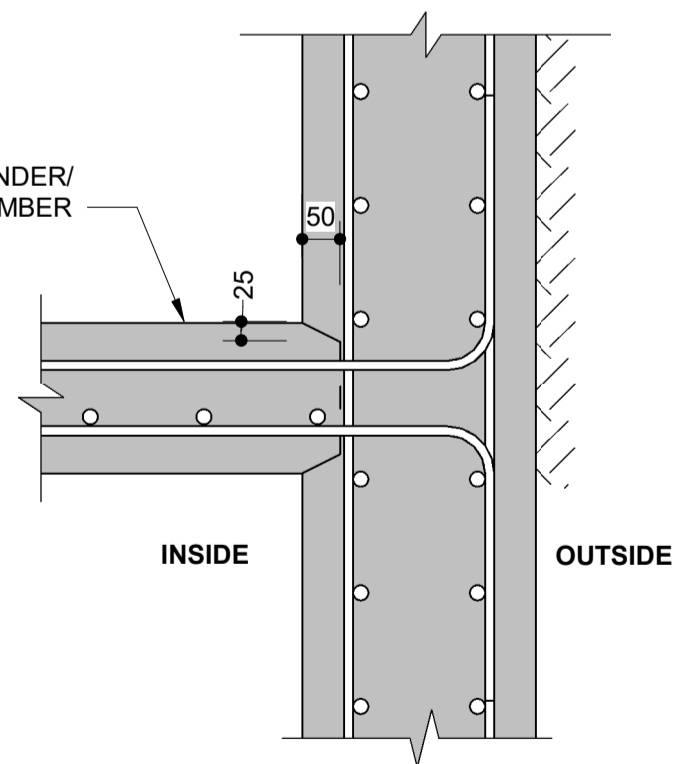
NOTE: DRAINAGE BEHIND EARTH FACE OMITTED FOR CLARITY.



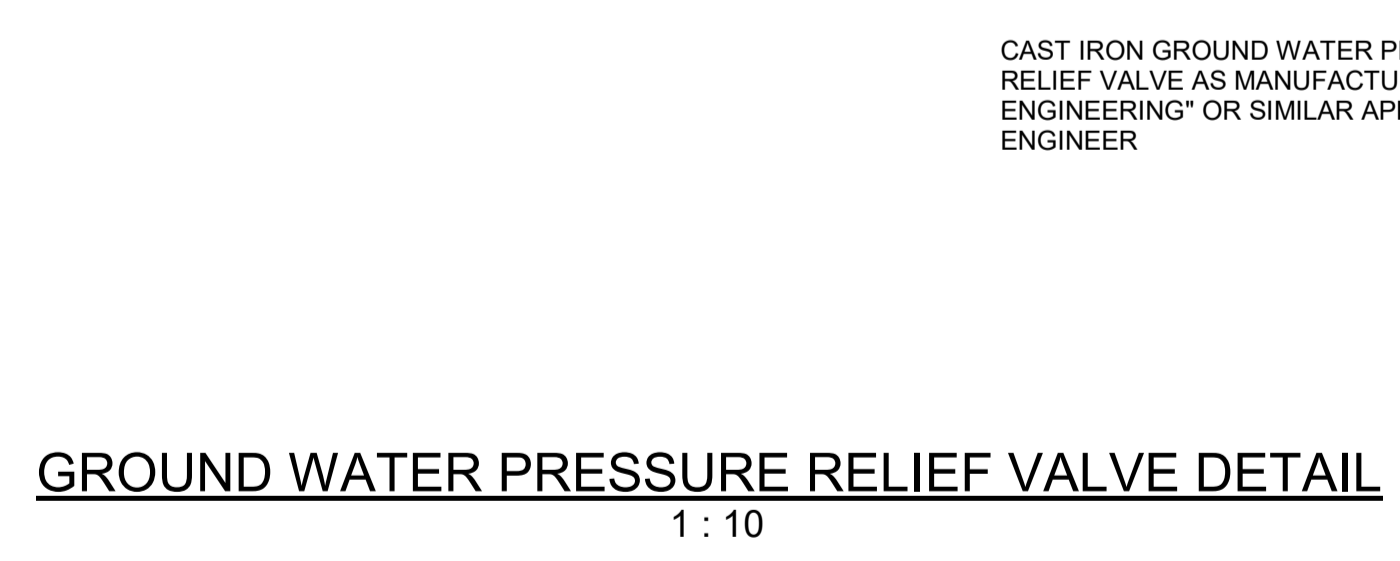
PUDDLE FLANGE DETAIL - FLOOR
SCALE 1 : 20



PUDDLE FLANGE DETAIL - WALL
SCALE 1 : 20



CONSTRUCTION JOINT 2 - WALL SECTION VIEW
SCALE 1 : 10



GROUND WATER PRESSURE RELIEF VALVE DETAIL
1 : 10

NOTE: LEVELLING SCREED OMITTED FOR CLARITY

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FLOORS - 50mm
SLABS - 60mm
 - ALL CONCRETE SHALL BE MECHANICALLY COMPACTED THROUGH THE USE OF VIBRATORS.
 - CONCRETE SHALL BE CAST CONTINUOUSLY. IF STOPPAGES OF MORE THAN 40 MINUTES ARE UNAVOIDABLE, CONSTRUCTION JOINTS SHALL BE FORMED IN THE POSITIONS AND ACCORDING TO THE DETAILS AS PER PROJECT SPECIFICATION.
 - OPENINGS IN THE CONCRETE WALLS TO BE GROUTED CLOSED WITH ANTI-CORROSION PRODUCT AS PER PROJECT SPECIFICATION AFTER THE INSTALLATION OF THE PIPEWORK.
 - ALL EXPOSED CORNERS TO HAVE A 20x20mm CHAMFER.
 - NO CONCRETE SHALL BE PLACED PRIOR TO THE APPROVAL OF THE RESIDENT ENGINEER.
 - A CLASS U3 SURFACE FINISH, INCLUDING STEEL FLOAT TO A SMOOTH SURFACE WITHIN 2mm OF LEVEL, SHALL BE PROVIDED TO ALL TOP OF WALL SURFACES SUPPORTING MECHANICAL COMPONENTS.
 - STRUCTURE TO BE TESTED FOR WATER-TIGHTNESS AS PER PROJECT SPECIFICATION. RATE OF FILLING NOT TO EXCEED 2m IN 24 HOURS. FOR 0.2mm CRACK WIDTH, STABILIZING PERIOD TO BE 21 DAYS, AFTER ALLOWING FOR EVAPORATION AND RAINFALL. DROPS IN LEVEL NOT TO EXCEED 1/500TH OF AVERAGE DEPTH OF FULL TANK.

- LEGEND:**
- I.L. = INVERT LEVEL
 - N.D. = NOMINAL DIAMETER
 - N.G.L. = NATURAL GROUND LEVEL
 - C.J. = CONSTRUCTION JOINT
 - I.D. = INTERNAL DIAMETER

NOTES

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- THIS DRAWING FORMS PART OF THE SPECIFICATION AND MUST BE READ IN CONJUNCTION WITH THE SAME.

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Consulting Engineers

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FAX: +27 15 291 1993

CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023/06	ISSUED FOR CONSTRUCTION

PROJECT

POLOKWANE REGIONAL WASTEWATER TREATMENT WORKS

DRAWING DESCRIPTION

PRIMARY SETTLING TANKS

TYPICAL DETAILS

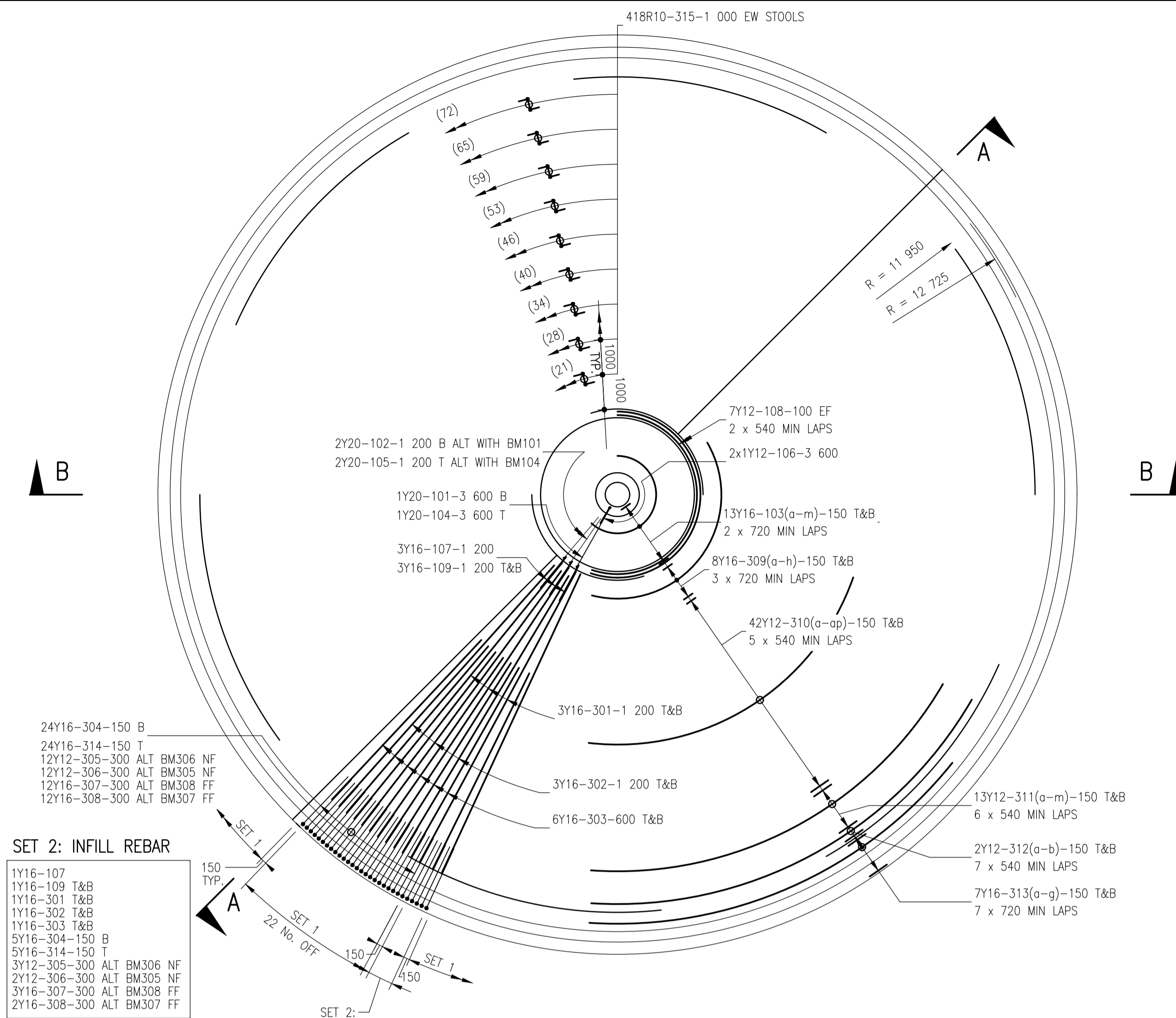
DESIGNED T. BANDA ENGINEER

DRAWN PR ENG no. DATE

CHECKED DATE

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023/06	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0010-2001	0	

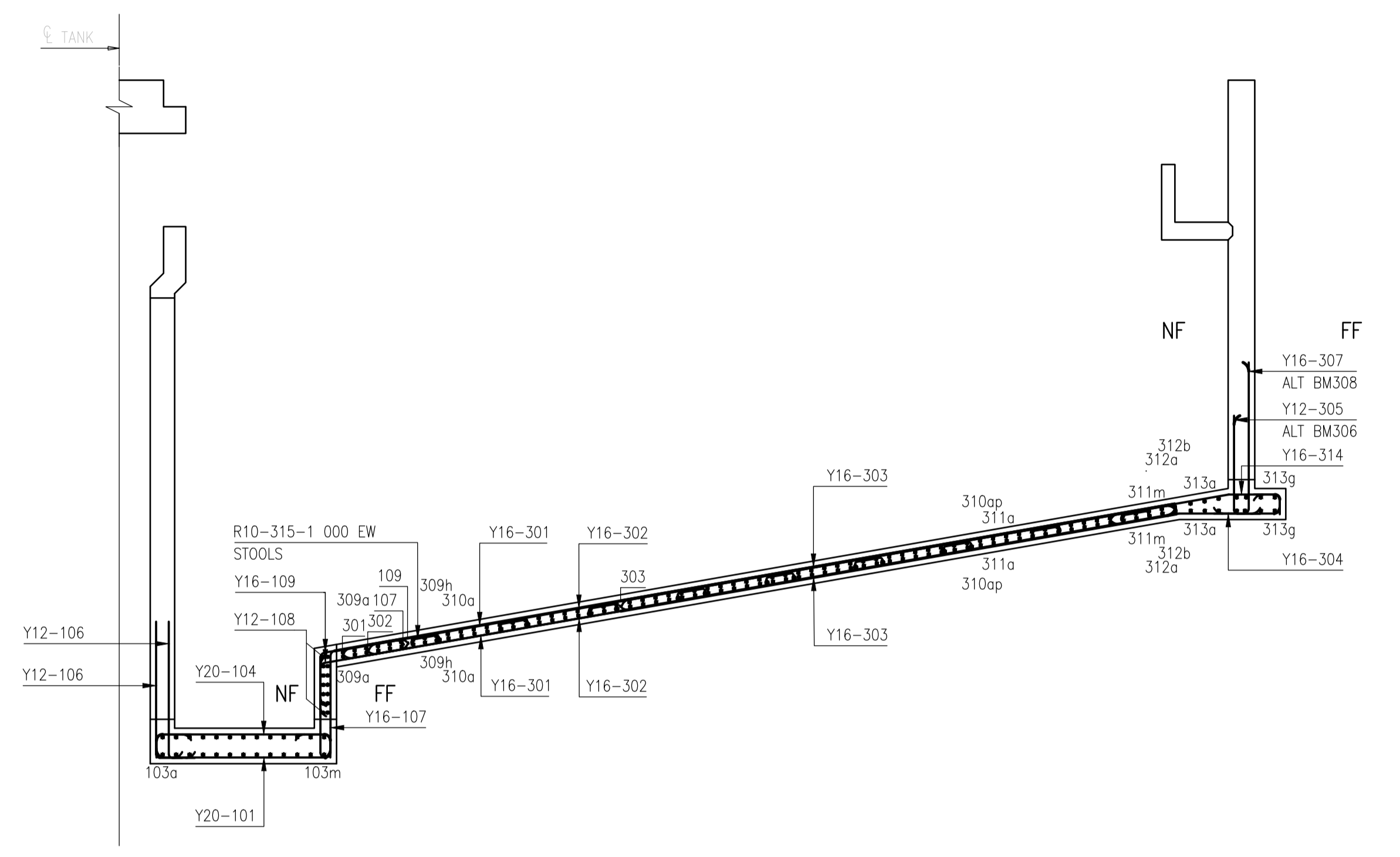
CONSTRUCTION DRAWING



PLAN OF GROUND SLAB
SCALE 1:100

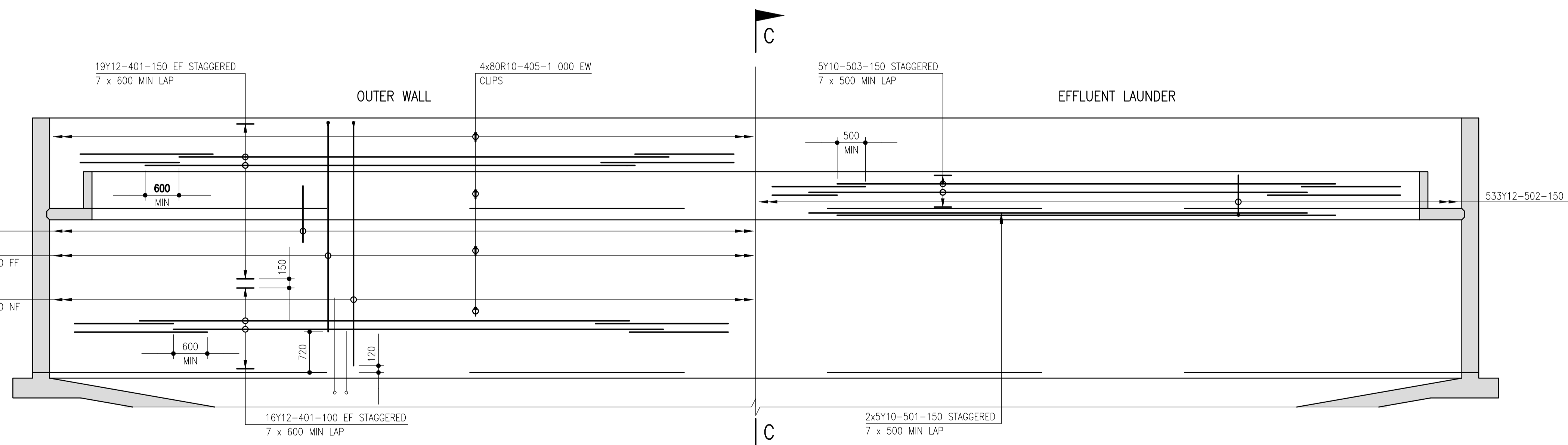
NOTE: 1. ALL RADIAL BAR SPACING MEASURED AT RADIUS R=12 725
2. GROUND WATER PRESSURE RELIEF VALVES OMITTED FOR CLARITY

- SET 2: INFILL REBAR**
- 1Y16-107
 - 1Y16-109 T&B
 - 1Y16-301 T&B
 - 1Y16-302 T&B
 - 1Y16-303 T&B
 - 5Y16-304-150 B
 - 5Y16-314-150 T
 - 3Y12-305-300 ALT BM306 NF
 - 2Y12-306-300 ALT BM305 NF
 - 3Y16-307-300 ALT BM308 FF
 - 2Y16-308-300 ALT BM307 FF



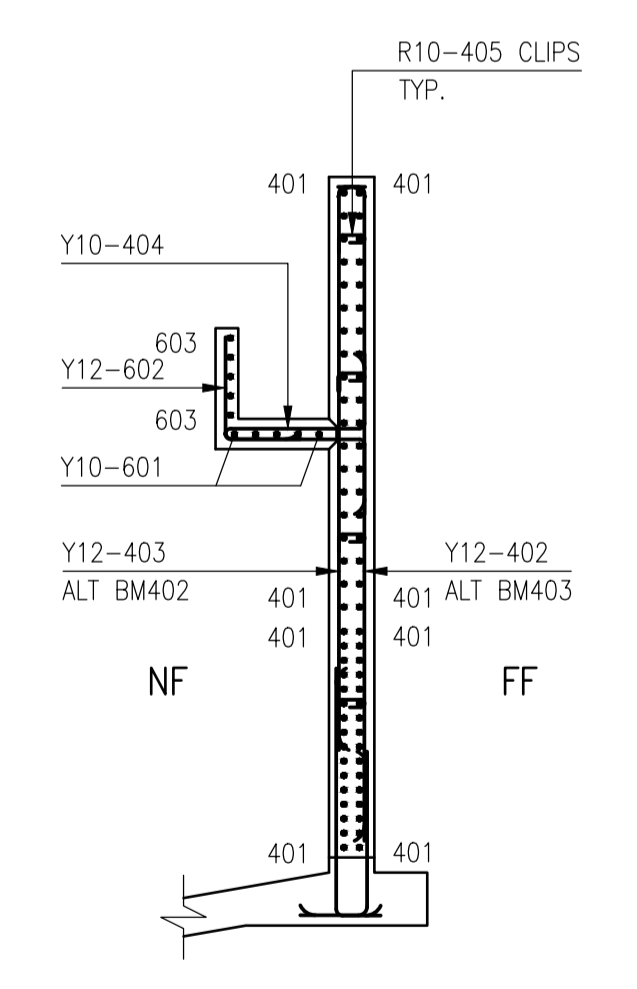
PART-SECTION B-B
SCALE 1:50

NOTE: BARS PASSING THROUGH OPENINGS TO BE TRIMMED TO SUIT



SECTIONAL ELEVATION A-A
SCALE 1:50

NOTE: CENTRAL COLUMN OMITTED FOR CLARITY



SECTION C-C
SCALE 1:50

NOTE: 5 No. OFF BM404 & 602 TO BE OMITTED AT EFFLUENT CHAMBER
BM601 TO BE CUT TO SUIT AT EFFLUENT CHAMBER

- NOTES:**
- 1.1 THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCEMENT IS PROPERLY HELD IN POSITION AND SHALL ALSO MAINTAIN THE CORRECT CONCRETE COVER UTILIZING APPROVED PATENT SPACERS (NOT STONES, OFFCUT REINFORCEMENT, BRICKS ETC.) AT ALL TIMES.
 - 1.2 UNLESS OTHERWISE SPECIFIED, THE CONCRETE COVER SHALL BE THE GREATER OF THE BAR DIAMETER OR THE VALUES IN MM AS STATED BELOW:
WALLS - 60mm
FLOORS - 60mm
SLABS - 60mm
 - 1.3 MINIMUM SPLICE LENGTH TO REINFORCEMENT = 45 x LESSER BAR DIAMETER
 - 1.4 DRAWING TO BE READ IN CONJUNCTION WITH DRAWING No.:

- NOTES**
- 1.1 DO NOT SCALE THE DRAWINGS.
 - 1.2 ALL DIMENSIONS TO BE VERIFIED ON SITE, PRIOR TO MANUFACTURING OR ORDERING OF EQUIPMENT.
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CLIENT

CITY OF **Polokwane**
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T. BANDA	PR ENG no.	DATE
ENGINEER		
CLIENT		DATE

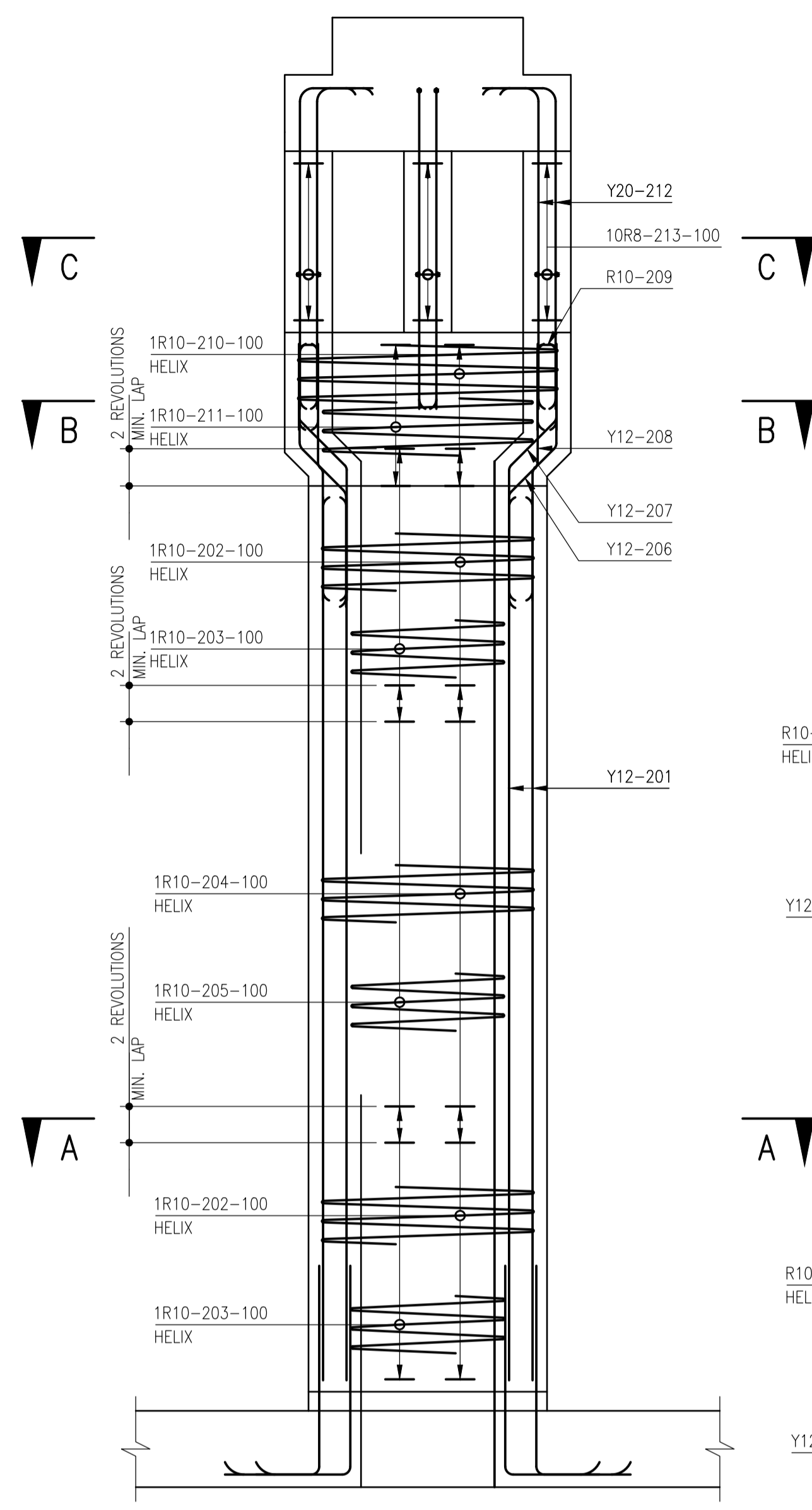
PROJECT

POLOKWANE REGIONAL
WWTW CONTRACT 2B

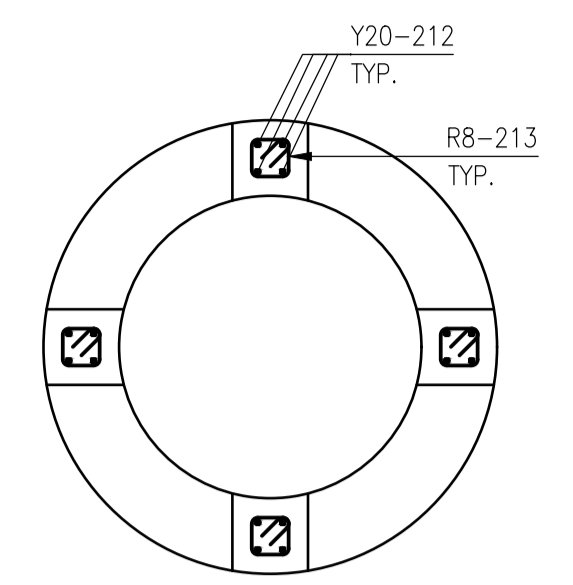
DRAWING DESCRIPTION

PRIMARY SETTLING TANKS
REINFORCEMENT DETAILS 1

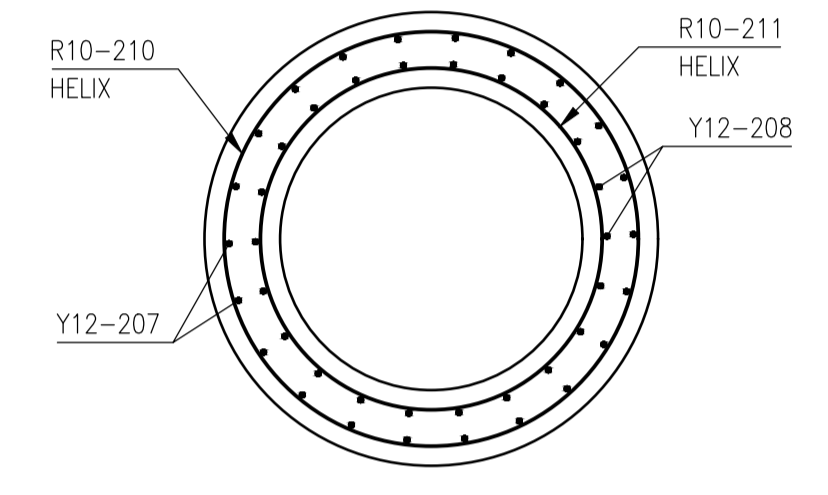
CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-06	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)		REV
PK278-SP-2B-PST-503		0



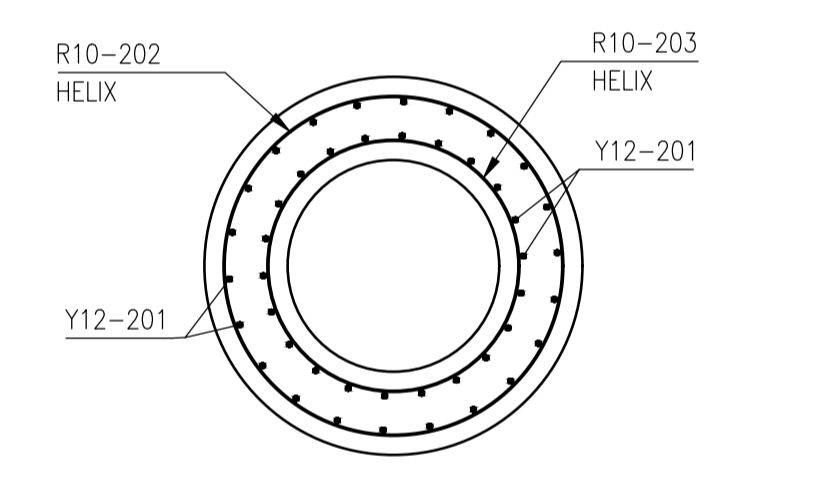
ELEVATION OF COLUMN
SCALE 1:25



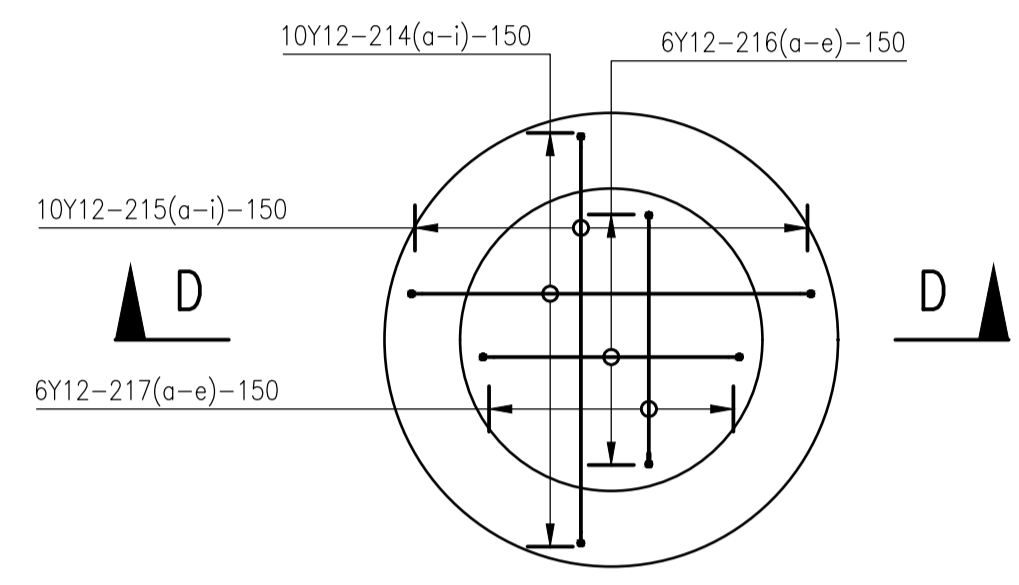
SECTION C-C
SCALE 1:25



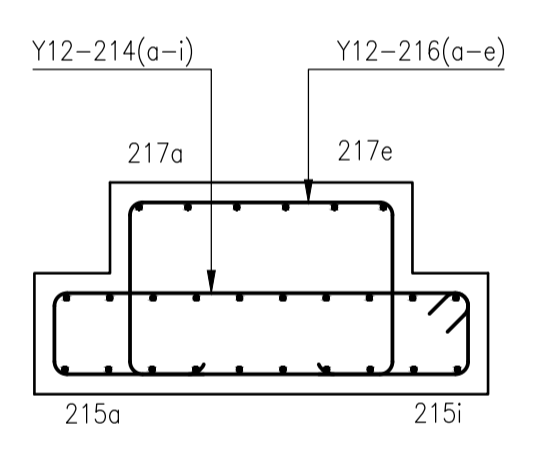
SECTION B-B
SCALE 1:25



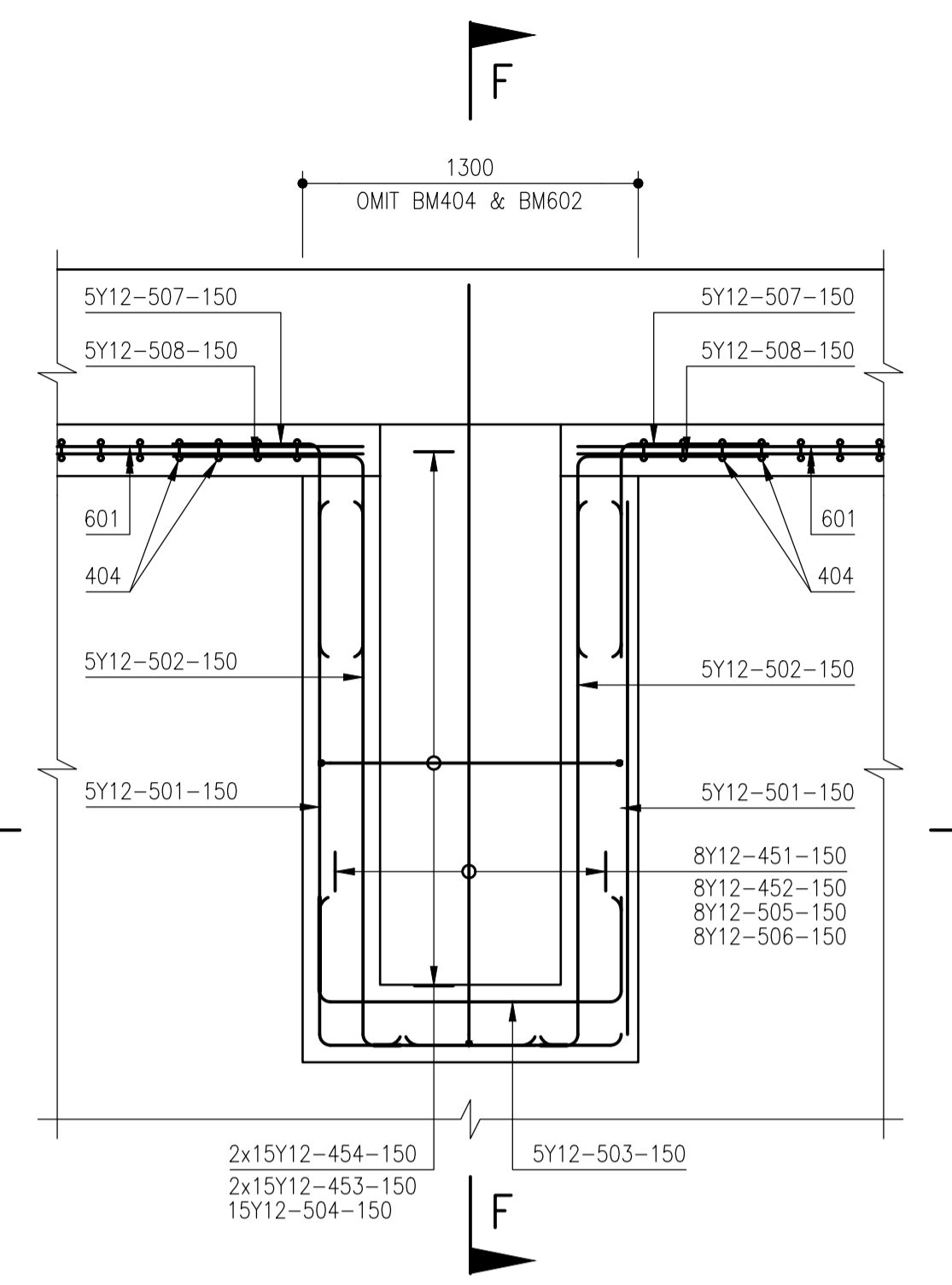
SECTION A-A
SCALE 1:25



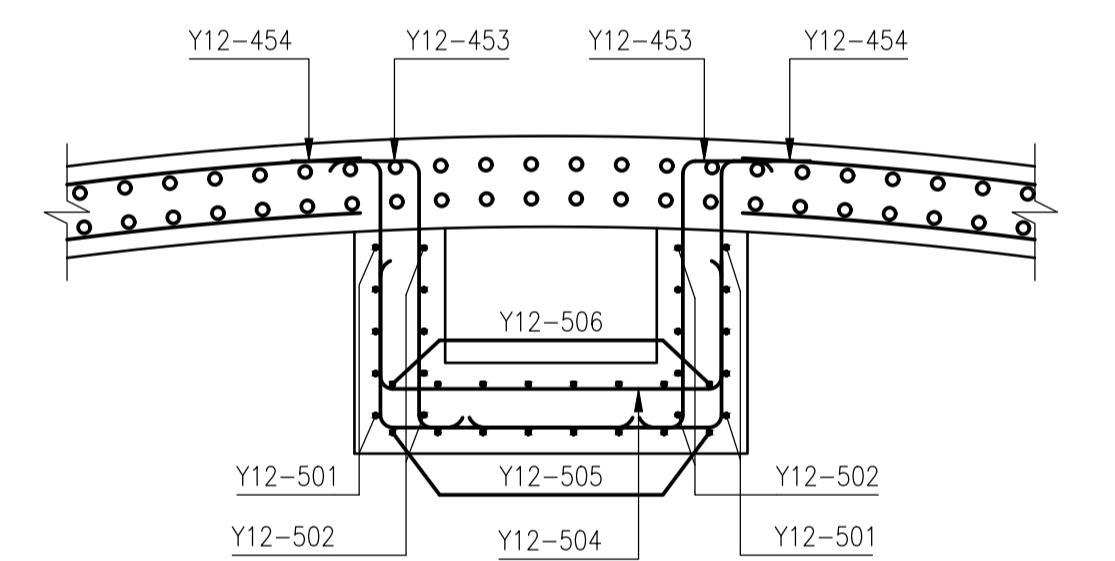
PLAN OF COLUMN HEAD
SCALE 1:25



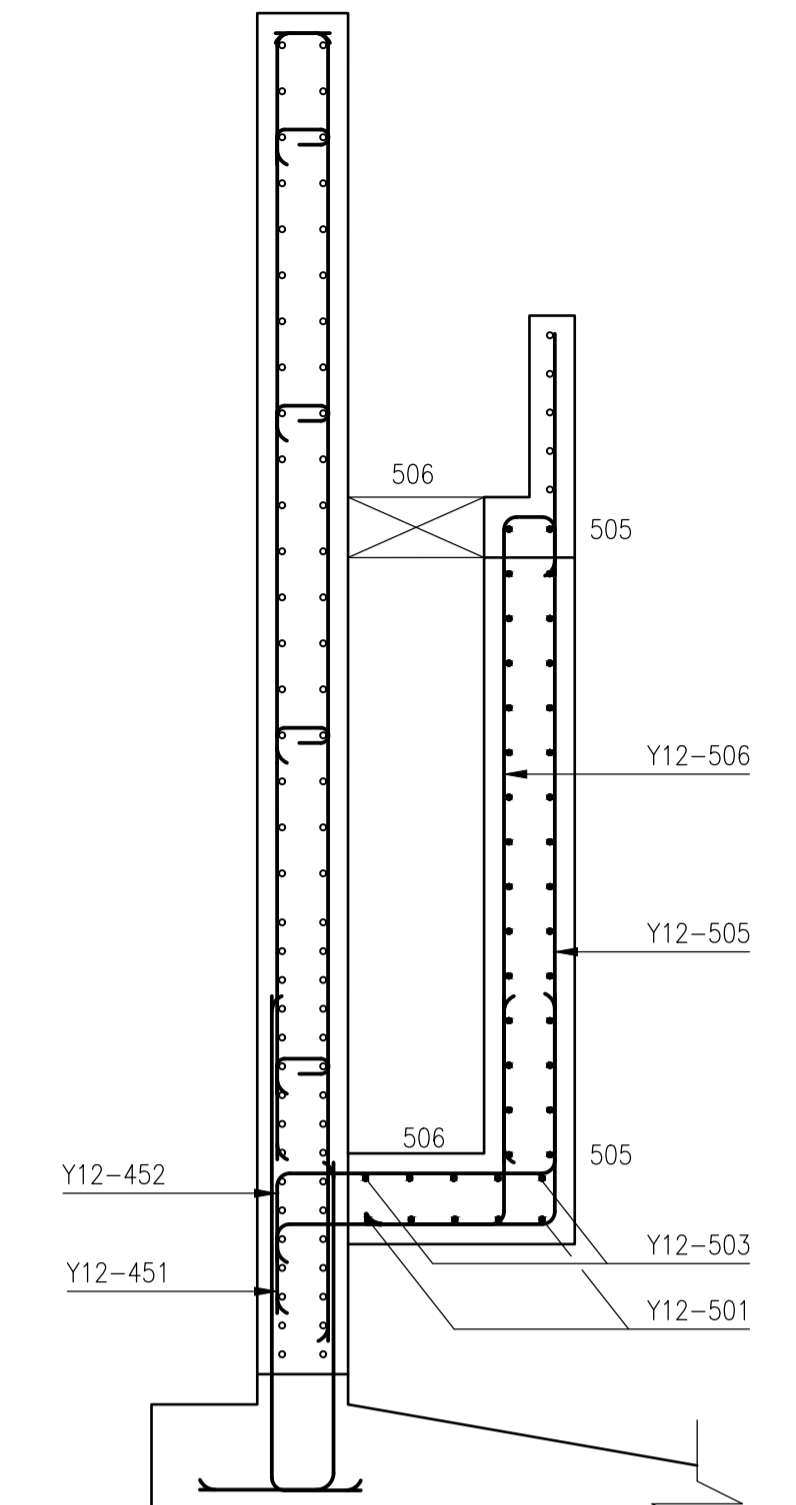
SECTION D-D
SCALE 1:25



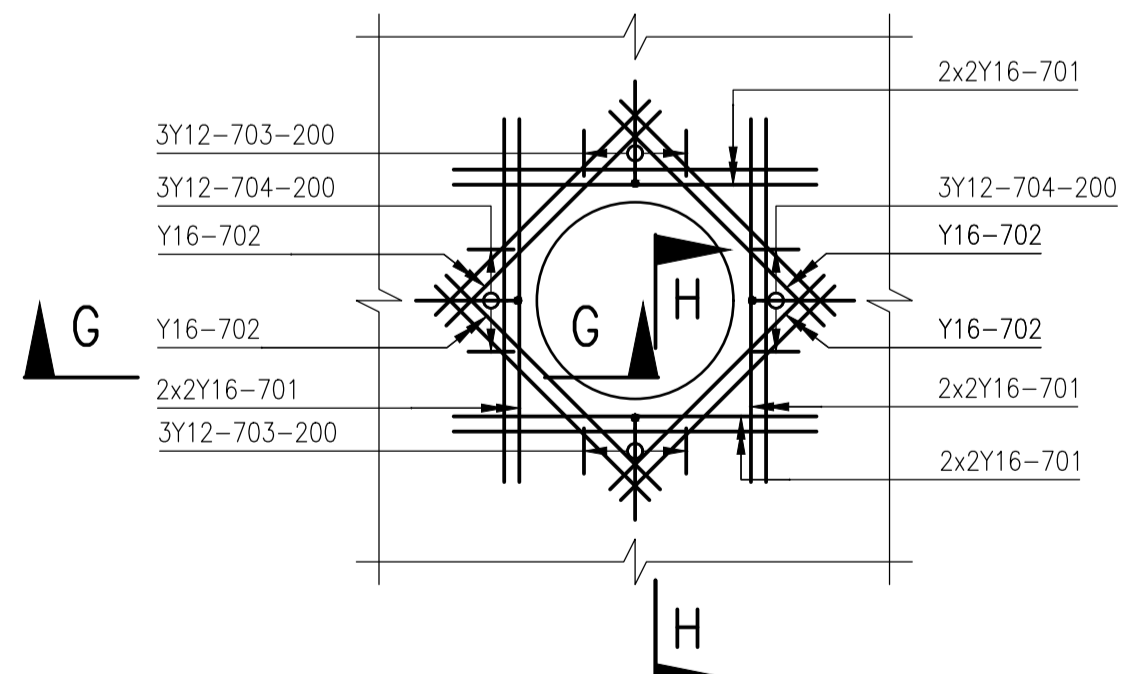
ELEVATION OF EFFLUENT DRAW-OFF CHAMBER
SCALE 1:25



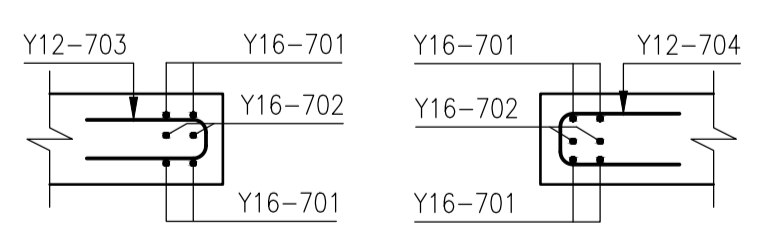
SECTION E-E
SCALE 1:25



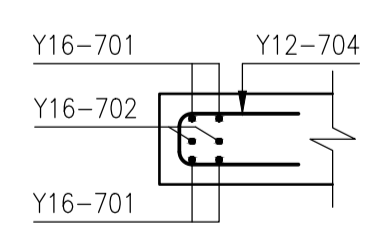
SECTION F-F
SCALE 1:25



DETAIL X
PIPE OPENING SUPPLEMENTARY REINFORCEMENT
SCALE 1:25



SECTION G-G
SCALE 1:25



SECTION H-H
SCALE 1:25

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CONSTRUCTION DRAWING

NOTES

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NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T. BANDA ENGINEER	PR ENG no.	DATE
CLIENT		DATE

PROJECT

**POLOKWANE REGIONAL
WWTW CONTRACT 2B**

DRAWING DESCRIPTION

**PRIMARY SETTLING TANKS
REINFORCEMENT DETAILS 2**

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-06	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-SP-2B-PST-504	0	

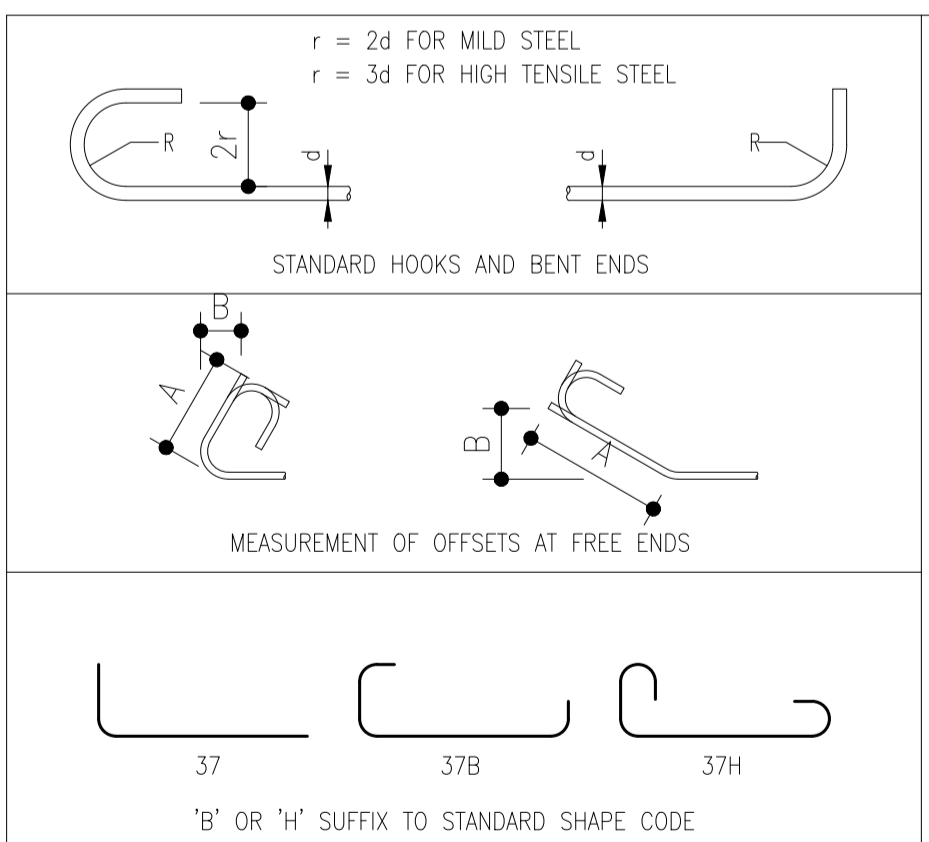
ZAKUMI Consulting Engineers		POLOKWANE NEW REGIONAL WWTW PRIMARY SETTLING TANKS										PAGE: 1 OF 6		
REFERENCE DRAWING Nos. PK278-SP-2B-PST-503 & 504		DATE: June 2023												
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION					E/R (mm)	
								A (mm)	B (mm)	C (mm)	D (mm)			
-	01	R6	1	1	1		20							
-	101	Y20	22	2	44	3 100	55	400	270	1 970	270			
-	102	Y20	44	2	88	2 150	38	1 550	270					
-	103a	Y16	4	2	8	2 550	20							
-	103b	Y16	4	2	8	3 000	20							
-	103c	Y16	4	2	8	3 500	20							
-	103d	Y16	4	2	8	3 950	20							
-	103e	Y16	4	2	8	4 400	20							
-	103f	Y16	4	2	8	4 850	20							
-	103g	Y16	4	2	8	5 300	20							
-	103h	Y16	4	2	8	5 750	20							
-	103i	Y16	4	2	8	6 200	20							
-	103j	Y16	4	2	8	6 650	20							
-	103k	Y16	4	2	8	7 150	20							
-	103l	Y16	4	2	8	7 600	20							
-	103m	Y16	4	2	8	8 050	20							
-	104	Y20	22	2	44	2 400	38	270	1 970					
-	105	Y20	44	2	88	1 750	37	1 550						
-	106	Y12	44	2	88	1 800	37	1 540						
-	107	Y16	67	2	134	3 200	B99040	850	1 200	120	60	1 140		
-	108	Y12	28	2	56	8 000	65	8 010					2 320	
-	109	Y16	134	2	268	1 600	93	600	100					
CENTRAL COLUMN														
-	201	Y12	44	2	88	4 650	20							
-	202	R10	2	2	4	50 000	86	1 120	100	1 440				
-	203	R10	2	2	4	36 950	86	830	100	1 440				
-	204	R10	1	2	2	83 700	86	1 120	100	2 410				
-	205	R10	1	2	2	61 850	86	830	100	2 410				
-	206	Y12	22	2	44	1 450	41	600	340		250			

ZAKUMI Consulting Engineers		POLOKWANE NEW REGIONAL WWTW PRIMARY SETTLING TANKS										PAGE: 2 OF 6		
REFERENCE DRAWING Nos. PK278-SP-2B-PST-503 & 504		DATE: June 2023												
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION					E/R (mm)	
								A (mm)	B (mm)	C (mm)	D (mm)			
-	207	Y12	22	2	44	1 450	41	700	340		250			
-	208	Y12	22	2	44	1 350	41	690	60		50			
-	209	R10	22	2	44	950	38	450	100					
-	210	R10	1	2	2	31 650	86	1 370	100	750				
-	211	R10	1	2	2	26 100	86	1 130	100	750				
-	212	Y20	16	2	32	1 950	37	1 690						
-	213	R8	40	2	80	600	60	120	120					
-	214a	Y12	1	2	2	900	60	100	270					
-	214b	Y12	1	2	2	2 400	60	860	270					
-	214c	Y12	1	2	2	2 950	60	1 140	270					
-	214d	Y12	1	2	2	3 250	60	1 290	270					
-	214e	Y12	2	2	4	3 400	60	1 360	270					
-	214f	Y12	1	2	2	3 250	60	1 290	270					
-	214g	Y12	1	2	2	2 950	60	1 140	270					
-	214h	Y12	1	2	2	2 400	60	860	270					
-	214i	Y12	1	2	2	900	60	100	270					
-	215a	Y12	1	2	2	1 500	60	430	250					
-	215b	Y12	1	2	2	2 500	60	930	250					
-	215c	Y12	1	2	2	3 000	60	1 170	250					
-	215d	Y12	1	2	2	3 250	60	1 300	250					
-	215e	Y12	2	2	4	3 400	60	1 370	250					
-	215f	Y12	1	2	2	3 250	60	1 300	250					
-	215g	Y12	1	2	2	3 000	60	1 170	250					
-	215h	Y12	1	2	2	2 500	60	930	250					
-	215i	Y12	1	2	2	1 500	60	430	250					
-	216a	Y12	1	2	2	1 750	55	250	570	240	570			
-	216b	Y12	1	2	2	2 250	55	250	570	710	570			
-	216c	Y12	2	2	4	2 400	55	250	570	850	570			
-	216d	Y12	1	2	2	2 250	55	250	570	710	570			
-	216e	Y12	1	2	2	1 750	55	250	570	240	570			

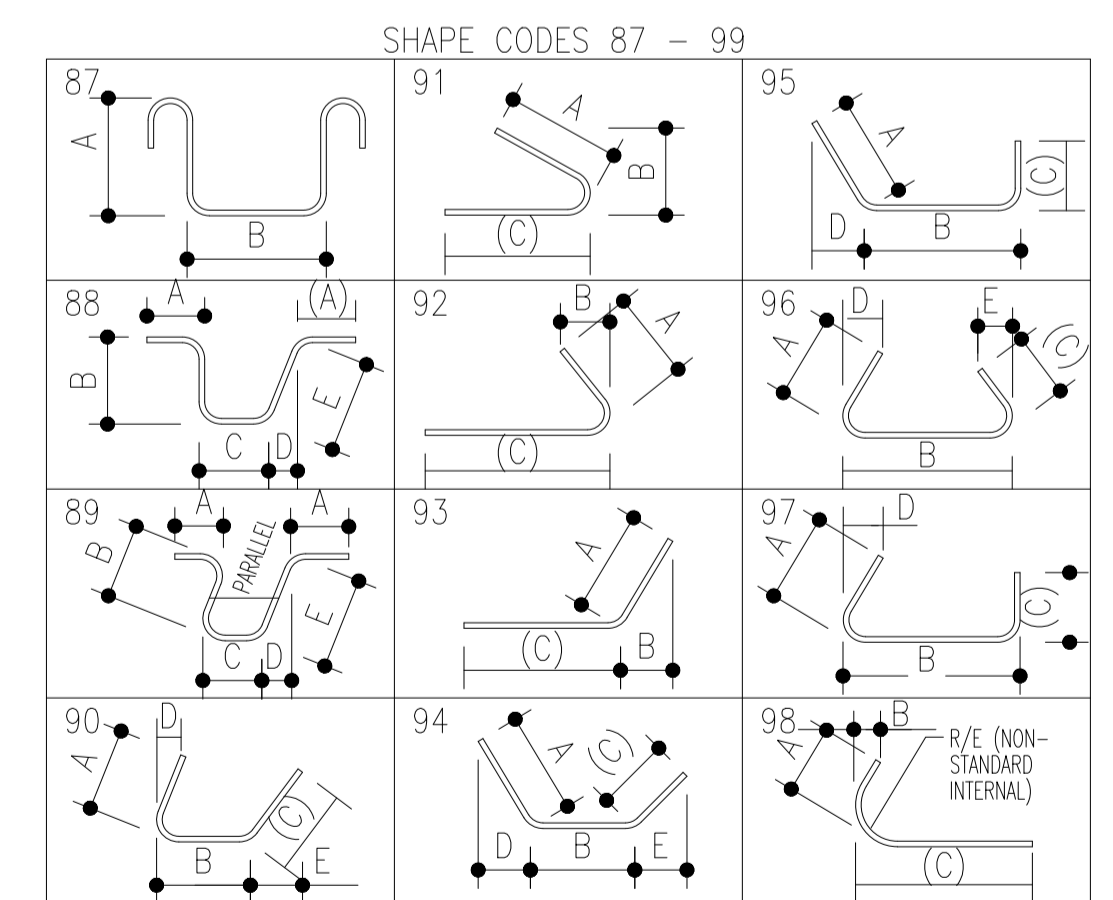
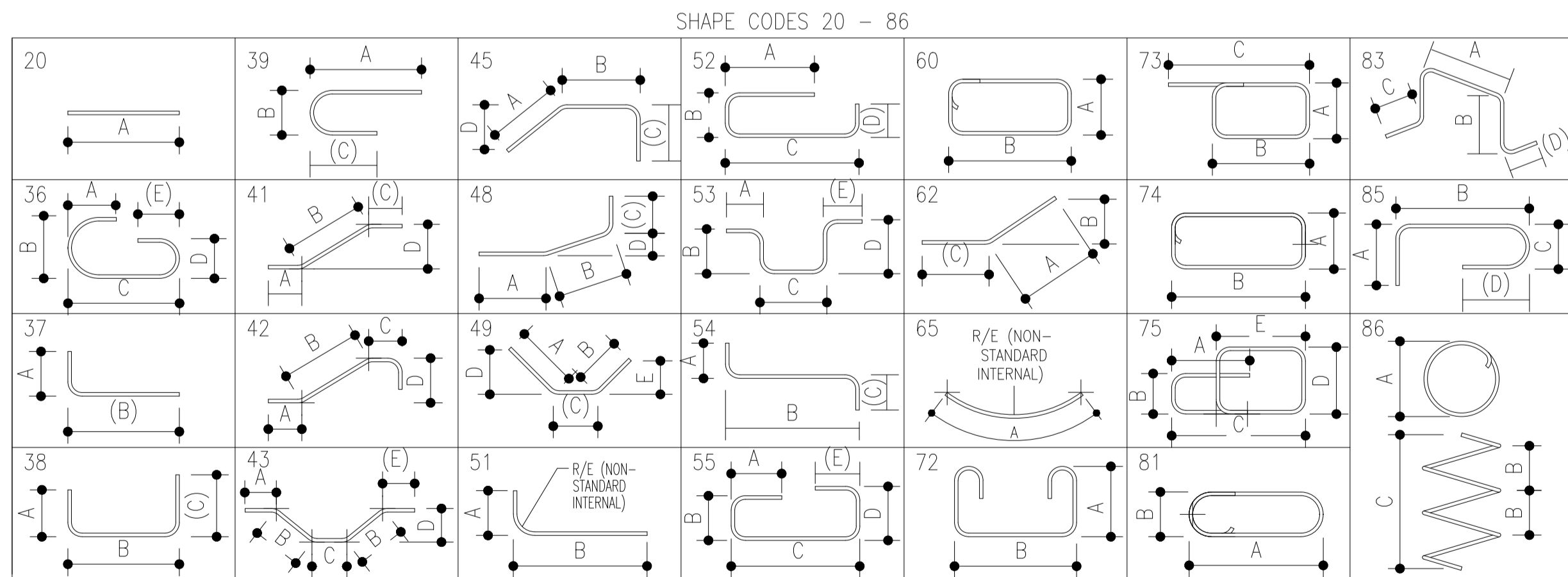
ZAKUMI Consulting Engineers		POLOKWANE NEW REGIONAL WWTW PRIMARY SETTLING TANKS										PAGE: 3 OF 6		
REFERENCE DRAWING Nos. PK278-SP-2B-PST-503 & 504		DATE: June 2023												
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION					E/R (mm)	
								A (mm)	B (mm)	C (mm)	D (mm)			
-	217a	Y12	1	2	2	950	38	350	310					
-	217b	Y12	1	2	2	1 400	38	350	730					
-	217c	Y12	2	2	4	1 500	38	350	860					
-	217d	Y12	1	2	2	1 400	38	350	730					
-	217e	Y12	1	2	2	950	38	350	310					
GROUND SLAB AND WALL FOOTING														
-	301	Y16	134	2	268	9 550	20							
-	302	Y16	134	2	268	9 250	20							
-	303	Y16	266	2	532	6 350	20							
-	304	Y16	533	2	1066	2 400	99	300	220	1 140	810			
-	305	Y12	267	2	534	1 400	37	1 110						
-	306	Y12	266	2	532	2 000	37	1 710						
-	307	Y16	267	2	534	2 100	37	1 710						
-	308	Y16	266	2	532	1 550	37	1 110						
-	309a	Y16	6	2	12	6 000	65					2 530		
-	309b	Y16	6	2	12	6 350	65					2 680		
-	309c	Y16	6	2	12	6 650	65					2 820		
-	309d	Y16	6	2	12	6 950	65					2 970		
-	309e	Y16	6	2	12	7 300	65					3 120		
-	309f	Y16	6	2	12	7 600	65					3 260		
-	309g	Y16	6	2	12	7 900	65					3 410		
-	309h	Y16	6	2	12	8 200	65					3 560		
-	310a	Y12	10	2	20	5 250	20							
-	310b	Y12	10	2	20	5 450	20							
-	310c	Y12	10	2	20	5 600	20							
-	310d	Y12	10	2	20	5 800	20							
-	310e	Y12	10	2	20	6 000	20							
-	310f	Y12	10	2	20	6 150	20							
-	310g	Y12	10	2	20	6 350	20							
-	310h	Y12	10	2	20	6 550	20							

NOTE:

- DEFORMED BENT BARS WITH ACUTE ANGLE BENDS ARE DIMENSIONED PERPENDICULAR FROM THE FREE END TO THE TANGENT OF THE OUTER RADIUS OF THE BENT CORNER AND NOT TO THE INTERSECTION OF THE FACES. SEE SHAPE CODES 89, 90, 91, 92, 96, 97 AND 98.



- NOTES
- BEND TO 2d RADIUS FOR MILD STEEL BARS AND 3d RADIUS OR 7,5d IF SHAPE CODE IS FOLLOWED BY SUFFIX 'S' FOR HIGH TENSILE STEEL BARS UNLESS LARGER RADII ARE INDICATED FOR THE PARTICULAR SHAPE CODE.
 - STEEL TO COMPLY WITH SANS 920-2011 EDITION 2.3. MILD STEEL BARS SHALL BE PLAIN AND HIGH TENSILE STEEL BARS DEFORMED.
 - MILD STEEL BARS ARE IDENTIFIED BY A CAPITAL 'R' AND HIGH TENSILE STEEL BARS BY A CAPITAL 'Y' PREFIXED TO THE DIAMETER IN mm.
 - BENDING DIMENSIONS SHALL BE IN ACCORDANCE WITH SANS 282-2011 EDITION 6, EXCEPT AS SHOWN OTHERWISE ON THIS SHEET. WELDING OF BARS IS INDICATED BY 'W' AND LAPPING BY 'LAPPED'.
 - ALL BARS SHALL BE BENT COLD. WELDING SHALL NOT BE PERMITTED FOR HIGH TENSILE STEEL BARS.
 - WELDING OF MILD STEEL BARS SHALL BE IN ACCORDANCE WITH SANS 10044 AND BS 1856 OR BS 693.
 - ALL DIMENSIONS GIVEN ON SHAPE CODES ARE EXTERNAL EXCEPT FOR OFFSETS OF FREE ENDS (SEE SKETCH).
 - THE CUTTING LENGTH TOLERANCE IS TAKEN UP IN THE BRACKETED DIMENSIONS OR IN HOOKS OR BENT ENDS WHERE PRESENT.
 - SUFFIX 'b' OR 'h' TO A STANDARD SHAPE CODE INDICATES THE ADDITION OF TWO BENT ENDS OR HOOKS TO THE FREE ENDS OF THE STANDARD SHAPE. THEY ARE BENT IN THE SAME DIRECTION AS THE ADJACENT BEND OR CURVE. THE DIMENSIONS IN BRACKETS ARE GIVEN IN THIS CASE.



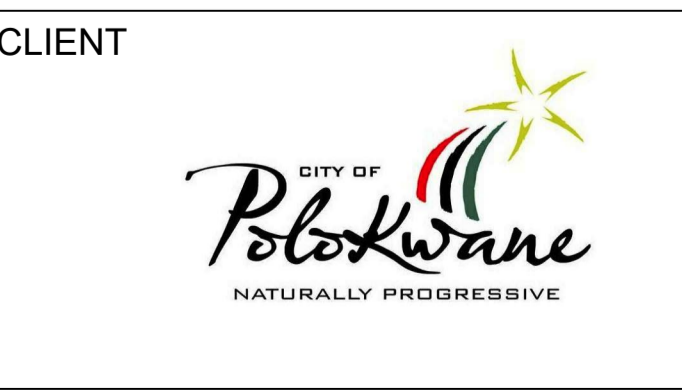
CONSTRUCTION DRAWING

- NOTES
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REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2B

DRAWING DESCRIPTION

PRIMARY SETTLING TANKS BENDING SCHEDULES 1

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-06	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-SP-2B-PST-505	0	

ZAKUMI Consulting Engineers		POLOKWANE NEW REGIONAL WWTW PRIMARY SETTLING TANKS										PAGE: 4 OF 6		
REFERENCE DRAWING Nos. PK278-SP-2B-PST-503 & 504										DATE: June 2023		REV: -		
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION						
								A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)		
-	310i	Y12	10	2	20	6 700	20							
-	310j	Y12	10	2	20	6 900	20							
-	310k	Y12	10	2	20	7 100	20							
-	310l	Y12	10	2	20	7 300	20							
-	310m	Y12	10	2	20	7 450	20							
-	310n	Y12	10	2	20	7 650	20							
-	310o	Y12	10	2	20	7 850	20							
-	310p	Y12	10	2	20	8 000	20							
-	310q	Y12	10	2	20	8 200	20							
-	310r	Y12	10	2	20	8 400	20							
-	310s	Y12	10	2	20	8 600	20							
-	310t	Y12	10	2	20	8 750	20							
-	310u	Y12	10	2	20	8 950	20							
-	310v	Y12	10	2	20	9 150	20							
-	310w	Y12	10	2	20	9 300	20							
-	310x	Y12	10	2	20	9 500	20							
-	310y	Y12	10	2	20	9 700	20							
-	310z	Y12	10	2	20	9 850	20							
-	310aa	Y12	10	2	20	10 050	20							
-	310ab	Y12	10	2	20	10 250	20							
-	310ac	Y12	10	2	20	10 450	20							
-	310ad	Y12	10	2	20	10 600	20							
-	310ae	Y12	10	2	20	10 800	20							
-	310af	Y12	10	2	20	11 000	20							
-	310ag	Y12	10	2	20	11 150	20							
-	310ah	Y12	10	2	20	11 350	20							
-	310ai	Y12	10	2	20	11 550	20							
-	310aj	Y12	10	2	20	11 750	20							
-	310ak	Y12	10	2	20	11 900	20							
-	310al	Y12	10	2	20	12 100	20							

ZAKUMI Consulting Engineers		POLOKWANE NEW REGIONAL WWTW PRIMARY SETTLING TANKS										PAGE: 5 OF 6		
REFERENCE DRAWING Nos. PK278-SP-2B-PST-503 & 504										DATE: June 2023		REV: -		
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION						
								A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)		
-	310am	Y12	10	2	20	12 300	20							
-	310an	Y12	10	2	20	12 450	20							
-	310ao	Y12	10	2	20	12 650	20							
-	310ap	Y12	10	2	20	12 850	20							
-	311a	Y12	12	2	24	10 950	20							
-	311b	Y12	12	2	24	11 100	20							
-	311c	Y12	12	2	24	11 250	20							
-	311d	Y12	12	2	24	11 400	20							
-	311e	Y12	12	2	24	11 550	20							
-	311f	Y12	12	2	24	11 700	20							
-	311g	Y12	12	2	24	11 850	20							
-	311h	Y12	12	2	24	12 000	20							
-	311i	Y12	12	2	24	12 200	20							
-	311j	Y12	12	2	24	12 350	20							
-	311k	Y12	12	2	24	12 500	20							
-	311l	Y12	12	2	24	12 650	20							
-	311m	Y12	12	2	24	12 800	20							
-	312a	Y12	14	2	28	11 150	20							
-	312b	Y12	14	2	28	11 250	20							
-	313a	Y16	14	2	28	11 700	20							
-	313b	Y16	14	2	28	11 800	20							
-	313c	Y16	14	2	28	11 950	20							
-	313d	Y16	14	2	28	12 100	20							
-	313e	Y16	14	2	28	12 200	20							
-	313f	Y16	14	2	28	12 350	20							
-	313g	Y16	14	2	28	12 500	20							
-	314	Y16	533	2	1066	2 100	45	1 340	580			250		
-	315	R10	418	2	836	1 200	83	330	80	400				
-	401	Y12	490	2	980	12 000	20							

ZAKUMI Consulting Engineers		POLOKWANE NEW REGIONAL WWTW PRIMARY SETTLING TANKS										PAGE: 6 OF 6		
REFERENCE DRAWING Nos. PK278-SP-2B-PST-503 & 504										DATE: June 2023		REV: -		
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION						
								A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)		
-	402	Y12	533	2	1066	4 450	37	4 320						
-	403	Y12	533	2	1066	3 850	37	3 720						
-	404	Y10	533	2	1066	2 800	B99042	500	920	80			920	
-	405	R10	320	2	640	400		85	120	170	60			
EFFLUENT DRAW-OFF CHAMBER STARTER BARS														
-	451	Y12	8	2	16	1 750	54	760	760					
-	452	Y12	8	2	16	1 750	54	600	920					
-	453	Y12	30	2	60	1 300	54	300	880					
-	454	Y12	30	2	60	1 950	54	830	890					
EFFLUENT DRAW-OFF CHAMBER														
-	501	Y12	10	2	20	2 900	37	2 100						
-	502	Y12	10	2	20	2 250	37	2 100						
-	503	Y12	5	2	10	1 950	38	410	1 170					
-	504	Y12	15	2	30	1 950	38	420	1 150					
-	505	Y12	8	2	16	3 550	37	2 940						
-	506	Y12	8	2	16	2 450	38	2 130	170					
-	507	Y12	10	2	20	1 400	37	830						
-	508	Y12	10	2	20	1 500	37	790						
EFFLUENT LAUNDRER														
-	601	Y10	70	2	140	11 700	20							
-	602	Y12	533	2	1066	1 150	37	670						
-	603	Y10	35	2	70	11 150	20							
ADDITIONAL REBAR AT PIPE OPENING														
-	701	Y16	16	2	32	1 200	20							
-	702	Y16	8	2	16	1 000	20							
-	703	Y12	6	2	12	900	38	400	140					
-	704	Y12	6	2	12	900	38	400	170					
R6 R8 R10 R12 R16 R20 R25 R32 R40 Total Y6 Y8 Y10 Y12 Y16 Y20 Y25 Y32 Y40 Total														
0 19 1268 0 0 0 0 0 0 0 1287 0 0 3334 3334831087 1600 0 0 0 69368														

NOTES

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- THIS DRAWING, OR PART THEREOF, SHALL NOT BE USED FOR ANY OTHER INSTALLATION PROJECT OTHER THAN THIS ONE.
- THIS DRAWING FORMS PART OF THE SPECIFICATION AND MUST BE READ IN CONJUNCTION WITH THE SAME.

ZAKUMI Consulting Engineers

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REVISION SCHEDULE

NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

PROJECT

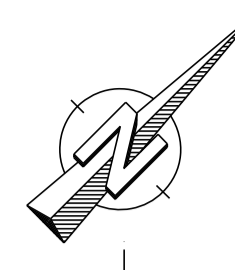
POLOKWANE REGIONAL WWTW CONTRACT 2B

DRAWING DESCRIPTION

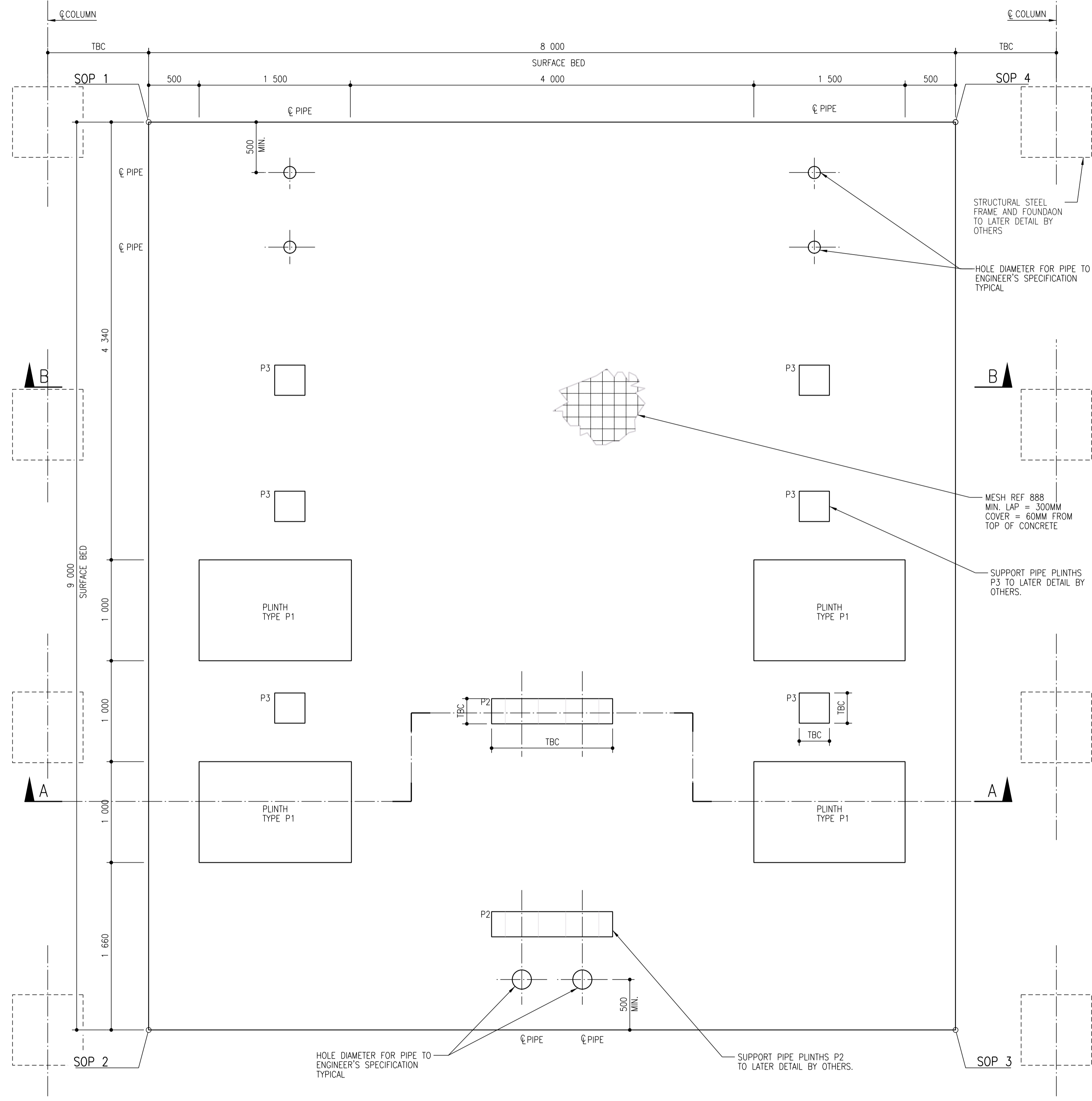
PRIMARY SETTLING TANK BENDING SCHEDULES 2

CONSTRUCTION DRAWING

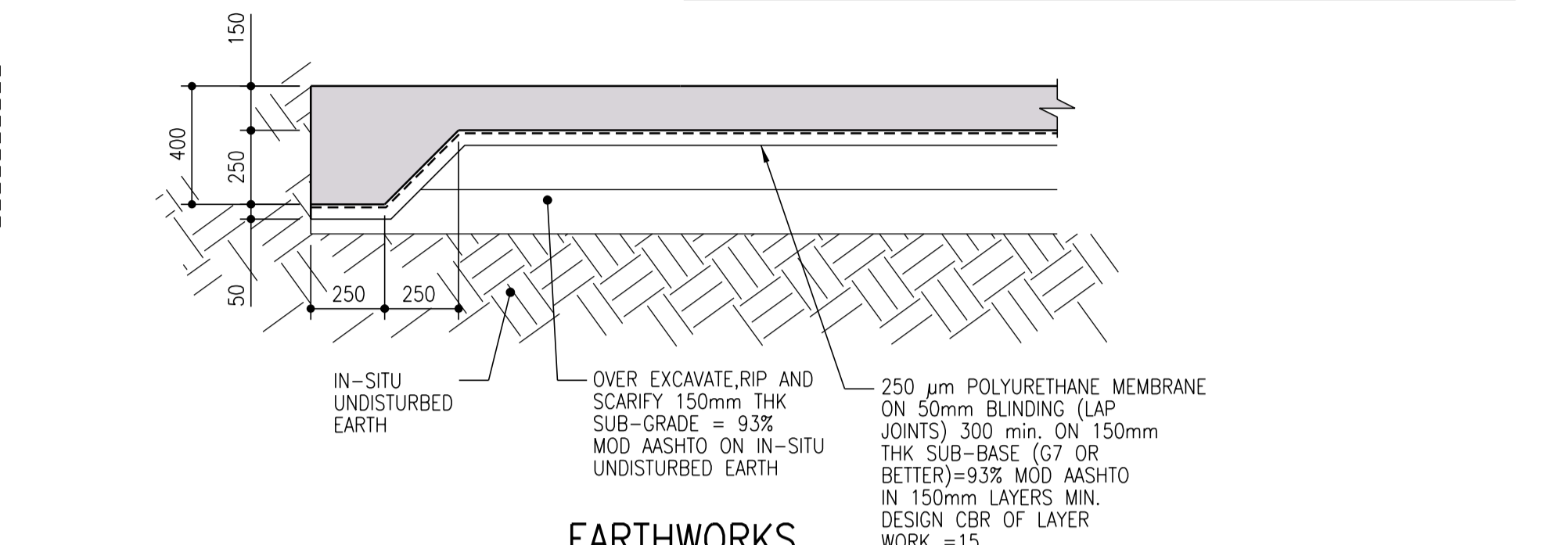
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-06	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-SP-2B-PST-506	0	



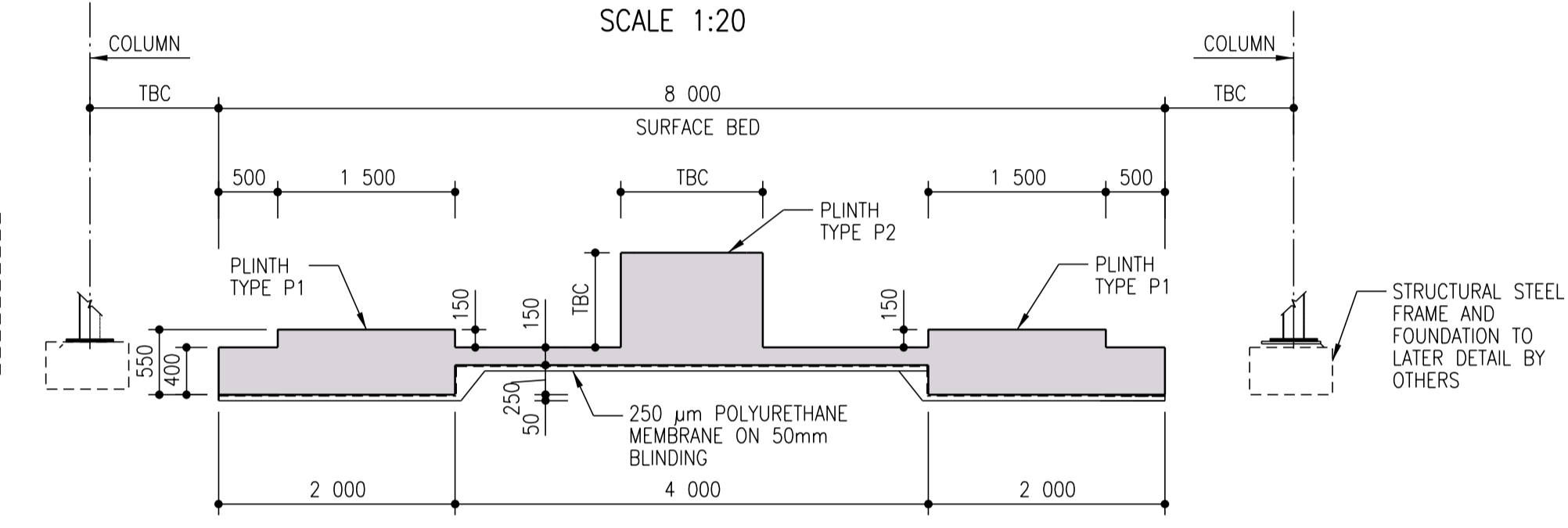
SETTING OUT CO-ORDINATES (WGS84 Lo29')			
	Y	X	T.O.C
SOP 1	-2632838.333	46254.349	1184.575
SOP 2	-2632844.697	46260.713	1184.575
SOP 3	-2632839.040	46266.370	1184.575
SOP 4	-2632832.676	46260.006	1184.575



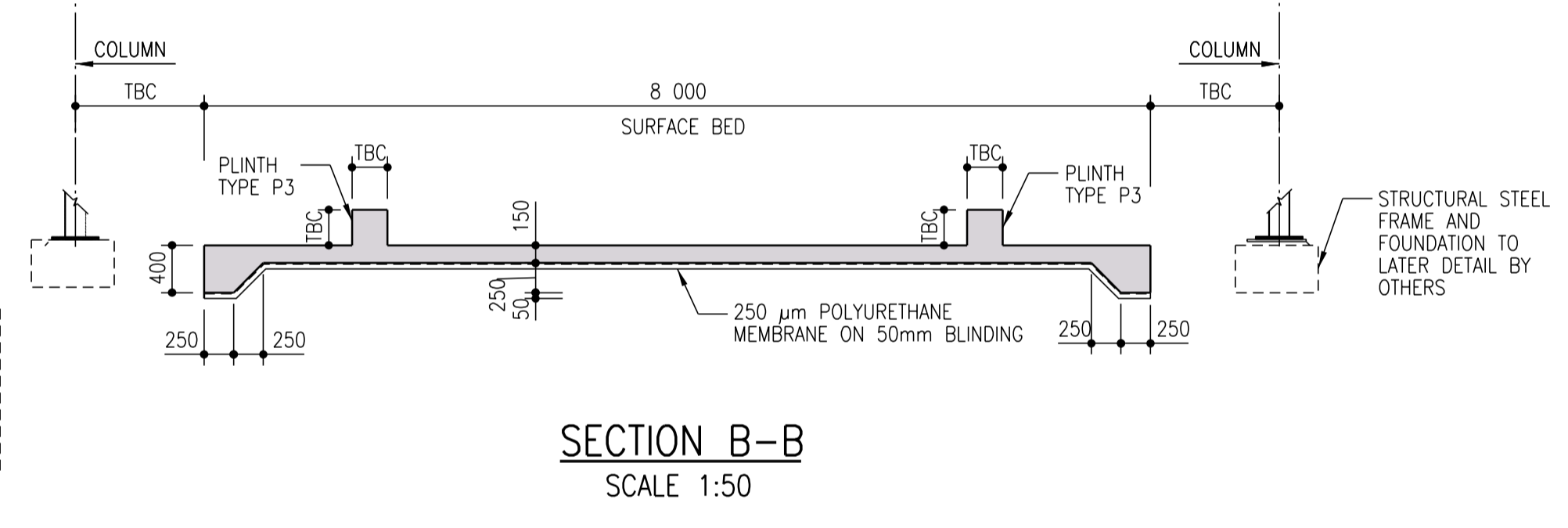
PLAN
SCALE 1:25



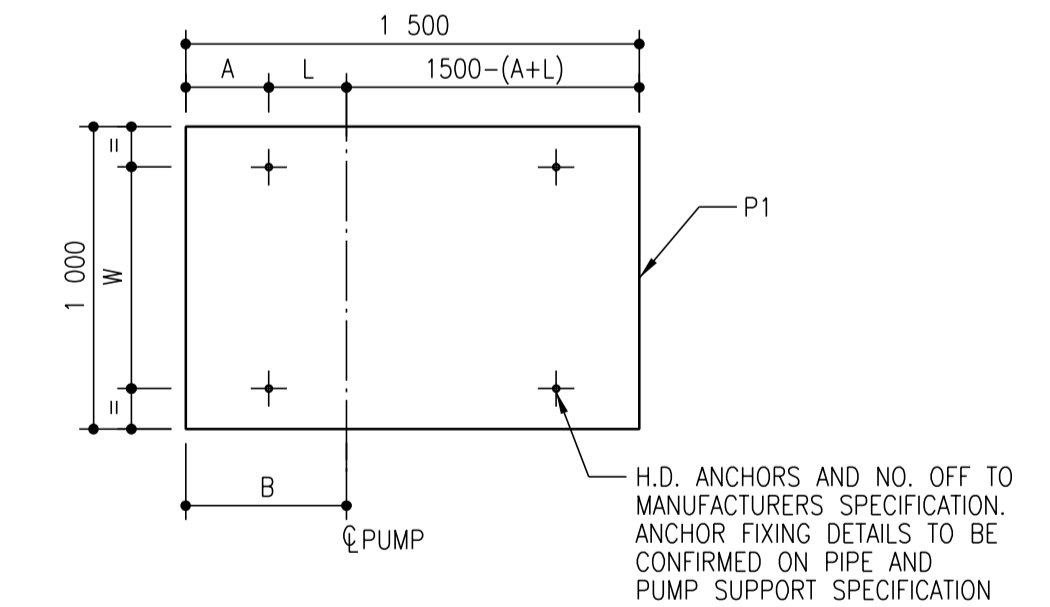
EARTHWORKS
SCALE 1:20



SECTION A-A
SCALE 1:50



SECTION B-B
SCALE 1:50



TYPICAL PLAN ON TYPE 1 H.D.
BOLT LAYOUT (4 No. OFF)
SCALE 1:25

- GENERAL NOTES:
 - THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND WILL GOVERN IN CASE OF ANY CONFLICTS.
 - ALL SETTING OUT DIMENSIONS SHALL BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES OR OMISSIONS SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER.
 - NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
 - BUILDING WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - CONCRETE FACES TO FORMED FACES:
 - ALL EXPOSED FACES CLASS F3
 - ALL OTHER FACES CLASS F1
 - CONCRETE FACES TO UNFORMED FACES:
 - ALL SURFACES CLASS-U2
- EARTHWORKS NOTES:
 - THE FOUNDING LEVELS GIVEN ON THE DRAWINGS ARE ANTICIPATED LEVELS. THE ACTUAL FOUNDING LEVELS SHALL BE DETERMINED ON SITE BY THE ENGINEER.
 - MINIMUM DEPTH OF EXCAVATION TO SLABS ON GROUND SHALL BE 300MM. TEMPORARILY STOCKPILE IN-SITU MATERIAL FOR INSPECTION AND TESTING FOR USE AS FILL MATERIAL.
 - OVER-EXCAVATE, RIP AND SCARIFY TO FOUNDING LEVEL BY 150MM AND RECOMPACT IN-SITU MATERIAL TO 93% MOD AASHTO.
 - BACKFILL AND COMPACTION OF FILL LAYERS (G7 MATERIAL OR BETTER) TO BE CONSTRUCTED NOT THICKER THAN 150mm TO 93% MOD AASHTO. MINIMUM DESIGN CBR OF LAYER WORK = 15.
- CONCRETE NOTES:
 - ALL CONCRETE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
 - CONCRETE SHALL BE "STRENGTH GRADE CONCRETE (MPA)" / "MAXIMUM STONE SIZE (MM)" AS SPECIFIED BELOW UNLESS OTHERWISE STATED IN ACCORDANCE WITH PROJECT SPECIFICATION (U.N.O.):

MASS CONCRETE	15/19
BLINDING	15/19
WALLS	40/19
SLABS	40/19
GROUT	40/19
 - THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCEMENT IS PROPERLY HELD IN POSITION AND SHALL ALSO MAINTAIN THE CORRECT CONCRETE COVER UTILIZING APPROVED PATENT SPACERS (NOT STONES, OFFCUT REINFORCEMENT, BRICKS ETC.) AT ALL TIMES.
 - UNLESS OTHERWISE SPECIFIED, THE CONCRETE COVER SHALL BE THE GREATER OF THE BAR DIAMETER OR THE VALUES IN MM AS STATED BELOW:

SLABS (TOP OF)-	60MM
OTHER-	50MM
 - ALL CONCRETE SHALL BE MECHANICALLY COMPACTED THROUGH THE USE OF VIBRATORS.
 - CONCRETE SHALL BE CAST AS LONG CONTINUOUS STRIPS. IF STOPPAGES OF MORE THAN 40 MINUTES ARE UNAVOIDABLE, CONSTRUCTION JOINTS SHALL BE FORMED IN THE POSITIONS AND ACCORDING TO THE DETAILS AS PER PROJECT SPECIFICATION.
 - ALL EXPOSED CORNERS TO HAVE A 25 x 25mm CHAMFER.
 - NO CONCRETE SHALL BE PLACED PRIOR TO THE APPROVAL OF THE RESIDENT ENGINEER.
 - ALL NON-SHUTTERED CONCRETE SURFACES SHALL HAVE A WOOD FLOAT FINISH.
 - ALL EXPANSION AND CONSTRUCTION JOINTS TO HAVE WATER STOPS OF APPROVED DESIGN AS PER SPECIFICATION.
 - INTERFACE BETWEEN PIPE AND STRUCTURE WALL TO BE GROUTED WITH NON-SHRINK GROUT OF APPROVED DESIGN TO FORM WATERTIGHT SEAL.
 - CURING OF SLABS SHALL BE BY CONTINUOUS WETTING TO MAINTAIN DAMP SURFACE CONDITIONS. CURING OF CONCRETE SHALL OCCUR FOR A MINIMUM OF (7 DAYS) AFTER PLACING OR SUCH EXTENDED PERIODS AS THE RESIDENT ENGINEER MAY INSTRUCT.
- FOUNDATIONS:
 - EXCAVATIONS FOR FOUNDATIONS SHALL BE KEPT FREE OF WATER AT ALL TIMES.
 - ALL EXCAVATIONS SHALL BE INSPECTED AND APPROVED BEFORE BLINDING IS LAID.
 - NO CONCRETE SHALL BE CAST BEFORE REINFORCEMENT HAS BEEN CHECKED AND APPROVED BY THE ENGINEER.
- LEGEND:
 - SOP-SETTING OUT POINT
 - CJ-CONSTRUCTION JOINT
 - T.O.C-TOP OF CONCRETE
 - F.G.L-FINISH GROUND LEVEL
 - N.G.L-NATURAL GROUND LEVEL
 - O.D-OUTER DIAMETER
 - TBC-TO BE CONFIRMED

CONSTRUCTION DRAWING

NOTES

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CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
00	2024-03-13	FOR CONSTRUCTION

T.BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

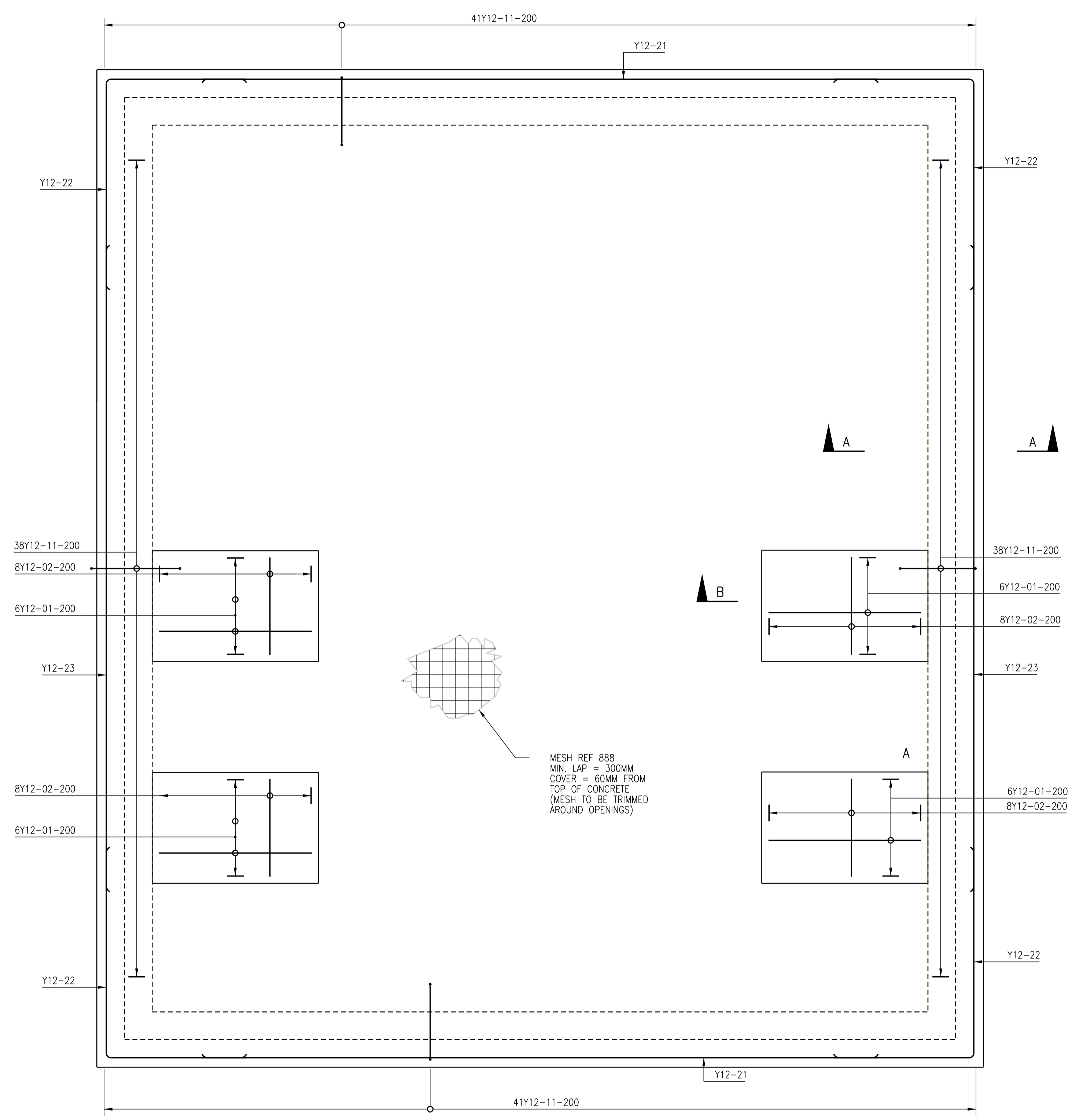
PROJECT

POLOKWANE REGIONAL WASTE WATER TREATMENT WORKS

DRAWING DESCRIPTION

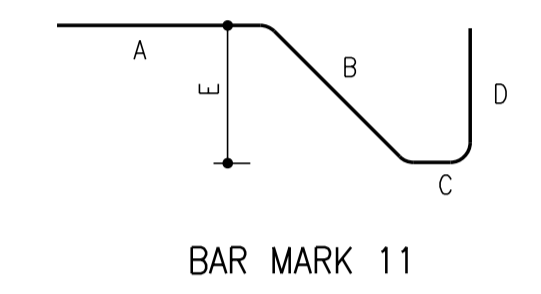
PRIMARY SLUDGE PUMP STATION LAYOUT AND CONCRETE DETAILS

DESIGNED	DRAWN	CHECKED
T.TSITSI	O.MOHOLOANE	T.TSITSI
REV DATE	SCALE	ORIGINAL SIZE
2024-03-13	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0011-5001	00	

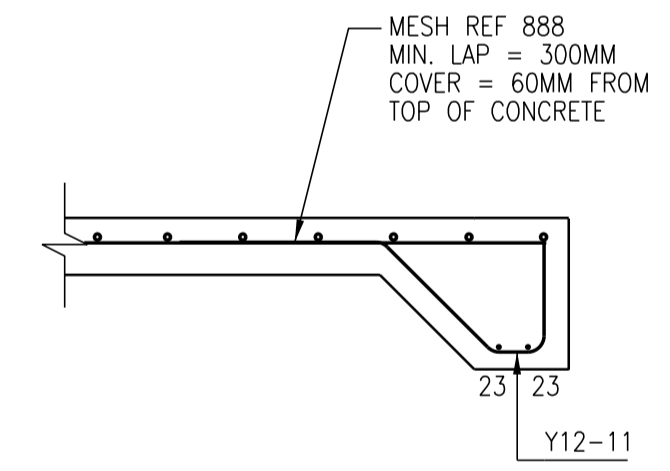


PRIMARY SLUDGE PUMP STATION
SCALE 1:25

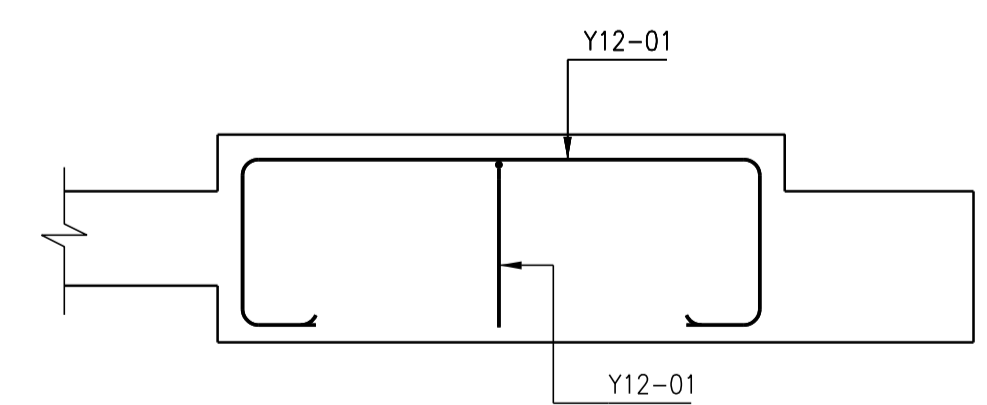
PRIMARY SLUDGE PUMP STATION											PAGE: 1 OF 1				
ZAKUMI Consulting Engineers											REFERENCE DRAWING Nos.		DATE: MARCH 2024		
											REV: -				
REV	BAR MARK	TYPE AND DIAM.	NO. PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION							
								A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)			
PLINTH															
-	01	Y12	6	4	24	2 550	55	200	440	1 370	440				
-	02	Y12	8	4	32	1 600	38	390	870						
SLAB EDGE															
-	11	Y12	158	1	158	950	99	540	420	150	270	290			
-	21	Y12	4	1	2	6 100	20								
-	22	Y12	8	1	4	3 150	37	1 900							
-	23	Y12	4	1	2	5 850	20								



R6	R8	R10	R12	R16	R20	R25	R32	R40	Total	Y6	Y8	Y10	Y12	Y16	Y20	Y25	Y32	Y40	Total
0	0	0	0	0	0	0	0	0	33	0	0	0	298	0	0	0	0	0	298



SECTION A-A
SCALE 1:20



SECTION B-B
SCALE 1:20

1. GENERAL NOTES:
- 1.1 THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND WILL GOVERN IN CASE OF ANY CONFLICTS.
 - 1.2 ALL SETTING OUT DIMENSIONS SHALL BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES OR OMISSIONS SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER.
 - 1.3 NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
 - 1.4 BUILDING WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. REINFORCEMENT NOTES:
- 2.1 WELDED MESH FABRIC SHALL CONFIRM TO SANS-1024:2006
 - 2.2 UNLESS OTHERWISE SPECIFIED, THE CONCRETE COVER SHALL BE THE GREATER OF THE BAR DIAMETER OR THE VALUES IN MM AS STATED BELOW:
-SLABS (TOP OF)- 60MM
 - 2.3 REINFORCEMENT TO BE HOT ROLLED AND TO COMPLY WITH SANS 920:2011 SPECIFICATIONS FOR STEEL BARS FOR CONCRETE. REINFORCEMENT THE STANDARD MINIMUM CHARACTERISTIC STRENGTH (fy)
MILD STEEL BARS 250 MPa
HIGH YIELD STEEL BARS(85008) 500 MPa
 - 2.4 REINFORCEMENT BARS, INCLUDING HELICAL REINFORCEMENT AND DOWELS, BUT NOT FABRIC REINFORCEMENT, ARE CALLED UP ON THE DRAWINGS IN THE FOLLOWING MANNER:
No OFF: BAR TYPE: BAR DIA (BAR SHAPE) - BAR MARK - PITCH - POSITION
AND/OR COMMENT.
e.g. 7H20(20)-09-125 B
9R25(20)-37-900 DOWELS
 - 2.5 BAR DESIGNATION IS AS FOLLOWS:
R = GRADE 250 PLAIN ROUND MILD STEEL BARS COMPLYING WITH SANS 920:2011
Y = GRADE 85008 DEFORMED HIGH YIELD BARS COMPLYING WITH SANS 920:2011
 - 2.6 POSITION / COMMENT IS DESIGNATED AS FOLLOWS:
T = TOP FACE, B = BOTTOM FACE, NF = NEAR FACE, FF = FAR FACE.
EF = EACH FACE (BOTH NEAR AND FAR FACES).
ABR = ALTERNATE BARS REVERSED.
STG = ALTERNATE BARS STAGGERED BY THE AMOUNTS SHOWN
ALT = ALTERNATIVELY PLACED.
ADDITIONALLY, WHERE 3 OR MORE LAYERS OF REINFORCEMENT ARE USED, A NUMERICAL SUFFIX HAS BEEN USED TO INDICATE THE LAYER POSITION. LAYERS HAVE BEEN NUMBERED FROM OUTERMOST LAYER INWARDS UNLESS NOTED OTHERWISE.
 - 2.7 BENDING AND SCHEDULING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH SANS 282.
 - 2.8 MINIMUM ANCHORAGE AND LAP LENGTHS SHALL MEET THE CODE REQUIREMENTS. LAP LENGTHS FOR GRADE Y REINFORCEMENT IS 15 X BAR DIAMETER OF 300mm UNLESS NOTED OTHERWISE.
 - 2.9 ALL REINFORCEMENT TO BE HOT-DIP GALVANISED IN ACCORDANCE WITH EN ISO 1461.

NOTES

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- 1.5 THIS DRAWING FORMS PART OF THE SPECIFICATION AND MUST BE READ IN CONJUNCTION WITH THE SAME.

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Consulting Engineers

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TEL: +27 15 291 1176
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CLIENT

CITY OF
Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
00	2024-03-13	FOR CONSTRUCTION

T.BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

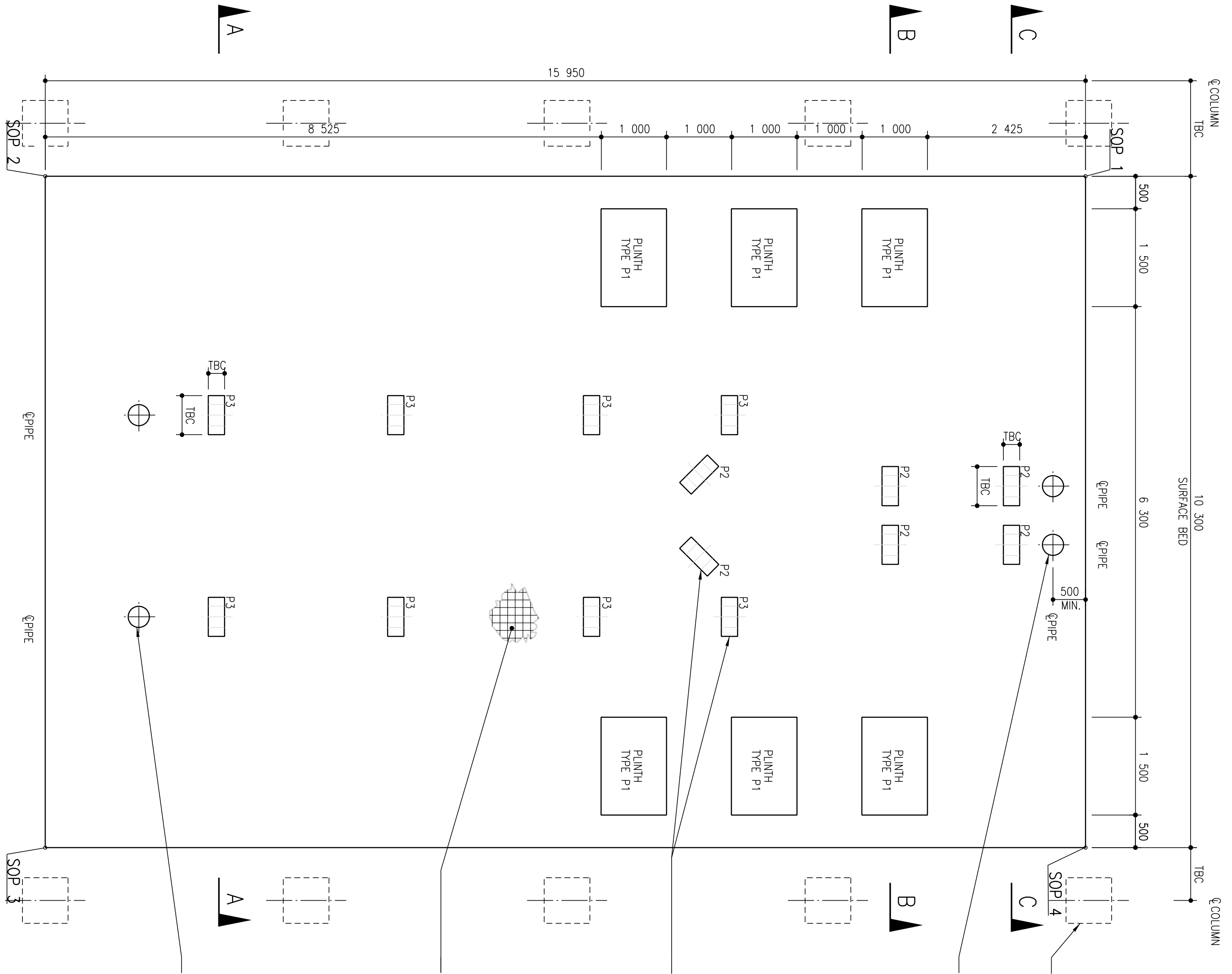
PROJECT

POLOKWANE REGIONAL
WASTE WATER TREATMENT
WORKS

DRAWING DESCRIPTION

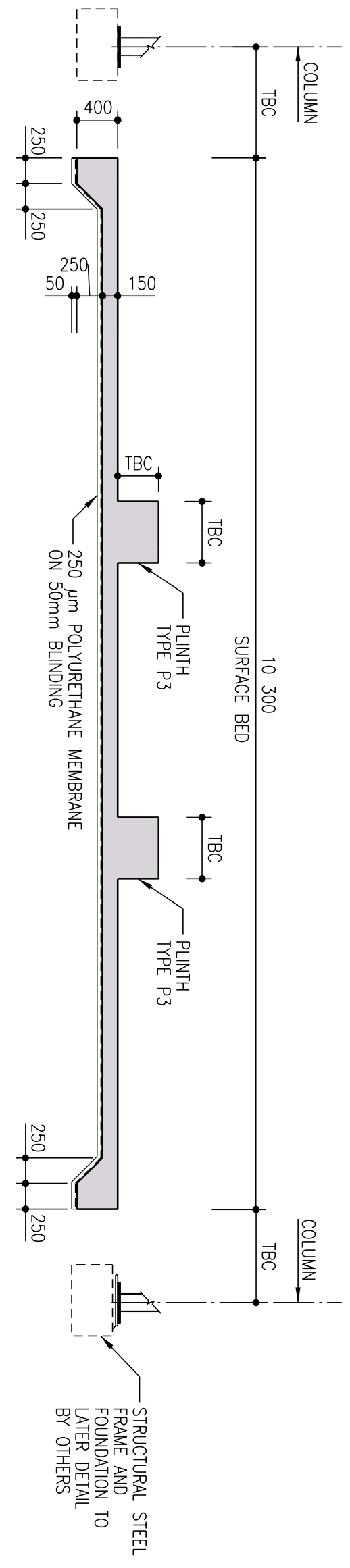
PRIMARY SLUDGE PUMP
STATION REINFORCEMENT
LAYOUT AND BENDING
SCHEDULE

CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
T.TSITSI	O.MOHLAONE	T.TSITSI
REV DATE	SCALE	ORIGINAL SIZE
2024-03-13	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0011-5002	00	

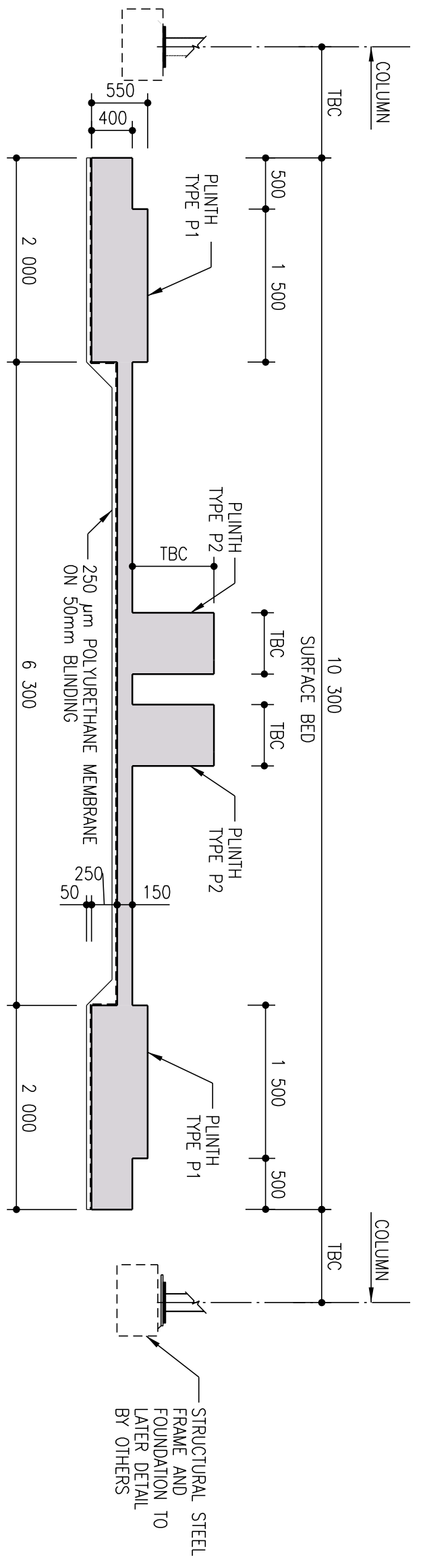


PLAN
SCALE 1:50

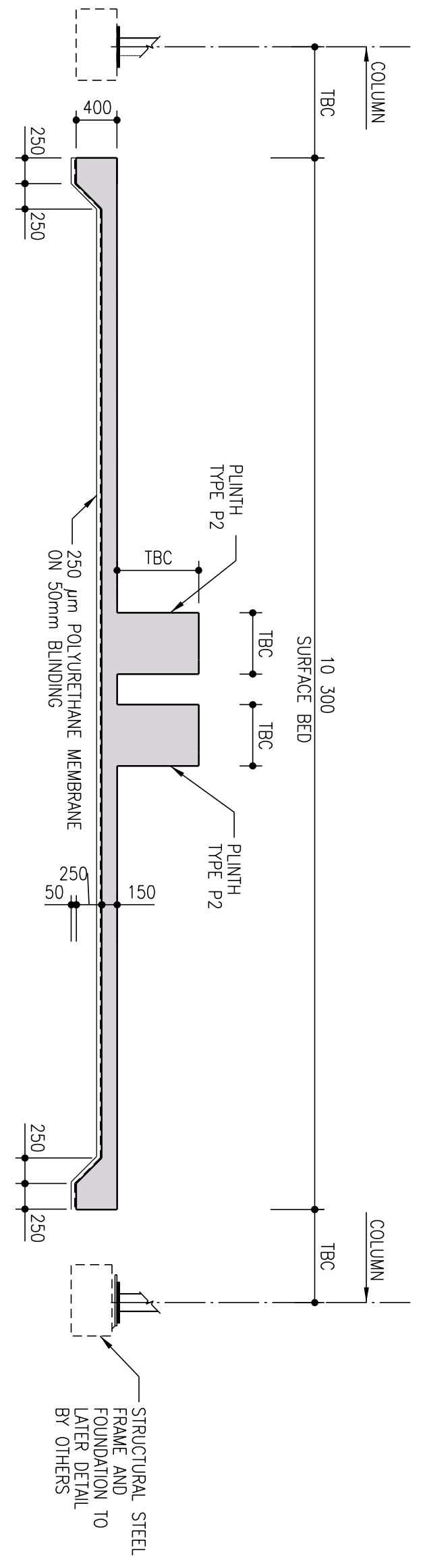
SETTING OUT CO-ORDINATES (WGS84 L0297)			
	Y	X	T.O.C
SOP 1	-2632714.761	46107.276	1186.575
SOP 2	-2632726.039	46096.099	1186.575
SOP 3	-2632733.323	46103.381	1186.575
SOP 4	-2632722.044	46114.659	1186.575



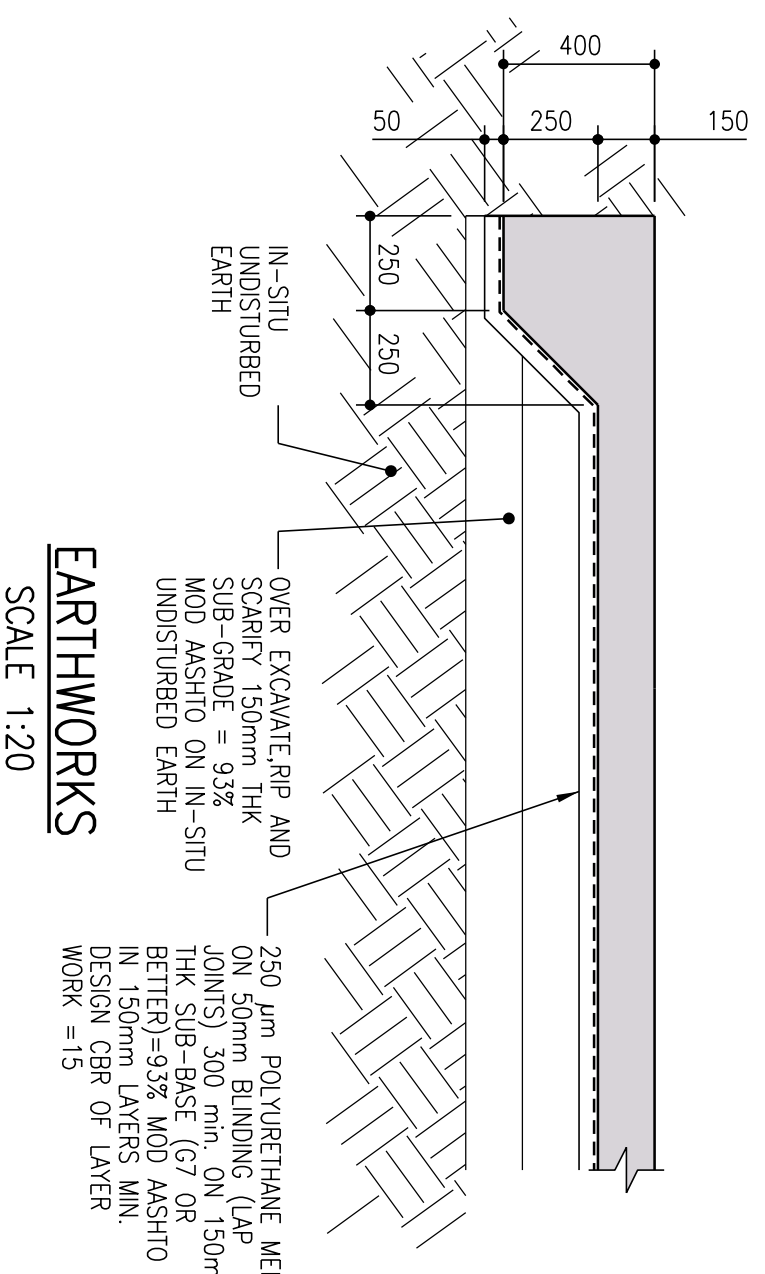
SECTION A-A
SCALE 1:50



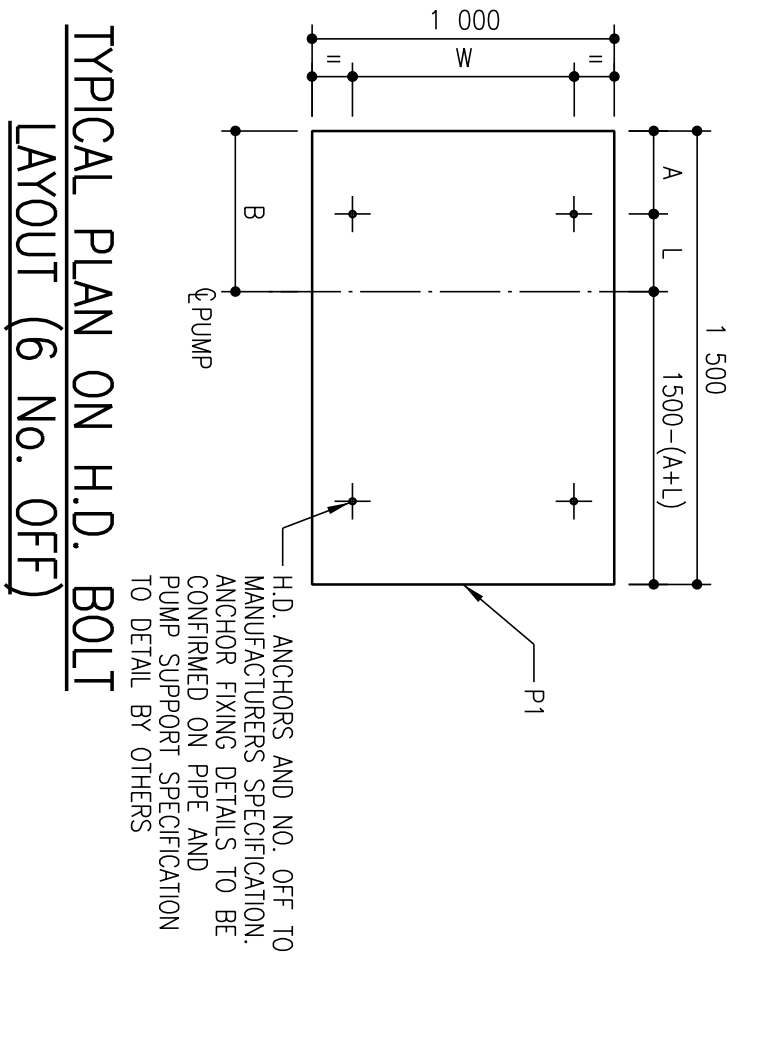
SECTION B-B
SCALE 1:50



SECTION C-C
SCALE 1:50



EARTHWORKS
SCALE 1:20



TYPICAL PLAN ON H.D. BOLT LAYOUT (6 NO. OFF)
SCALE 1:25

- NOTES**
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REVISION SCHEDULE

NO.	DATE	REVISION DESCRIPTION
00	2024-03-13	FOR CONSTRUCTION

CLIENT

NO.	DATE	REVISION DESCRIPTION
00	2024-03-13	FOR CONSTRUCTION

PROJECT

NO.	DATE	REVISION DESCRIPTION
00	2024-03-13	FOR CONSTRUCTION

DRAWING DESCRIPTION

DESIGNED	DRAWN	CHECKED
T.TSITSI	OMOHLOANE	T.TSITSI
REV DATE	SCALE	ORIGINAL SIZE
2024-03-13	AS SHOWN	A1

CONSTRUCTION DRAWING

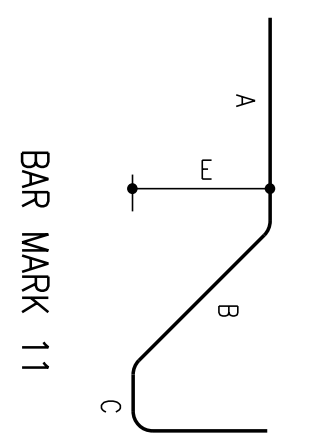
DESIGNED	DRAWN	CHECKED
T.TSITSI	OMOHLOANE	T.TSITSI
REV DATE	SCALE	ORIGINAL SIZE
2024-03-13	AS SHOWN	A1

- 1. GENERAL NOTES:**
- THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND WILL GOVERN IN CASE OF ANY CONFLICTS.
 - ALL SETTING OUT DIMENSIONS SHALL BE CHECKED ON SITE BY THE CONTRACTOR'S SURVEYORS OR DIMENSIONS SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER.
 - NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
 - BUILDING WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - CONCRETE FACES TO FORMED FACES:
CLASS F3
CLASS F1
ALL OTHER FACES
 - CONCRETE FACES TO UNFORMED FACES:
CLASS-U2
ALL SURFACES
- 2. EARTHWORKS NOTES:**
- THE FOUNDING LEVELS GIVEN ON THE DRAWINGS ARE ANTICIPATED LEVELS. THE ACTUAL FOUNDING LEVELS SHALL BE DETERMINED ON SITE BY THE ENGINEER.
 - MINIMUM DEPTH OF EXCAVATION TO SLABS ON GROUND SHALL BE 300MM TEMPORARILY STOCKPILE IN-SITU MATERIAL FOR INSPECTION AND TESTING FOR USE AS FILL MATERIAL.
 - OVER-EXCAVATE, RIP AND SCARIFY TO FOUNDING LEVEL BY 150MM AND RECOMPACT IN-SITU MATERIAL TO 92% MOD ASHITO.
 - BACKFILL AND COMPACTION OF FILL LAYERS (G7 MATERIAL OR BETTER) TO BE CONSTRUCTED NOT THICKER THAN 150mm MAX. MOD ASHITO. MINIMUM DESIGN CBR OF LAYER WORK = 15.
- 3. CONCRETE NOTES:**
- ALL CONCRETE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
 - MAXIMUM STONE SIZE (MM) AS SPECIFIED BELOW UNLESS OTHERWISE STATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS:
CLASS (TOP OF ?) -
SLABS 50MM
OTHER -
15/19
15/19
40/19
40/19
BLINDING
ROU
ROU
 - THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCEMENT IS PROPERLY HELD IN POSITION AND SHALL ALSO MAINTAIN THE CORRECT CONCRETE COVER UTILISING APPROVED PATENT PLATES AT ALL TIMES.
 - UNLESS OTHERWISE SPECIFIED THE CONCRETE COVER SHALL BE STATED BELOW. THE BAR DIAMETER IN MM AS STATED BELOW.
SLABS (TOP OF ?) -
OTHER -
50MM
60MM
 - ALL CONCRETE SHALL BE MECHANICALLY COMPACTED THROUGH THE USE OF VIBRATORS.
 - CONCRETE SHALL BE CAST AS LONG CONTINUOUS STRIPS. IF STOPPAGES OF MORE THAN 40 MINUTES ARE UNAVOIDABLE, CONSTRUCTION JOINTS SHALL BE FORMED IN THE POSITIONS AND ACCORDING TO THE DETAILS AS PER PROJECT SPECIFICATION.
 - ALL EXPOSED CORNERS TO HAVE A 25 x 25mm CHAMFER.
 - NO CONCRETE SHALL BE PLACED PRIOR TO THE APPROVAL OF THE RESIDENT ENGINEER.
 - ALL NON-SHUTTERED CONCRETE SURFACES SHALL HAVE A WOOD FLOAT FINISH.
 - ALL EXPANSION AND CONSTRUCTION JOINTS TO HAVE WATER STOPS OF APPROVED DESIGN AS PER SPECIFICATION.
 - INTERFACE BETWEEN PIPE AND STRUCTURAL WALL TO BE FROM WATERPROOFING.
 - CURING OF SLABS SHALL BE BY CONTINUOUS WETTING TO BE MAINTAINED FOR A MINIMUM OF (7 DAYS) AFTER PLACING OR SUCH EXTENDED PERIODS AS THE RESIDENT ENGINEER MAY INSTRUCT.
- 4. FOUNDATIONS:**
- EXCAVATIONS FOR FOUNDATIONS SHALL BE KEPT FREE OF WATER AT ALL TIMES.
 - ALL EXCAVATIONS SHALL BE INSPECTED AND APPROVED BEFORE BUILDING IS LAID.
 - NO CONCRETE SHALL BE CAST BEFORE REINFORCEMENT HAS BEEN CHECKED AND APPROVED BY THE ENGINEER.
- 5. LEGEND:**
- SOP- SETTING OUT POINT
C- CONSTRUCTION JOINT
T.O.C- TOP OF CONCRETE
F1, F3- FINISH GROUND LEVEL
O.D.- OVER DIAMETER
T.B.C.- TO BE COVERED

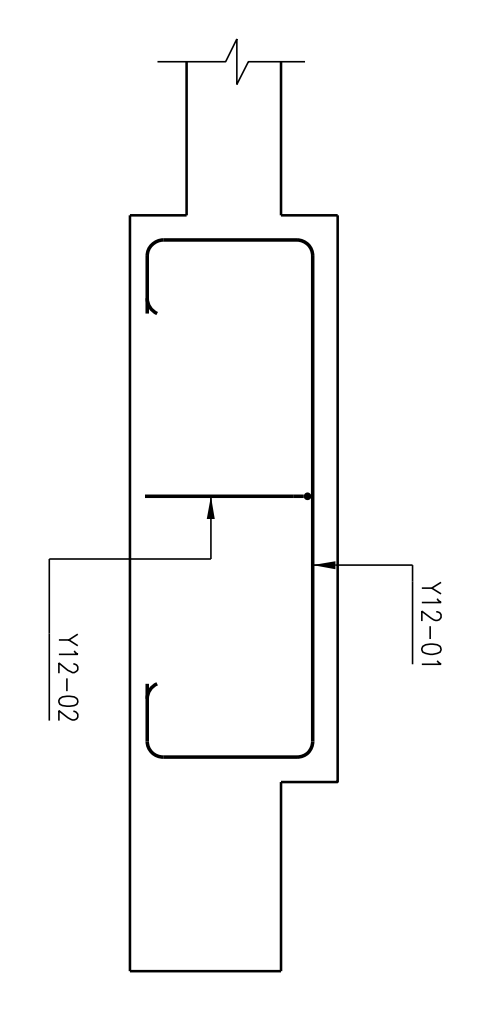
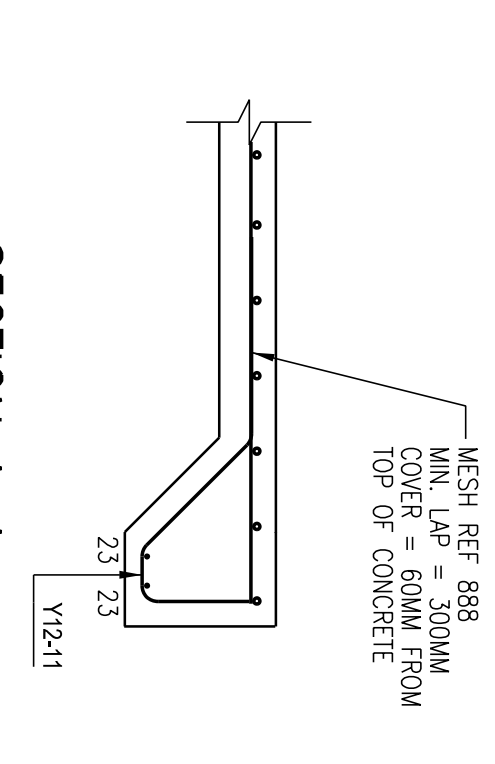
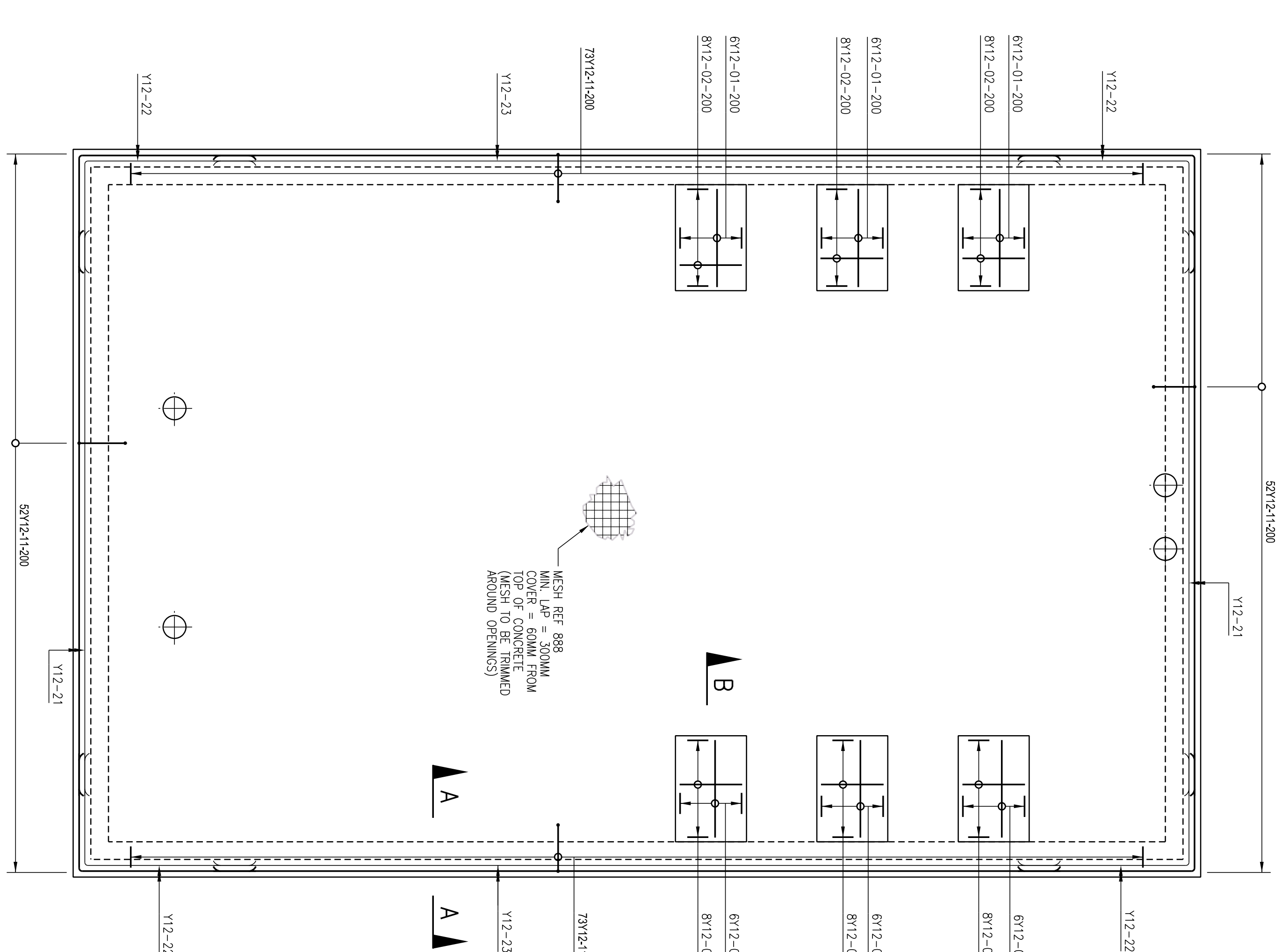
1. GENERAL NOTES

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- 1.2 ALL SETTING OUT DIMENSIONS SHALL BE CHECKED ON SITE BY IMMEDIATELY BE REFERRED TO THE ENGINEER'S SHALL.
- 1.3 NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
- 1.4 BUILDING WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. REINFORCEMENT NOTES
- 2.1 WELDED MESH FABRIC SHALL COMPLY TO SANS-1024:2006
- 2.2 UNLESS OTHERWISE SPECIFIED THE CONCRETE COVER SHALL BE SHOWN BELOW THE BAR DIMENSION ON THE INCLUDES IN MM AS -SLABS (TOP OF)- 60MM
- 2.3 REINFORCEMENT TO BE HOT ROLLED AND TO COMPLY WITH SANS 920:2011 SPECIFICATIONS FOR STEEL BARS FOR CHARACTERISTIC STRENGTH (fy) 250 MPa HIGH YIELD STEEL BARS(S2008) 350 MPa REINFORCEMENT BARS, INCLUDING HEAVY REINFORCEMENT AND ON THE DRAWINGS IN THE FOLLOWING MANNER: NO. OF BAR TYPE: BAR DIA (BAR SHAPE) - BAR MARK - AND/OR COMMENT.
- 2.4 9.2.3(2)(20)-09-175.9 9825(20)-37-900 DOWNES
- 2.5 BAR DESIGNATION IS AS FOLLOWS: R = GRADE 250 PLAIN ROUND MILD STEEL BARS COMPLYING WITH SANS 920:2011
- 2.6 POSITION / COMMENT IS DESIGNATED AS FOLLOWS:
T = TOP FACE; B = BOTTOM FACE; N = NEAR FACE; F = FAR FACE;
EF = EACH FACE (BOTH NEAR AND FAR FACES);
ABR=ALTERNATE BARS REVERSED;
SIG = ALTERNATE BARS STAGGERED BY THE AMOUNTS SHOWN
ALT = ALTERNATELY PLACED.
- 2.7 ADDITIONALLY, WHERE 3 OR MORE LAYERS OF REINFORCEMENT ARE SHOWN, THE LAYER POSITION LAYERS HAVE BEEN NUMBERED FROM OUTERMOST LAYER INWARDS UNLESS NOTED OTHERWISE.
- 2.8 BENDING AND SCHEDULING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH SANS 282.
- 2.9 MINIMUM ANCHORAGE AND LAP LENGTHS SHALL MEET THE CODE REQUIREMENTS. LAP LENGTHS FOR GRADE Y REINFORCEMENT IS 15x BAR DIAMETER OF 300mm UNLESS NOTED OTHERWISE.
- 2.9 ALL REINFORCEMENT TO BE HOT-DIP GALVANIZED IN ACCORDANCE WITH EN ISO 1461.

BAR MARK	TYPE AND DIAM.	NO. OF PER UNIT	NO. OF UNITS	TOTAL NO.	CUTTING LENGTH (mm)	SHAPE CODE	DIMENSION (mm)				E/R
V							A	B	C	D	
-	PLINTH										
-	01	Y12	6	6	2 550	55	200	440	1 370	440	
-	02	Y12	8	6	1 800	38	390	870			
-	SLAB EDGE										
-	11	Y12	250	1	950	99	540	420	150	270	290
-	BOTTOM BARS										
-	21	Y12	4	1	2 800	20					
-	22	Y12	8	1	4 150	37	2 510				
-	23	Y12	4	1	12 000	20					



R6	R8	R10	R12	R16	R20	R25	R32	R40	Total	Y6	Y8	Y10	Y12	Y16	Y20	Y25	Y40	Total
0	0	0	0	0	0	0	0	0	44	0	0	0	482	0	0	0	0	482



- NOTES**
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CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE

NO.	DATE	REVISION DESCRIPTION
00	2024-03-13	FOR CONSTRUCTION

T.BANDA	PR.ENG	DATE
ENGINEER	no.	
CLIENT		DATE

PROJECT

POLOKWANE REGIONAL WASTE WATER TREATMENT WORKS

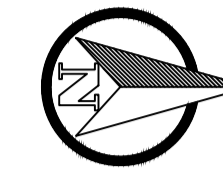
DRAWING DESCRIPTION

RETURN ACTIVATED SLUDGE PUMP STATION REINFORCEMENT LAYOUT AND BENDING SCHEDULE

CONSTRUCTION DRAWING

DESIGNED	DRAWN	CHECKED
TT/STSI	OM/HLONE	TT/STSI
REV DATE	SCALE	ORIGINAL SIZE
2024-03-13	AS SHOWN	A1
PROJ No - DISCIPLINE - SERV - SEQ NO. - (SHEET)	DRAWING NUMBER	REV
PK278-01-STR-DRG-0012-5002		00

ACS35

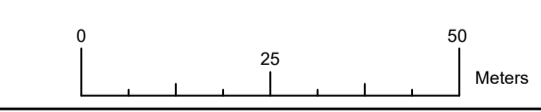


BENCHMARKS				
POINT	Y	X	Z	DESCRIPTION
ACS34	-2 633 912.092	46 129.326	1194.218	16mm ROD
ACS35	-2 632 952.324	45 690.605	1182.306	16mm ROD
ACS36	-2 632 718.840	46 642.763	1189.094	16mm ROD
ACS37	-2 632 328.880	46 248.152	1180.756	16mm ROD
ACS38	-2 633 468.075	46 359.715	1200.721	16mm ROD

- NOTES AND SPECIFICATIONS**
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 - 8 THE SIGNATURE OR INITIALS ON THIS DRAWING OF ANY MANAGER OF THE TRANSPORT DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
 - 9 FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.
 - 10 BASE SURVEY TO BE AGREED BETWEEN THE CONTRACTOR AND THE ENGINEER'S REPRESENTATIVE



GENERAL LAYOUT
SCALE 1:2000



CONSTRUCTION DRAWING

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:2000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2500	0	

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CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE

NO.	DATE	REVISION DESCRIPTION
00	2023-05	ISSUED FOR CONSTRUCTION

T BANDA
ENGINEER

PR ENG no. DATE

CLIENT DATE

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

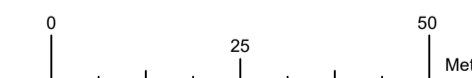
GENERAL LAYOUT AND BENCHMARKS



GENERAL LAYOUT
SCALE 1:1500

NOTES AND SPECIFICATIONS

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CONSTRUCTION DRAWING

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1500	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2500	0	

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CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE

NO.	DATE	REVISION DESCRIPTION
00	2023-05	ISSUED FOR CONSTRUCTION

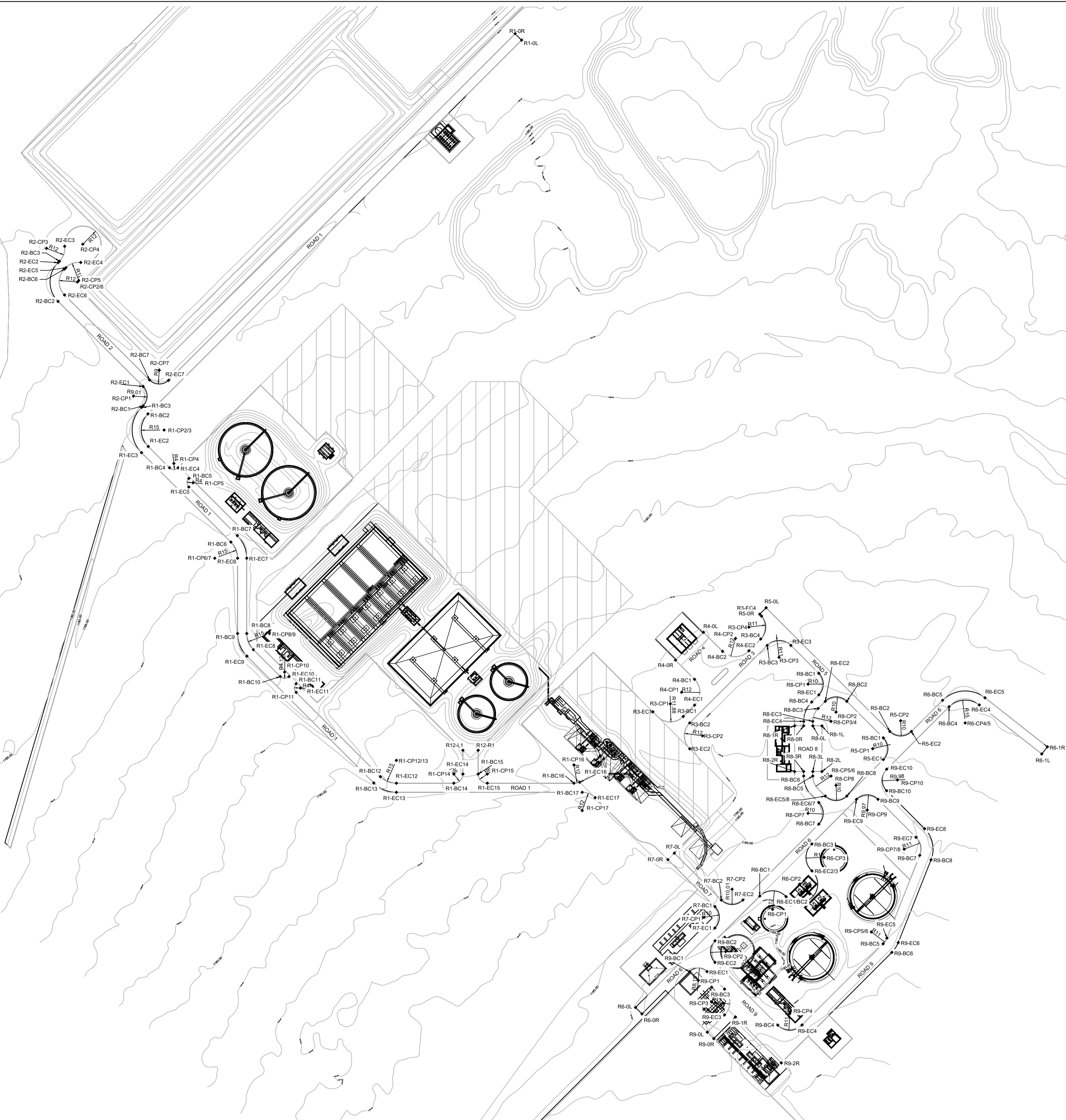
T BANDA ENGINEER	PR ENG no.	DATE
CLIENT		DATE

PROJECT

**POLOKWANE
REGIONAL WWTW
CONTRACT 2**

DRAWING DESCRIPTION

GENERAL LAYOUT



GEOMETRIC LAYOUT
SCALE 1:1500

NOTES AND SPECIFICATIONS

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CONSTRUCTION DRAWING

NOTES

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CITY OF
Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE	
NO.	REVISION DESCRIPTION
00	2023-05 ISSUED FOR CONSTRUCTION

T BANDA ENGINEER	PR ENG no.	DATE
CLIENT		DATE

PROJECT

**POLOKWANE
REGIONAL WWTW
CONTRACT 2**

DRAWING DESCRIPTION

GEOMETRIC LAYOUT

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1500	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2501	0	

NOTES AND SPECIFICATIONS

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SETTING OUT POINTS - ROAD 1				SETTING OUT POINTS - ROAD 2				SETTING OUT POINTS - ROAD 5				SETTING OUT POINTS - ROAD 8				SETTING OUT POINTS - ROAD 9			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R1-OL	2632420.4592	-46292.9950		R2-BC1	2632660.5911	-46044.3779		R5-OL	2632793.2158	-46453.6169		R8-BC1	2632836.3096	-46488.2254		R9-BC1	2633032.1991	-46403.2925	
R1-OR	2632416.2166	-46288.7524		R2-CP1	2632654.2378	-46037.9951	9.01m	R5-OR	2632797.4584	-46449.3743		R8-CP1	2632843.3806	-46481.1543	10m	R9-CP1	2633037.9629	-46409.0563	8.15m
R1-BC1	2632665.8992	-46047.5550		R2-EC1	2632647.8738	-46044.3672		R5-BC1	2632878.7413	-46530.6571		R8-EC1	2632850.4516	-46488.2253		R9-EC1	2633032.1991	-46414.8201	
R1-CP1/2	2632676.5058	-46058.1616	15m	R2-BC2	2632592.0124	-45988.5057		R5-CP1	2632885.8123	-46523.5860	10m	R8-BC2	2632854.6943	-46506.6101		R9-BC2	2633011.9701	-46420.0475	
R1-EC1	2632687.3087	-46047.7513		R2-CP2/6	2632579.2845	-46001.2336	12m	R5-EC1	2632892.8907	-46530.6497		R8-CP2	2632861.7653	-46499.5391	10m	R9-CP2	2633019.0414	-46427.0771	9.97m
R1-BC2	2632661.6566	-46043.3123		R2-EC2	2632566.5566	-45988.5057		R5-BC2	2632874.4998	-46534.9009		R8-EC2	2632854.6943	-46492.4680		R9-EC2	2633026.1125	-46420.0472	
R1-EC2	2632691.3551	-46043.3123		R2-BC3	2632565.6621	-45989.4002		R5-CP2	2632867.4288	-46541.9720	10m	R8-BC3	2632859.3702	-46487.7921		R9-BC3	2633043.6726	-46426.2936	
R1-BC3	2632701.2980	-46061.7406		R2-CP3	2632557.1768	-45980.9149	12m	R5-EC2	2632874.5002	-46549.0427		R8-CP3/4	2632867.8555	-46496.2774	12m	R9-CP3	2633052.1579	-46417.8083	12m
R1-CP3	2632698.4696	-46064.5690	4m	R2-EC3	2632555.8563	-45992.8421						R8-EC3	2632867.8555	-46484.2774		R9-EC3	2633060.6432	-46426.2936	
R1-EC3	2632701.2980	-46067.3974		R2-CP4	2632554.5351	-46004.7698	12m	SETTING OUT POINTS - ROAD 6				R8-BC4	2632855.1275	-46483.5494		R9-OL	2633071.9569	-46414.9799	
R1-BC4	2632713.9552	-46074.3978		R2-EC4	2632566.4629	-46003.4487		REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	R8-EC4	2632867.8555	-46478.2774		R9-OR	2633076.1995	-46419.2226	
R1-CP4	2632711.1268	-46077.2262	4m	R2-EC5	2632569.9047	-45993.6429		R6-OL	2633055.7291	-46367.7994		R8-OL	2632870.8070	-46484.2774		R9-1R	2633061.9648	-46433.4573	
R1-EC4	2632708.2984	-46074.3978		R2-CP5	2632578.3900	-46002.1281	12m	R6-OR	2633059.9720	-46372.0418		R8-1L	2632870.8070	-46490.2774		R9-2R	2633092.1469	-46463.5326	
R1-BC5	2632750.0919	-46102.0492		R2-BC6	2632570.7992	-45992.7484		R6-BC1	2632982.6124	-46449.4026		R8-OR	2632870.8070	-46478.2774		R9-BC4	2633067.3365	-46461.2712	
R1-CP5/6	2632760.6985	-46091.4426	15m	R2-EC6	2632587.7698	-45992.7484		R6-CP1	2632991.2950	-46457.8694	12m	R8-1R	2632870.8070	-46472.2774		R9-CP4	2633059.6831	-46469.1882	11.01m
R1-EC5	2632760.6985	-46106.4426		R2-BC7	2632643.6312	-46048.6098		R6-EC1/BC2	2632982.9532	-46466.7008		R8-2L	2632900.8070	-46484.2774		R9-EC4	2633067.2286	-46477.2080	
R1-BC6	2632745.8493	-46106.2918		R2-CP7	2632637.2673	-46054.9738	9m	R6-CP2	2632974.8088	-46475.5138	12m	R8-3L	2632900.8070	-46490.2774		R9-BC5	2633013.9177	-46530.5190	
R1-EC6	2632760.6985	-46112.4426		R2-EC7	2632643.8681	-46061.0916		R6-EC2/3	2632965.9958	-46483.6582		R8-2R	2632900.8070	-46478.2774		R9-CP5/6	2633006.1395	-46522.7408	11m
R1-BC7	2632810.1452	-46112.4426						R6-CP3	2632957.1829	-46491.8027	12m	R8-3R	2632900.8070	-46472.2774		R9-EC5	2633010.1920	-46532.9671	
R1-CP7/8	2632810.1452	-46127.4426	15m	SETTING OUT POINTS - ROAD 3				R6-BC3	2632948.3554	-46483.6597		R8-BC5	2632903.7582	-46484.2774		R9-BC6	2633019.5745	-46536.1758	
R1-EC7	2632820.7518	-46116.8360		REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	R6-BC4	2632858.2476	-46573.7822		R8-CP5/6	2632903.7582	-46496.2774	12m	R9-EC6	2633013.1392	-46540.4044	
R1-BC8	2632810.1452	-46106.4426		R3-BC1	2632864.6198	-46399.1835		R6-CP4/5	2632868.8542	-46584.3888	15m	R8-EC5/6	2632916.9244	-46492.4730		R9-BC7	2632955.8205	-46554.5133	
R1-EC8	2632824.9944	-46112.5933		R3-CP1	2632856.3069	-46390.6982	11.88m	R6-EC4	2632857.0563	-46593.6522		R8-BC6	2632903.7582	-46478.2774		R9-CP7/8	2632951.7680	-46544.2870	11m
R1-BC9	2632838.3900	-46134.4741		R3-EC1	2632861.5862	-46379.1793		R6-BC5	2632854.0050	-46569.5396		R8-EC6/7	2632921.1664	-46488.2297		R9-EC7	2632943.9898	-46552.0652	
R1-CP9	2632835.4531	-46137.3684	4.12m	R3-BC2	2632868.8624	-46403.4261		R6-EC5	2632852.3372	-46597.3576		R8-BC7	2632935.3087	-46488.2293		R9-BC8	2632958.7677	-46561.9507	
R1-EC9	2632838.4472	-46140.2034		R3-CP2	2632877.3477	-46411.9114	12m					R8-CP7	2632928.2374	-46481.1586	10m	R9-EC8	2632938.3330	-46557.7221	
R1-BC10	2632848.8018	-46144.8859		R3-EC2	2632885.8330	-46403.4261		SETTING OUT POINTS - ROAD 7				R8-BC8	2632916.9245	-46506.6150		R9-BC9	2632919.0459	-46527.1212	
R1-CP10	2632845.9733	-46147.7143	4m	R3-BC3	2632817.9634	-46454.3251		REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	R8-CP8	2632909.8533	-46499.5441	10m	R9-CP9	2632926.0742	-46520.0502	9.97m
R1-EC10	2632843.1028	-46144.9286		R3-CP3	2632825.7427	-46462.1022	11m	R7-OL	2632954.4095	-46393.3054						R9-EC9	2632919.0456	-46512.9794	
R1-BC11	2632904.1612	-46200.2465		R3-EC3	2632817.9645	-46469.8804		R7-OR	2632958.6522	-46389.0627						R9-BC10	2632913.3898	-46532.7789	
R1-CP11/12	2632893.4469	-46210.7443	15m	R3-BC4	2632813.7219	-46450.0814		R7-BC1	2632989.4669	-46419.9810						R9-CP10	2632906.3187	-46539.8269	9.98m
R1-EC11	2632908.4469	-46210.7443		R3-CP4	2632805.9437	-46442.3016	11m	R7-CP1	2632996.5098	-46412.8812	10m					R9-EC10	2632899.2474	-46532.7792	
R1-BC12	2632908.2962	-46195.8951		R3-EC4	2632798.7474	-46450.6226		R7-EC1	2633003.5817	-46419.9515									
R1-EC12	2632914.4469	-46210.7443						R7-BC2	2632985.2049	-46424.2039									
R1-BC13	2632908.4469	-46248.4684		SETTING OUT POINTS - ROAD 4				R7-CP2	2632978.1138	-46431.2666	10.01m								
R1-CP13	2632902.4449	-46248.4684	6m	REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS	R7-EC2	2632985.1998	-46438.3343									
R1-EC13	2632902.4469	-46254.4684		R4-OL	2632809.3203	-46412.4596													
R1-BC14	2632908.4469	-46270.4684		R4-OR	2632827.7051	-46394.0748													
R1-CP14	2632902.4469	-46270.4684	6m	R4-BC1	2632840.2315	-46406.6012													
R1-EC14	2632902.4469	-46264.4684		R4-CP1	2632848.7168	-46398.1159	12m												
R1-BC15	2632908.4469	-46327.3479		R4-EC1	2632857.2020	-46406.6012													
R1-CP15	2632896.4469	-46327.3479	12m	R4-BC2	2632821.8467	-46424.9860													
R1-EC15	2632907.8241	-46331.1636		R4-CP2	2632813.3614	-46433.4712	12m												
R1-BC16	2632914.4469	-46332.8159		R4-EC2	2632821.4809	-46442.3223													
R1-CP16	2632926.4469	-46332.8159	12m																
R1-EC16	2632917.9617	-46341.3011																	

CO-ORDINATE POINTS
NTS

0 25 50 Meters

CONSTRUCTION DRAWING

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ZAKUMI
Consulting Engineers

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FAX: +27 15 291 1993

CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
00	2023-05	ISSUED FOR CONSTRUCTION

T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

PROJECT

**POLOKWANE
REGIONAL WWTW
CONTRACT 2**

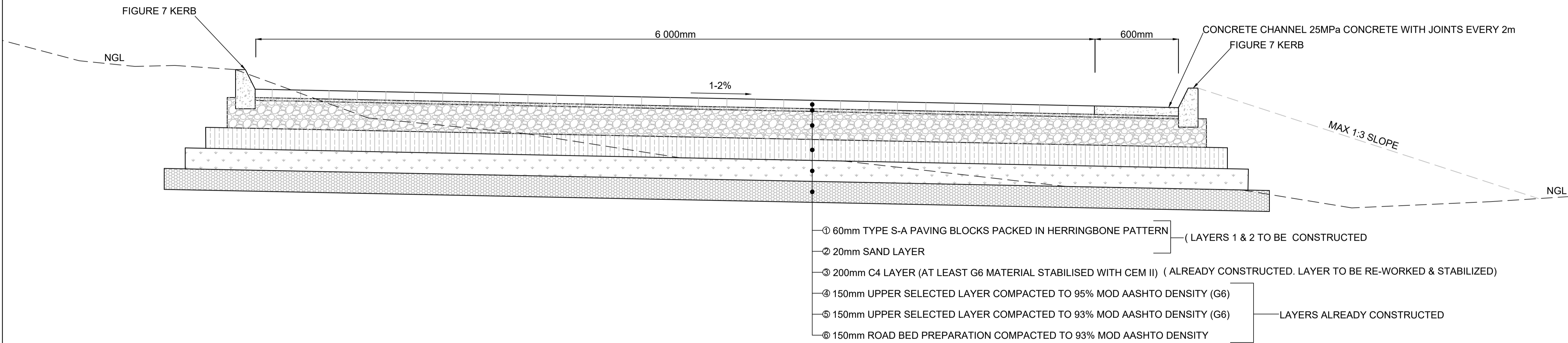
DRAWING DESCRIPTION

CO-ORDINATE POINTS

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1500	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2502	0	

NOTES AND SPECIFICATIONS

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PAVEMENT DESIGN

SCALE 1:1250



CONSTRUCTION DRAWING

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CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
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ENGINEER

T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

PROJECT

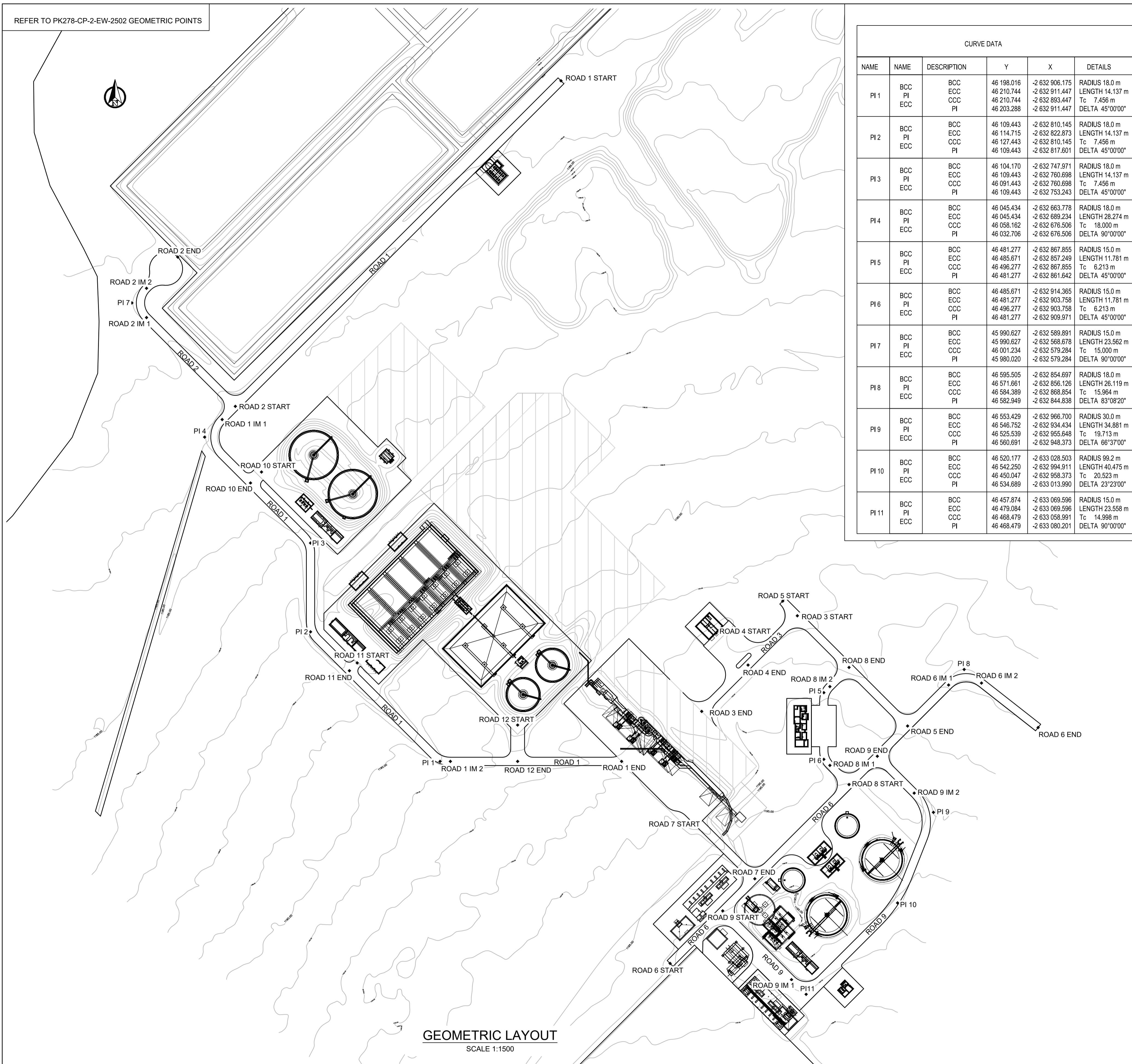
POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

PAVEMENT DESIGN

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1250	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2503	0	

REFER TO PK278-CP-2-EW-2502 GEOMETRIC POINTS



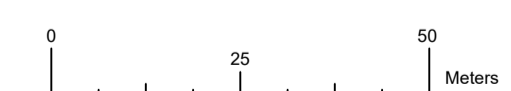
GEOMETRIC LAYOUT
SCALE 1:1500

CURVE DATA					
NAME	NAME	DESCRIPTION	Y	X	DETAILS
PI 1	BCC	BCC	46 198.016	-2 632 906.175	RADIUS 18.0 m
	PI	ECC	46 210.744	-2 632 911.447	LENGTH 14.137 m
	ECC	CCC	46 210.744	-2 632 893.447	Tc 7.456 m
	PI	PI	46 203.288	-2 632 911.447	DELTA 45°00'00"
PI 2	BCC	BCC	46 109.443	-2 632 810.145	RADIUS 18.0 m
	PI	ECC	46 114.715	-2 632 822.873	LENGTH 14.137 m
	ECC	CCC	46 127.443	-2 632 810.145	Tc 7.456 m
	PI	PI	46 109.443	-2 632 817.801	DELTA 45°00'00"
PI 3	BCC	BCC	46 104.170	-2 632 747.971	RADIUS 18.0 m
	PI	ECC	46 109.443	-2 632 760.698	LENGTH 14.137 m
	ECC	CCC	46 091.443	-2 632 760.698	Tc 7.456 m
	PI	PI	46 109.443	-2 632 753.243	DELTA 45°00'00"
PI 4	BCC	BCC	46 045.434	-2 632 663.778	RADIUS 18.0 m
	PI	ECC	46 045.434	-2 632 689.234	LENGTH 28.274 m
	ECC	CCC	46 058.162	-2 632 676.506	Tc 18.000 m
	PI	PI	46 032.706	-2 632 676.506	DELTA 90°00'00"
PI 5	BCC	BCC	46 481.277	-2 632 867.855	RADIUS 15.0 m
	PI	ECC	46 485.671	-2 632 857.249	LENGTH 11.781 m
	ECC	CCC	46 496.277	-2 632 867.855	Tc 6.213 m
	PI	PI	46 481.277	-2 632 861.642	DELTA 45°00'00"
PI 6	BCC	BCC	46 485.671	-2 632 914.365	RADIUS 15.0 m
	PI	ECC	46 481.277	-2 632 903.758	LENGTH 11.781 m
	ECC	CCC	46 496.277	-2 632 903.758	Tc 6.213 m
	PI	PI	46 481.277	-2 632 909.971	DELTA 45°00'00"
PI 7	BCC	BCC	45 990.627	-2 632 589.891	RADIUS 15.0 m
	PI	ECC	45 990.627	-2 632 568.678	LENGTH 23.562 m
	ECC	CCC	46 001.234	-2 632 579.284	Tc 15.000 m
	PI	PI	45 990.020	-2 632 579.284	DELTA 90°00'00"
PI 8	BCC	BCC	46 595.505	-2 632 854.897	RADIUS 18.0 m
	PI	ECC	46 571.661	-2 632 856.126	LENGTH 26.119 m
	ECC	CCC	46 594.389	-2 632 868.854	Tc 15.964 m
	PI	PI	46 582.949	-2 632 844.838	DELTA 83°08'20"
PI 9	BCC	BCC	46 553.429	-2 632 966.700	RADIUS 30.0 m
	PI	ECC	46 546.752	-2 632 934.434	LENGTH 34.881 m
	ECC	CCC	46 525.539	-2 632 955.648	Tc 19.713 m
	PI	PI	46 560.691	-2 632 948.373	DELTA 66°37'00"
PI 10	BCC	BCC	46 520.177	-2 633 028.503	RADIUS 99.2 m
	PI	ECC	46 542.250	-2 632 994.911	LENGTH 40.475 m
	ECC	CCC	46 450.047	-2 632 958.373	Tc 20.523 m
	PI	PI	46 534.689	-2 633 013.990	DELTA 23°23'00"
PI 11	BCC	BCC	46 457.874	-2 633 069.596	RADIUS 15.0 m
	PI	ECC	46 479.084	-2 633 069.596	LENGTH 23.558 m
	ECC	CCC	46 468.479	-2 633 058.991	Tc 14.998 m
	PI	PI	46 468.479	-2 633 080.201	DELTA 90°00'00"

START AND END POINTS				
ROAD	LENGTH	DIRECTION	START POINT	END POINT
ROAD 1 START	347.105	S45° 00' 00.00"W	46290.8737	-2632418.3379
ROAD 1 IM 1			46045.4337	-2632863.7779
ROAD 1 IM 2	124.042	N90° 00' 00.00"E	46210.7443	-2632911.4469
ROAD 1 END			46334.7864	-2632911.4469
ROAD 2 START	91.000	N45° 00' 00.00"W	46054.9738	-2632654.2378
ROAD 2 IM 1			45990.6270	-2632589.8911
ROAD 2 IM 2	32.000	N45° 00' 00.00"E	45990.6270	-2632568.6779
ROAD 2 END			46013.2545	-2632546.0505
ROAD 3 START	97.980	N45° 00' 00.00"W	46462.1022	-2632805.9437
ROAD 3 END			46392.8195	-2632875.2264
ROAD 4 START	32.715	N45° 00' 00.00"W	46403.2672	-2632818.5127
ROAD 4 END			46426.4002	-2632841.6457
ROAD 5 START	127.948	N45° 00' 00.00"W	46541.9687	-2632885.8102
ROAD 5 END			46451.4956	-2632795.3371
ROAD 6 START	285.293	S45° 00' 08.20"W	46369.9206	-2633057.8505
ROAD 6 IM 1			46571.6609	-2632856.1263
ROAD 6 IM 2	52.157	N51° 51' 42.98"W	46595.5049	-2632854.6967
ROAD 6 END			46636.5279	-2632886.9069
ROAD 7 START	56.609	S45° 05' 45.08"E	46391.1858	-2632956.5326
ROAD 7 END			46431.2816	-2632996.4945
ROAD 8 START	19.619	N45° 00' 00.00"W	46485.6708	-2632914.3648
ROAD 8 IM 1			46499.5437	-2632928.2378
ROAD 8 IM 2	19.613	N45° 00' 00.00"E	46485.6708	-2632857.2489
ROAD 8 END			46499.5391	-2632843.3806
ROAD 9 START	70.495	S45° 00' 00.00"E	46408.0261	-2633019.7482
ROAD 9 IM 1			46457.8736	-2633069.5957
ROAD 9 IM 2	37.762	N45° 00' 00.00"W	46546.7524	-2632934.4343
ROAD 9 END			46520.0506	-2632907.7326
ROAD 10 START	11.278	N45° 00' 00.00"W	46073.9223	-2632701.7735
ROAD 10 END			46065.9478	-2632709.7479
ROAD 11 START	7.984	N45° 00' 00.00"W	46143.2472	-2632840.1144
ROAD 11 END			46137.6016	-2632845.7600
ROAD 12 START	26.353	S00° 00' 00.00"E	46259.4684	-2632885.0935
ROAD 12 END			46259.4684	-2632911.4469

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CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1500	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2504	2	

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CLIENT

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NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
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T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

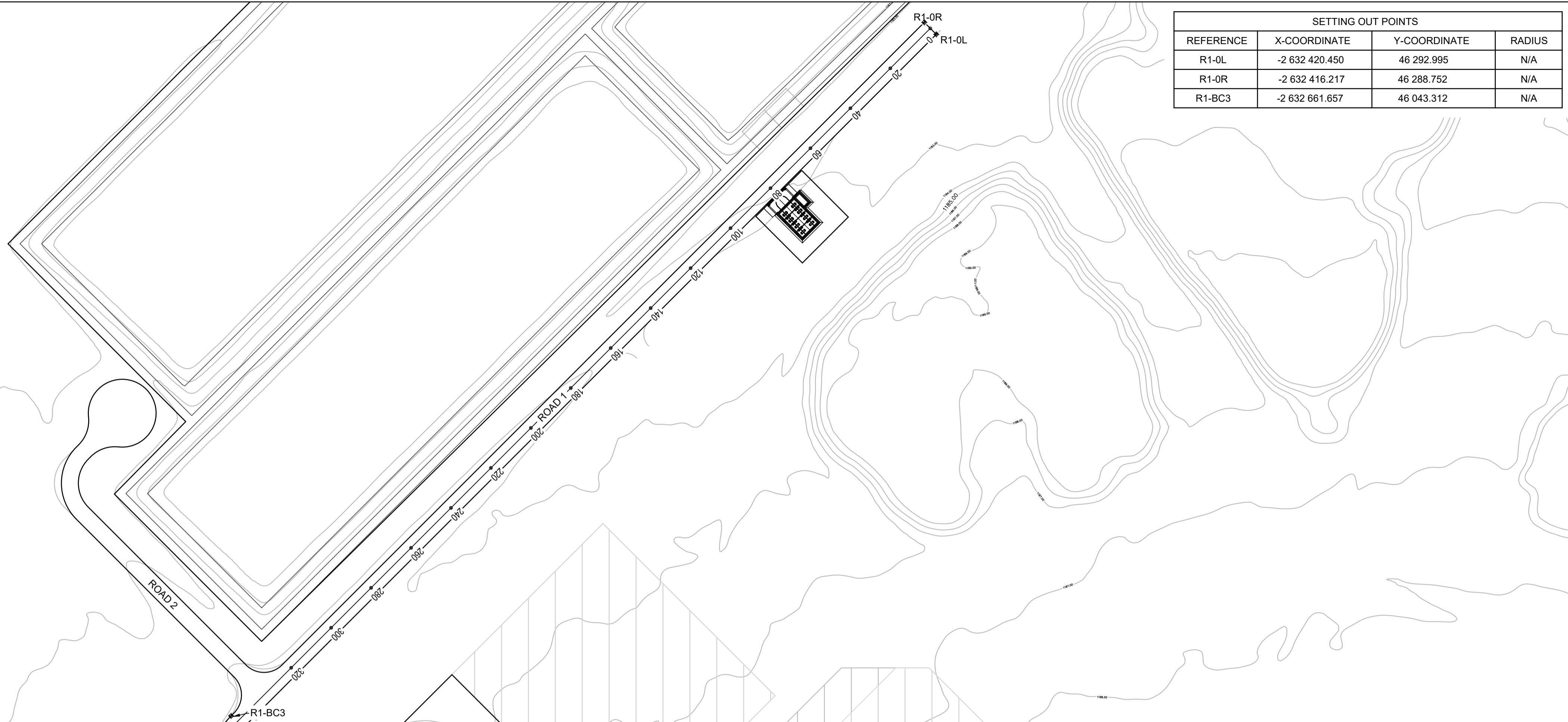
CLIENT _____ DATE _____

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

GEOMETRIC LAYOUT ROAD CENTERLINE



SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R1-OL	-2 632 420.450	46 292.995	N/A
R1-OR	-2 632 416.217	46 288.752	N/A
R1-BC3	-2 632 661.657	46 043.312	N/A

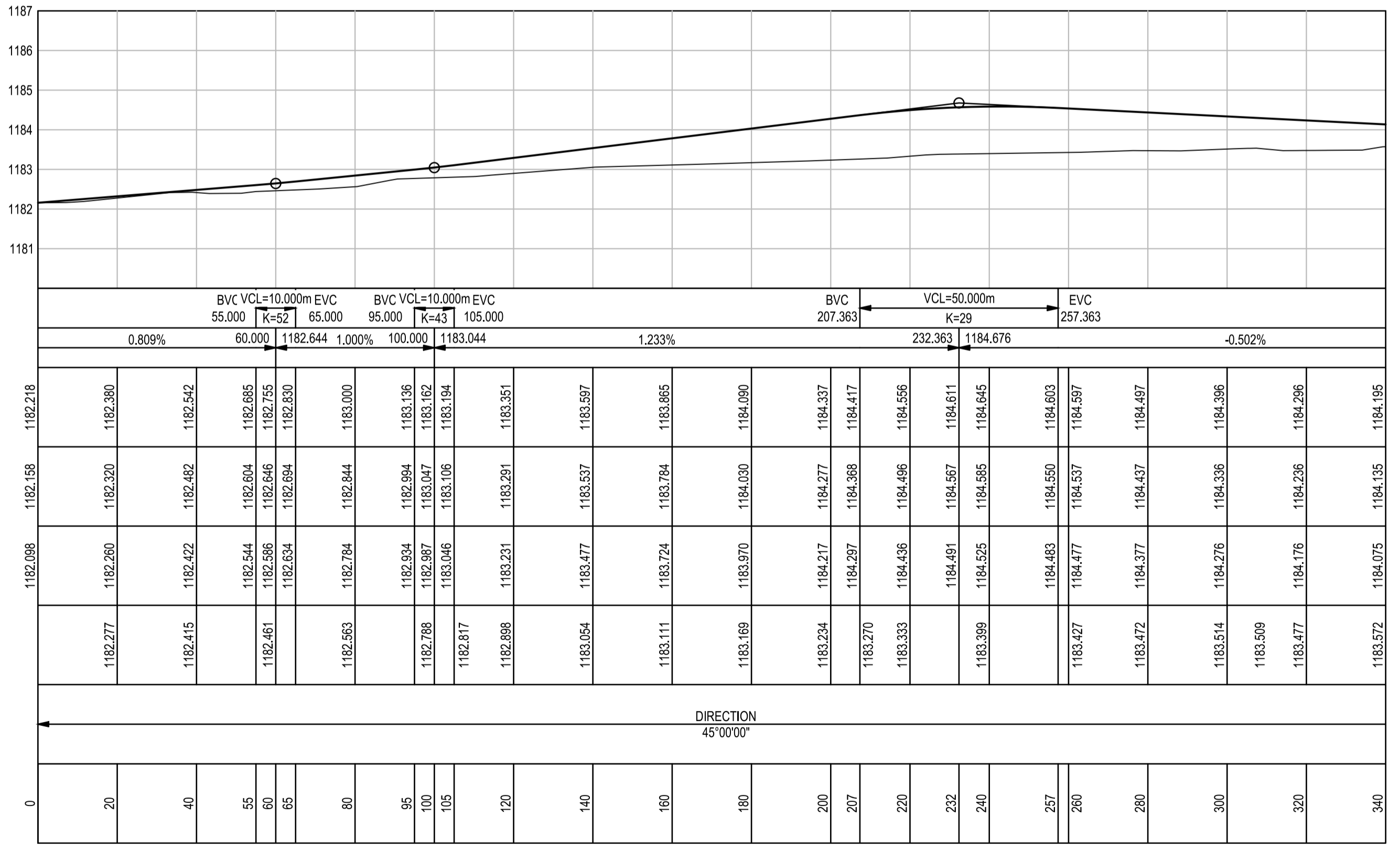
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ROAD 1 LAYOUT
SCALE 1:1000

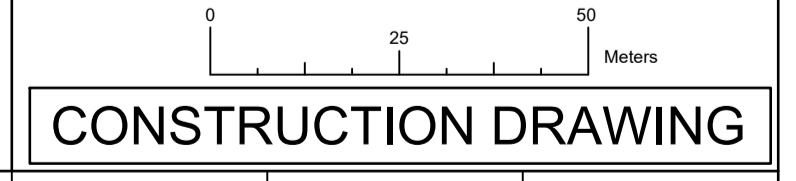
LEGEND
 NGL
 ROAD CENTRELINE
SCALES:
 Horizontal 1:1000
 Vertical 1:100

DATUM 1180.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	



ROAD 1 LONGSECTION
Chainage 0m to 340m



CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2510	1	

- NOTES**
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CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE	
NO.	DATE
00	2023-05
	ISSUED FOR CONSTRUCTION

T BANDA ENGINEER

PR ENG no. _____ DATE _____

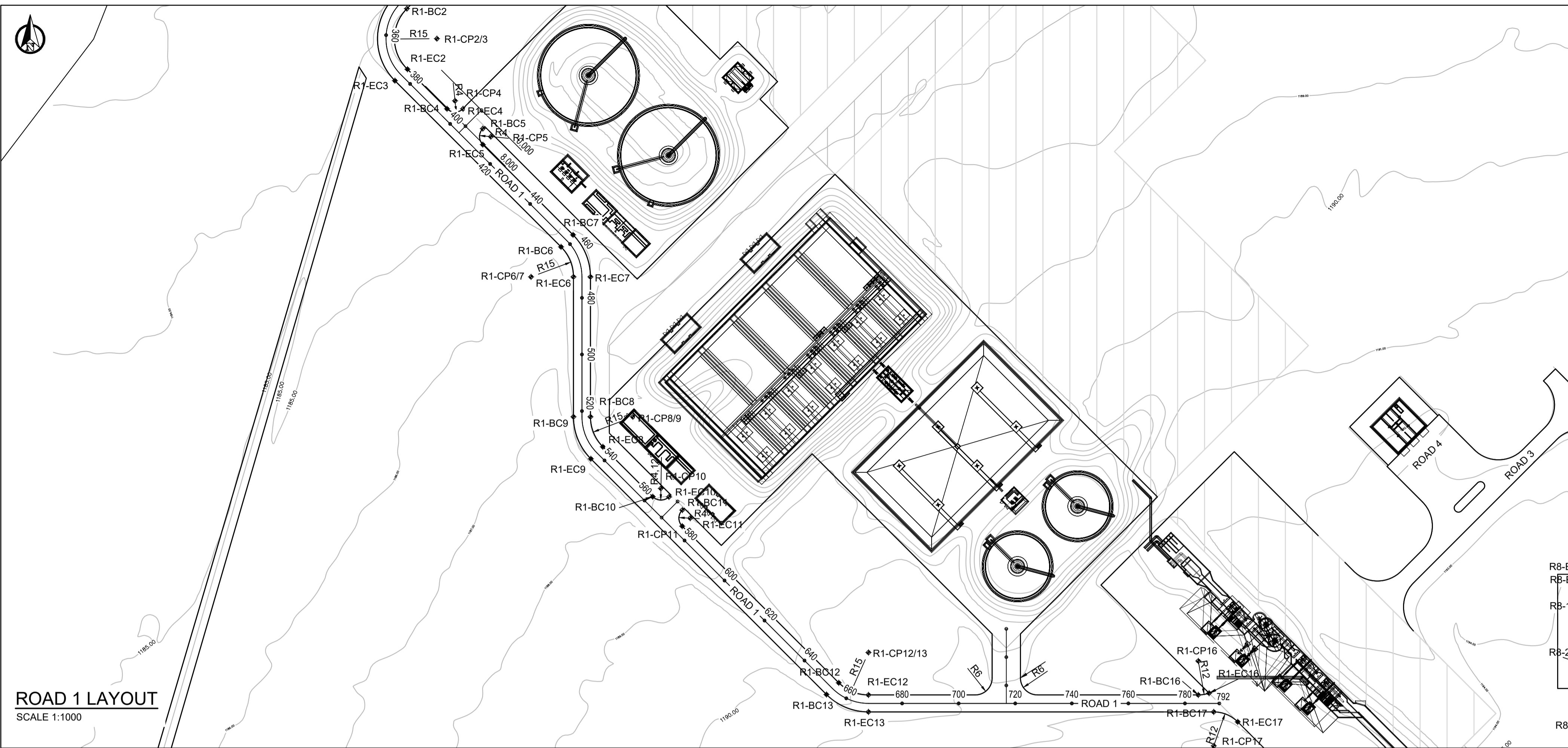
CLIENT _____ DATE _____

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

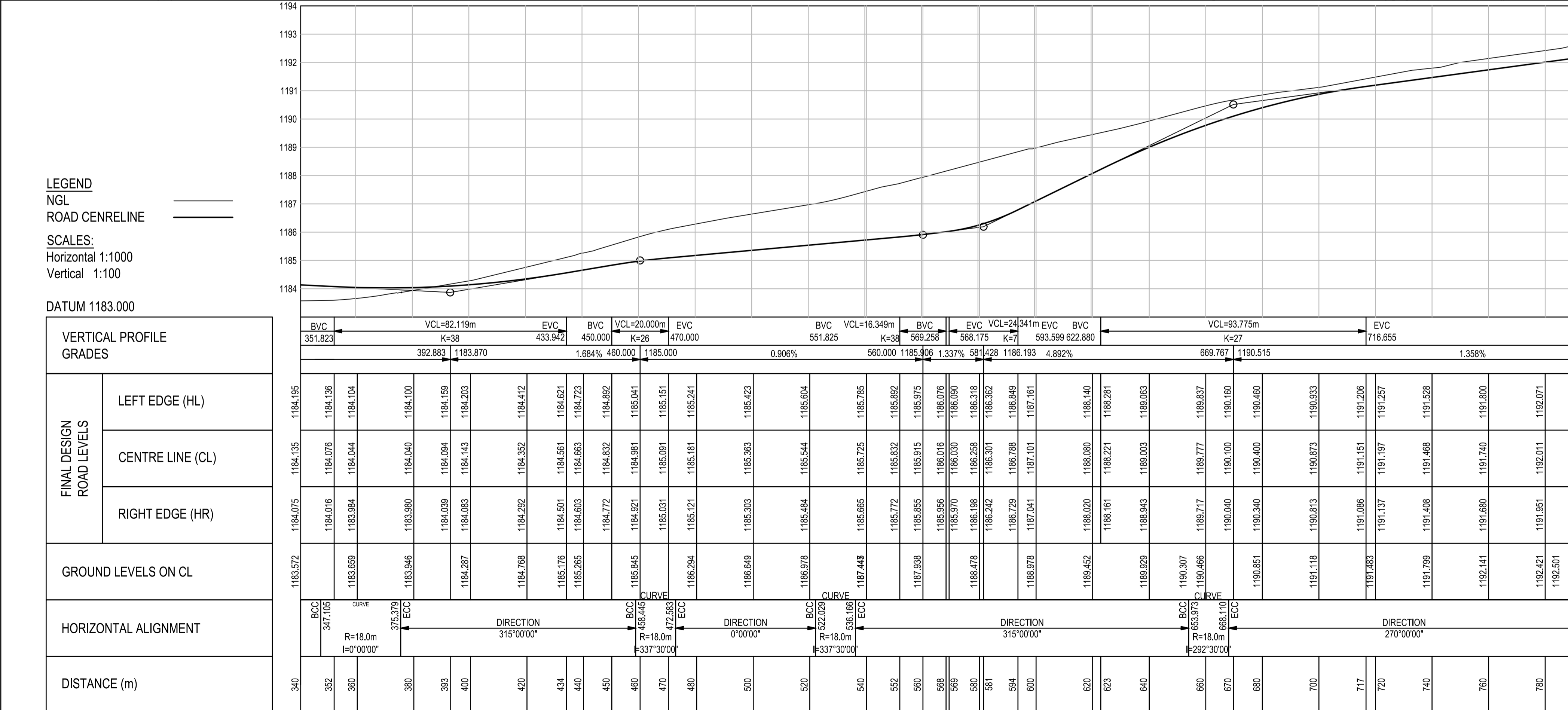
ROAD 1 LONGSECTION SHEET 1 OF 2



ROAD 1 LAYOUT
SCALE 1:1000

SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R1-BC2	-2632665.8992	46047.5550	
R1-CP2/3	-2632676.5058	46058.1616	15/21m
R1-EC2	-2632687.3087	46047.7513	
R1-BC3	-2632661.6566	46043.3123	
R1-EC3	-2632691.3551	46043.3123	
R1-BC4	-2632701.2980	46061.7406	
R1-CP4	-2632698.4696	46064.5690	4m
R1-EC4	-2632701.3048	46067.3906	
R1-BC5	-2632708.2984	46074.3978	
R1-CP5	-2632711.1268	46077.2262	4m
R1-EC5	-2632713.9552	46074.3978	
R1-BC6	-2632750.0919	46102.0492	
R1-CP6	-2632760.6985	46091.4426	15/21m
R1-EC6	-2632760.6985	46106.4426	
R1-BC7	-2632745.8493	46106.2918	
R1-EC7	-2632760.6985	46112.4426	
R1-BC8	-2632810.1452	46112.4426	
R1-CP8/9	-2632810.1452	46127.4426	15/21m
R1-EC8	-2632820.7518	46116.8360	
R1-BC9	-2632810.1452	46106.4426	
R1-EC9	-2632824.9944	46112.5933	
R1-BC10	-2632838.3900	46134.4741	
R1-CP10	-2632835.4531	46137.3246	4m
R1-EC10	-2632838.4472	46140.2034	
R1-BC11	-2632843.1028	46144.9286	
R1-CP11	-2632845.9733	46147.7143	4m
R1-EC11	-2632848.7891	46144.8733	
R1-BC12	-2632904.1612	46200.2465	
R1-CP12/13	-2632893.4469	46210.7443	15/21m
R1-EC12	-2632908.4469	46210.7443	
R1-BC13	-2632908.2962	46195.8951	
R1-EC13	-2632914.4469	46210.7443	
R1-BC14	-2632908.4469	46248.4684	
R1-CP14	-2632899.0850	46245.8188	6m
R1-EC14	-2632902.4469	46254.4684	
R1-BC15	-2632902.4469	46264.4684	
R1-CP15	-2632900.0533	46274.0161	6m
R1-EC15	-2632908.4469	46270.4684	
R1-BC16	-2632908.4469	46327.3479	
R1-CP16	-2632896.4469	46327.3479	12m
R1-EC16	-2632907.8241	46331.1636	
R1-BC17	-2632914.4469	46332.8159	
R1-CP17	-2632926.4469	46332.8159	12m
R1-EC17	-2632917.9569	46341.2964	

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LEGEND
 NGL ———
 ROAD CENTRELINE ———

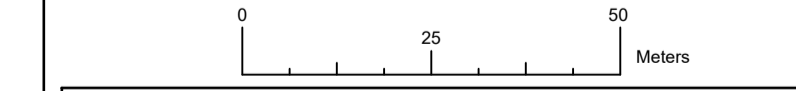
SCALES:
 Horizontal 1:1000
 Vertical 1:100

DATUM 1183.000

VERTICAL PROFILE GRADES	
BVC	351.823
EVC	433.942
BVC	450.000
EVC	470.000
BVC	551.825
EVC	569.258
BVC	568.175
EVC	593.599
BVC	669.767
EVC	716.655

STATION	LEFT EDGE (HL)	CENTRE LINE (CL)	RIGHT EDGE (HR)	GROUND LEVELS ON CL	HORIZONTAL ALIGNMENT	DISTANCE (m)
340	1184.195	1184.135	1184.075	1183.572	BVC	340
352	1184.136	1184.076	1184.016	1183.659	347.106 CURVE	352
360	1184.104	1184.044	1183.984	1183.659	R=18.0m	360
380	1184.100	1184.040	1183.980	1183.946	I=0°00'00"	380
393	1184.159	1184.094	1184.039	1184.297	375.379 EVC	393
400	1184.203	1184.143	1184.083	1184.297	DIRECTION	400
420	1184.412	1184.352	1184.292	1184.768	315°00'00"	420
434	1184.621	1184.561	1184.501	1185.176	BVC	434
440	1184.723	1184.663	1184.603	1185.285	R=18.0m	440
450	1184.892	1184.832	1184.772	1185.345	I=33°30'00"	450
460	1185.041	1184.981	1184.921	1185.345	327.029 CURVE	460
470	1185.151	1185.091	1185.031	1185.449	R=18.0m	470
480	1185.241	1185.181	1185.121	1185.294	I=33°30'00"	480
500	1185.423	1185.363	1185.303	1186.649	BVC	500
520	1185.604	1185.544	1185.484	1186.978	R=18.0m	520
540	1185.785	1185.725	1185.665	1187.448	I=33°30'00"	540
552	1185.892	1185.832	1185.772	1188.221	327.029 CURVE	552
568	1185.975	1185.915	1185.855	1188.929	R=18.0m	568
588	1186.076	1186.016	1185.956	1189.307	I=33°30'00"	588
590	1186.090	1186.030	1185.970	1189.307	BVC	590
600	1186.318	1186.258	1186.198	1190.307	R=18.0m	600
620	1186.362	1186.302	1186.242	1190.466	I=292°30'00"	620
633	1186.140	1186.080	1186.020	1191.118	BVC	633
640	1188.281	1188.221	1188.161	1191.086	R=18.0m	640
660	1189.837	1189.777	1189.717	1191.488	I=292°30'00"	660
670	1190.160	1190.100	1190.040	1191.488	BVC	670
680	1190.460	1190.400	1190.340	1191.488	R=18.0m	680
700	1190.833	1190.873	1190.813	1191.799	I=292°30'00"	700
717	1191.206	1191.151	1191.096	1192.141	BVC	717
720	1191.257	1191.197	1191.137	1192.141	R=18.0m	720
740	1191.528	1191.468	1191.408	1192.221	I=292°30'00"	740
760	1191.800	1191.740	1191.680	1192.501	BVC	760
780	1192.071	1192.011	1191.951	1192.501	R=18.0m	780
792	1192.238	1192.176	1192.116	1192.501	I=292°30'00"	792

ROAD 1 LONGSECTION



CONSTRUCTION DRAWING

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CITY OF Polokwane
 NATURALLY PROGRESSIVE

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T BANDA
 ENGINEER

PR ENG no. --- DATE ---

CLIENT --- DATE ---

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

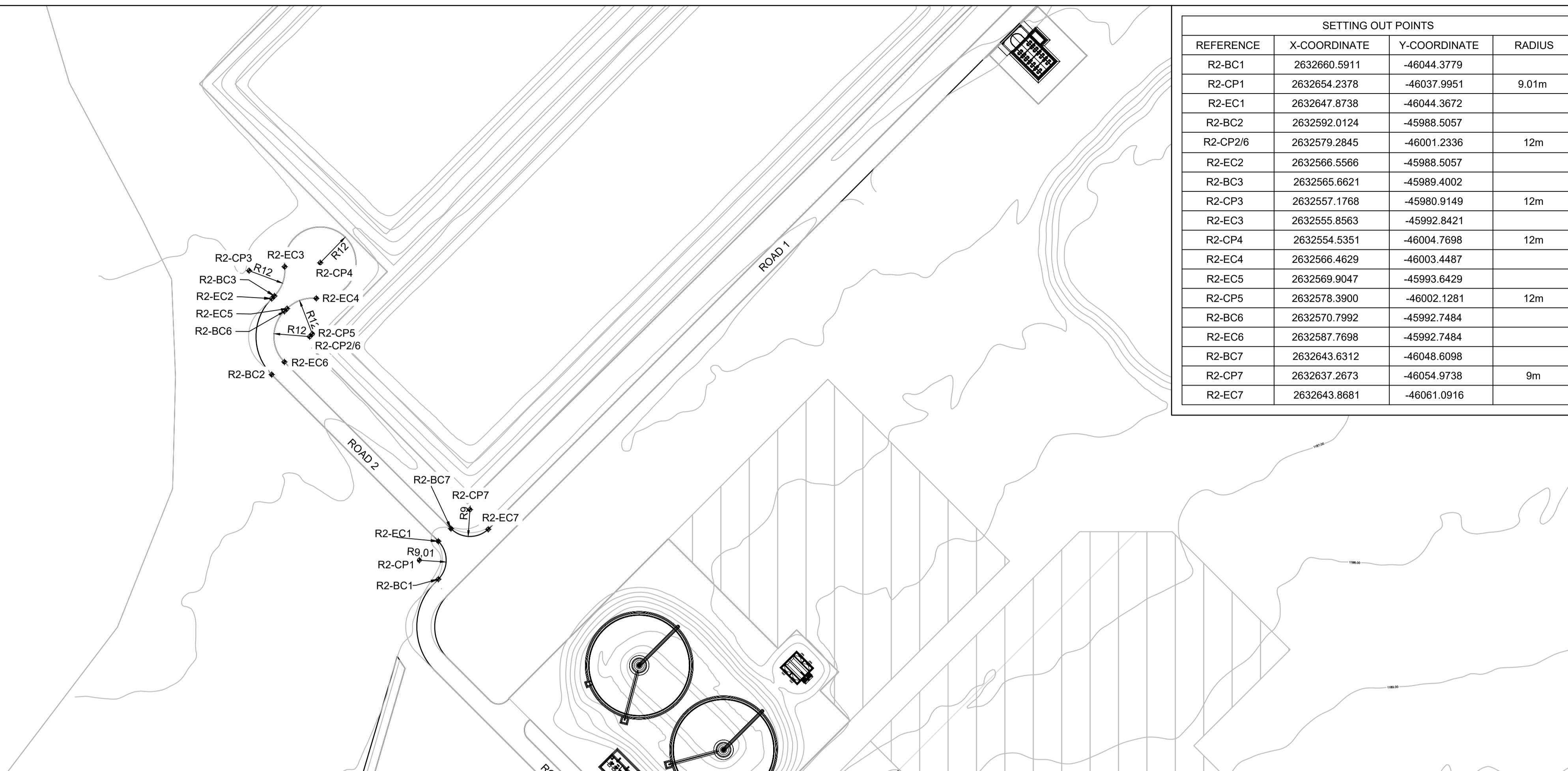
DRAWING DESCRIPTION

ROAD 1 LONGSECTION SHEET 2 OF 2

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2511	1	



ROAD 2 LAYOUT
SCALE 1:1000



SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R2-BC1	2632660.5911	-46044.3779	
R2-CP1	2632654.2378	-46037.9951	9.01m
R2-EC1	2632647.8738	-46044.3672	
R2-BC2	2632592.0124	-45988.5057	
R2-CP2/6	2632579.2845	-46001.2336	12m
R2-EC2	2632566.5566	-45988.5057	
R2-BC3	2632565.6621	-45989.4002	
R2-CP3	2632557.1768	-45980.9149	12m
R2-EC3	2632555.8563	-45992.8421	
R2-CP4	2632554.5351	-46004.7698	12m
R2-EC4	2632566.4629	-46003.4487	
R2-EC5	2632569.9047	-45993.6429	
R2-CP5	2632578.3900	-46002.1281	12m
R2-BC6	2632570.7992	-45992.7484	
R2-EC6	2632587.7698	-45992.7484	
R2-BC7	2632643.6312	-46048.6098	
R2-CP7	2632637.2673	-46054.9738	9m
R2-EC7	2632643.8681	-46061.0916	

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LEGEND

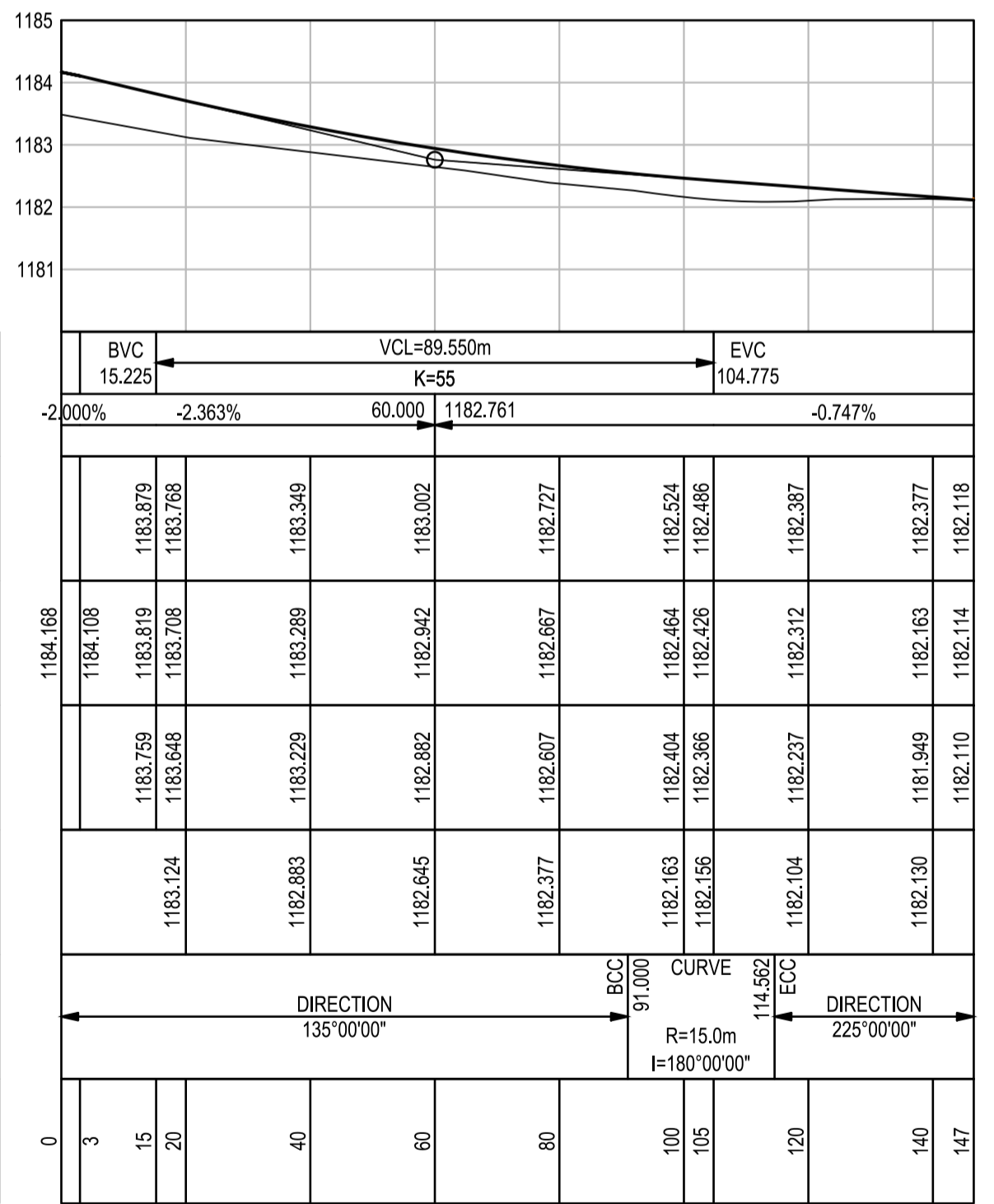
NGL _____

ROAD CENTRELINE _____

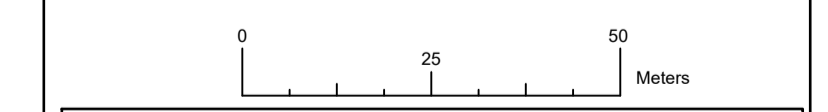
SCALES:
Horizontal 1:1000
Vertical 1:100

DATUM 1180.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	



ROAD 2 LONGSECTION



CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2512	0	

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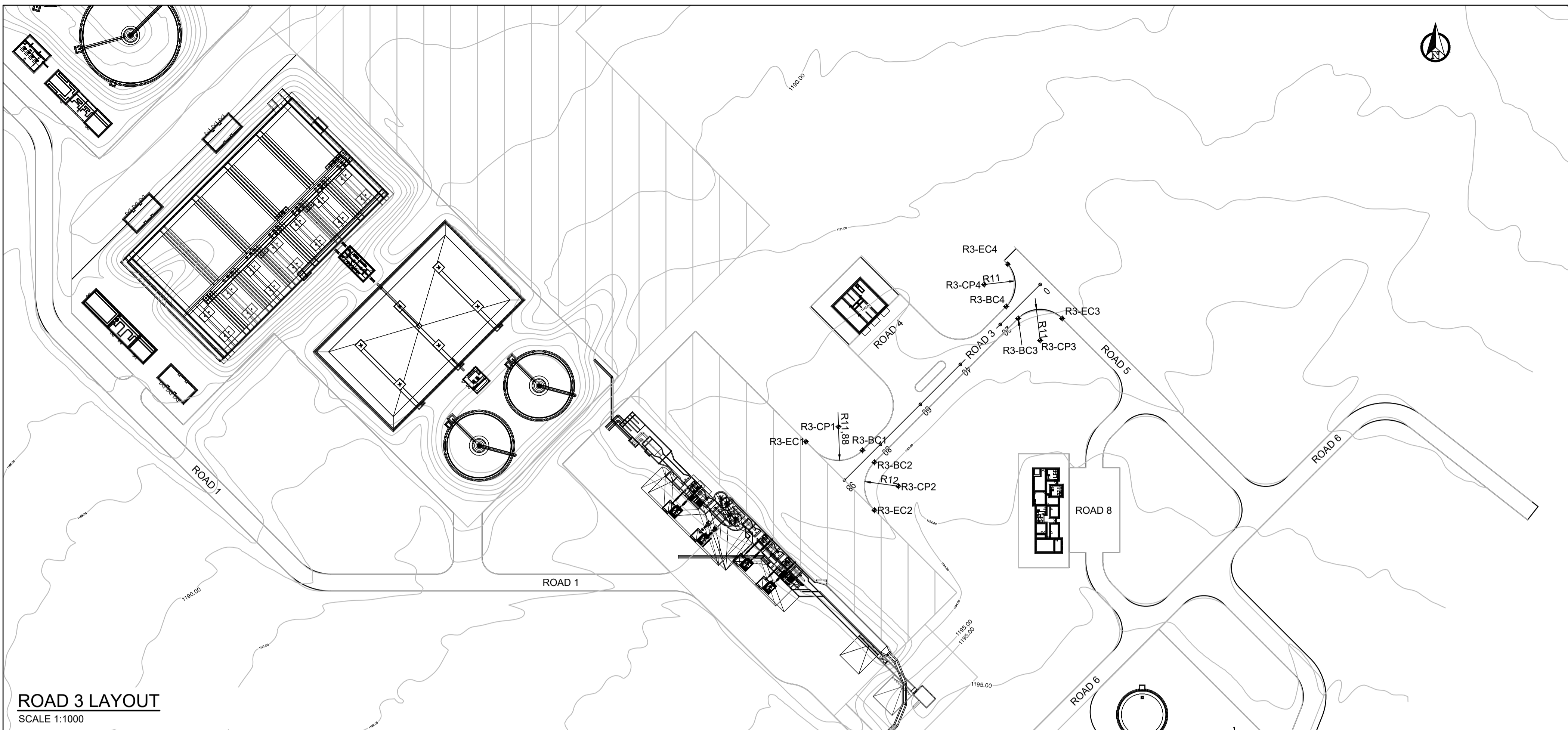
CLIENT _____ DATE _____

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

ROAD 2 LONGSECTION



SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R3-BC1	2632864.6198	-46399.1835	
R3-CP1	2632856.3069	-46390.6982	11.88m
R3-EC1	2632861.5862	-46379.1793	
R3-BC2	2632868.8624	-46403.4261	
R3-CP2	2632877.3477	-46411.9114	12m
R3-EC2	2632885.8330	-46403.4261	
R3-BC3	2632817.9634	-46454.3251	
R3-CP3	2632825.7427	-46462.1022	11m
R3-EC3	2632817.9645	-46469.8804	
R3-BC4	2632813.7219	-46450.0814	
R3-CP4	2632805.9437	-46442.3016	11m
R3-EC4	2632798.7474	-46450.6226	

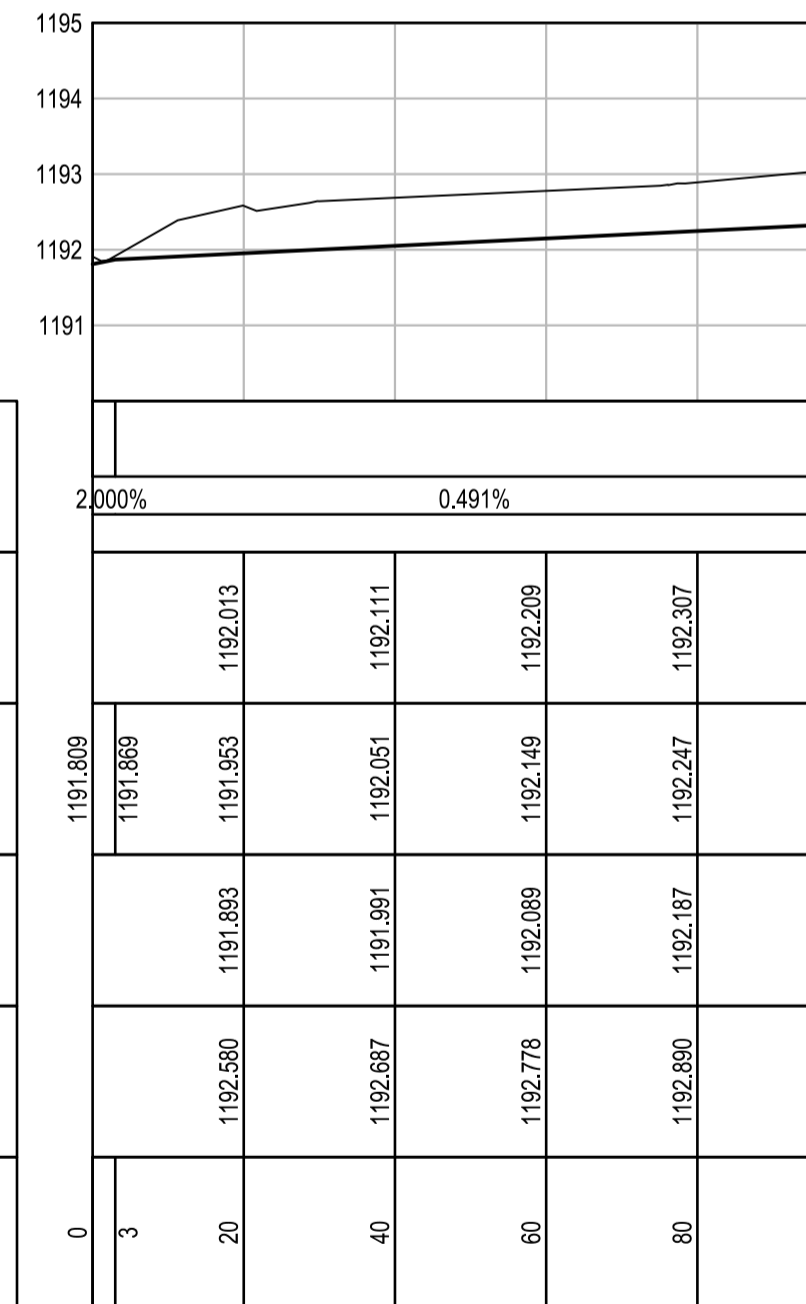
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ROAD 3 LAYOUT
SCALE 1:1000

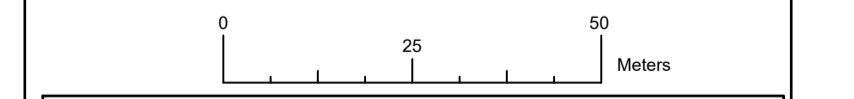
LEGEND
 NGL ———
 ROAD CENRELINE ———
 SCALES:
 Horizontal 1:1000
 Vertical 1:100

DATUM 1190.000

VERTICAL PROFILE GRADES						
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)					
	CENTRE LINE (CL)					
	RIGHT EDGE (HR)					
GROUND LEVELS ON CL						
DISTANCE (m)						



ROAD 3 LONGSECTION



CONSTRUCTION DRAWING

NOTES

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CLIENT _____ DATE _____

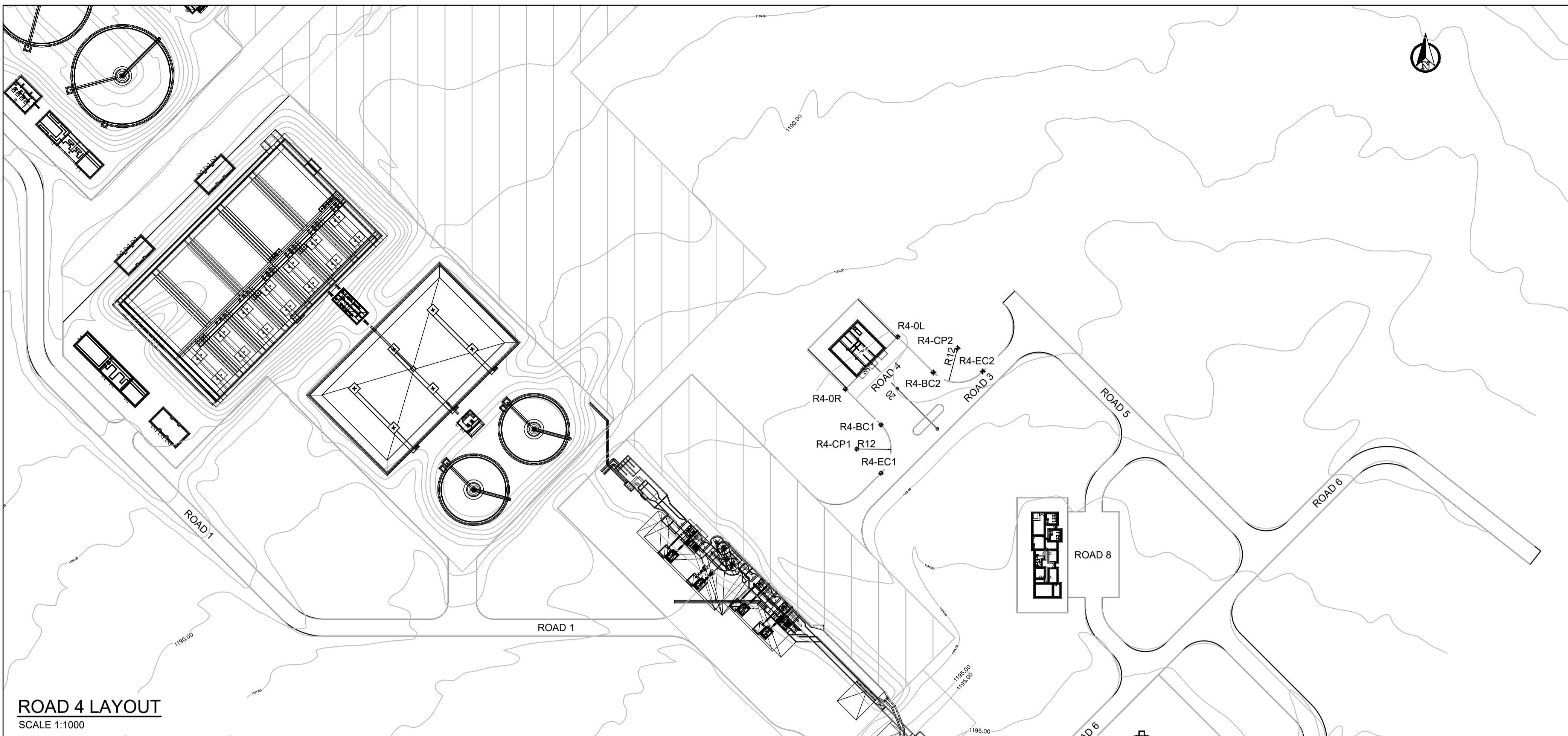
PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

ROAD 3 LONGSECTION

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2513	0	



ROAD 4 LAYOUT
SCALE 1:1000

SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R4-0L	2632809.3203	-46412.4596	
R4-0R	2632827.7051	-46394.0748	
R4-BC1	2632840.2315	-46406.6012	
R4-CP1	2632848.7168	-46398.1159	12m
R4-EC1	2632857.2020	-46406.6012	
R4-BC2	2632821.8467	-46424.9860	
R4-CP2	2632813.3614	-46433.4712	12m
R4-EC2	2632821.4809	-46442.3223	

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ROAD 4 LONGSECTION



CONSTRUCTION DRAWING

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NO.	DATE	REVISION DESCRIPTION
00	2023-05	ISSUED FOR CONSTRUCTION

T BANDA ENGINEER
PR ENG no. DATE

CLIENT DATE

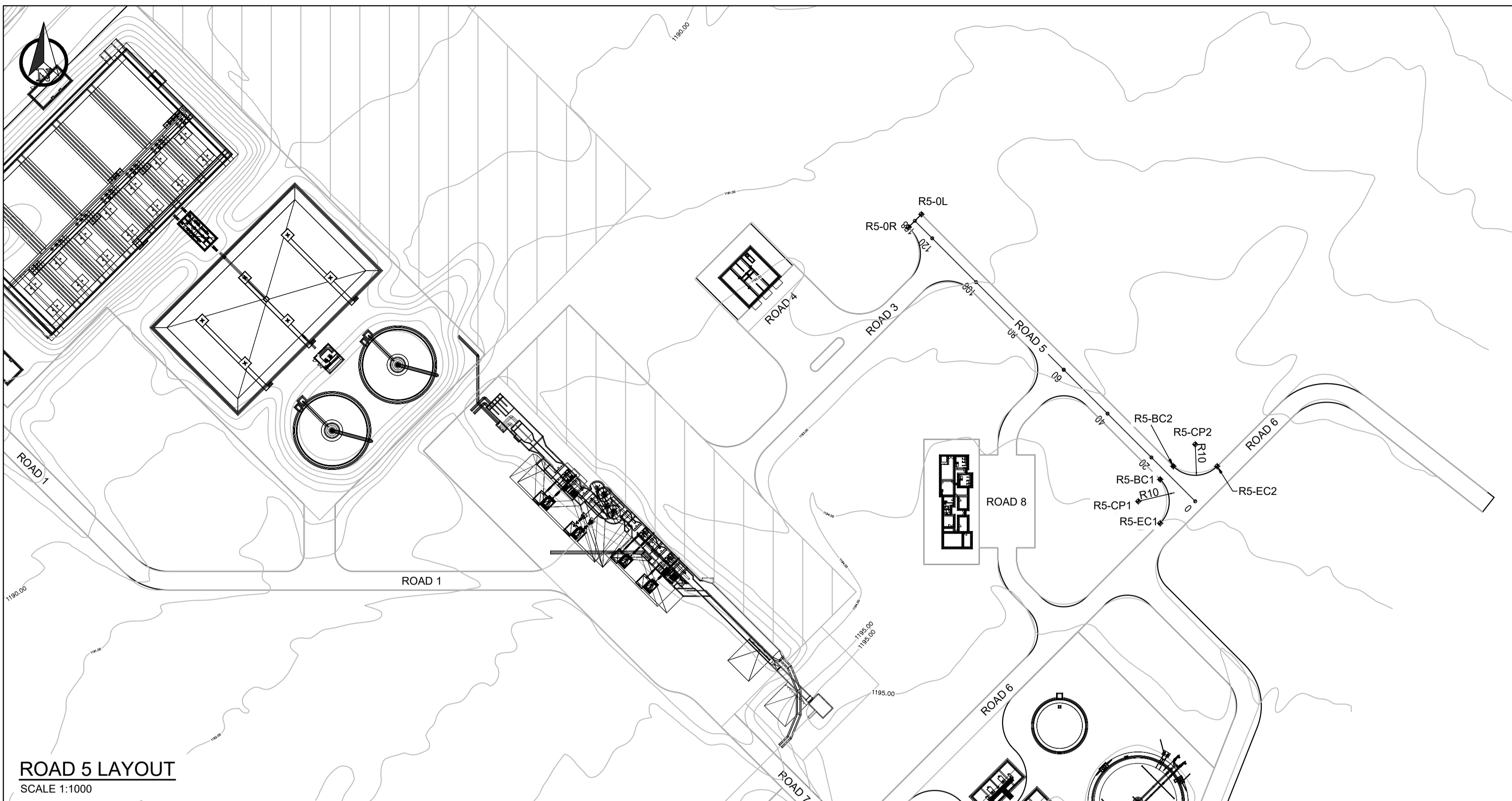
PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

ROAD 4 LONGSECTION

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2514	0	



SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R5-OL	2632793.2158	-46453.6169	
R5-OR	2632797.4584	-46449.3743	
R5-BC1	2632878.7413	-46530.6571	
R5-CP1	2632885.8123	-46523.5860	10m
R5-EC1	2632892.8907	-46530.6497	
R5-BC2	2632874.4998	-46534.9009	
R5-CP2	2632867.4288	-46541.9720	10m
R5-EC2	2632874.5002	-46549.0427	

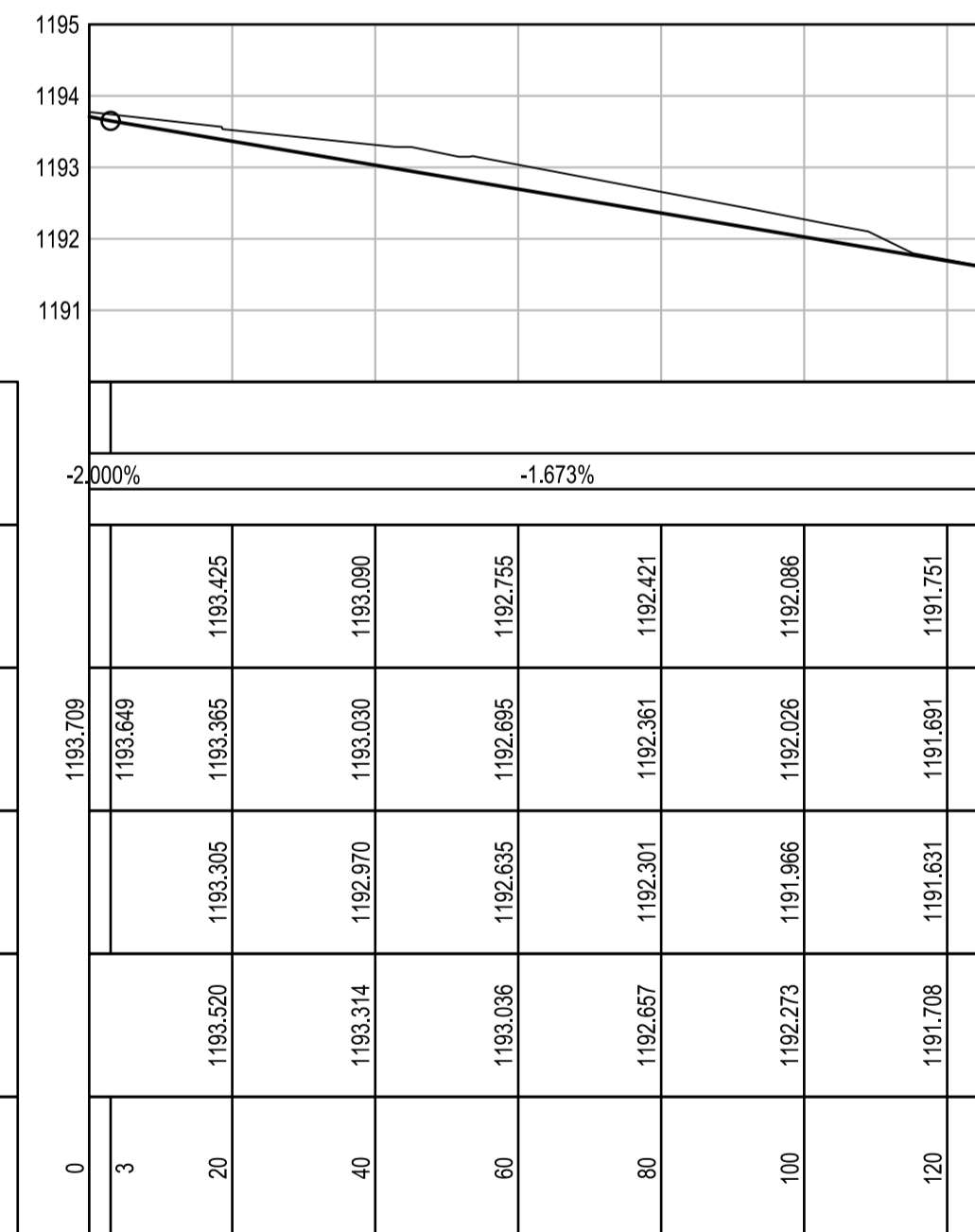
- NOTES AND SPECIFICATIONS
- GENERAL
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ROAD 5 LAYOUT
SCALE 1:1000

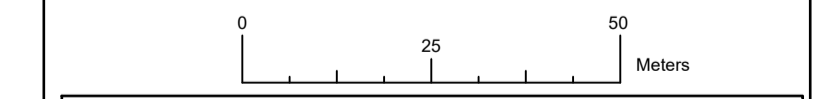
LEGEND
 NGL _____
 ROAD CENTRELINE _____
SCALES:
 Horizontal 1:1000
 Vertical 1:100

DATUM 1180.000

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
DISTANCE (m)	



ROAD 5 LONGSECTION



CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2515	0	

- NOTES**
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ZAKUMI
Consulting Engineers

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WEBSITE: www.zce.co.za
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 FAX: +27 15 291 1993

CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE

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T BANDA
ENGINEER

PR ENG no. _____ DATE _____

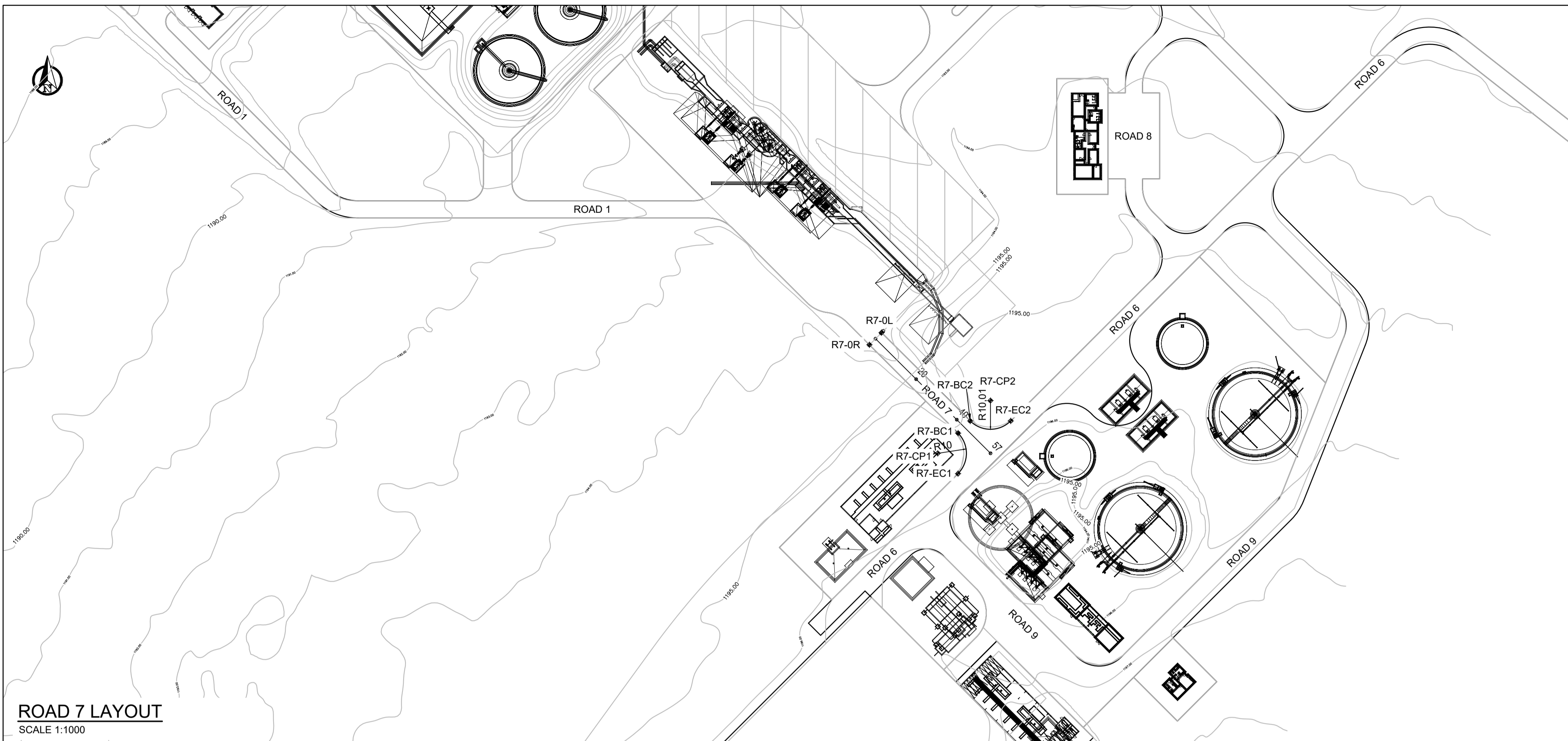
CLIENT _____ DATE _____

PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

ROAD 5 LONGSECTION



SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R7-0L	2632954.4095	-46393.3054	
R7-0R	2632958.6522	-46389.0627	
R7-BC1	2632989.4669	-46419.9810	10m
R7-CP1	2632996.5098	-46412.8812	
R7-EC1	2633003.5817	-46419.9515	
R7-BC2	2632985.2049	-46424.2039	
R7-CP2	2632978.1138	-46431.2666	10.01m
R7-EC2	2632985.1998	-46438.3343	

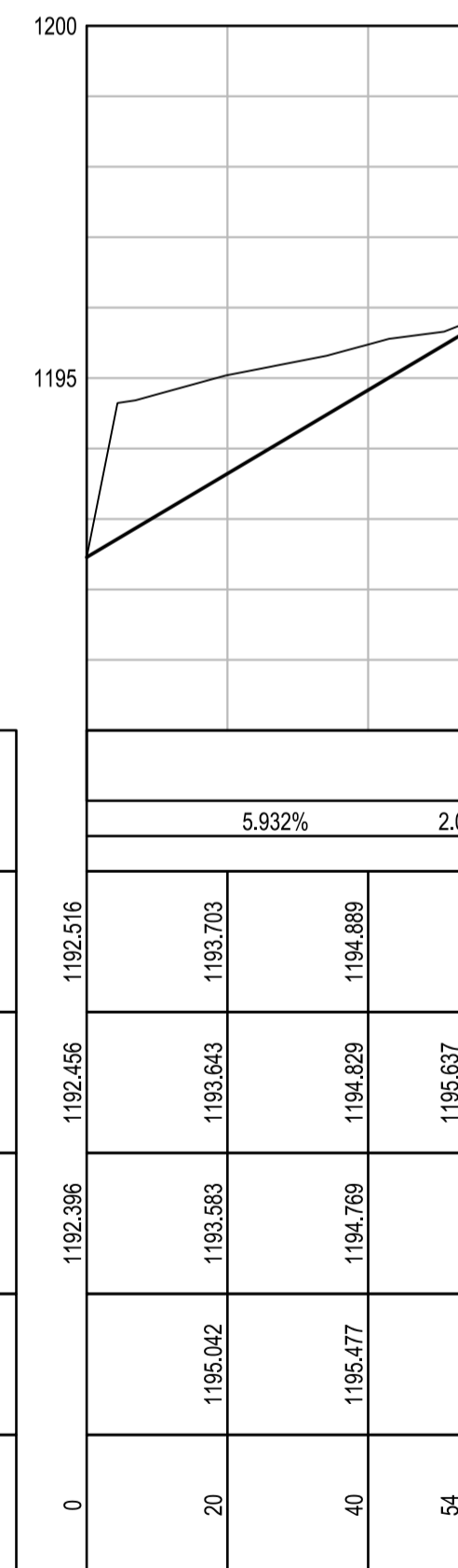
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ROAD 7 LAYOUT
SCALE 1:1000

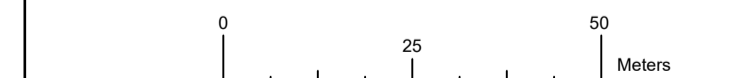
LEGEND
 NGL _____
 ROAD CENRELINE = = = = =
SCALES:
 Horizontal 1:1000
 Vertical 1:100

DATUM 1190.000

VERTICAL PROFILE GRADES			
		5.932%	2.0%
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)	1192.516	1193.703
	CENTRE LINE (CL)	1192.456	1193.643
	RIGHT EDGE (HR)	1192.396	1194.829
GROUND LEVELS ON CL		1195.042	1195.477
DISTANCE (m)		0	54.57



ROAD 7 LONGSECTION



CONSTRUCTION DRAWING

NOTES

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T BANDA
ENGINEER

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CLIENT _____ DATE _____

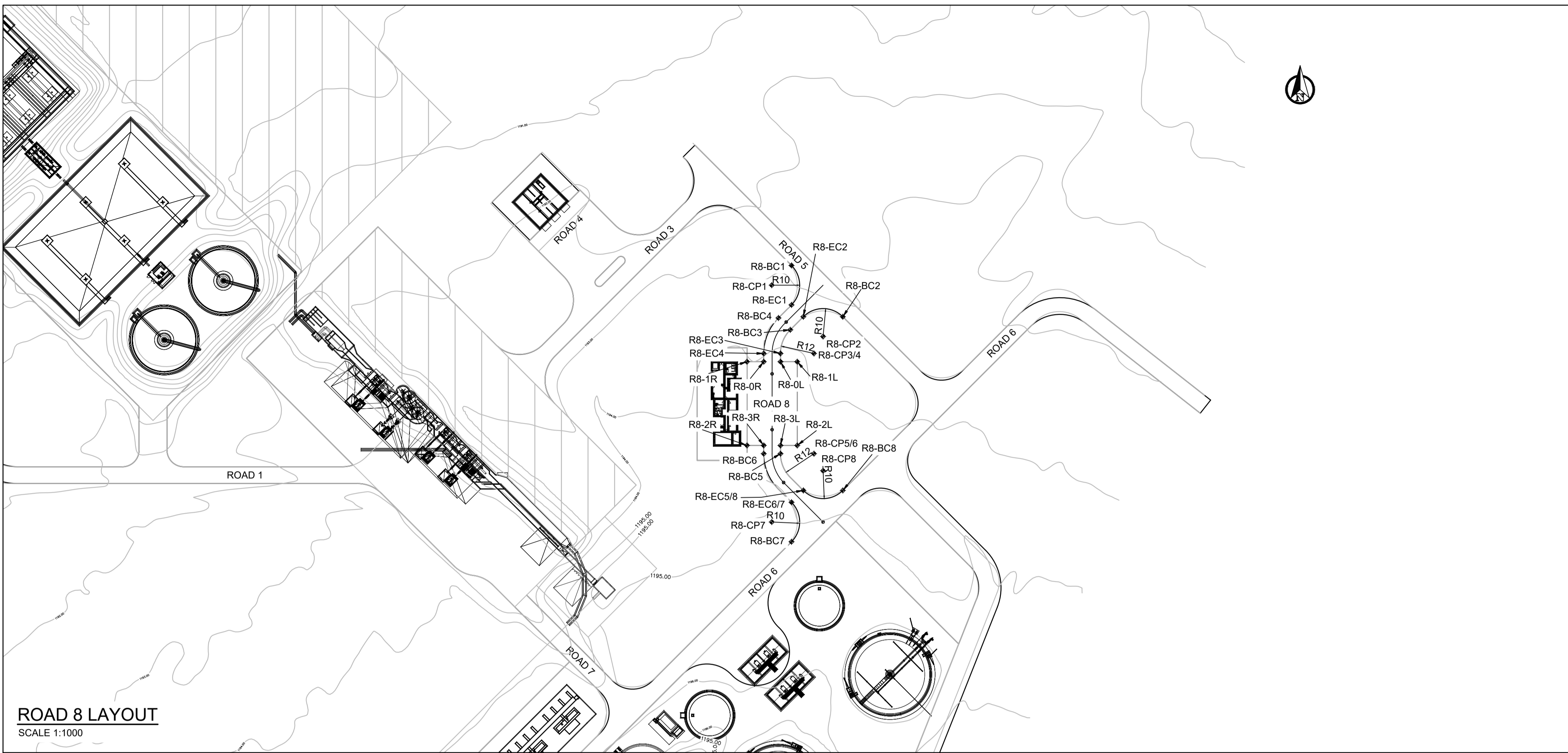
PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

ROAD 7 LONGSECTION

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2517	0	

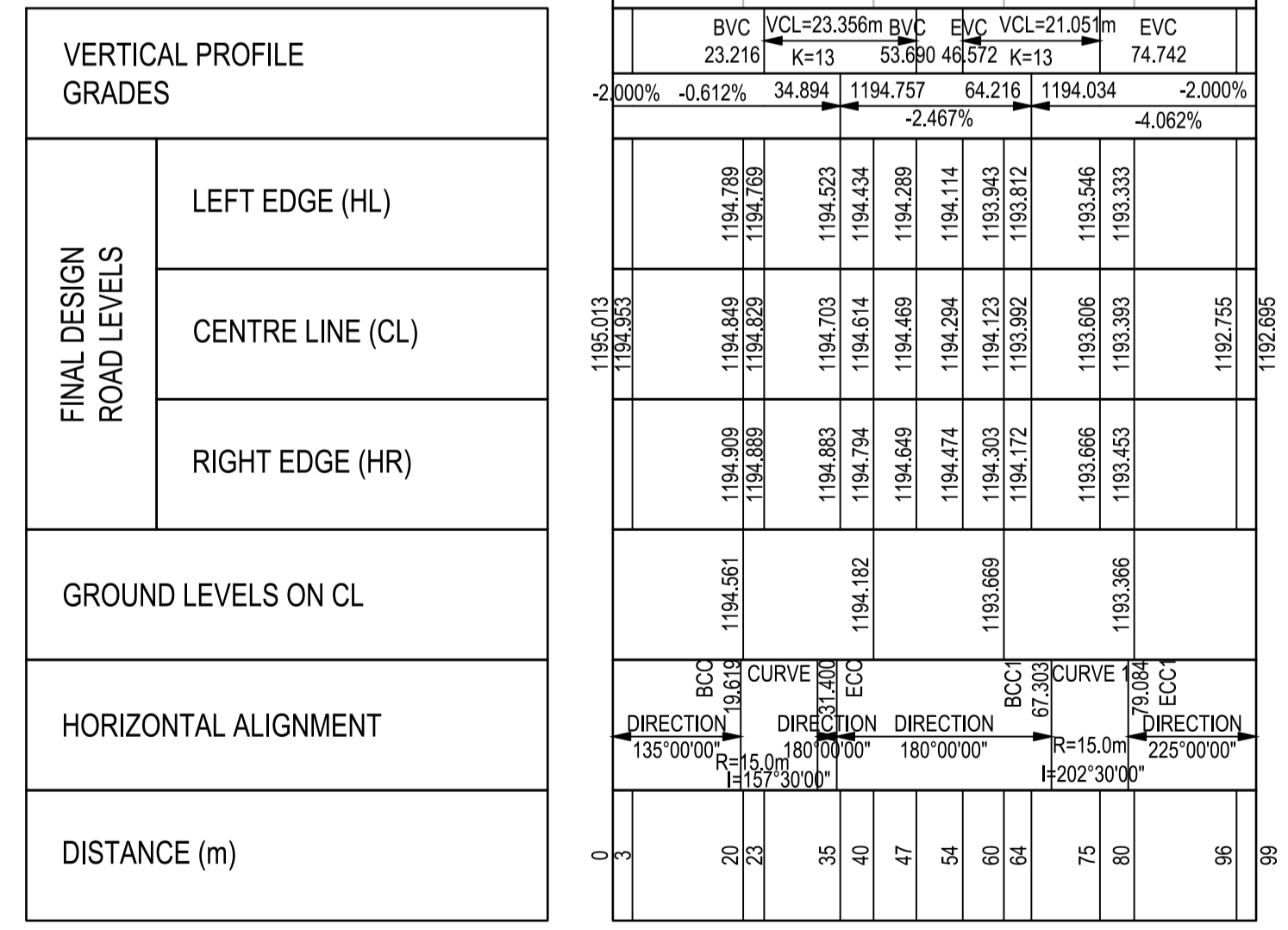


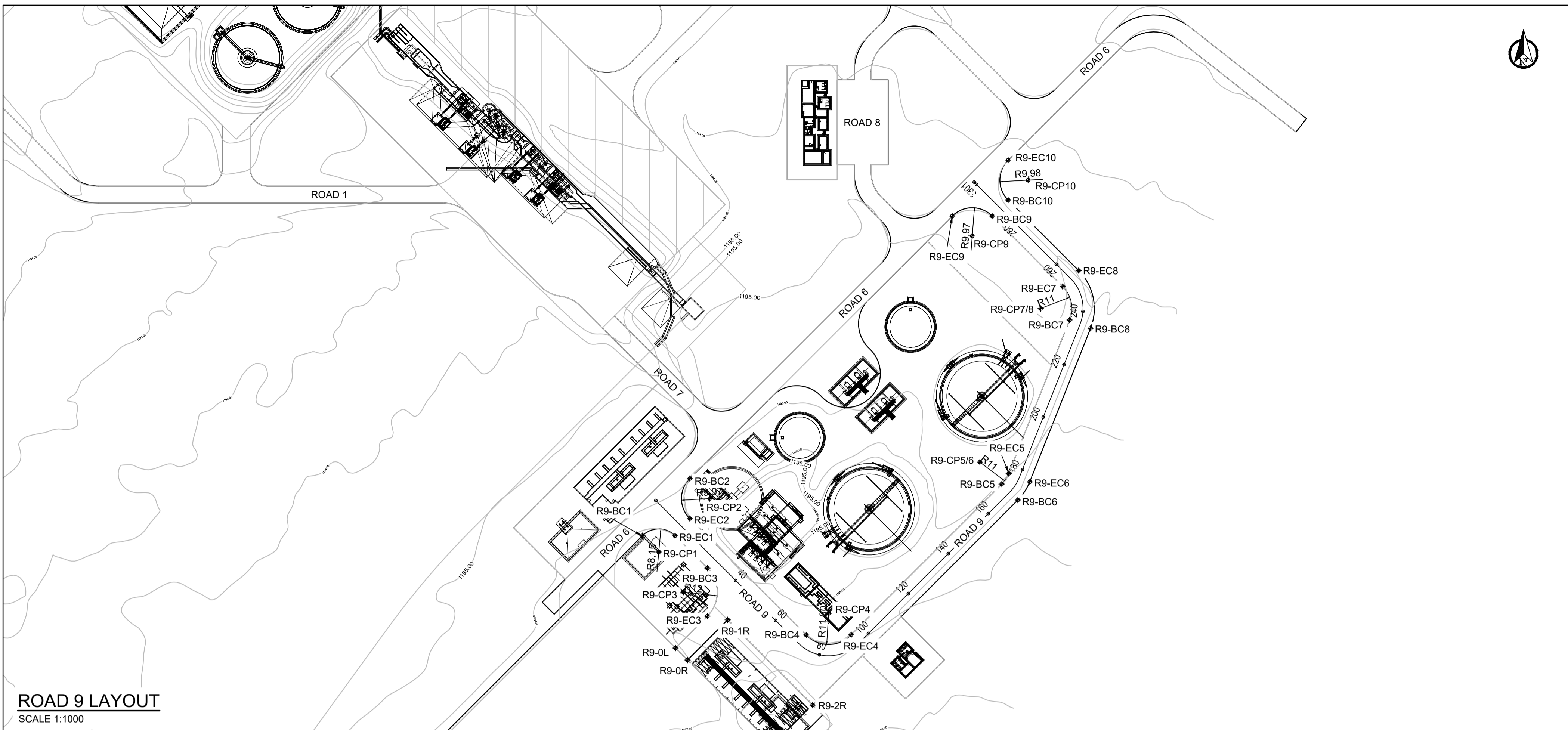
SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R8-BC1	2632836.3096	-46488.2254	
R8-CP1	2632843.3806	-46481.1543	10m
R8-EC1	2632850.4516	-46488.2253	
R8-BC2	2632854.6943	-46506.6101	
R8-CP2	2632861.7653	-46499.5391	10m
R8-EC2	2632854.6943	-46492.4680	
R8-BC3	2632859.3702	-46487.7921	
R8-CP3/4	2632867.8555	-46496.2774	12m
R8-EC3	2632867.8555	-46484.2774	
R8-BC4	2632855.1275	-46483.5494	
R8-EC4	2632867.8555	-46478.2774	
R8-OL	2632870.8070	-46484.2774	
R8-1L	2632870.8070	-46490.2774	
R8-OR	2632870.8070	-46478.2774	
R8-1R	2632870.8070	-46472.2774	
R8-2L	2632900.8070	-46484.2774	
R8-3L	2632900.8070	-46490.2774	
R8-2R	2632900.8070	-46478.2774	
R8-3R	2632900.8070	-46472.2774	
R8-BC5	2632903.7582	-46484.2774	
R8-CP5/6	2632903.7582	-46496.2774	12m
R8-EC5/8	2632916.9244	-46492.4730	
R8-BC6	2632903.7582	-46478.2774	
R8-EC6/7	2632921.1664	-46488.2297	
R8-BC7	2632935.3087	-46488.2293	
R8-CP7	2632928.2374	-46481.1586	10m
R8-BC8	2632916.9245	-46506.6150	
R8-CP8	2632909.8533	-46499.5441	10m

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ROAD 8 LAYOUT
SCALE 1:1000

LEGEND
 NGL
 ROAD CENTRELINE
 SCALES:
 Horizontal 1:1000
 Vertical 1:100
 DATUM 1190.000

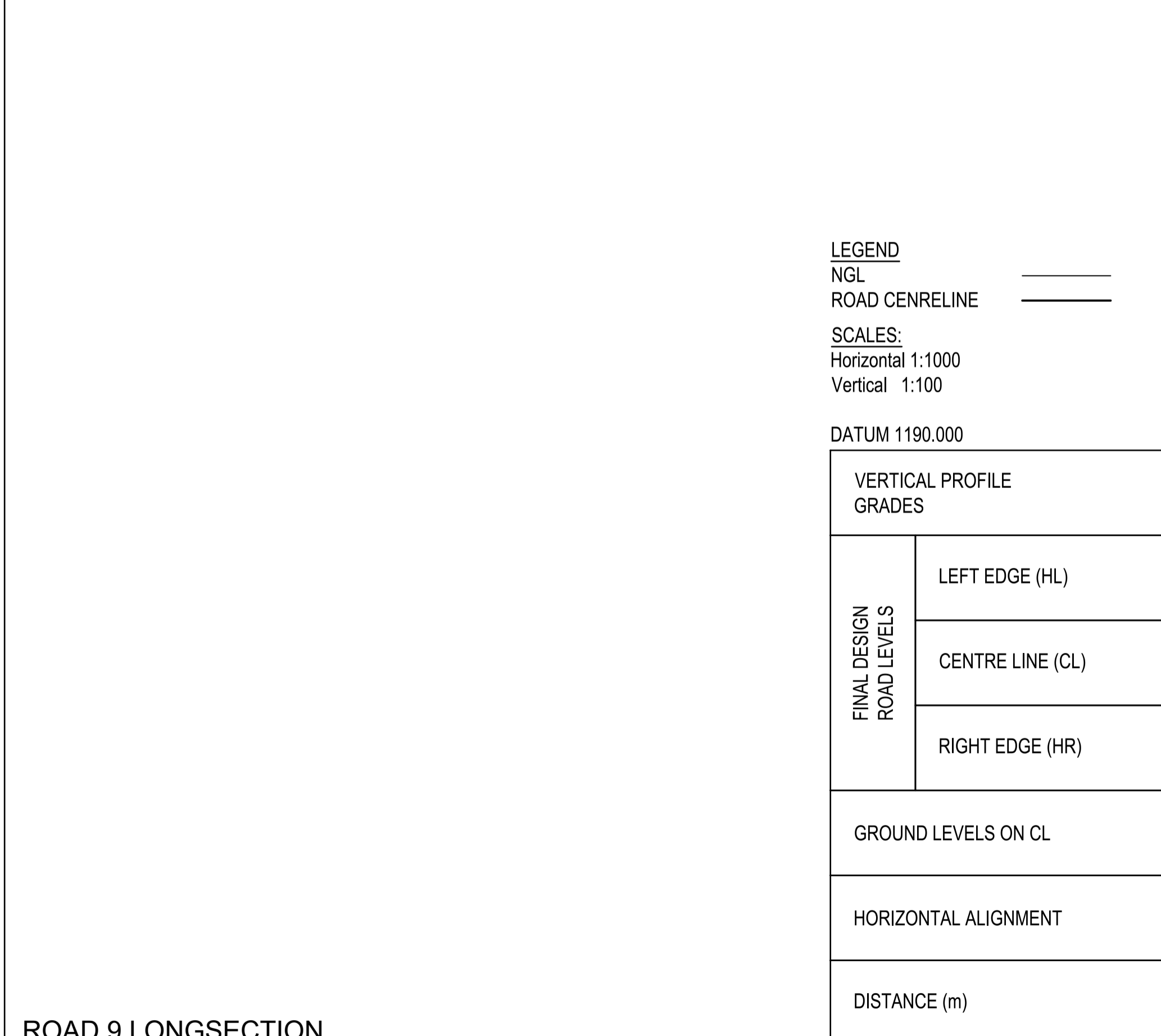




SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R9-BC1	2633032.1991	-46403.2925	
R9-CP1	2633037.9629	-46409.0563	8.15m
R9-EC1	2633032.1991	-46414.8201	
R9-BC2	2633011.9701	-46420.0475	
R9-CP2	2633019.0414	-46427.0771	9.97m
R9-EC2	2633026.1125	-46420.0472	
R9-BC3	2633043.6726	-46426.2936	
R9-CP3	2633052.1579	-46417.8083	12m
R9-EC3	2633060.6432	-46426.2936	
R9-0L	2633071.9569	-46414.9799	
R9-0R	2633076.1995	-46419.2226	
R9-1R	2633061.9648	-46433.4573	
R9-2R	2633092.1489	-46463.5326	
R9-BC4	2633067.3365	-46461.2712	
R9-CP4	2633059.6831	-46469.1882	11.01m
R9-EC4	2633067.2286	-46477.2080	
R9-BC5	2633013.9177	-46530.5190	
R9-CP5/6	2633006.1395	-46522.7408	11m
R9-EC5	2633010.1920	-46532.9671	
R9-BC6	2633019.5745	-46536.1758	
R9-EC6	2633013.1392	-46540.4044	
R9-BC7	2632955.8205	-46554.5133	
R9-CP7/8	2632951.7680	-46544.2870	11m
R9-EC7	2632943.9898	-46552.0652	
R9-BC8	2632958.7677	-46561.9507	
R9-EC8	2632938.3330	-46557.7221	
R9-BC9	2632919.0459	-46527.1212	
R9-CP9	2632926.0742	-46520.0502	9.97m
R9-EC9	2632919.0456	-46512.9794	
R9-BC10	2632913.3898	-46532.7789	
R9-CP10	2632906.3187	-46539.8269	9.98m
R9-EC10	2632899.2474	-46532.7792	

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ROAD 9 LAYOUT
SCALE 1:1000



ROAD 9 LONGSECTION

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CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE	
NO.	DATE
00	2023-05
	ISSUED FOR CONSTRUCTION

T BANDA ENGINEER	PR ENG no.	DATE
CLIENT		DATE

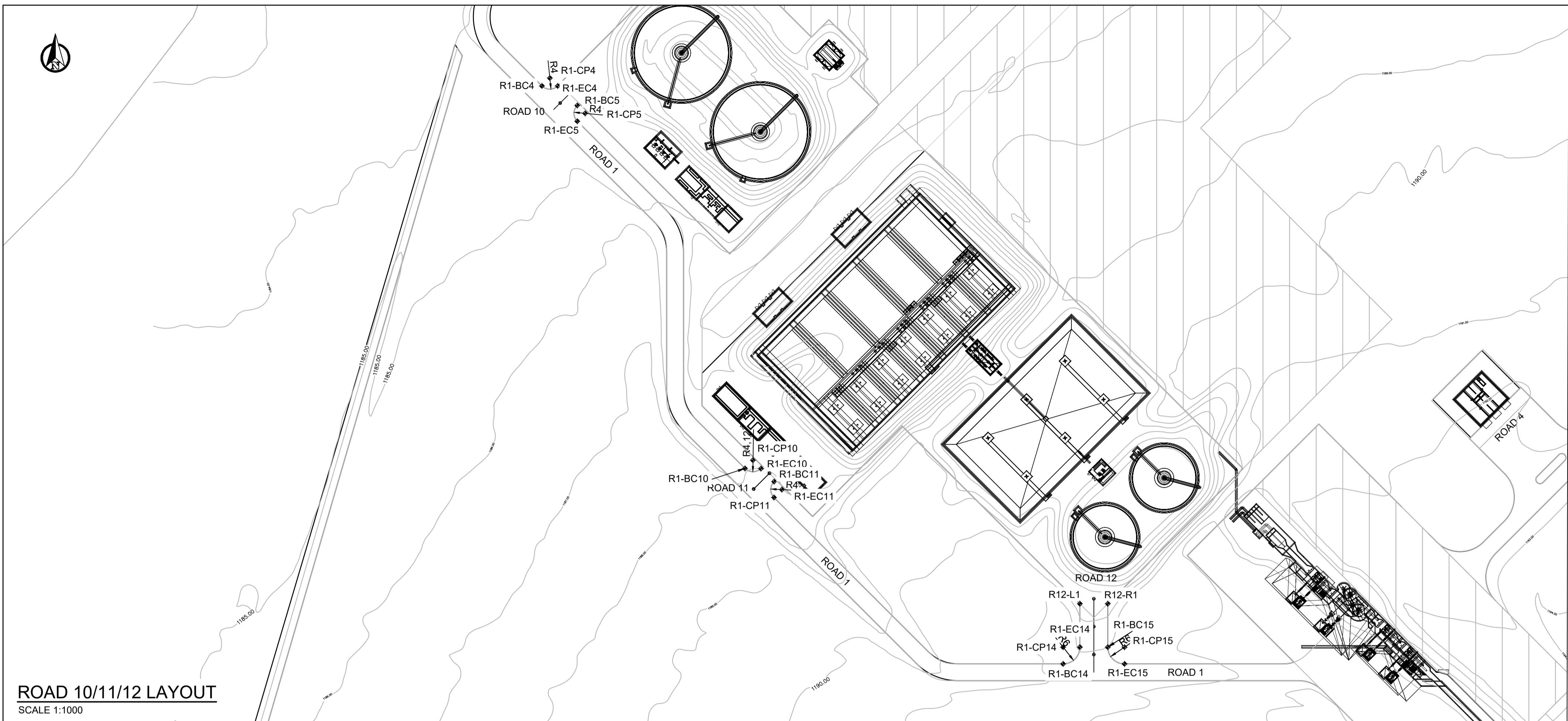
PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

ROAD 9 LONGSECTION

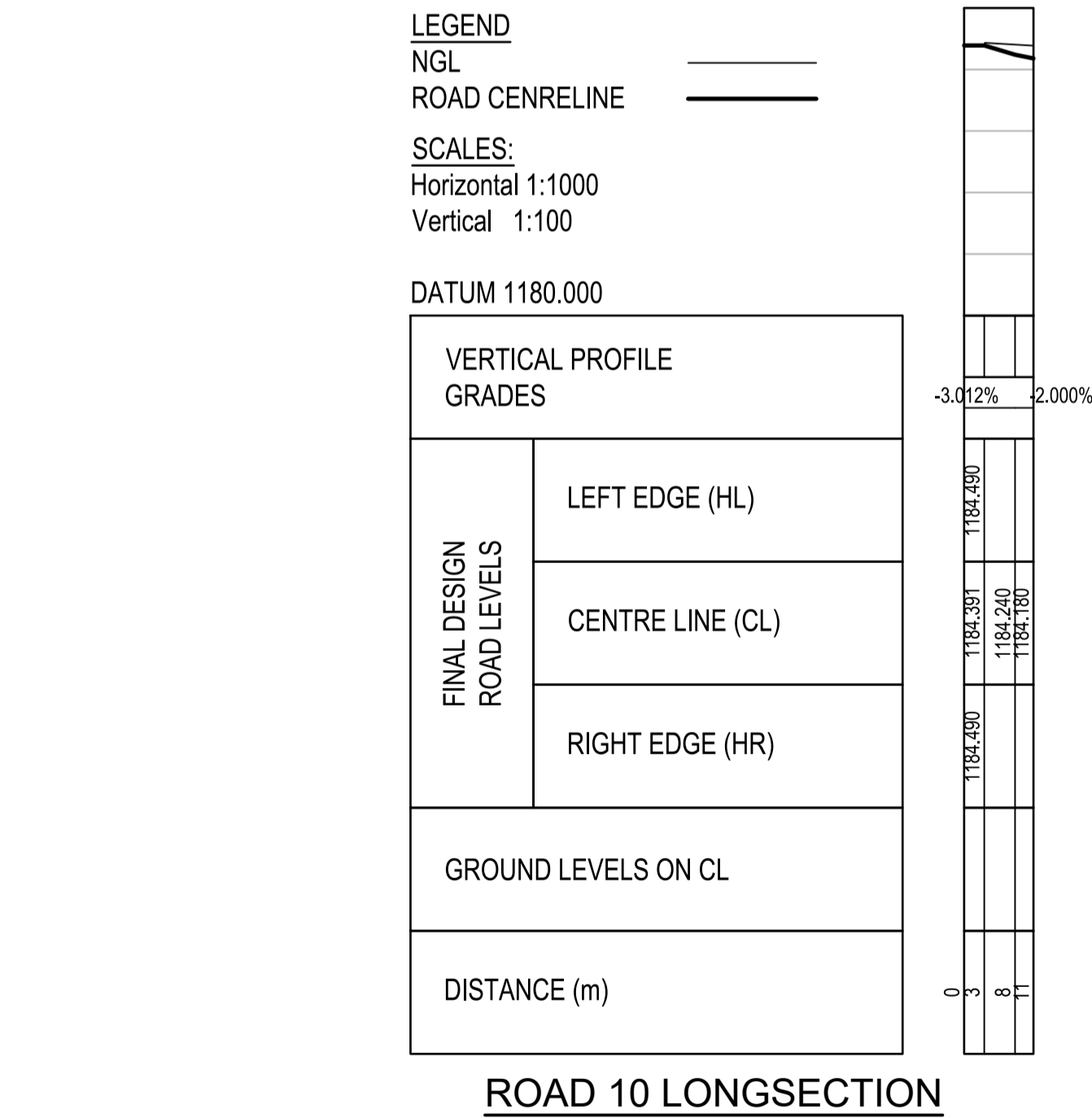
CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-05	1:1000	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)		REV
PK278-CP-2-EW-2519		0



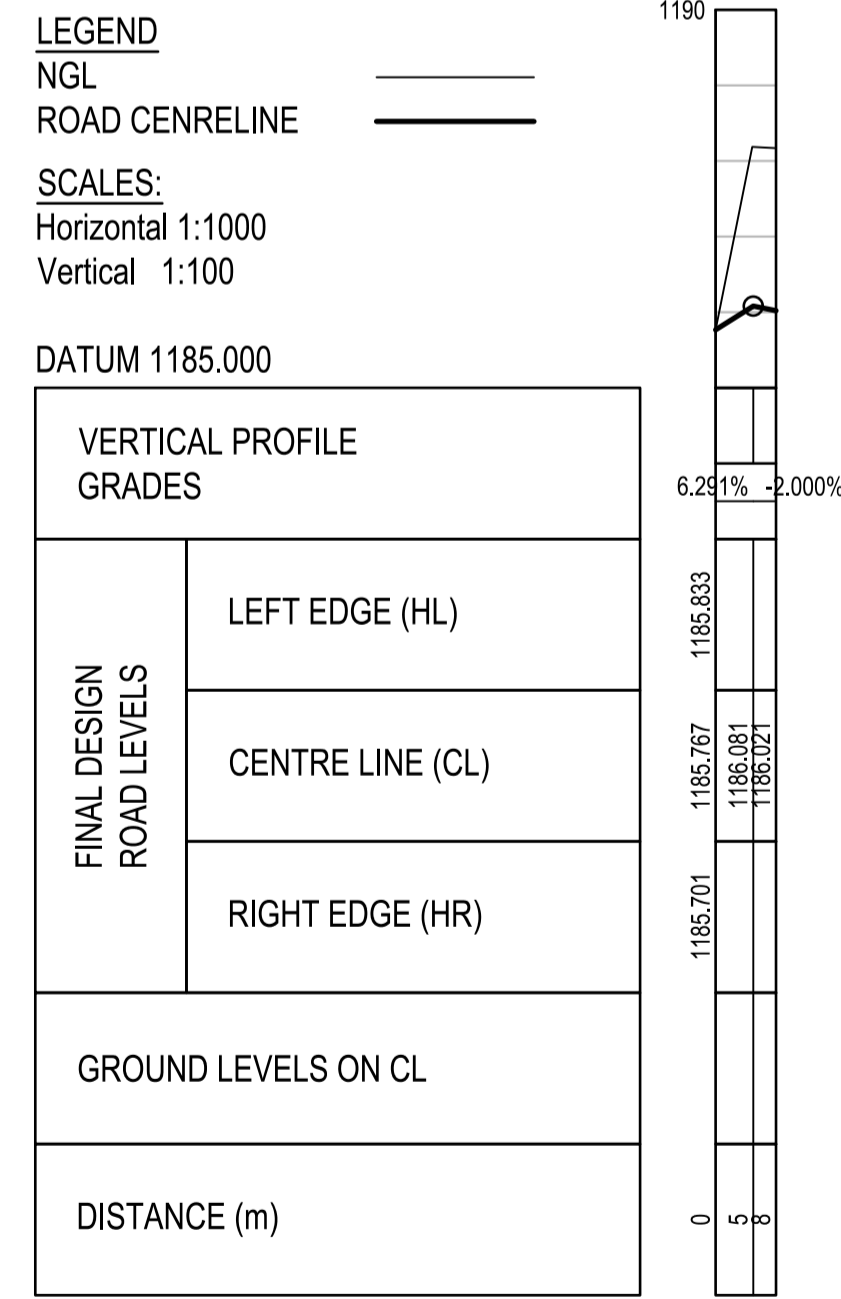
ROAD 10/11/12 LAYOUT
SCALE 1:1000

SETTING OUT POINTS			
REFERENCE	X-COORDINATE	Y-COORDINATE	RADIUS
R1-EC4	-2632701.2980	46067.3974	
R1-CP4	-2632698.4696	46064.5690	4m
R1-BC4	-2632701.3028	46061.7453	
R1-EC5	-2632713.9552	46074.3978	
R1-CP5	-2632711.1268	46077.2262	4m
R1-BC5	-2632708.2984	46074.3978	
R1-EC10	-2632838.4446	46140.2034	
R1-CP10	-2632708.2984	46137.3272	4m
R1-BC10	-2632838.3874	46134.4741	
R1-EC11	-2632848.7992	46144.8859	
R1-CP11	-2632845.9707	46147.7143	4m
R1-BC11	-2632843.1003	46144.9286	
R1-EC14	-2632902.4444	46254.4684	
R1-CP14	-2632902.4423	46248.4664	6m
R1-BC14	-2632908.4444	46248.4684	
R1-EC15	-2632908.4444	46270.4684	
R1-CP15	-2632902.4444	46270.4684	6m
R1-BC15	-2632902.4444	46264.4684	
R12-L1	-2632886.8712	46264.4684	
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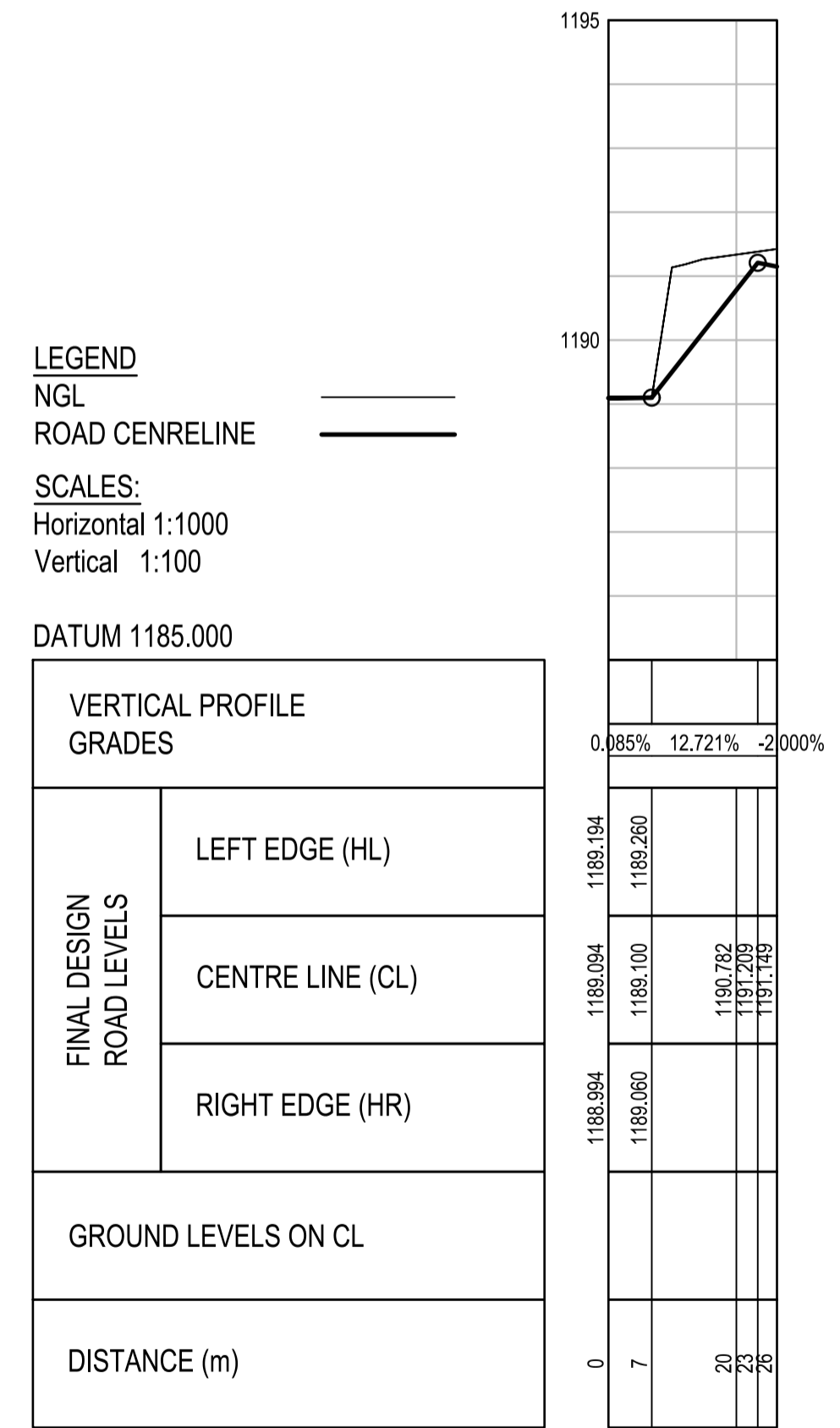
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ROAD 10 LONGSECTION



ROAD 11 LONGSECTION



ROAD 12 LONGSECTION



CONSTRUCTION DRAWING

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REVISION SCHEDULE		
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T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

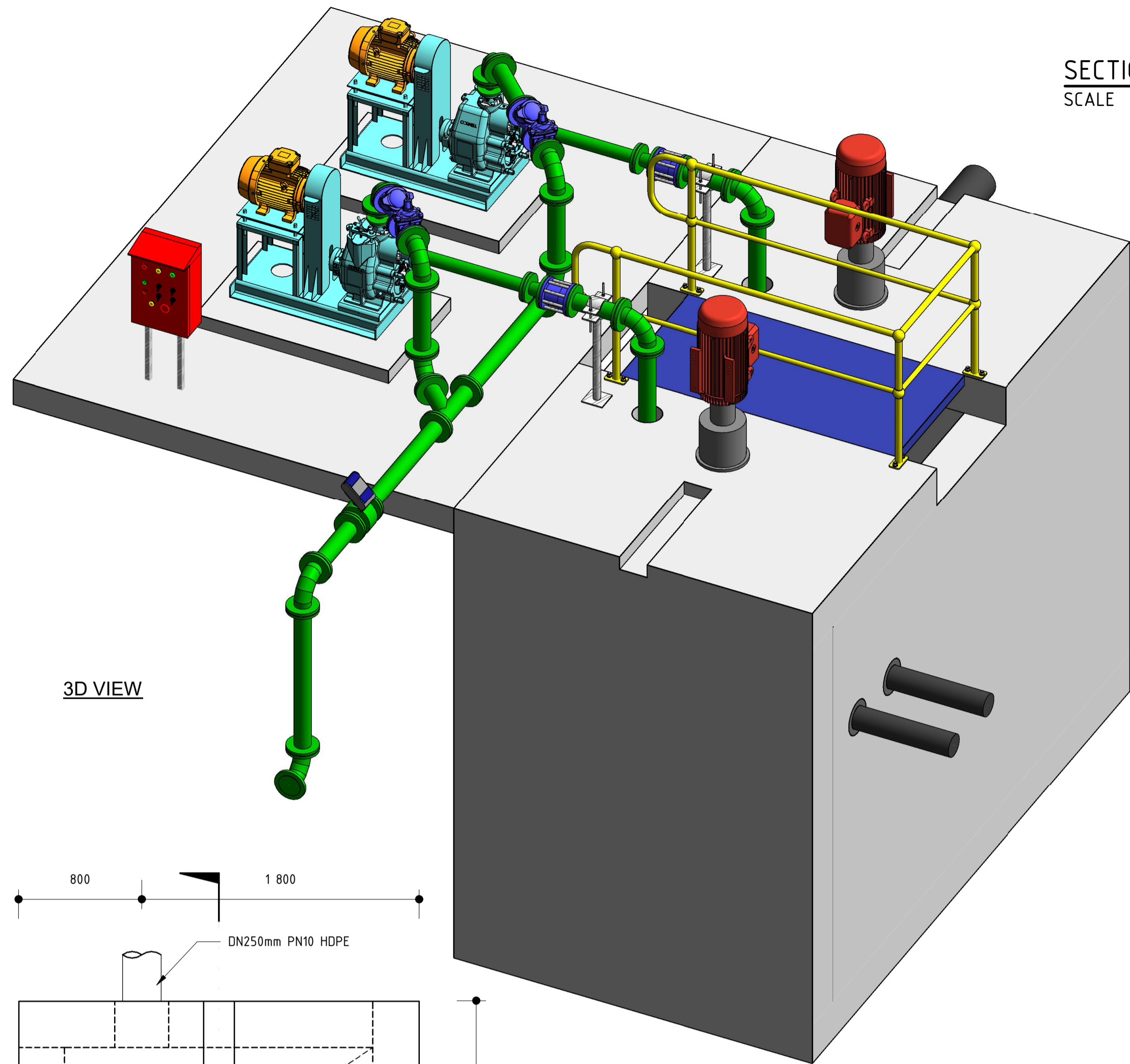
PROJECT

POLOKWANE REGIONAL WWTW CONTRACT 2

DRAWING DESCRIPTION

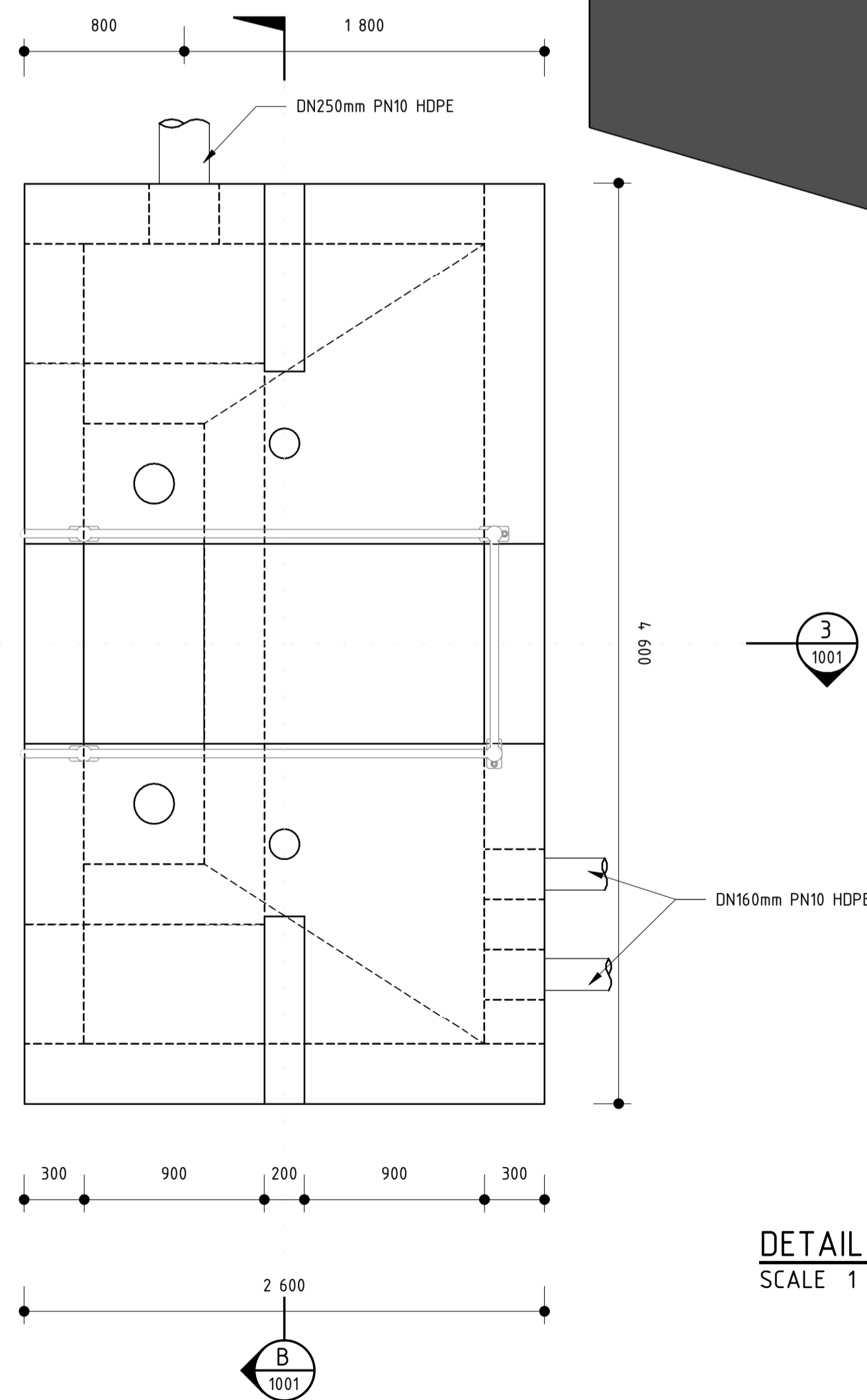
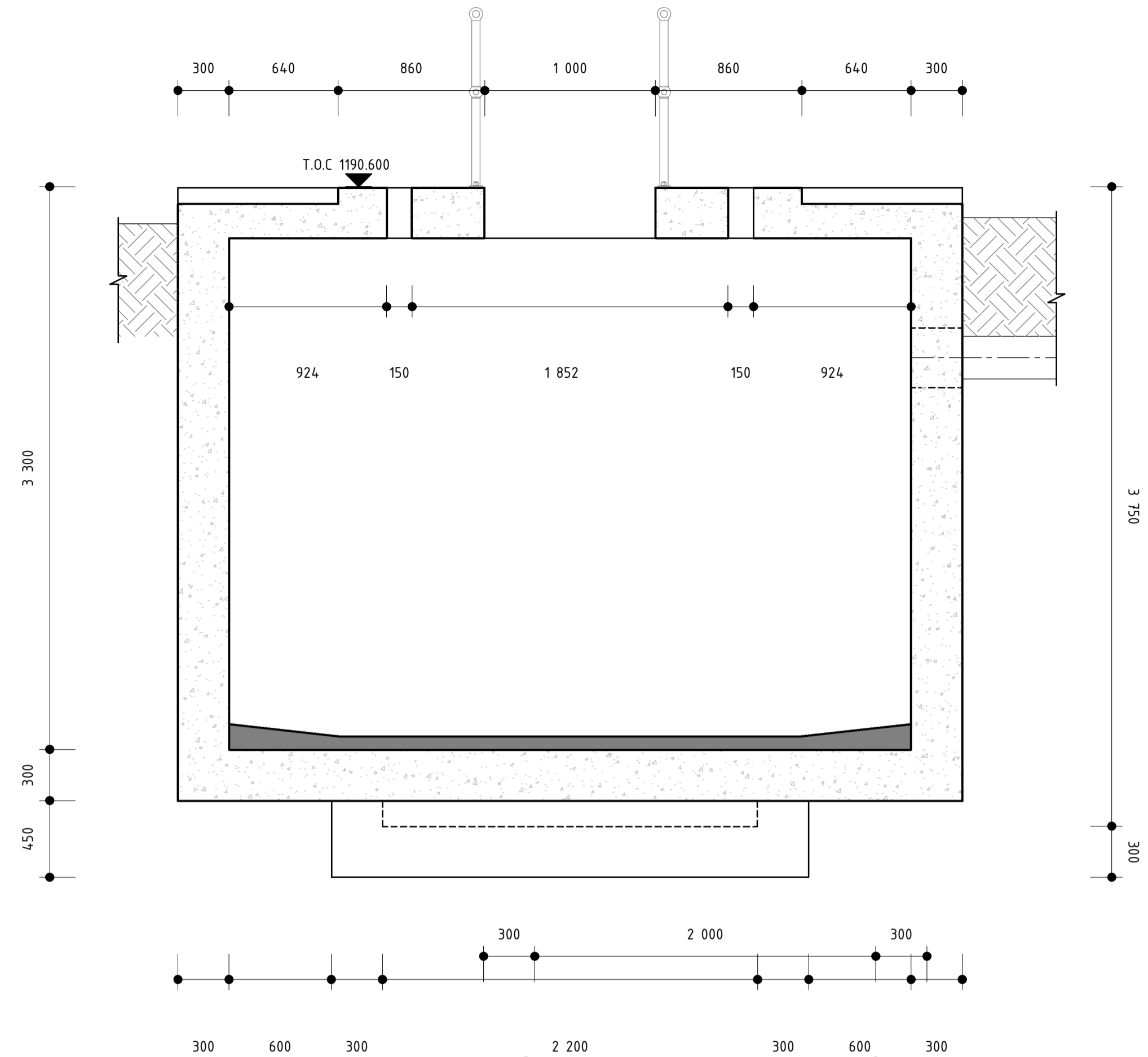
ROAD 10/11/12 LONGSECTION

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
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DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-CP-2-EW-2520	1	

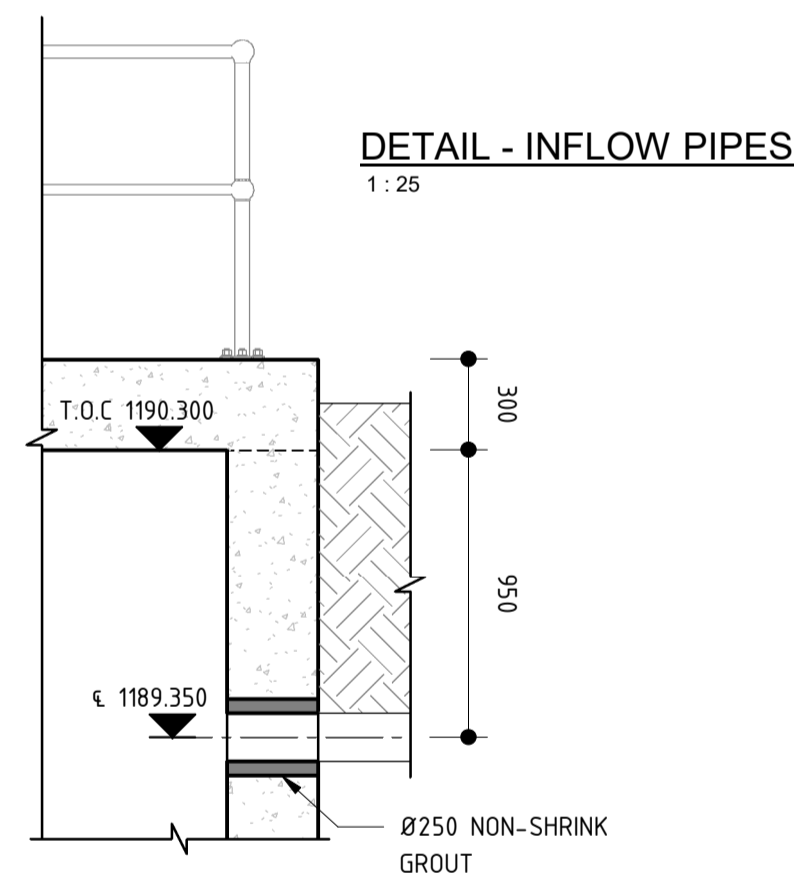


3D VIEW

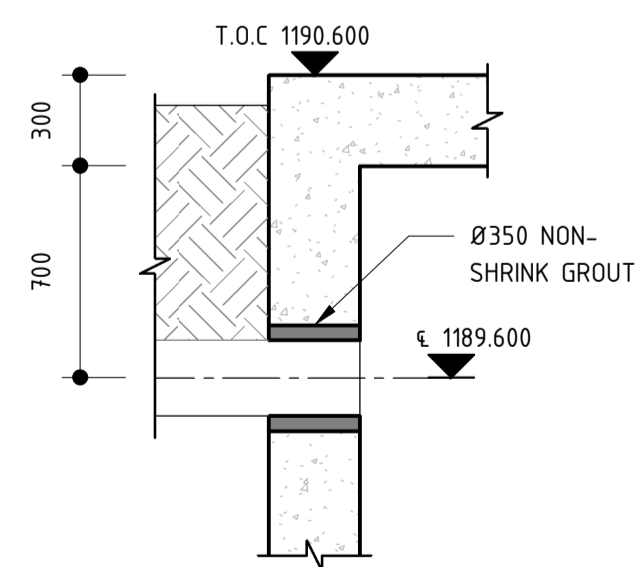
SECTION B
SCALE 1:25



PLAN VIEW
SCALE 1:25

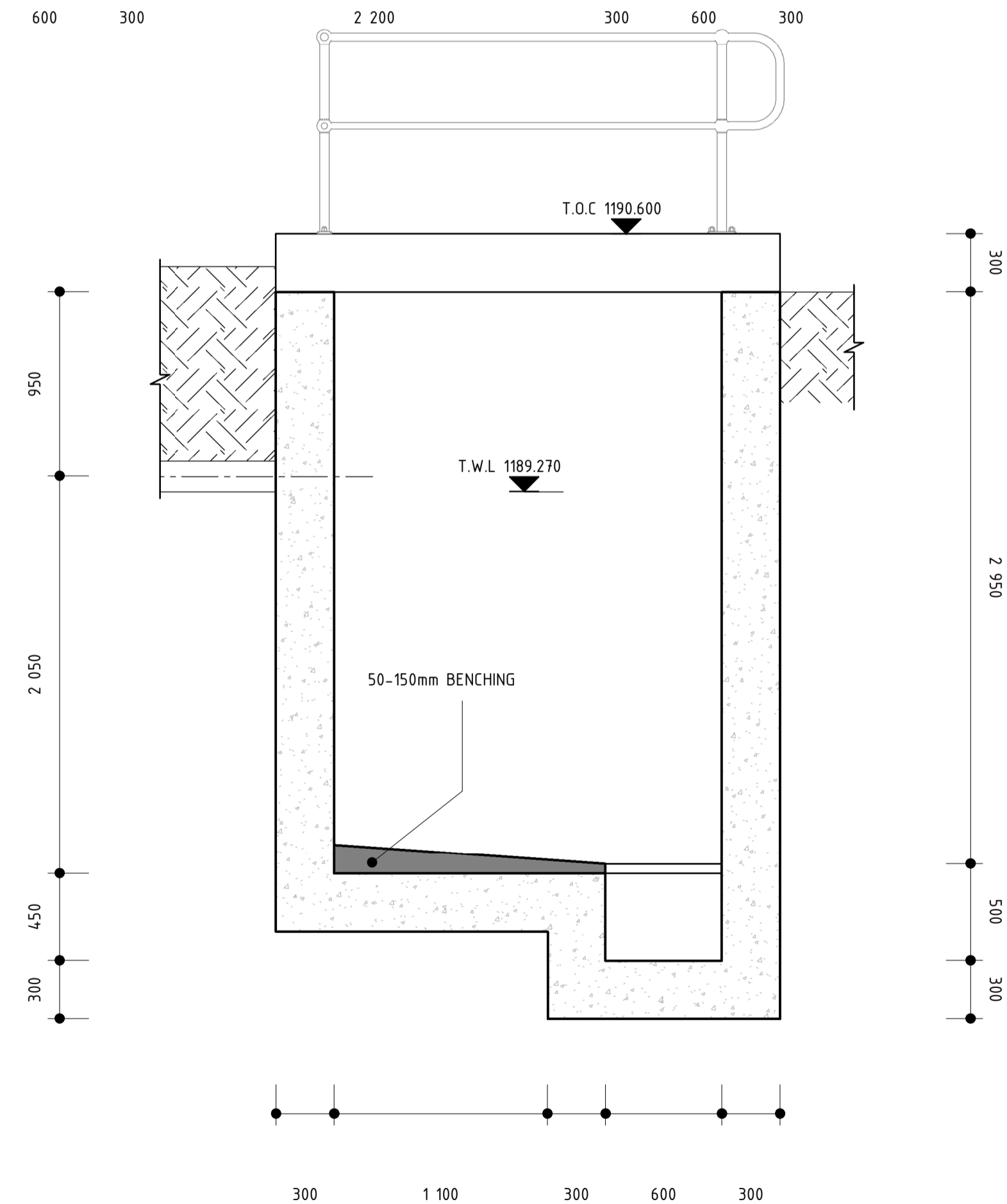


DETAIL - INFLOW PIPES
SCALE 1:25



DETAIL - OVERFLOW PIPE
SCALE 1:25

SECTION A-A
SCALE 1:25



- GENERAL NOTES:**
- THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND WILL GOVERN IN CASE OF ANY CONFLICTS.
 - ALL SETTING OUT DIMENSIONS SHALL BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES OR UNCLARITIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER.
 - BUILDING WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

- CONCRETE NOTES:**
- THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCEMENT IS PROPERLY HELD IN POSITION AND SHALL ALSO MAINTAIN THE CORRECT CONCRETE COVER UTILIZING APPROVED PATENT SPACERS (NOT STONES, OFFCUT REINFORCEMENT, BRICKS ETC.) AT ALL TIMES.
 - UNLESS OTHERWISE SPECIFIED, THE CONCRETE COVER SHALL BE THE GREATER OF THE BAR DIAMETER OR THE VALUES IN mm AS STATED BELOW:
 - WALLS - 60mm
 - FLOORS - 50mm
 - SLABS - 60mm
 - ALL CONCRETE SHALL BE MECHANICALLY COMPACTED THROUGH THE USE OF VIBRATORS.
 - CONCRETE SHALL BE CAST CONTINUOUSLY. IF STOPPAGES OF MORE THAN 40 MINUTES ARE UNAVOIDABLE, CONSTRUCTION JOINTS SHALL BE FORMED IN THE POSITIONS AND ACCORDING TO THE DETAILS AS PER PROJECT SPECIFICATION.
 - OPENINGS IN THE CONCRETE WALLS TO BE GROUTED CLOSED WITH ANTI-CORROSION PRODUCT AS PER PROJECT SPECIFICATION AFTER THE INSTALLATION OF THE PIPEWORK.
 - ALL EXPOSED CORNERS TO HAVE A 20 x 20mm CHAMFER.
 - NO CONCRETE SHALL BE PLACED PRIOR TO THE APPROVAL OF THE RESIDENT ENGINEER.
 - A CLASS U3 SURFACE FINISH, INCLUDING STEEL FLOAT TO A SMOOTH SURFACE WITHIN 2mm OF LEVEL, SHALL BE PROVIDED TO ALL TOP OF WALL SURFACES SUPPORTING MECHANICAL COMPONENTS.
 - STRUCTURE TO BE TESTED FOR WATER-TIGHTNESS AS PER PROJECT SPECIFICATION. RATE OF FILLING NOT TO EXCEED 2m IN 24 HOURS. FOR 0.2mm CRACK WIDTH, STABILIZING PERIOD TO BE 21 DAYS. AFTER ALLOWING FOR EVAPORATION AND RAINFALL, DROPS IN LEVEL NOT TO EXCEED 1/500TH OF AVERAGE DEPTH OF FULL TANK.
 - DRAWING TO BE READ IN CONJUNCTION WITH DRAWING No.: PK278-SP-2B-SST-502 FOR JOINT DETAILS SEE DRAWING PK278-SP-2B-ST-1001.

- LEGEND:**
- CJ = CONSTRUCTION JOINT
 - FGL = FINISHED GROUND LEVEL
 - IL = INVERT LEVEL
 - ND = NOMINAL DIAMETER
 - NGL = NATURAL GROUND LEVEL
 - TOC = TOP OF CONCRETE
 - TWL = TYPICAL WATER LEVEL
 - UF = UNDERSIDE OF FOOTING

CONSTRUCTION DRAWING

- NOTES**
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Consulting Engineers

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TEL: +27 15 291 1176
FAX: +27 15 291 1993

CLIENT

CITY OF
Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
T	2022-03	ISSUED FOR TENDER
0	2023-03-24	ISSUED FOR CONSTRUCTION

T. BANDA ENGINEER	PR ENG no.	DATE
CLIENT		DATE

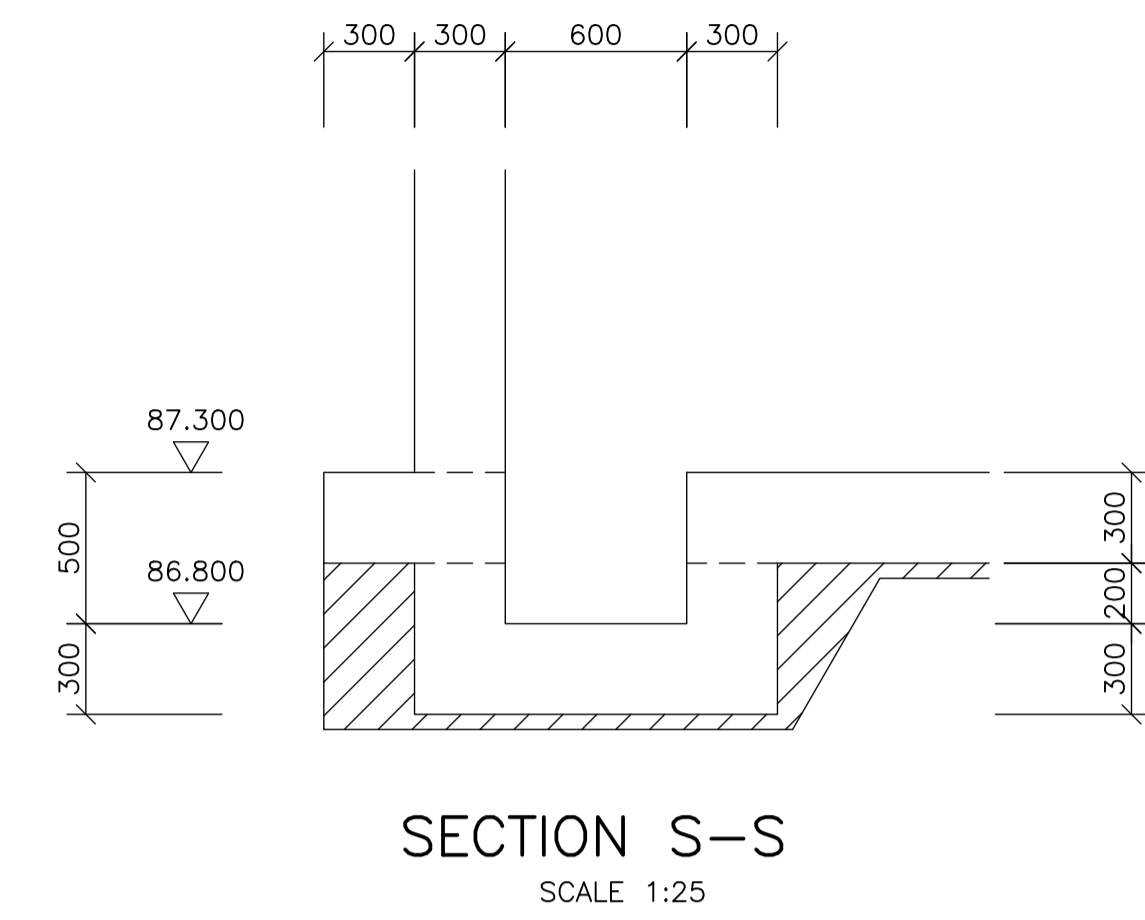
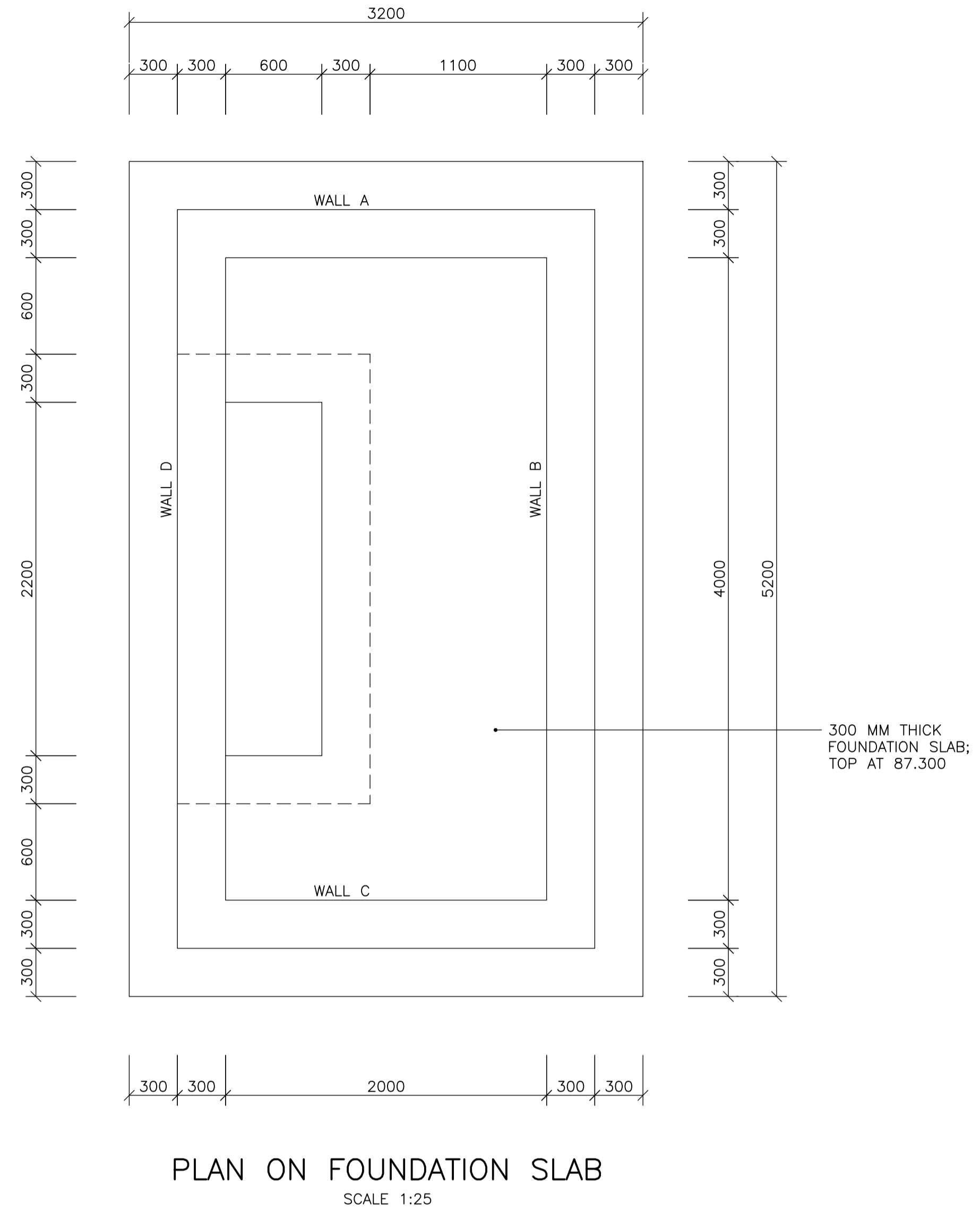
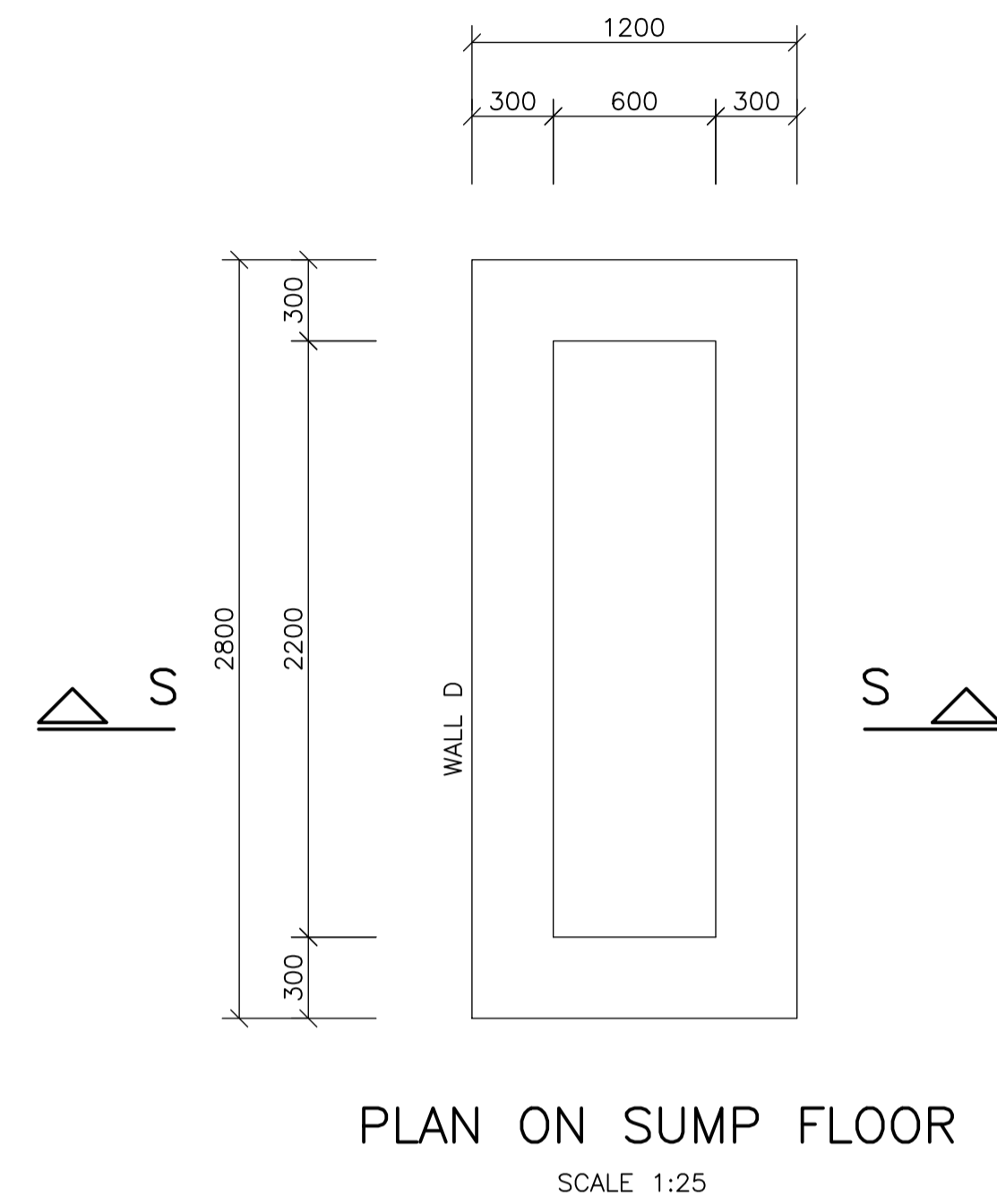
PROJECT

**POLOKWANE REGIONAL
WASTEWATER TREATMENT
WORKS**

DRAWING DESCRIPTION

**PLAN VIEW, SECTIONS AND
DETAILS
SCUM PUMP STATION**

DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-03-24	As indicated	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0019-1001	0	



- NOTES:
1. THIS FOUNDATION HAS BEEN DESIGNED FOR A SAFE BEARING PRESSURE OF 100 kPa AND A MAX DIFFERENTIAL SETTLEMENT OF 5 MM
 2. FOUNDING CONDITIONS TO BE APPROVED BY THE GEOTECHNICAL ENGINEER
 3. PROVIDE A 50 MM BLINDING LAYER OF CONCRETE CLASS 10/19 BELOW ALL FOUNDATIONS
 4. STRUCTURAL CONCRETE FOR ALL FOUNDATIONS, WALLS AND SLABS TO BE CLASS WR35/19
 5. ALL REINFORCEMENT TO BE APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.
 6. CONSTANT TO ALL LEVELS = 1100.000

NOTES

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CLIENT

CITY OF
Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-04-21	ISSUED FOR CONSTRUCTION

T. BANDA
ENGINEER

PR ENG no. _____ DATE _____

CLIENT _____ DATE _____

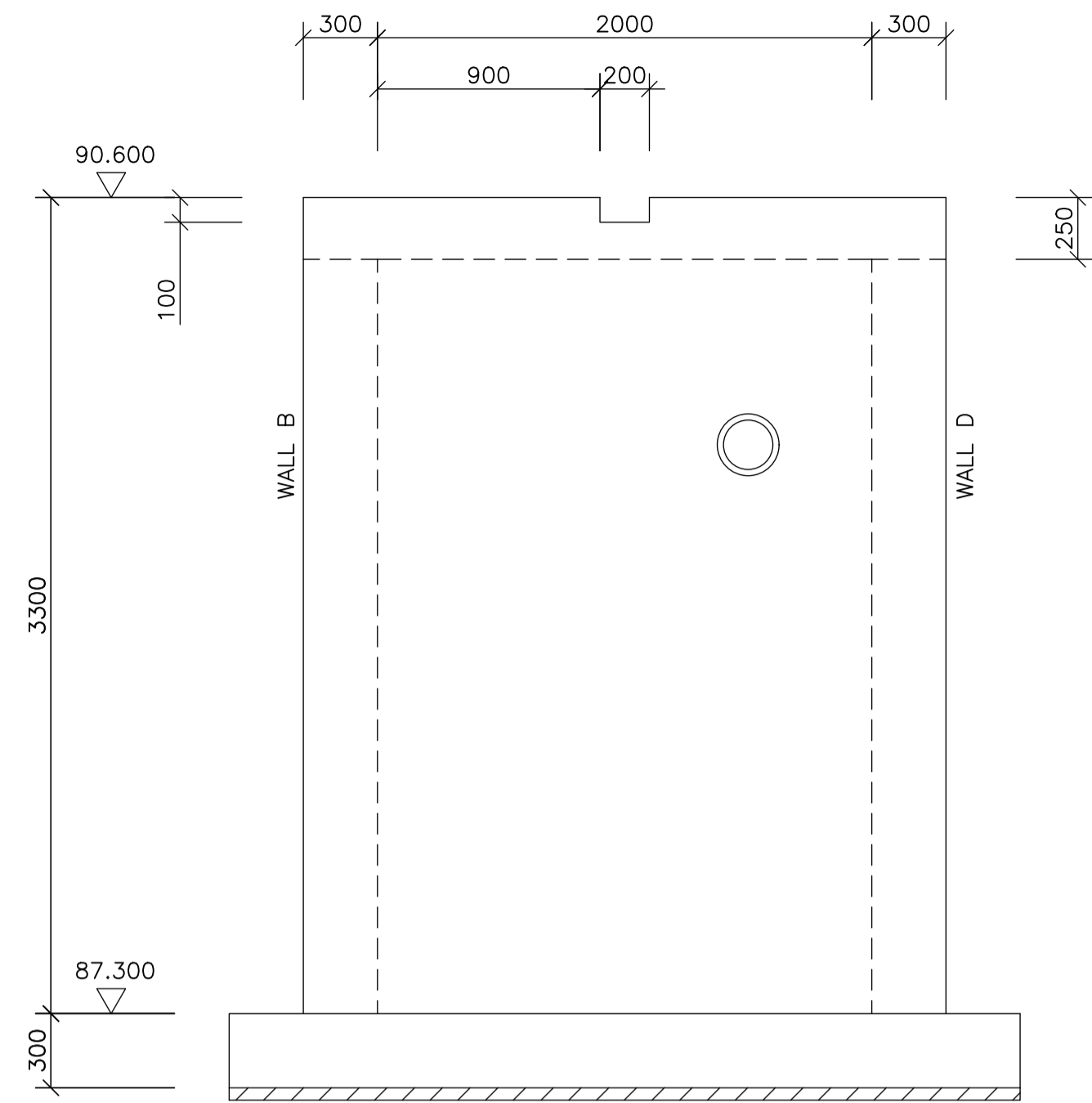
PROJECT

**POLOKWANE REGIONAL
WASTE WATER TREATMENT
WORKS**

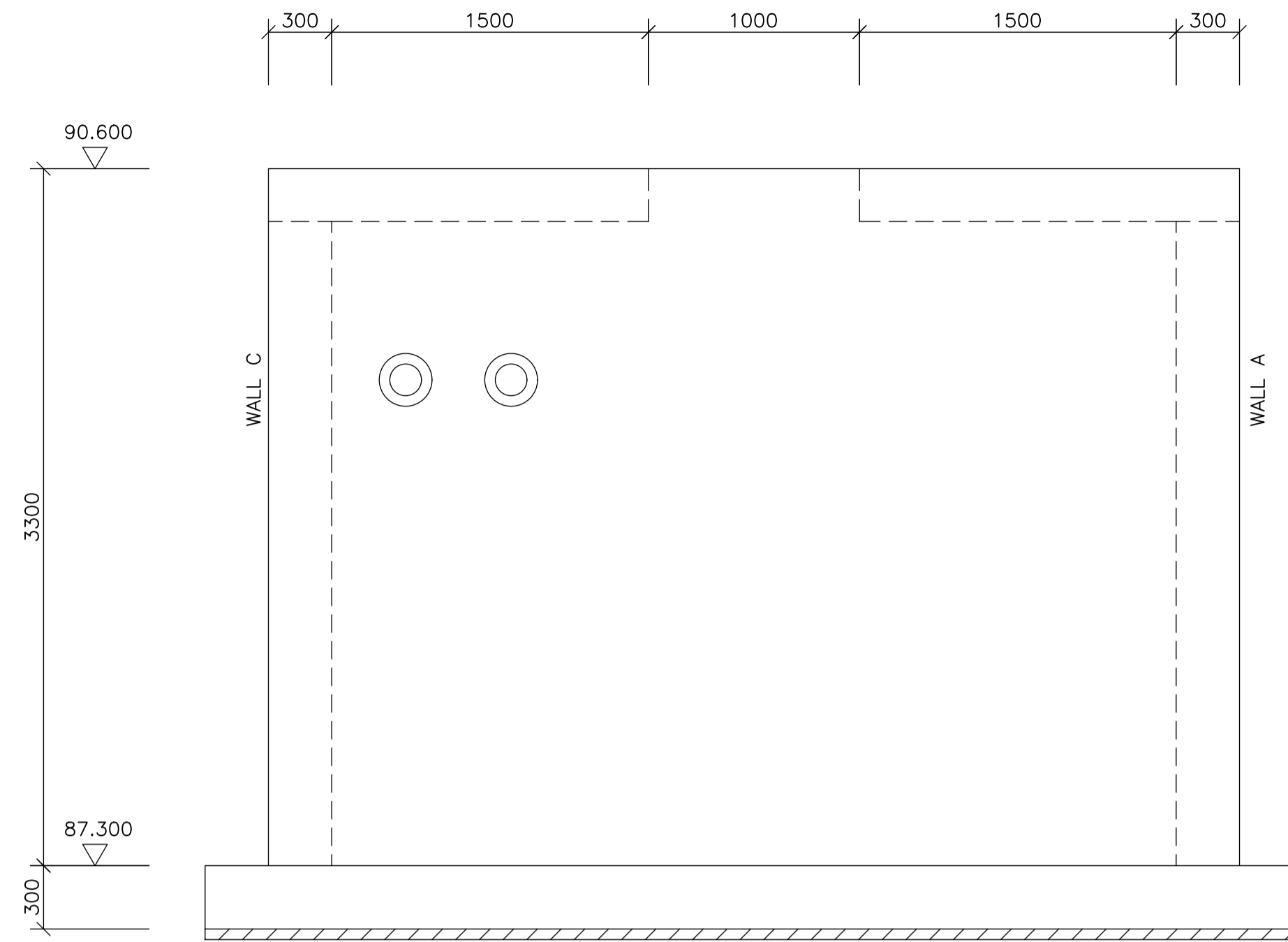
DRAWING DESCRIPTION

**SCUM PUMP STATION
CONCRETE DETAILS 1**

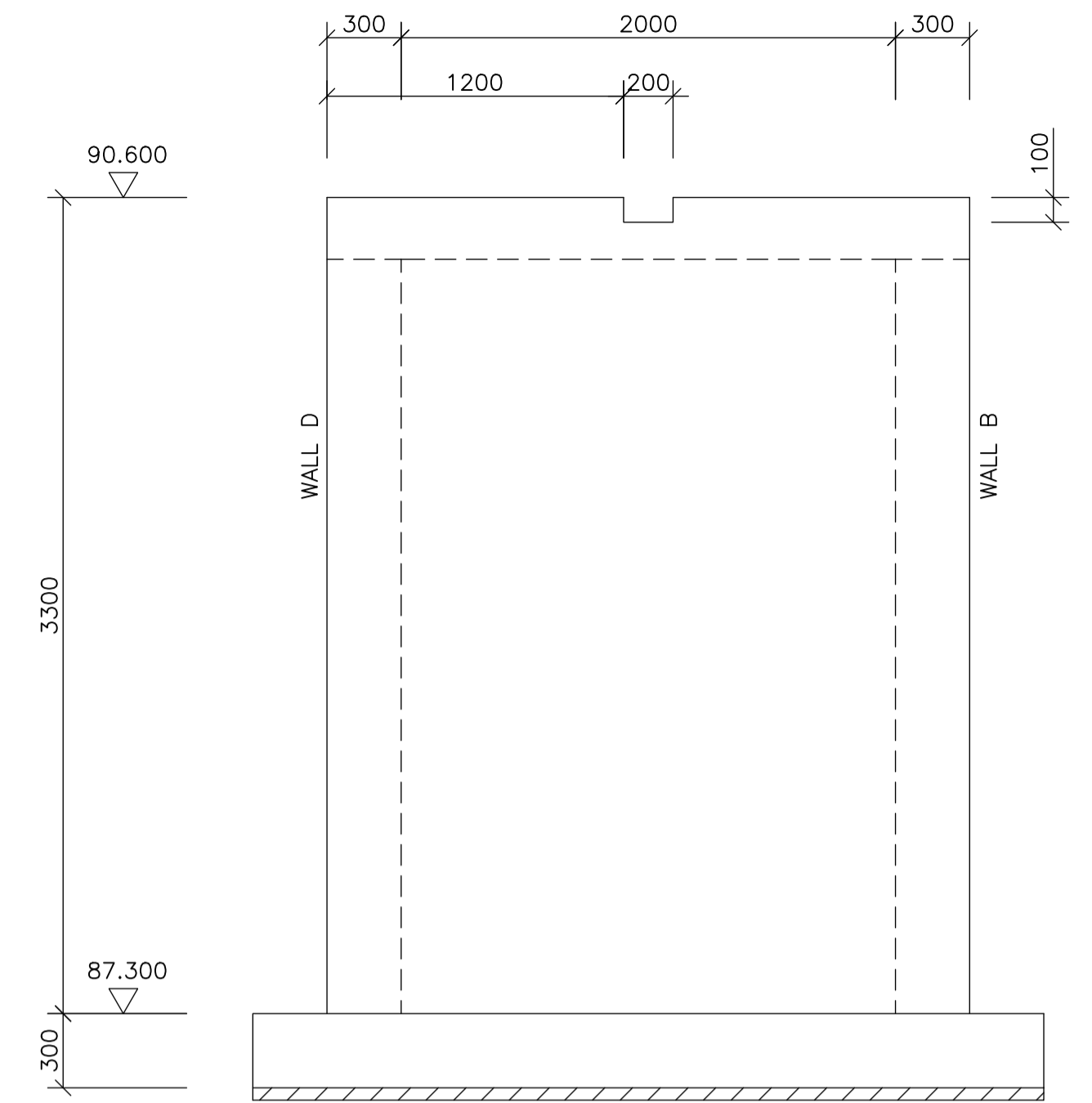
CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-04	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0019-5001	0	



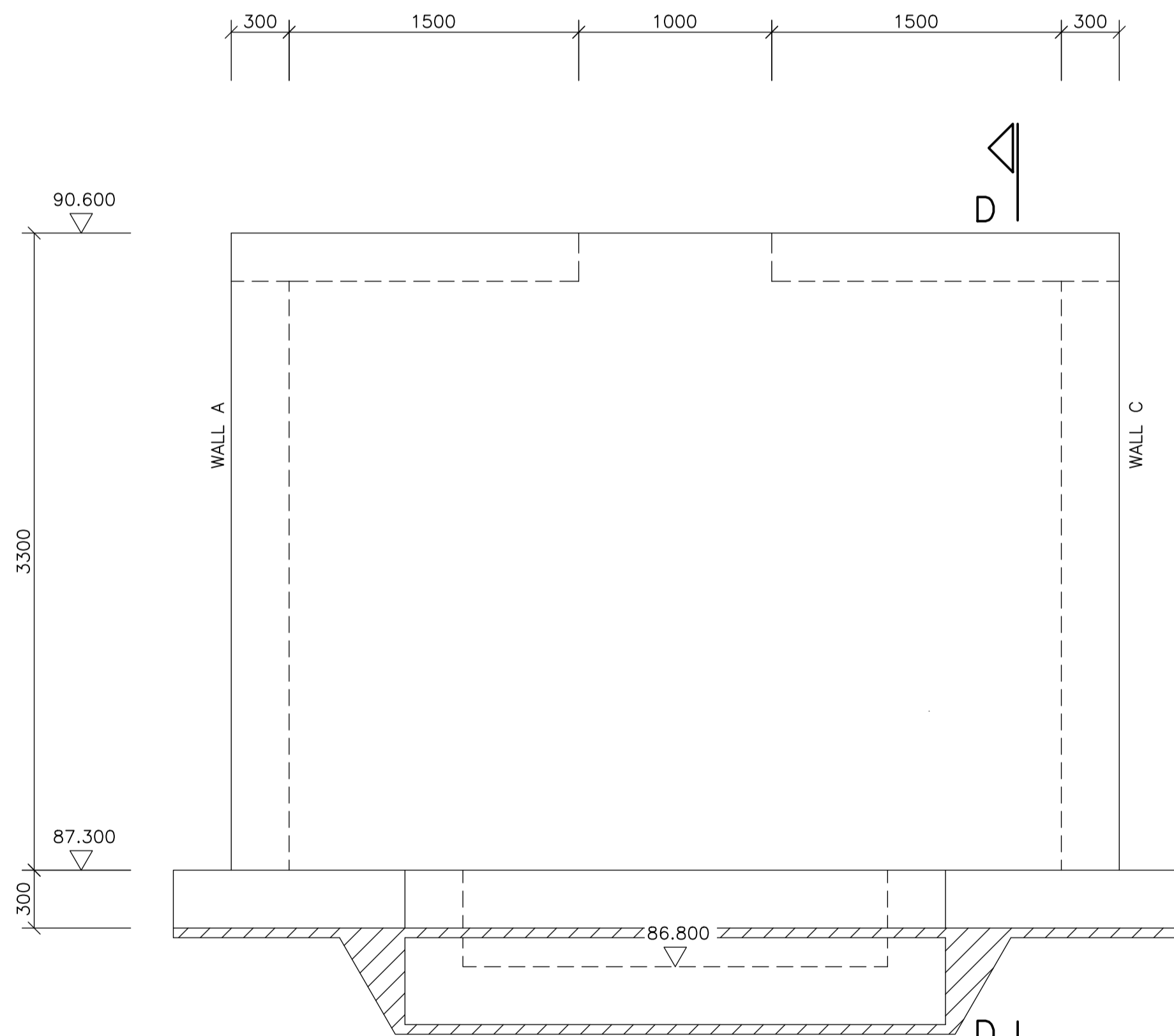
EXTERNAL ELEVATION ON WALL A
SCALE 1:25



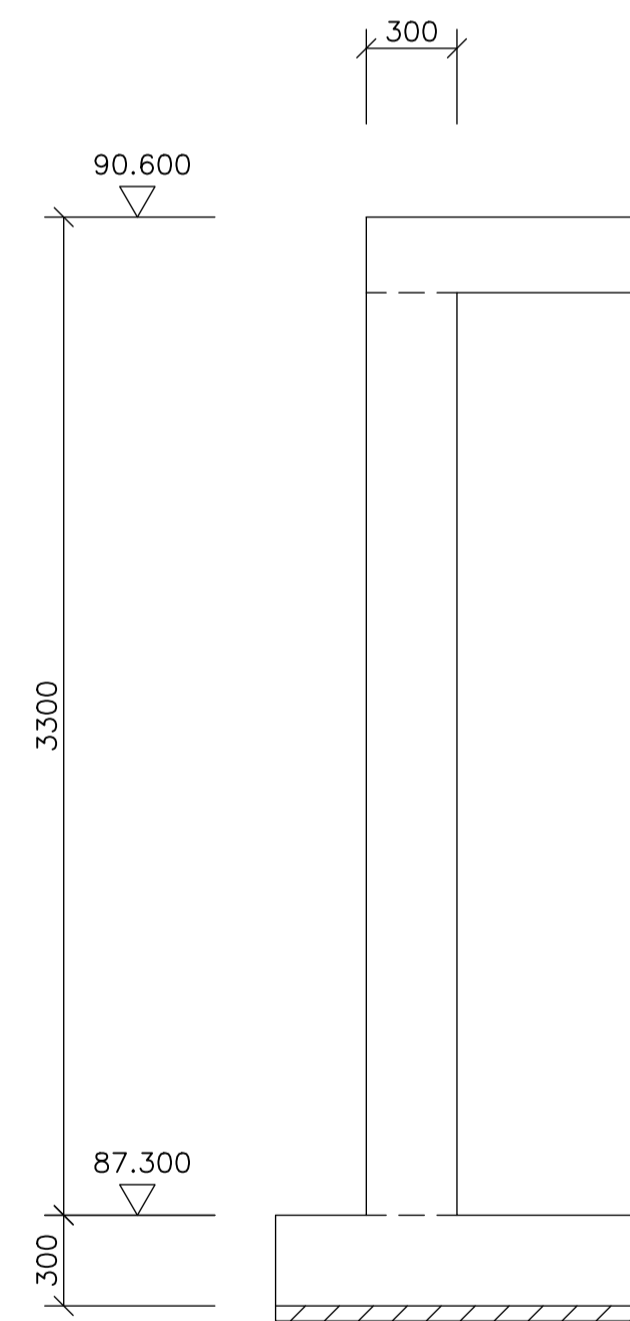
EXTERNAL ELEVATION ON WALL B
SCALE 1:25



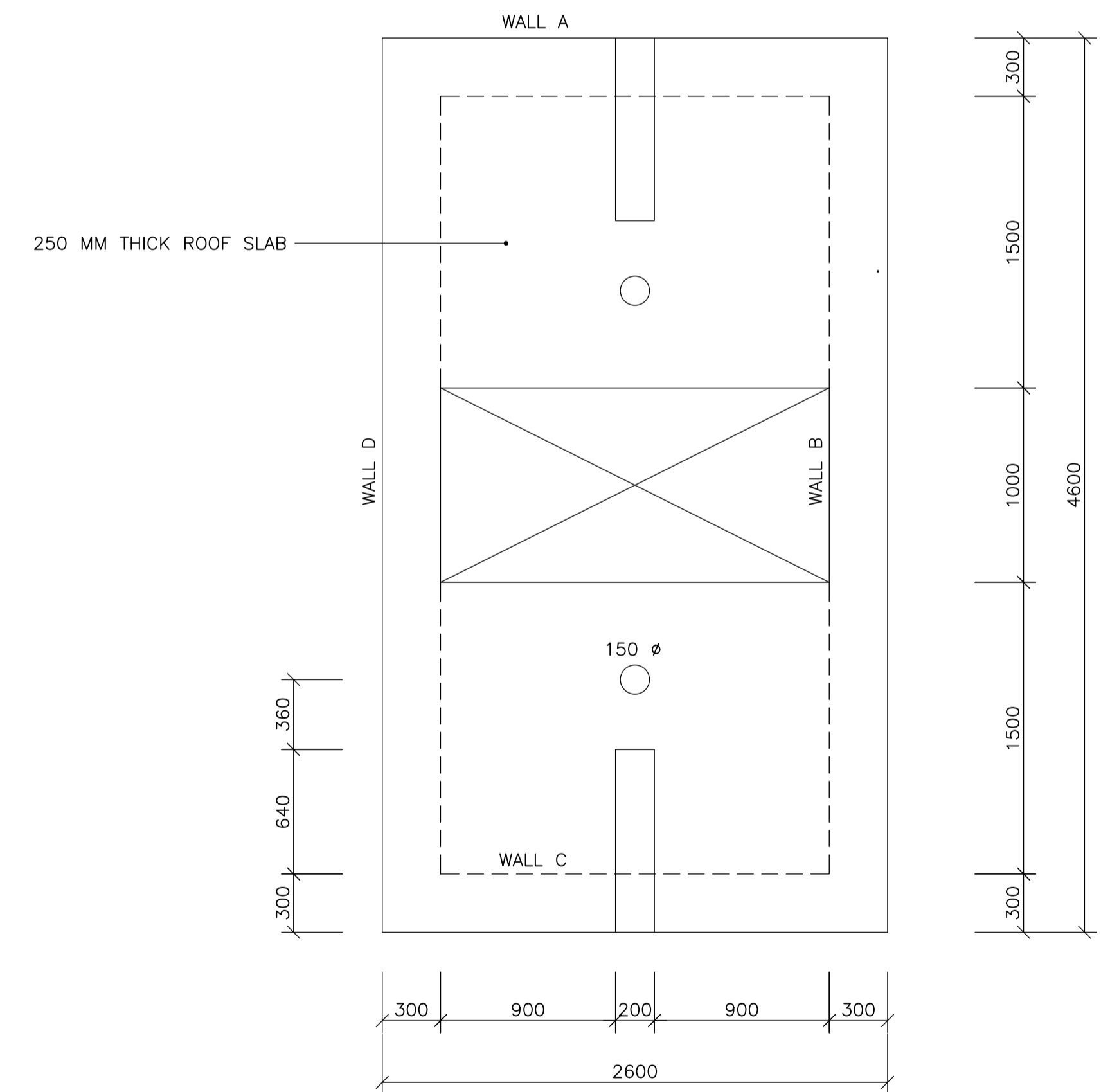
EXTERNAL ELEVATION ON WALL C
SCALE 1:25



EXTERNAL ELEVATION ON WALL D
SCALE 1:25



SECTION D-D
SCALE 1:25



PLAN ON PLATFORMS
SCALE 1:25

NOTES
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CLIENT
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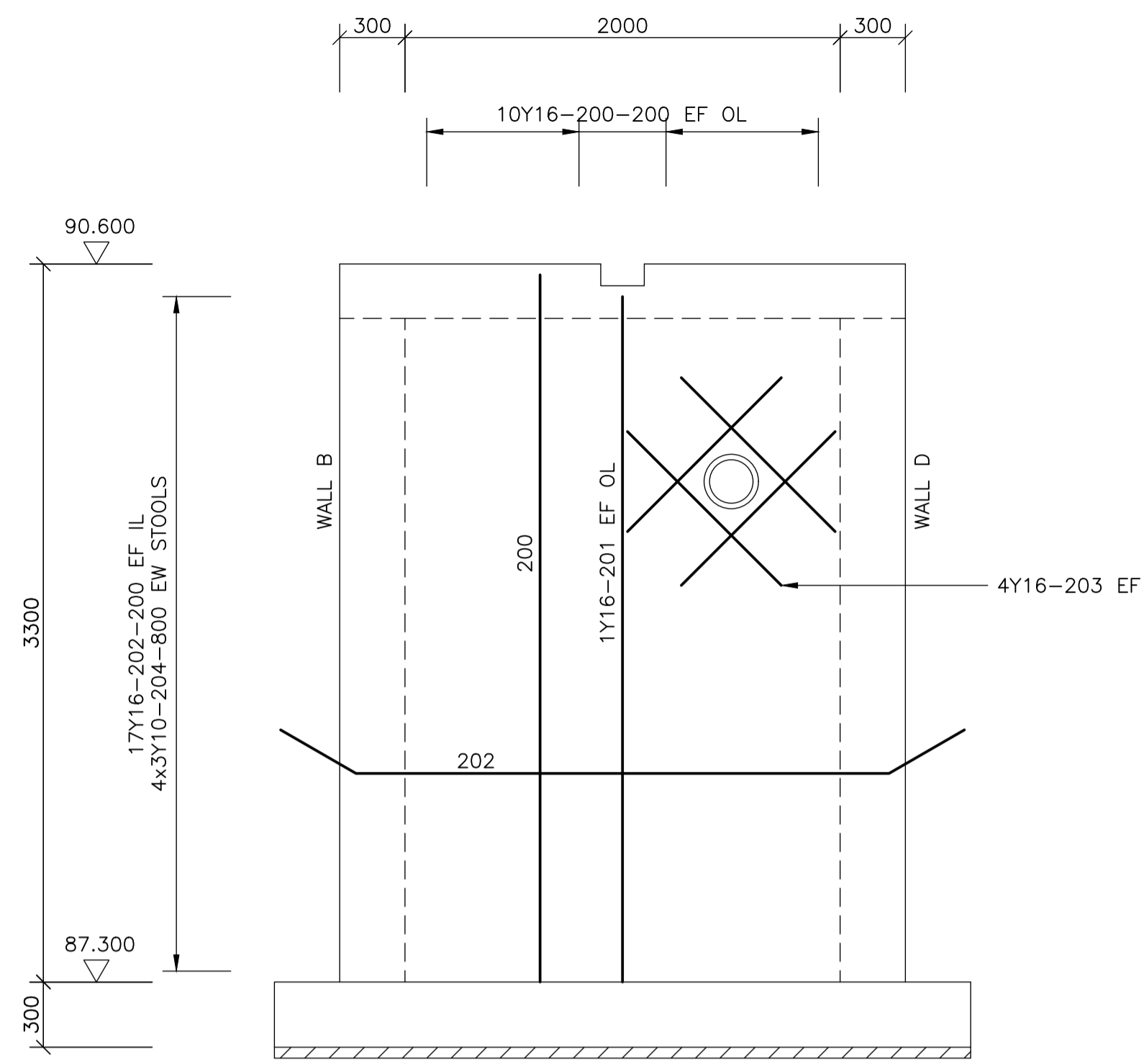
REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-04-21	ISSUED FOR CONSTRUCTION

T. BANDA	PR ENG no.	DATE
ENGINEER		
CLIENT		DATE

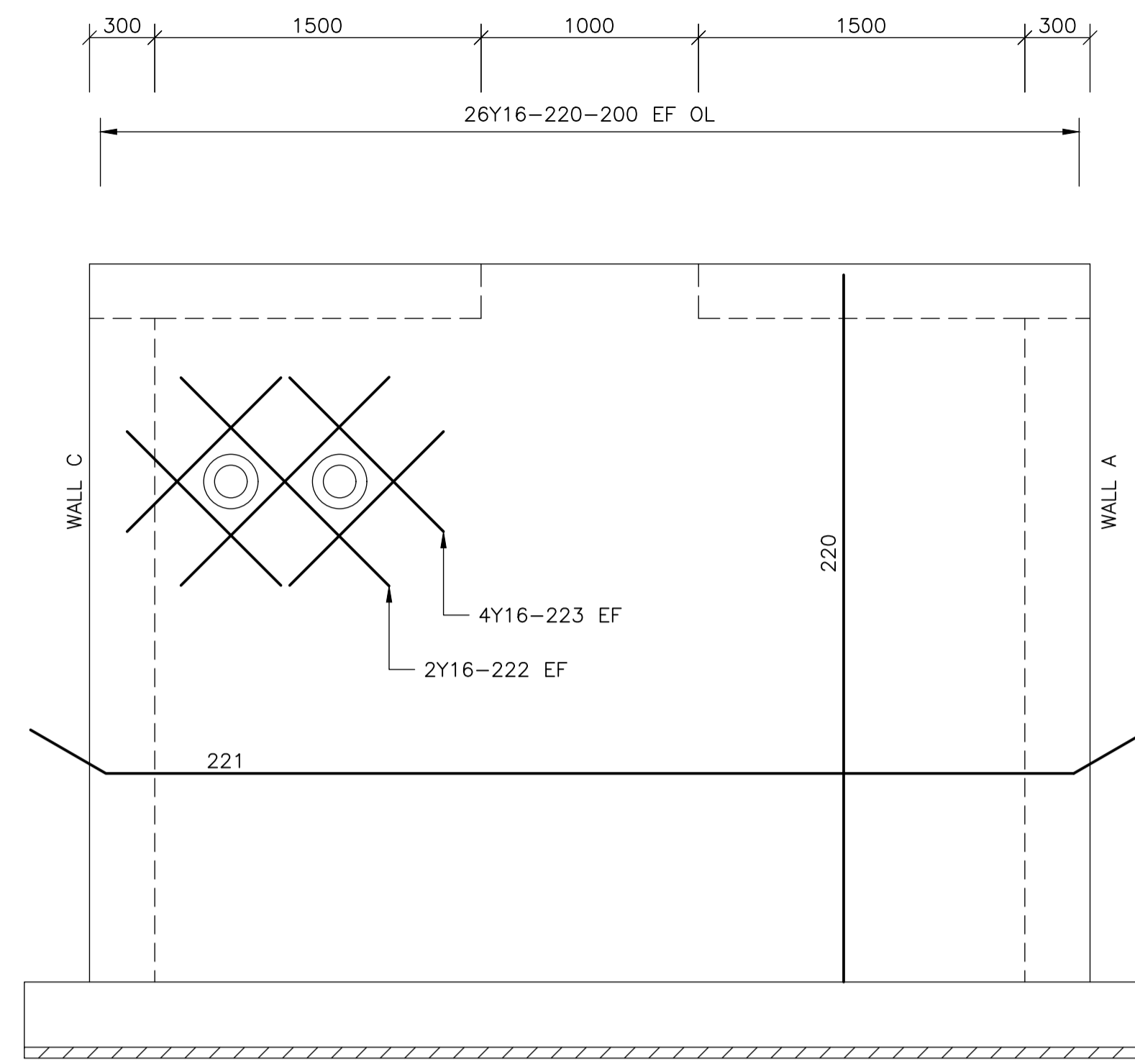
PROJECT
 POLOKWANE REGIONAL
 WASTE WATER TREATMENT
 WORKS

DRAWING DESCRIPTION
 SCUM PUMP STATION
 CONCRETE DETAILS 2

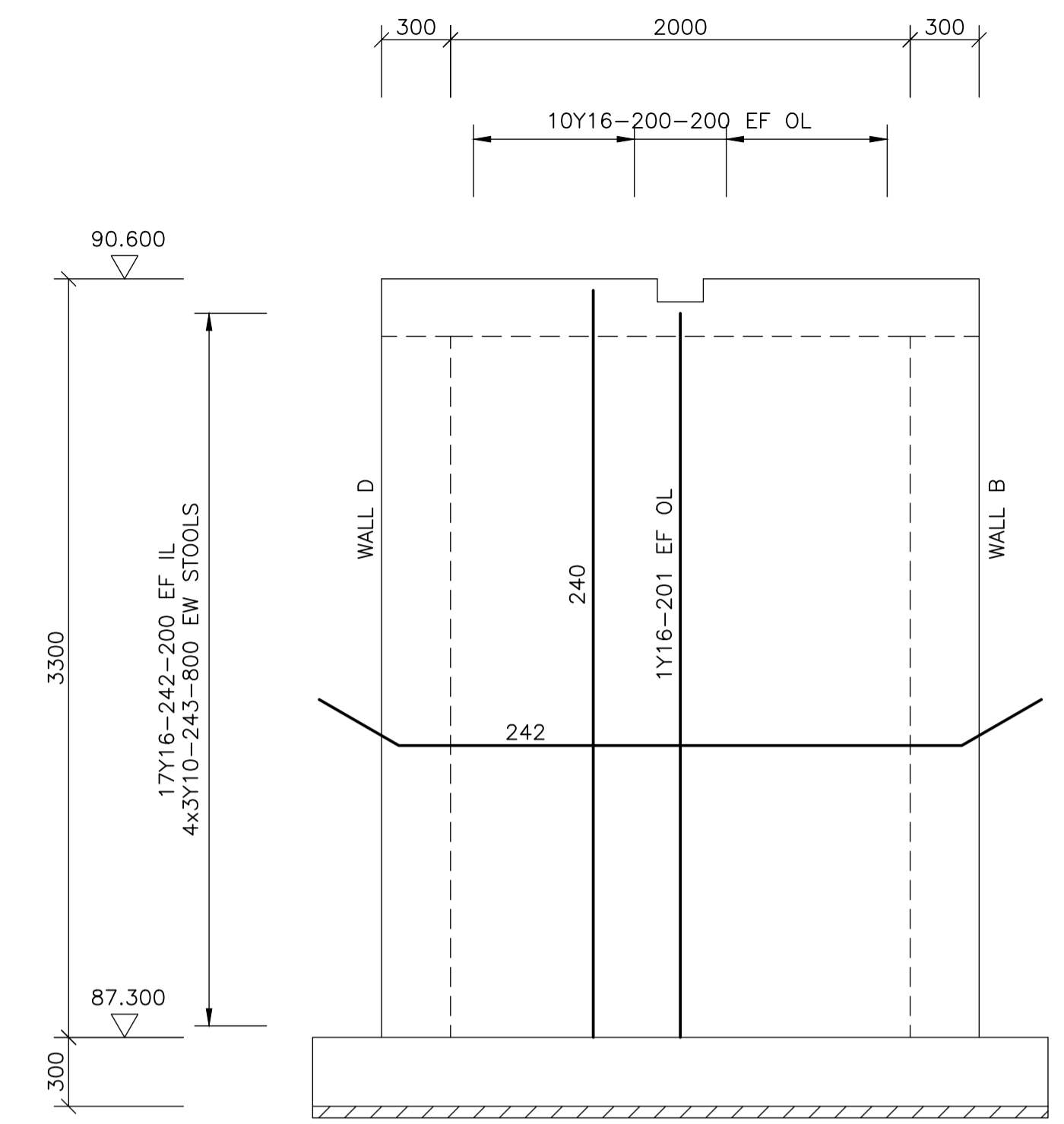
CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-04	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0019-5002	0	



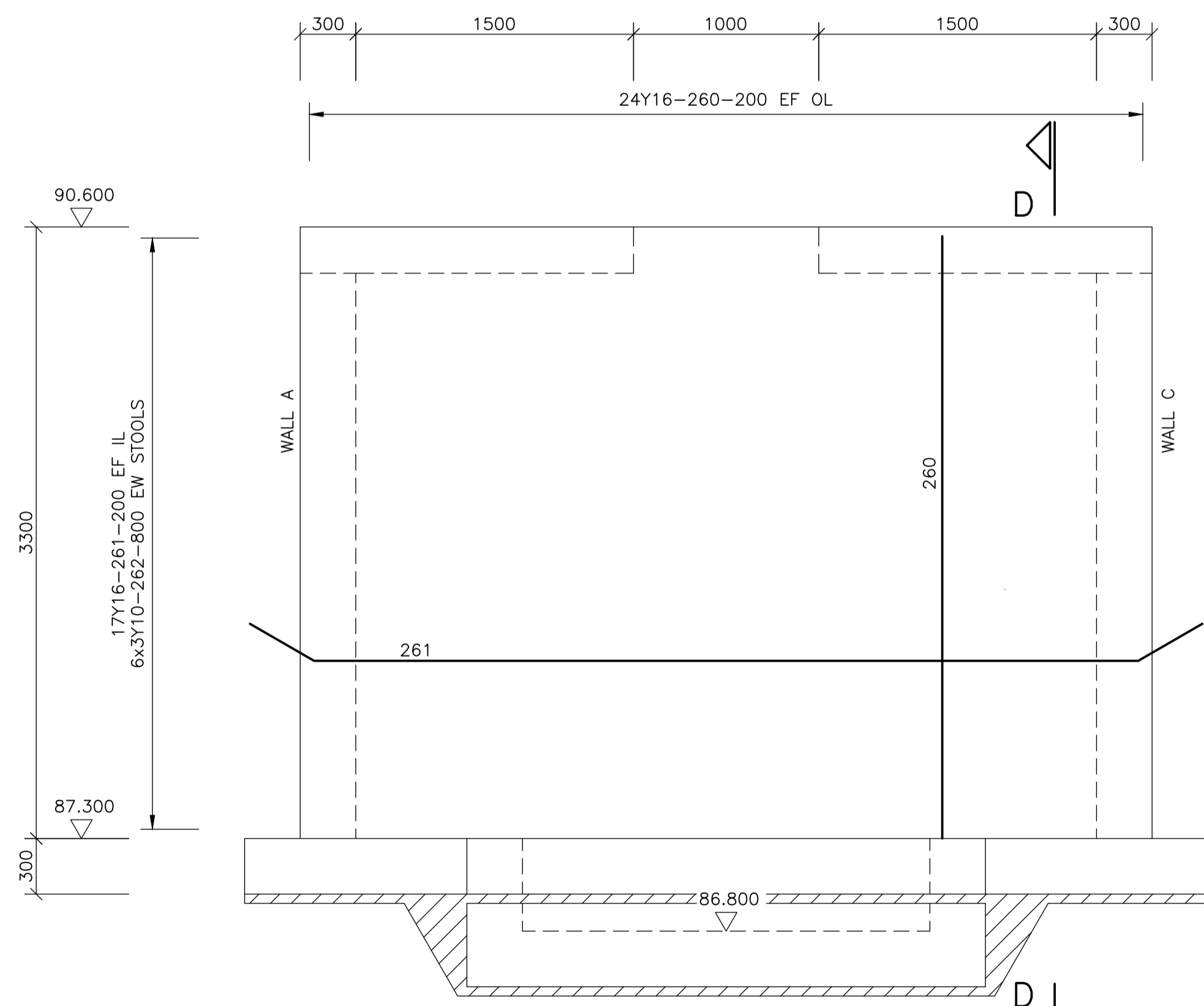
EXTERNAL ELEVATION ON WALL A REINFORCEMENT
SCALE 1:25



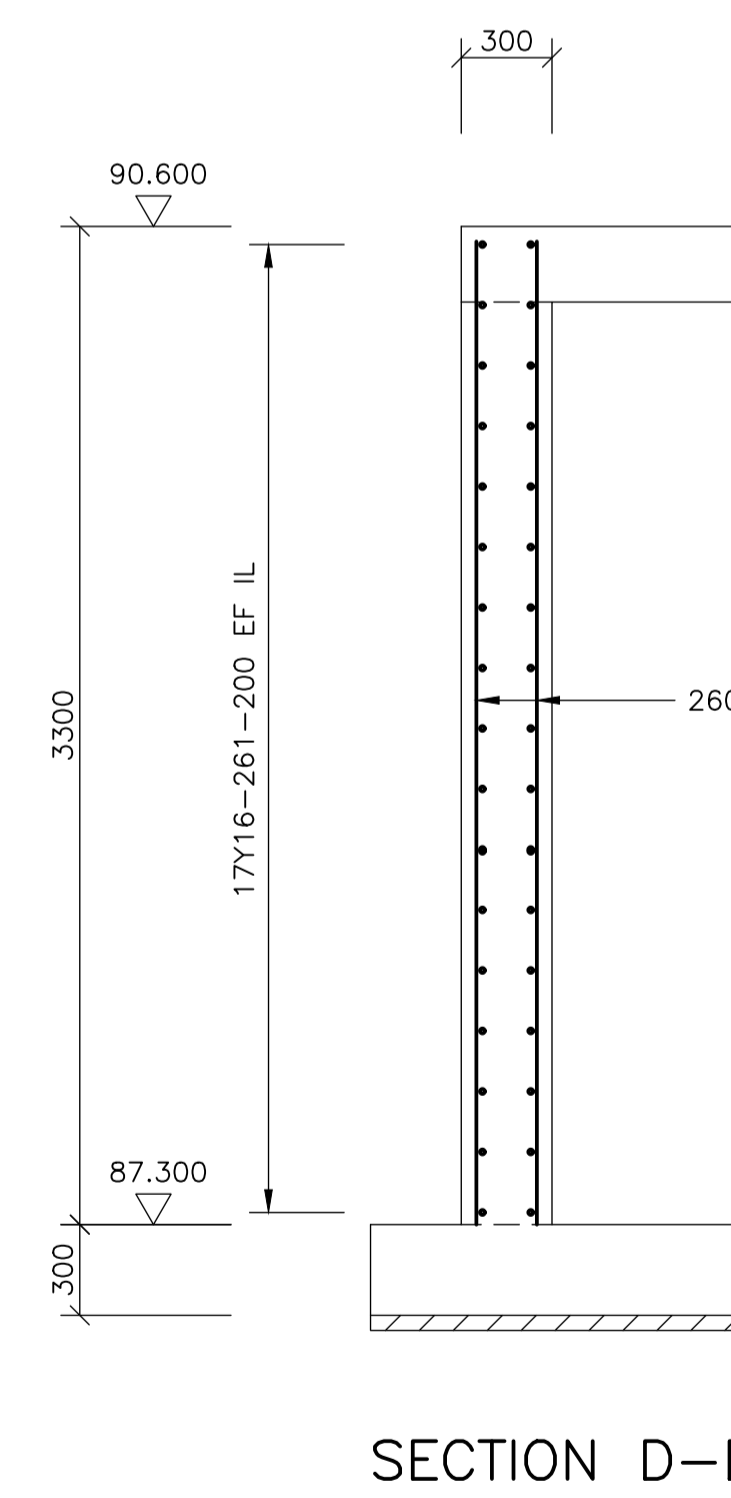
EXTERNAL ELEVATION ON WALL B REINFORCEMENT
SCALE 1:25



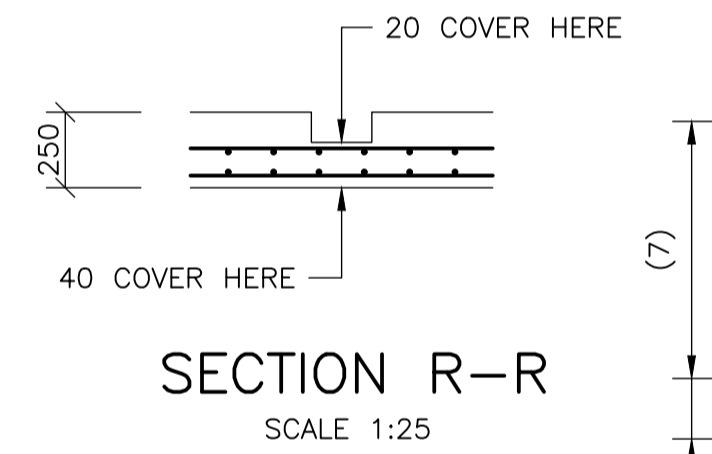
EXTERNAL ELEVATION ON WALL C REINFORCEMENT
SCALE 1:25



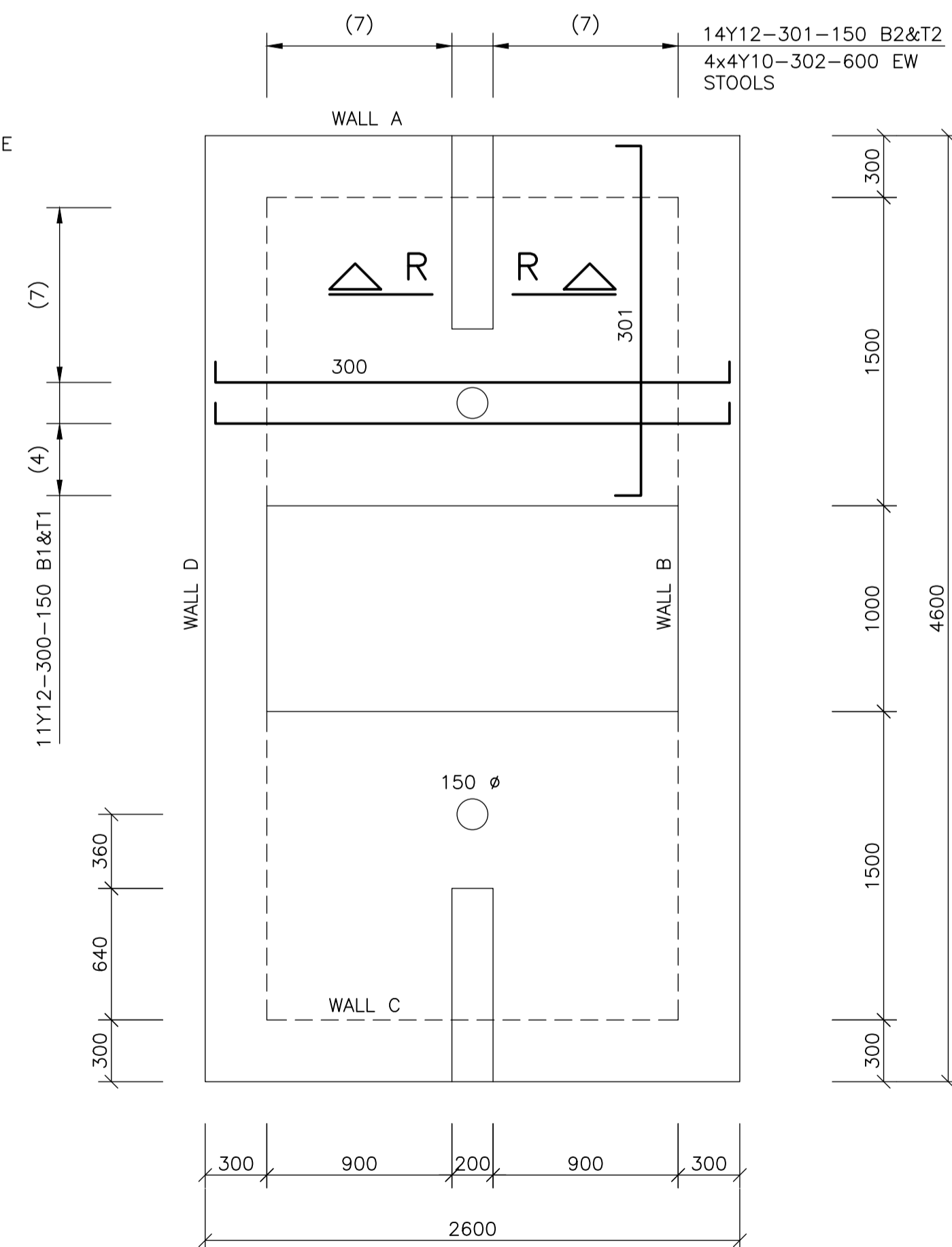
EXTERNAL ELEVATION ON WALL D REINFORCEMENT
SCALE 1:25



SECTION D-D
SCALE 1:25



SECTION R-R
SCALE 1:25



PLAN ON PLATFORMS
SCALE 1:25

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CLIENT
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REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-04-21	ISSUED FOR CONSTRUCTION

T. BANDA	PR ENG no.	DATE
ENGINEER		
CLIENT		DATE

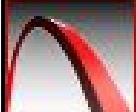
PROJECT
POLOKWANE REGIONAL
WASTE WATER TREATMENT
WORKS

DRAWING DESCRIPTION
SCUM PUMP STATION
WALL REINFORCEMENT

CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Designer	Author	Checker
REV DATE	SCALE	ORIGINAL SIZE
2023-04	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0019-5102	0	

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUMBER	MARK	S C	BENDING				
								A	B	C	D	E/r
Foundation	1	30	Y16	1450	30	100	38	150	1200	(150)		
		14	Y16	2950	14	101	38	150	2700	(150)		
		4	Y10	1200	4	102	83	300	150	350	(350)	
		30	Y16	1800	30	103	37	300	(1550)			
		30	Y16	1250	30	104	54	300	700	(300)		
		12	Y16	1150	12	105	54	300	620	(300)		
		22	Y16	2150	22	110	38	150	1900	(150)		
		22	Y16	750	22	111	38	150	500	(150)		
		32	Y16	3350	32	112	38	150	3100	(150)		
		12	Y16	1650	12	113	38	150	1400	(150)		
		30	Y16	5350	30	114	38	150	5100	(150)		
		4	Y16	1000	4	115	20	(1000)				
		108	Y16	1300	108	116	37	300	(1050)			
		24	Y10	1200	24	117	83	300	150	350	(350)	
		Wall A	1	20	Y16	3250	20	200	20	(3250)		
2	Y16			3150	2	201	20	(3150)				
34	Y16			3000	34	202	38	300	2450	(300)		
8	Y16			1000	8	203	20	(1000)				
12	Y10			1200	12	204	83	300	150	350	(350)	
Wall B	1	52	Y16	3250	52	220	20	(3250)				
		34	Y16	5000	34	221	38	300	4450	(300)		
		4	Y16	1500	4	222	20	(1500)				
		8	Y16	1000	8	223	20	(1000)				
		18	Y10	1200	18	224	83	300	150	350	(350)	
Wall C	1	20	Y16	3250	20	240	20	(3250)				
		2	Y16	3150	2	241	20	(3150)				
		34	Y16	3000	34	242	38	300	2450	(300)		
		12	Y10	1200	12	243	83	300	150	350	(350)	
Wall D	1	48	Y16	3250	48	260	20	(3250)				
		34	Y16	5000	34	261	38	300	4450	(300)		
		18	Y10	1200	18	262	83	300	150	350	(350)	
Platforms	2	22	Y12	2650	44	300	38	100	2500	(100)		
		28	Y12	1850	56	301	38	100	1700	(100)		
		16	Y10	900	32	302	83	250	60	300	(300)	

	8	10	12	16	20	25	32	40	TOT	Date	2023/04/20
R										Det. by	Koos Bultman
Y		83	195	2714					2992	Ref Dwg	5101 - 5102
TOT		83	195	2714					2992	Job No	PK278

 PROKON Software Consultants (Pty) Ltd http://www.prokon.com	Polokwane Regional WWTW Scum Pump Station Foundations	Revision	1
		Schedule No	400

GENERAL NOTES

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1.4 ANY ERRORS, DIMENSIONS OR DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

1.5 TOLERANCES SHALL BE DEGREE OF ACCURACY UNLESS OTHERWISE SPECIFIED.

1.6 ALL OVER - EXCAVATION SHALL BE MADE GOOD USING MASS CONCRETE FOR THE CONTRACTORS ACCOUNT.

CONCRETE

2.1 NO-FINES CONCRETE, WHERE STRUCTURAL CONCRETE IS TO BE PLACED ON TOP, SHALL BE FINISHED WITH A SKIMMED COAT OF MORTAR TO LIMIT BLEEDING OF STRUCTURAL CONCRETE AND OR BLINDING OF THE NO-FINE LAYER.

2.2

2.3 ALL CONCRETE SHALL BE MECHANICALLY COMPACTED THROUGH THE USE OF VIBRATORS.

2.4 CONCRETE SHALL BE CAST CONTINUOUSLY. IF STOPPAGES OF MORE THAN 40 MINUTES ARE UNAVOIDABLE, CONSTRUCTION JOINTS SHALL BE FORMED IN THE POSITIONS AND ACCORDING TO THE DETAILS AS PER PROJECT SPECIFICATION

2.5 OPENINGS IN THE CONCRETE WALLS TO BE GROUTED CLOSED WITH ANTI-CORROSION PRODUCT AS PER PROJECT SPECIFICATION AFTER THE INSTALLATION OF THE PIPEWORK.

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2.7 NO CONCRETE SHALL BE PLACED PRIOR TO THE APPROVAL OF THE RESIDENT ENGINEER

2.8 A CLASS U3 SURFACE FINISH, INCLUDING STEEL FLOAT TO A SMOOTH SURFACE WITHIN 2mm OF LEVEL, SHALL BE PROVIDED TO ALL TOP OF WALL SURFACES SUPPORTING MECHANICAL COMPONENTS.

2.9 STRUCTURE TO BE TESTED FOR WATER-TIGHTNESS AS PER PROJECT SPECIFICATION. RATE OF FILLING NOT TO EXCEED 2m IN 24 HOURS. FOR 0.2mm CRACK WIDTH, STABILIZING PERIOD TO BE 21 DAYS. AFTER ALLOWING FOR EVAPORATION AND RAINFALL, DROPS IN LEVEL NOT TO EXCEED 1/500TH OF AVERAGE DEPTH OF FULL TANK.

REINFORCEMENT

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 WALLS - 60mm
 FLOORS - 50mm
 SLABS - 60mm

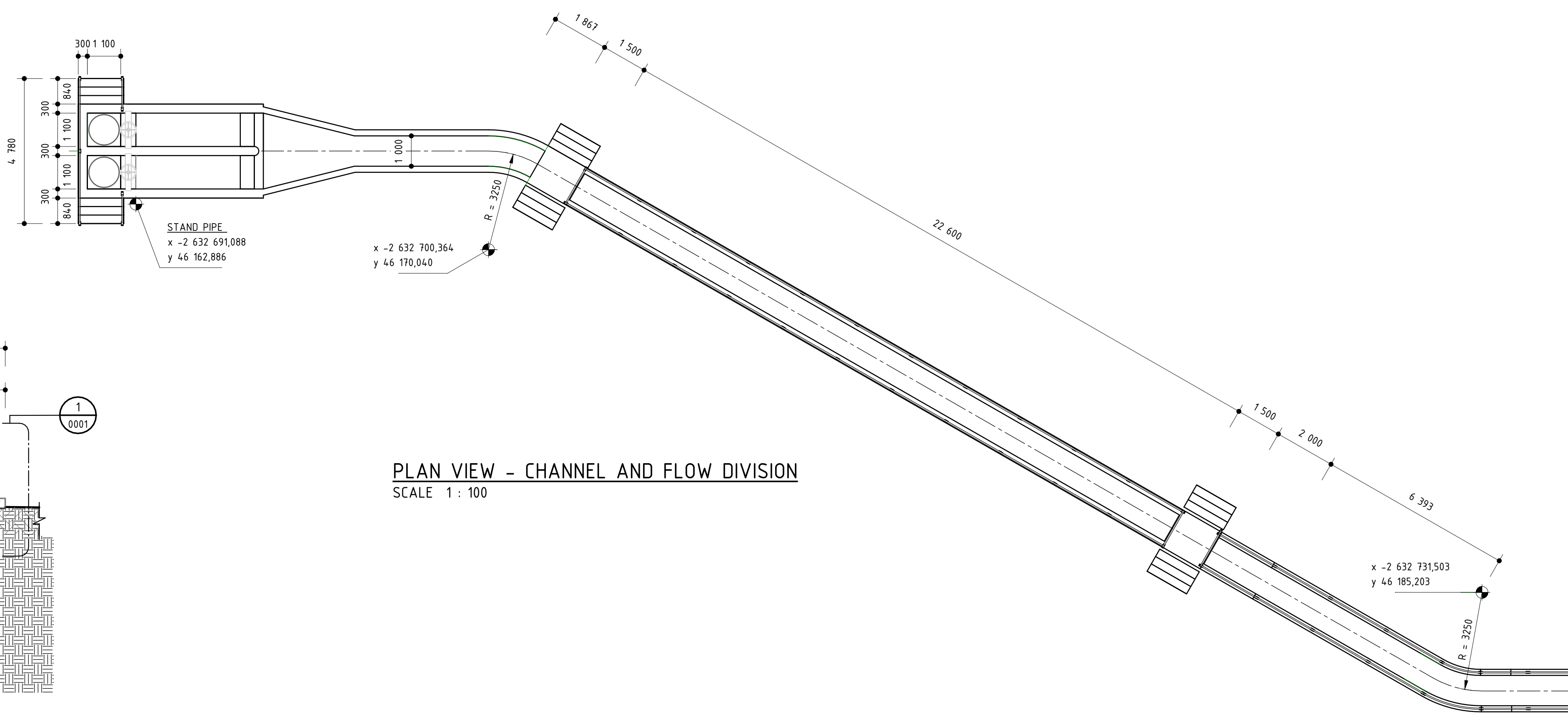
3.3 WELDING, HEATING TREATMENT AND GAS CUTTING OF REINFORCEMENT SHALL BE PERMITTED.

LEGEND:

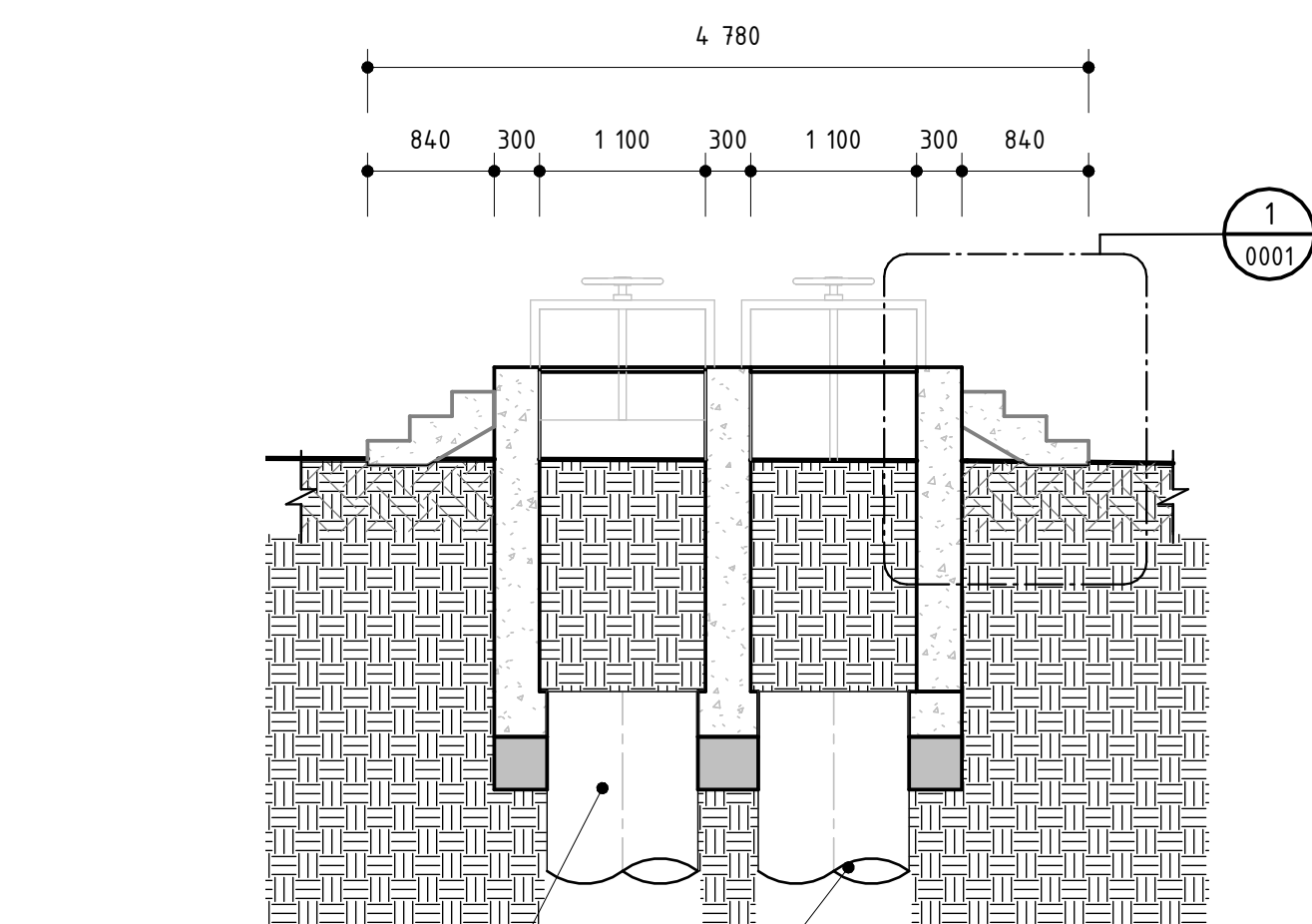
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- ND = NOMINAL DIAMETER
- NGL = NATURAL GROUND LEVEL
- TOC = TOP OF CONCRETE
- TWL = TYPICAL WATER LEVEL
- UF = UNDERSIDE OF FOOTING

CONSTRUCTION DRAWING

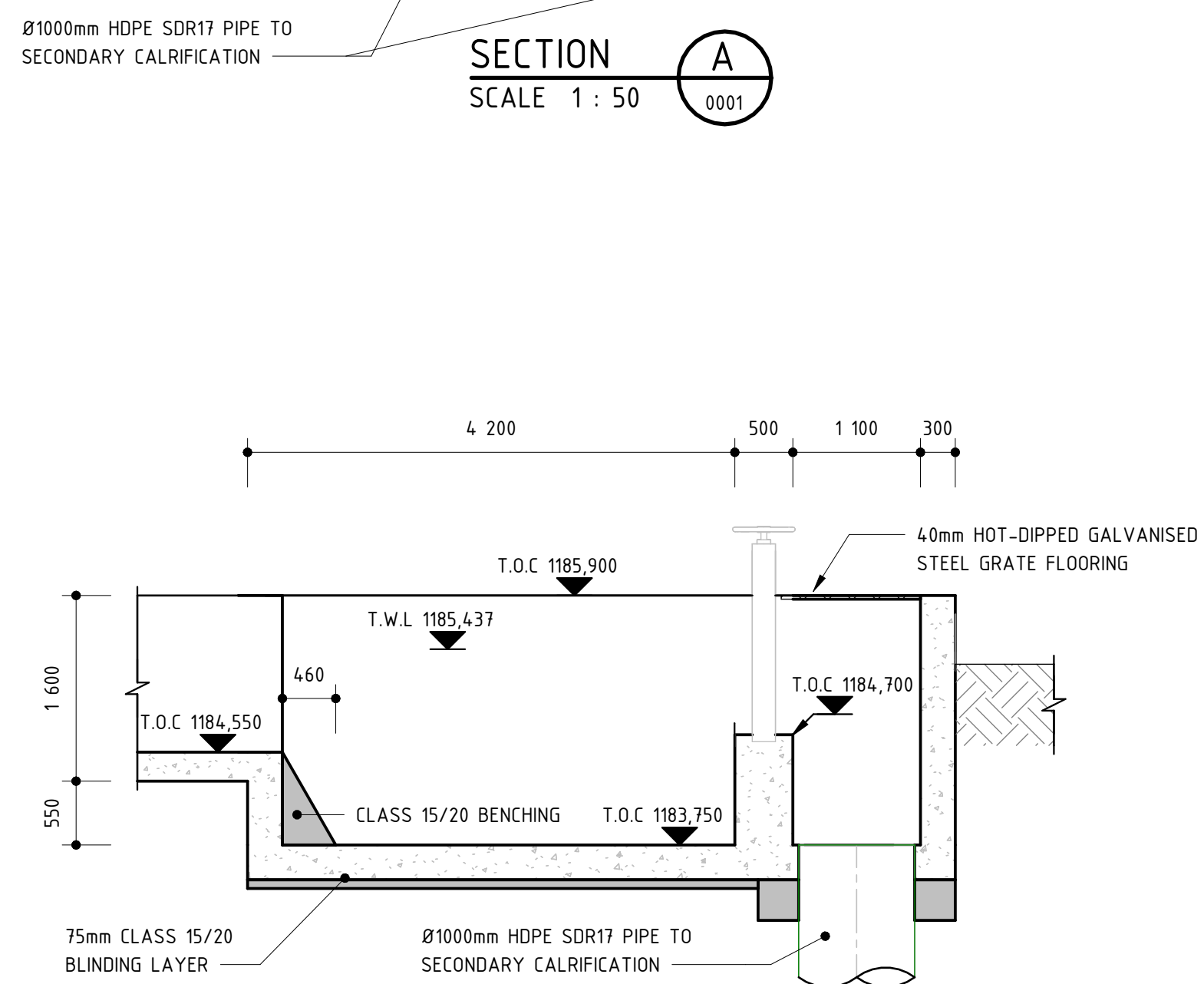
DESIGNED	DRAWN	CHECKED
REV DATE	SCALE	ORIGINAL SIZE
2023-06	As indicated	A1
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PK278-01-STR-DRG-0004-0001	0	



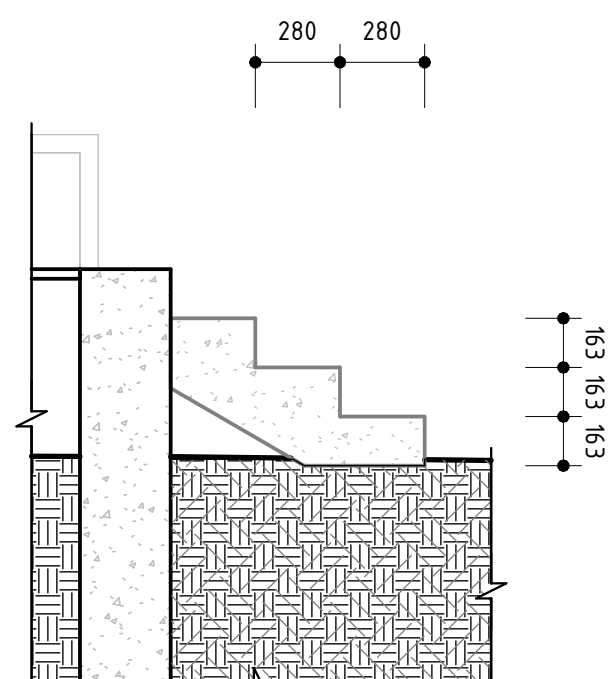
PLAN VIEW - CHANNEL AND FLOW DIVISION
SCALE 1 : 100



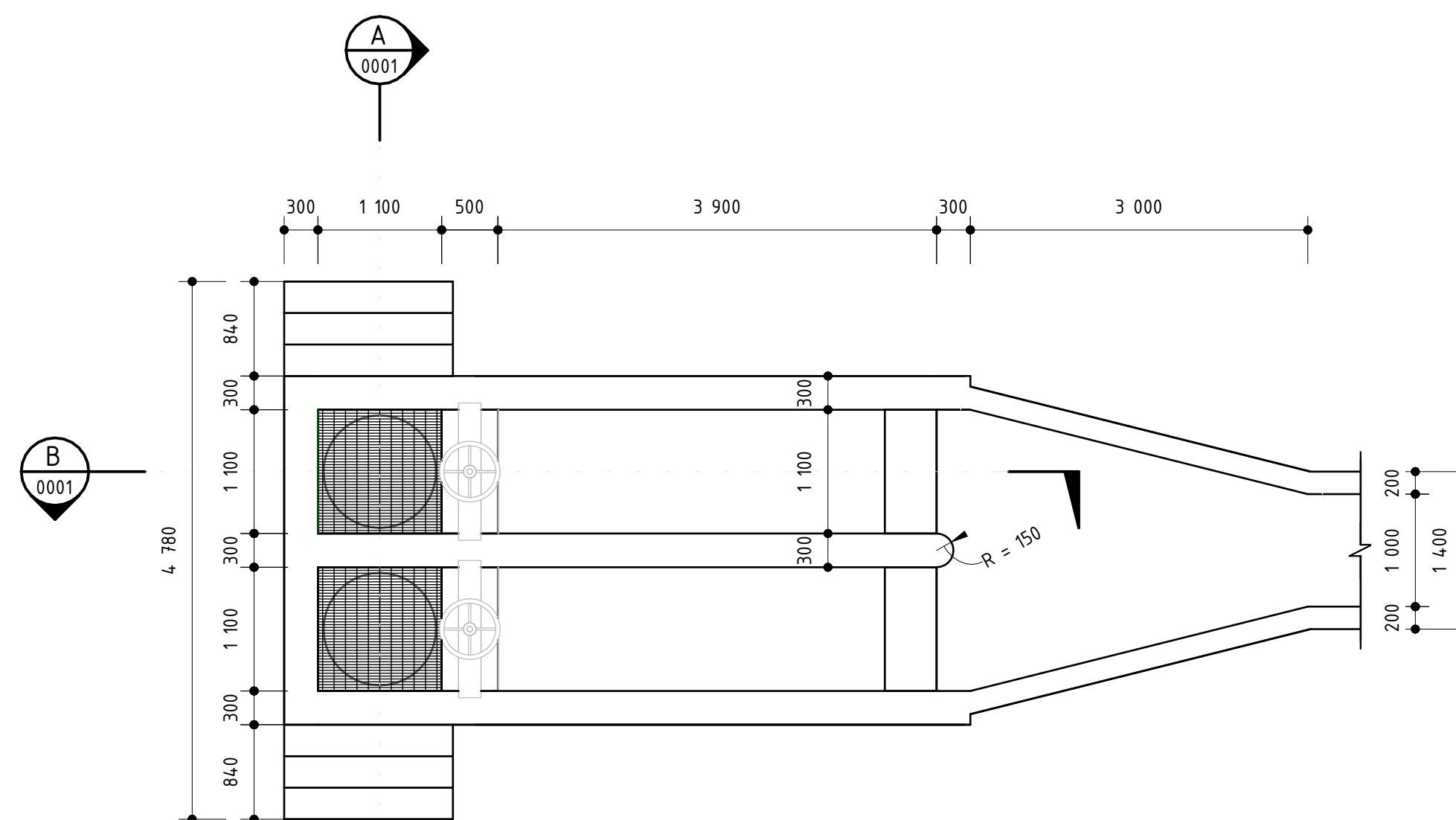
SECTION A
SCALE 1 : 50



SECTION B
SCALE 1 : 50



DETAIL 1
SCALE 1 : 25



PLAN VIEW - DIVISION CHAMBER
SCALE 1 : 50

NOTES

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CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE

NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T.BANDA
ENGINEER

PR ENG no. _____ DATE _____

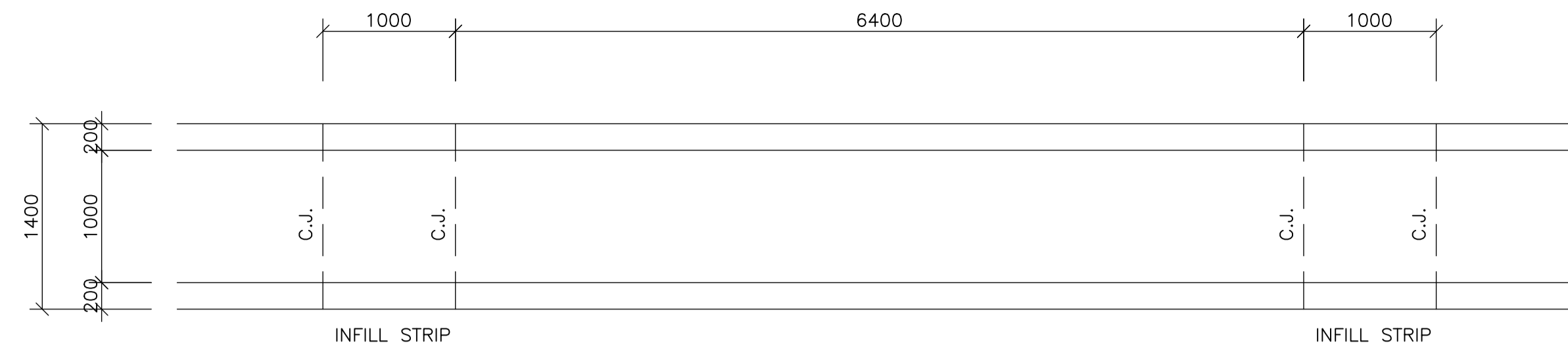
CLIENT _____ DATE _____

PROJECT

POLOKWANE REGIONAL WASTEWATER TREATMENT WORKS

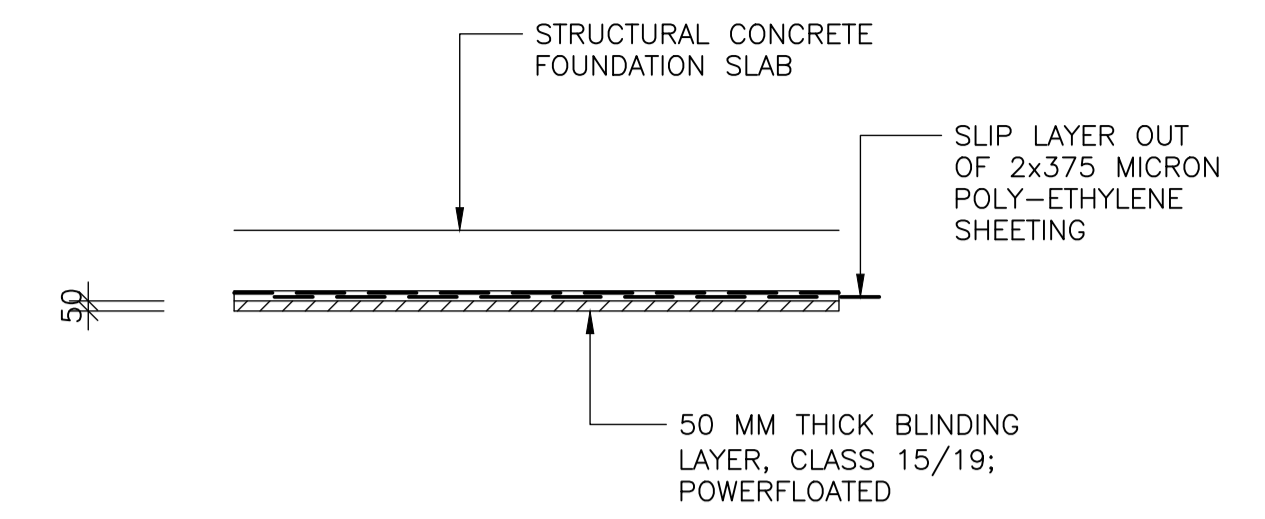
DRAWING DESCRIPTION

PLAN VIEW, SECTION AND DETAIL SECONDARY FLOW DIVISION



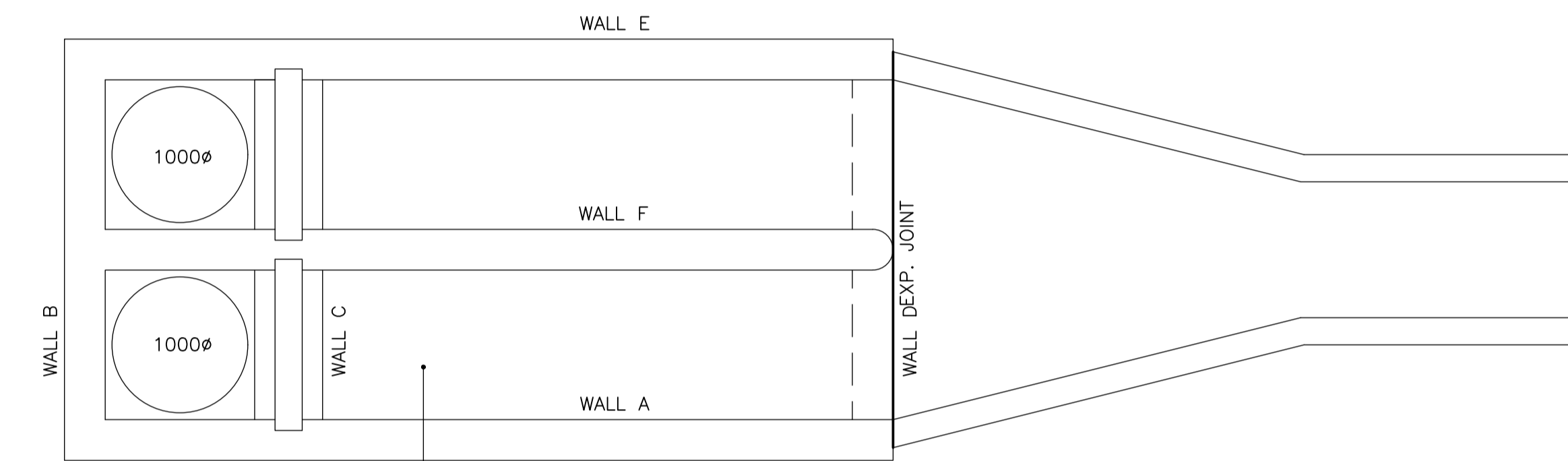
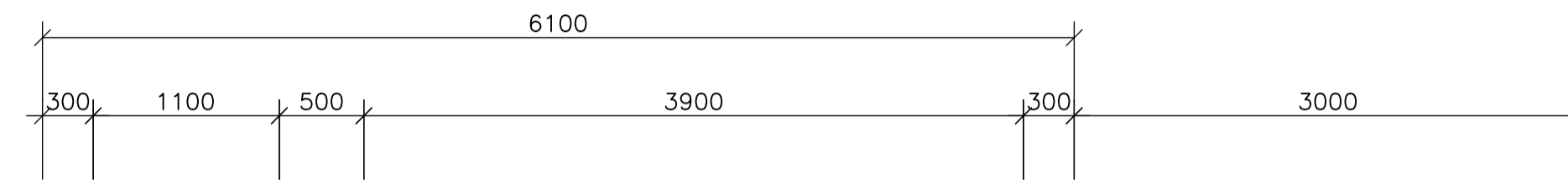
PLAN ON TYPICAL CANAL SECTION

SCALE 1:37.5



BLINDING / SLIP LAYER DETAIL

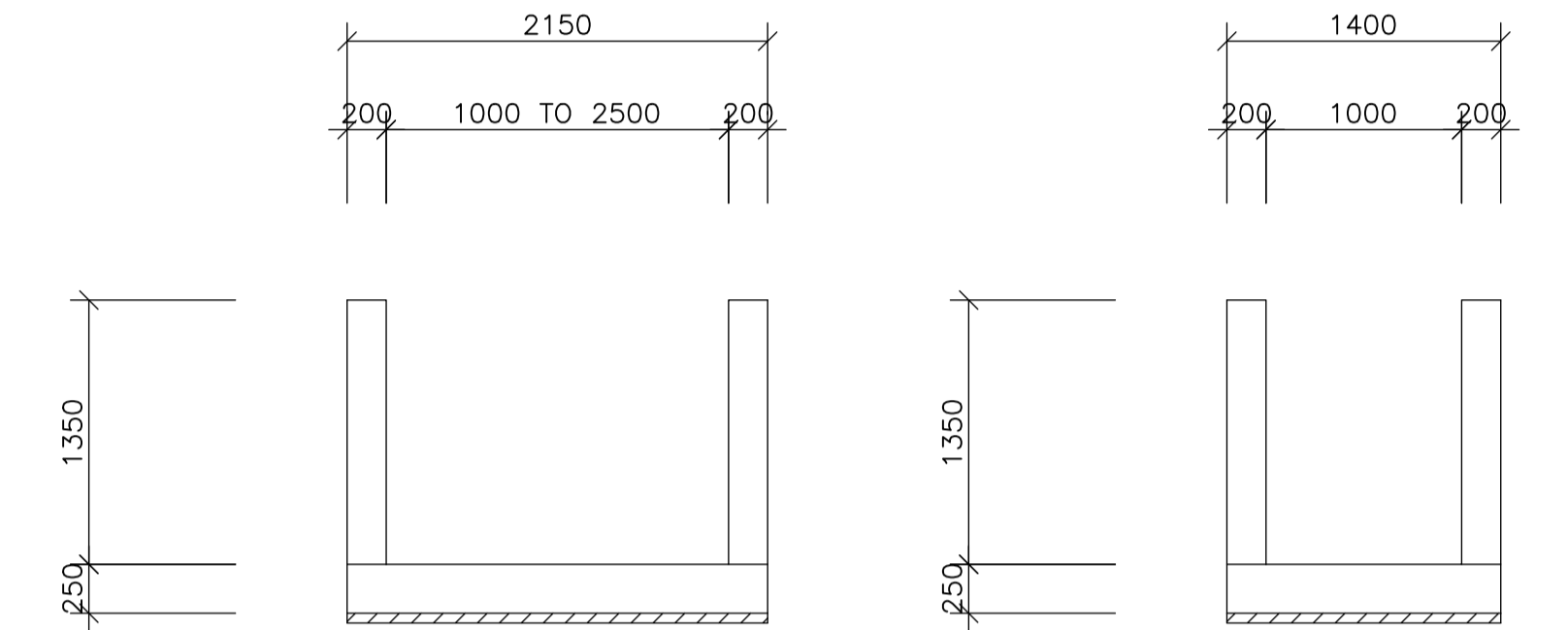
SCALE 1:37.5 TYPICAL DETAIL



300 MM THICK FOUNDATION SLAB.
TOP AT LEVEL 83.750

PLAN ON SECONDARY FLOW DIVISION CHAMBER

SCALE 1:37.5



SECTION D-D

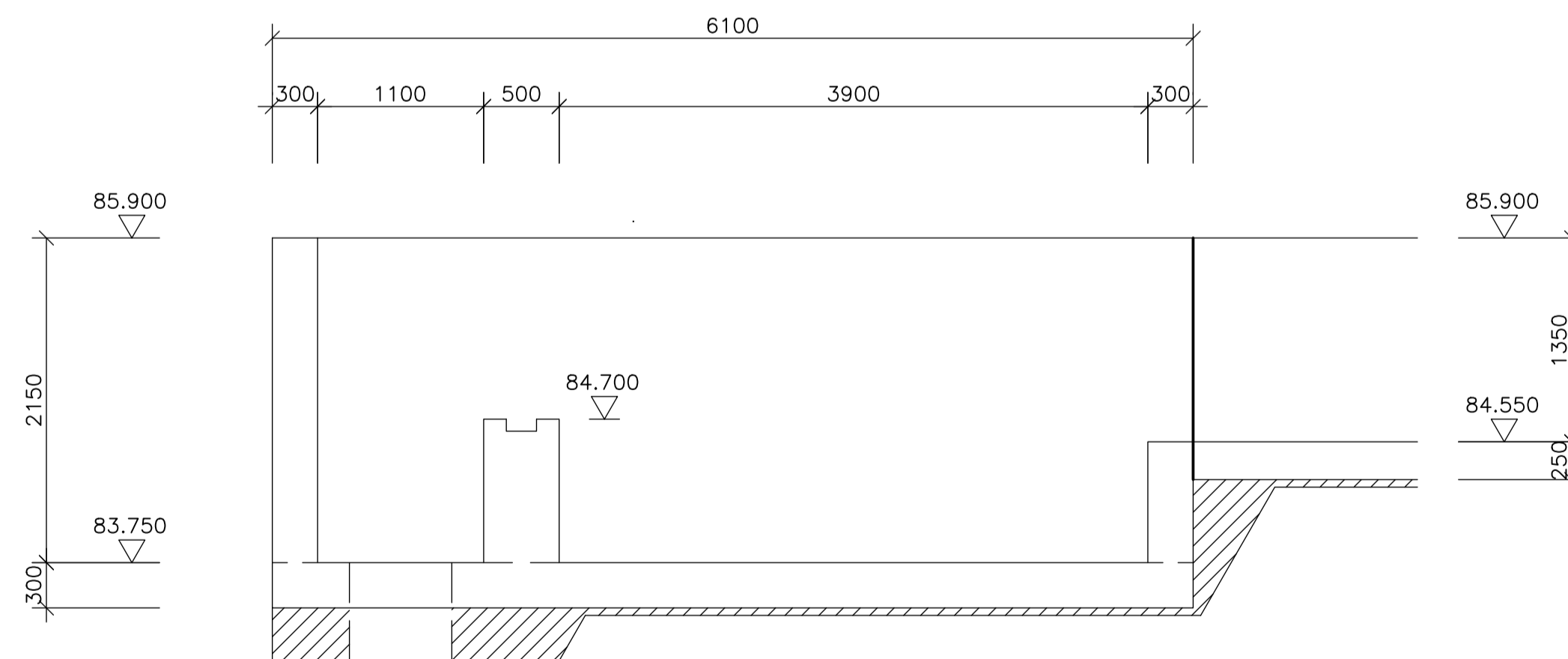
SCALE 1:37.5

SECTION E-E

SCALE 1:37.5

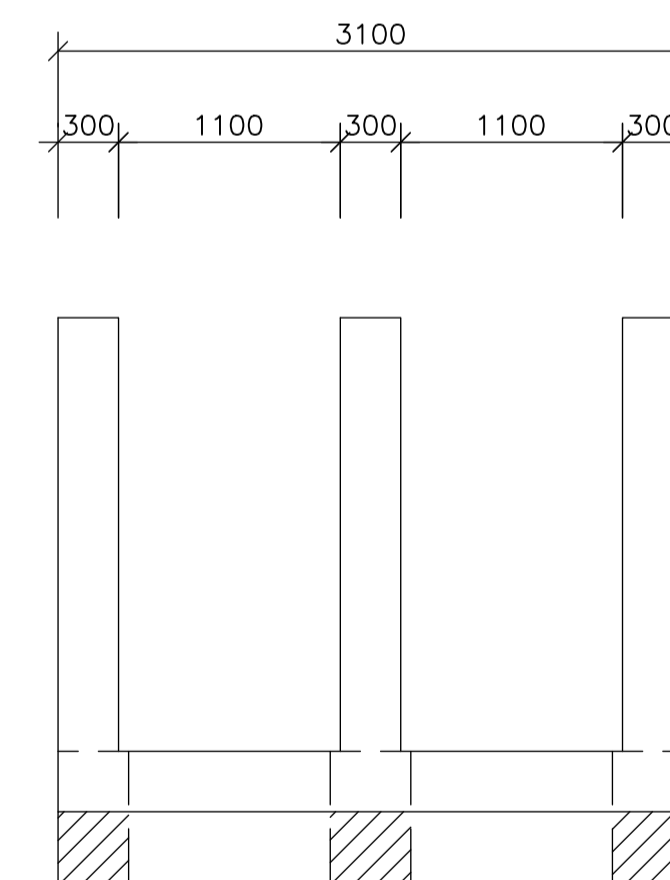
NOTES:

1. THIS FOUNDATION HAS BEEN DESIGNED FOR A SAFE BEARING PRESSURE OF 100 kPa AND A MAX DIFFERENTIAL SETTLEMENT OF 5 MM
2. FOUNDING CONDITIONS TO BE APPROVED BY THE GEOTECHNICAL ENGINEER
3. PROVIDE A 50 MM BLINDING LAYER OF CONCRETE CLASS 15/19 BELOW ALL FOUNDATIONS; ALL AS PER DETAIL.
4. STRUCTURAL CONCRETE FOR ALL FOUNDATIONS, WALLS AND SLABS TO BE CLASS WR35/19
5. INFILL STRIPS TO BE CAST 28 DAYS AFTER CASTING THE LAST ADJACENT SECTION
6. CONSTANT TO ALL LEVELS = 1100.000
7. ALL PIPE OPENINGS, GRATINGS, FIXINGS ETC, AS PER GA DRAWINGS
8. ALL CANAL LEVELS AS PER GA DRAWINGS



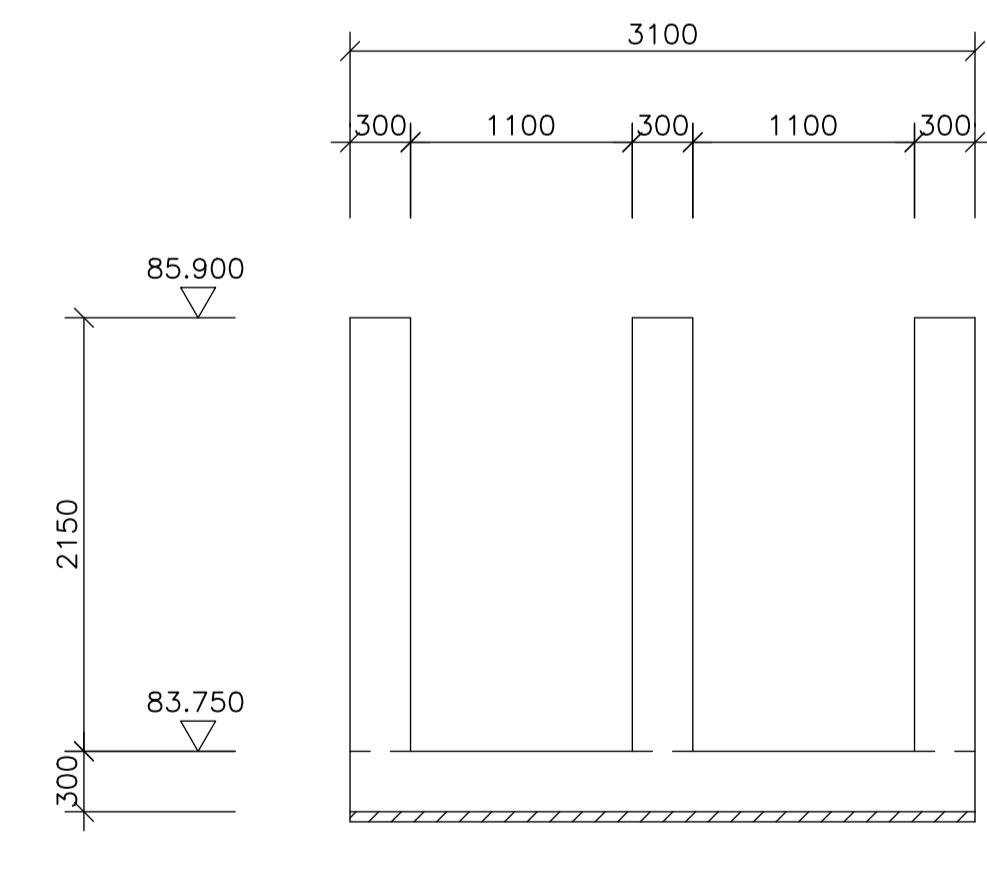
SECTION A-A

SCALE 1:37.5



SECTION B-B

SCALE 1:37.5



SECTION C-C

SCALE 1:37.5

CONSTRUCTION DRAWING

NOTES
1.1 DO NOT SCALE THE DRAWINGS.
1.2 ALL DIMENSIONS TO BE VERIFIED ON SITE, PRIOR TO MANUFACTURING OR ORDERING OF EQUIPMENT.
1.3 ANY IN-CLEARITIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTING ENGINEER
1.4 THIS DRAWING, OR PART THEREOF, SHALL NOT BE USED FOR ANY OTHER INSTALLATION PROJECT OTHER THAN THIS ONE.
1.5 THIS DRAWING FORMS PART OF THE SPECIFICATION AND MUST BE READ IN CONJUNCTION WITH THE SAME.

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CLIENT
CITY OF Polokwane
NATURALLY PROGRESSIVE

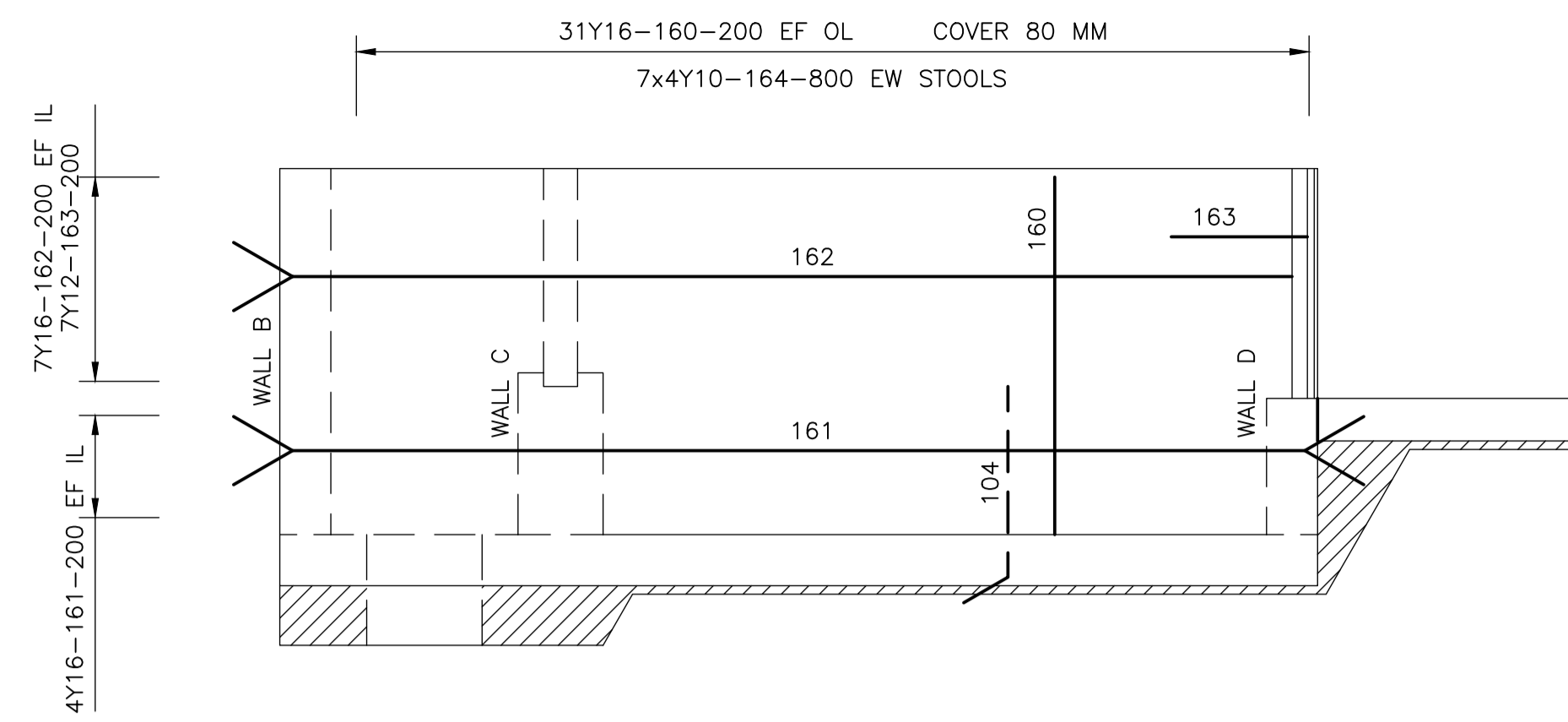
REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T BANDA	XXXXXXXX	DATE
ENGINEER	PR ENG no.	
CLIENT		DATE

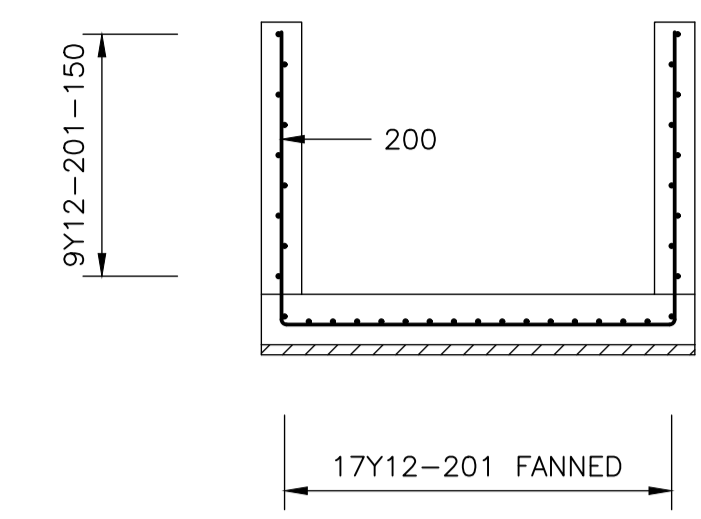
PROJECT
POLOKWANE REGIONAL WASTE WATER TREATMENT WORKS

DRAWING DESCRIPTION
SECONDARY FLOW DIVISION CONCRETE DETAILS

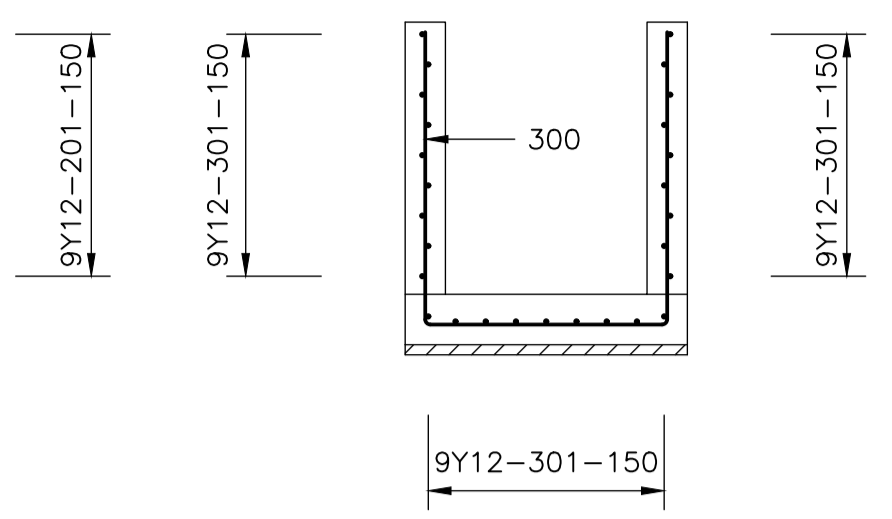
DESIGNED	DRAWN	CHECKED
Koos Bultman	Koos Bultman	Johan Bultman
REV DATE	SCALE	ORIGINAL SIZE
2023-04	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)		REV
PK278-01-STR-DRG-0004-5001		0



ELEVATION OF WALL F REINFORCEMENT
SCALE 1:37.5

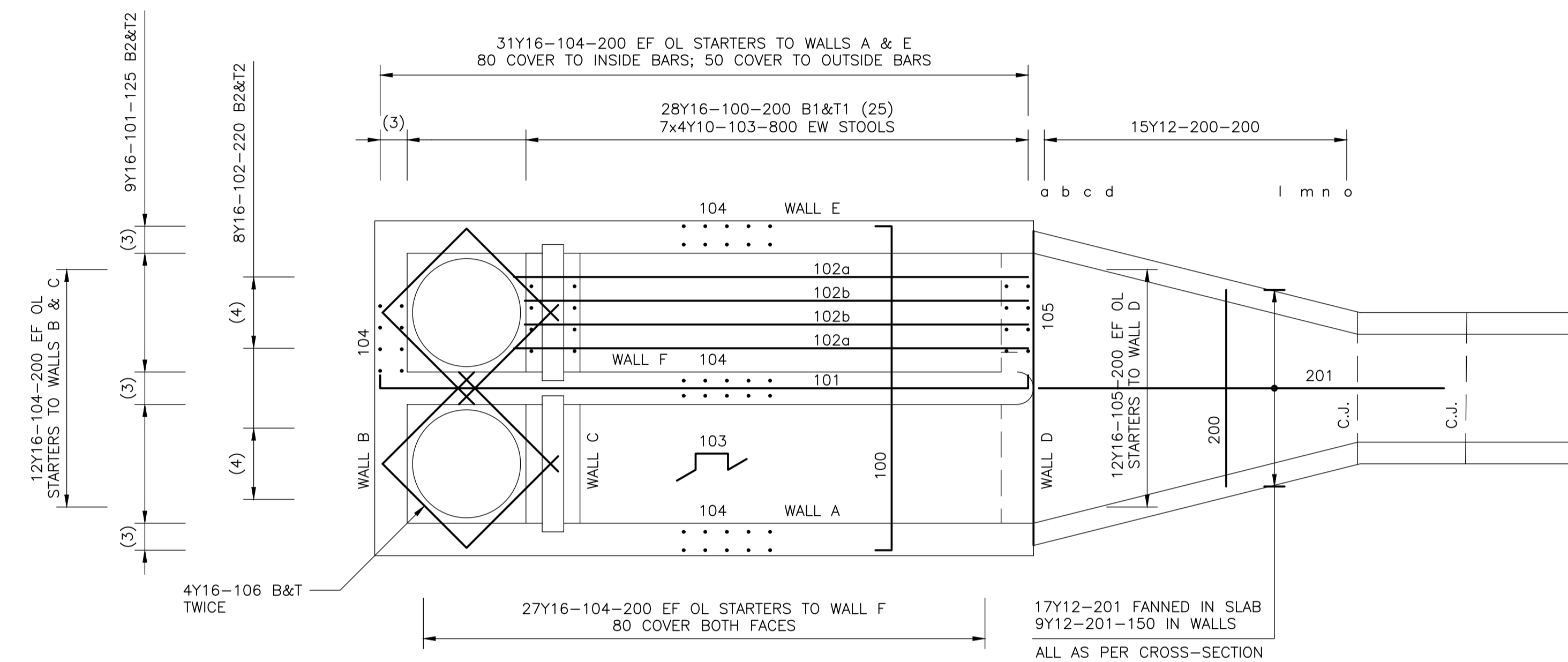


SECTION D-D
SCALE 1:37.5

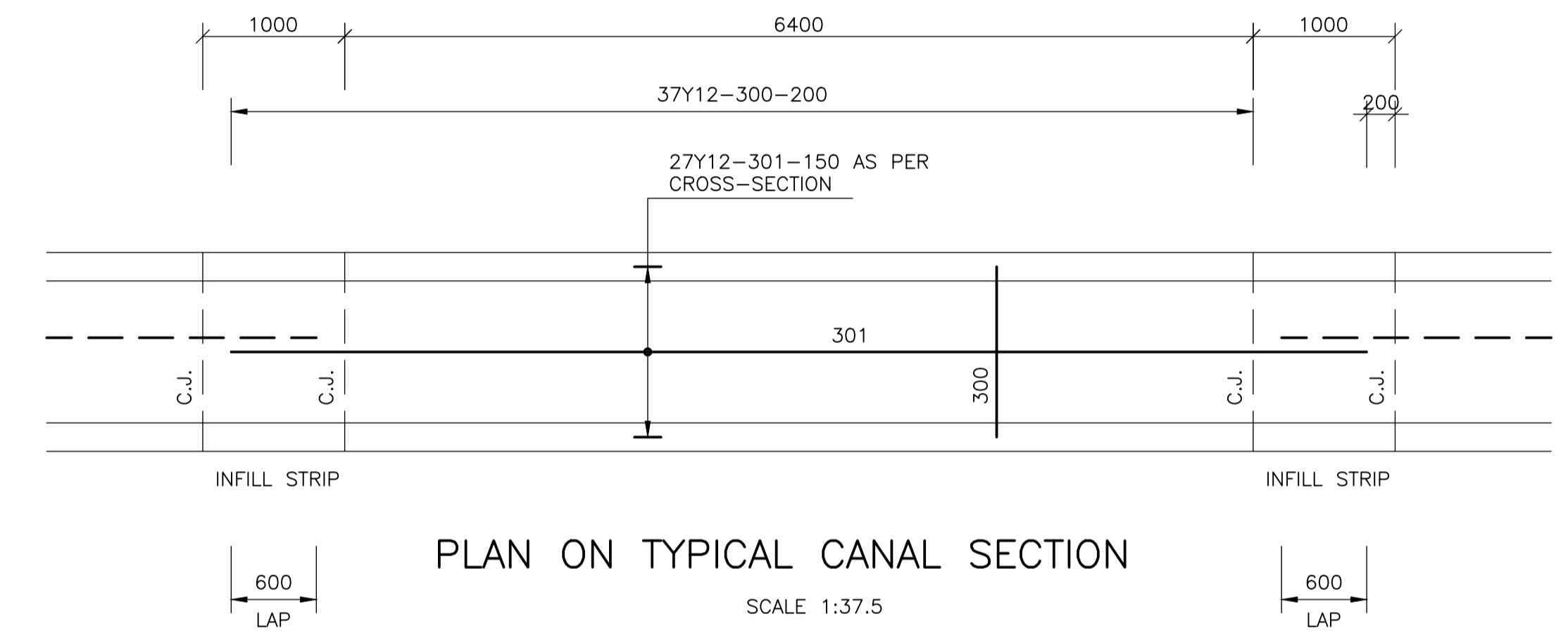


SECTION E-E
SCALE 1:37.5

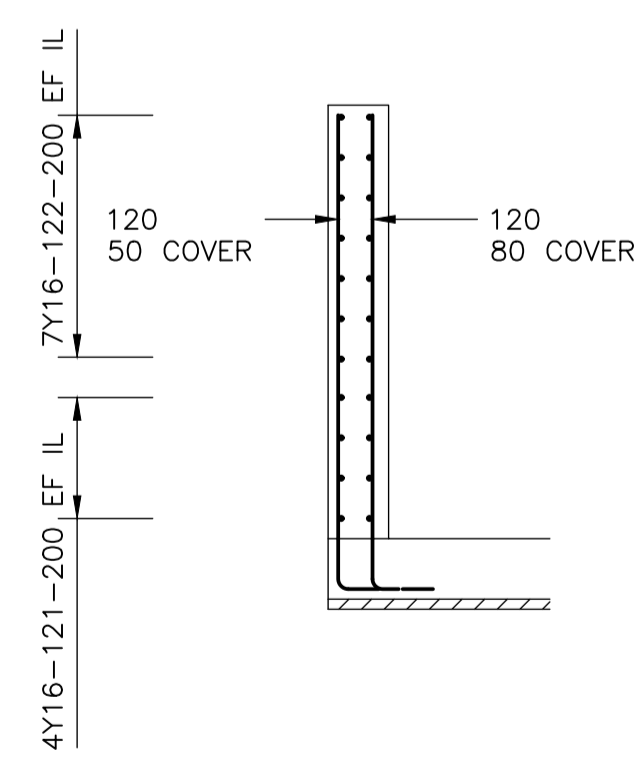
- NOTES:
1. STRUCTURAL CONCRETE FOR ALL FOUNDATIONS, WALLS AND SLABS TO BE CLASS WR35/19
 2. INFILL STRIPS TO BE CAST 28 DAYS AFTER CASTING THE LAST ADJACENT SECTION
 3. UNLESS OTHERWISE SHOWN, ALL CONCRETE COVER TO VERTICAL BARS TO BE 50 MM



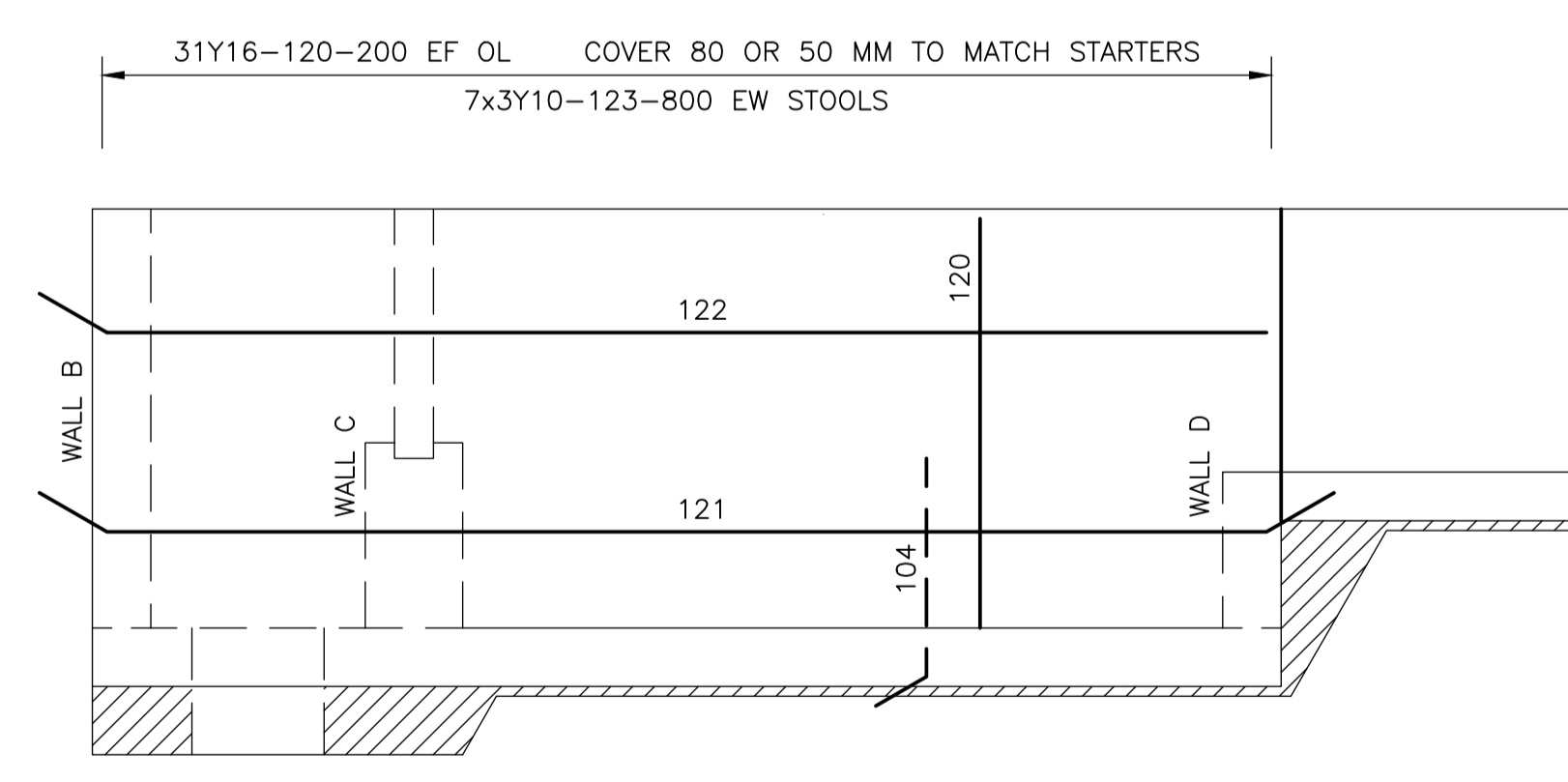
PLAN ON FOUNDATION SLAB
SCALE 1:37.5



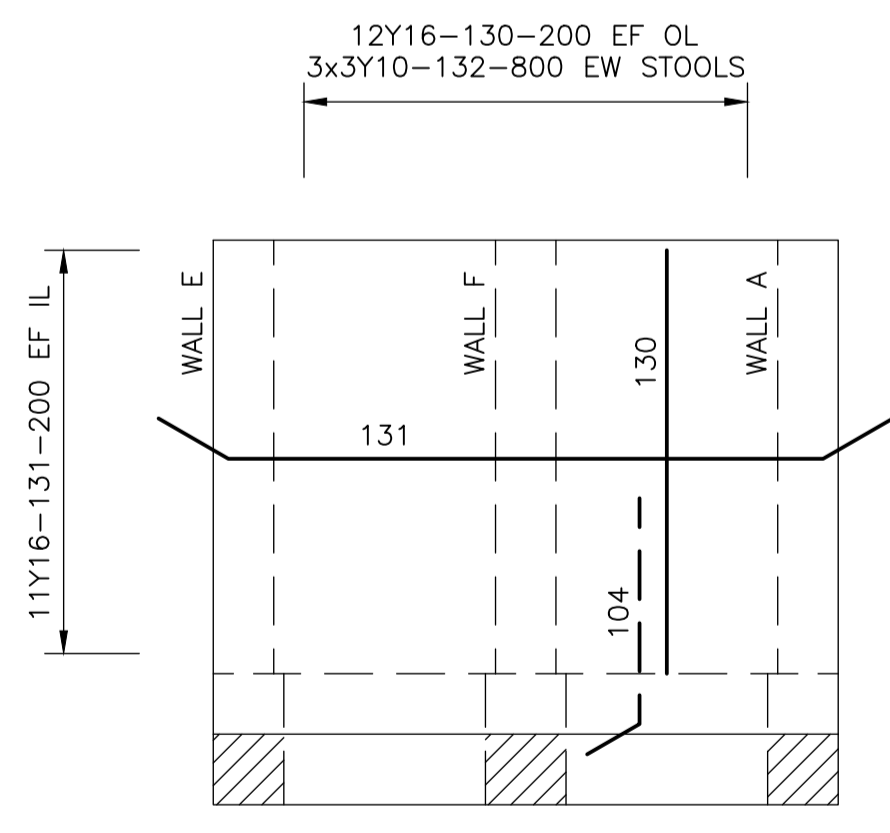
PLAN ON TYPICAL CANAL SECTION
SCALE 1:37.5



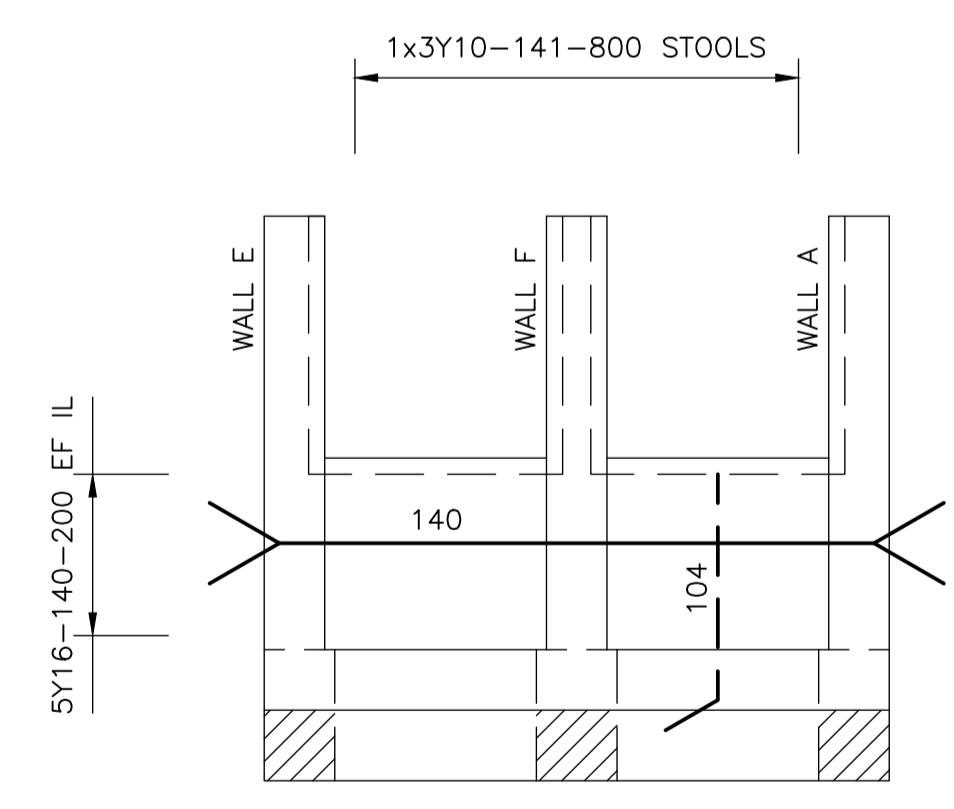
SECTION A-A
SCALE 1:37.5



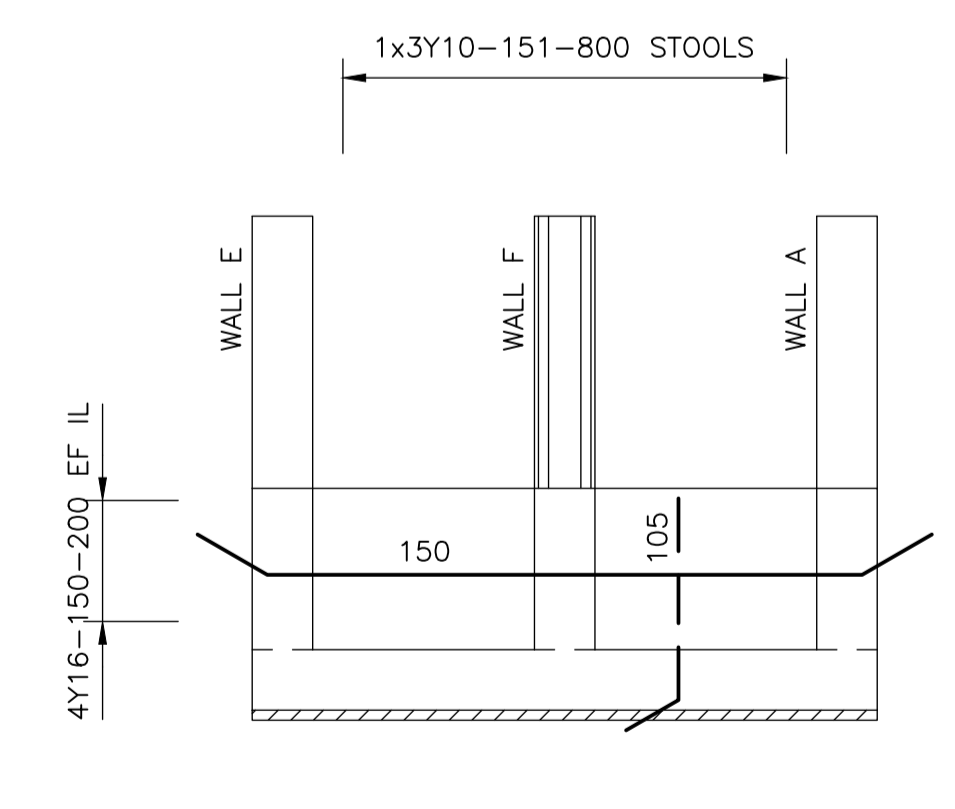
ELEVATION OF WALL A REINFORCEMENT
SCALE 1:37.5 WALL E IDENTICAL BUT HANDED



ELEVATION OF WALL B REINFORCEMENT
SCALE 1:37.5



ELEVATION OF WALL C REINFORCEMENT
SCALE 1:37.5



ELEVATION OF WALL D REINFORCEMENT
SCALE 1:37.5

- NOTES
- 1.1 DO NOT SCALE THE DRAWINGS.
 - 1.2 ALL DIMENSIONS TO BE VERIFIED ON SITE, PRIOR TO MANUFACTURING OR ORDERING OF EQUIPMENT.
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CLIENT

CITY OF Polokwane
NATURALLY PROGRESSIVE

REVISION SCHEDULE		
NO.	DATE	REVISION DESCRIPTION
0	2023-06	ISSUED FOR CONSTRUCTION

T BANDA
ENGINEER

XXXXXXXX
PR ENG no.

DATE

CLIENT

DATE


PROJECT


POLOKWANE REGIONAL WASTE WATER TREATMENT WORKS

DRAWING DESCRIPTION

SECONDARY FLOW DIVISION REINFORCEMENT DETAILS

CONSTRUCTION DRAWING		
DESIGNED	DRAWN	CHECKED
Koos Bultman	Koos Bultman	Johan Bultman
REV DATE	SCALE	ORIGINAL SIZE
2023-04	AS SHOWN	A1
DRAWING NUMBER		
PROJ No - DISCIPLINE - SERV - SEQ No - (SHEET)	REV	
PK278-01-STR-DRG-0004-5101	0	

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUMBER	MARK	S C	BENDING				
								A	B	C	D	E/r
Foundation Slab	1	56	Y16	3300	56	100	38	175	3000	(175)	(350)	
		18	Y16	6250	18	101	38	150	6000	(150)		
		8	Y16	5000	8	102a	38	150	4750	(150)		
		8	Y16	4900	8	102b	38	150	4650	(150)		
		28	Y10	1200	28	103	83	300	150	350		
		226	Y16	1350	226	104	37	300	(1100)			
		24	Y16	1250	24	105	37	300	(1000)			
		16	Y16	1200	16	106	20	(1200)				
Walls A&E	2	62	Y16	2100	124	120	20	(2100)			(350)	
		8	Y16	6500	16	121	38	300	5950	(300)		
		14	Y16	6200	28	122	37	300	(5950)			
		21	Y10	1150	42	123	83	300	120	350		
Wall B	1	24	Y16	2100	24	130	20	(2100)			(350)	
		22	Y16	3500	22	131	38	300	2950	(300)		
		9	Y10	1200	9	132	83	300	150	350		
Wall C	1	10	Y16	3500	10	140	38	300	2950	(300)	(350)	
		3	Y10	1600	3	141	83	300	350	350		
Wall D	1	8	Y16	3500	8	150	38	300	2950	(300)	(350)	
		3	Y10	1100	3	151	83	300	150	300		
Wall F	1	58	Y16	2100	58	160	20	(2100)			(350)	
		8	Y16	6500	8	161	38	300	5950	(300)		
		14	Y16	6100	14	162	37	300	(5850)			
		7	Y12	1700	7	163	39	800	170	(800)		
		28	Y10	1100	28	164	83	300	90	350		
	8	10	12	16	20	25	32	40	TOT	Date	2023/05/24	
R										Det. by	Koos Bultman	
Y		81	11	2712					2804	Ref Dwg	5101	
TOT		81	11	2712					2804	Job No	PK278	
 PROKON Software Consultants (Pty) Ltd http://www.prokon.com		Polokwane Regional WWTW Secondary Flow Division Chamber Foundations and Walls							Revision		1	
		Schedule No		790								

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUMBER	MARK	S C	BENDING					
								A	B	C	D	E/r	
Canal transition	1	1	Y12	5500	1	200a	38	1450	2650	(1450)			
		1	Y12	5400	1	200b	38	1450	2550	(1450)			
		1	Y12	5300	1	200c	38	1450	2450	(1450)			
		1	Y12	5200	1	200d	38	1450	2350	(1450)			
		1	Y12	5100	1	200e	38	1450	2250	(1450)			
		1	Y12	5000	1	200f	38	1450	2150	(1450)			
		1	Y12	4900	1	200g	38	1450	2050	(1450)			
		1	Y12	4800	1	200h	38	1450	1950	(1450)			
		1	Y12	4700	1	200i	38	1450	1850	(1450)			
		1	Y12	4600	1	200j	38	1450	1750	(1450)			
		1	Y12	4500	1	200k	38	1450	1650	(1450)			
		1	Y12	4400	1	200l	38	1450	1550	(1450)			
		1	Y12	4300	1	200m	38	1450	1450	(1450)			
		1	Y12	4200	1	200n	38	1450	1350	(1450)			
				1	Y12	4100	1	200o	38	1450	1250	(1450)	
		35	Y12	3500	35	201	20	(3500)					
One typical canal section	1	37	Y12	4050	37	300	38	1450	1200	(1450)			
		27	Y12	8000	27	301	20	(8000)					
	8	10	12	16	20	25	32	40	TOT	Date	2023/05/24		
R										Det. by	Koos Bultman		
Y			497						497	Ref Dwg	5101		
TOT			497						497	Job No	PK278		
 PROKON Software Consultants (Pty) Ltd http://www.prokon.com										Polokwane Regional WWTW Secondary Flow Division Canal Transition and 1 typical canal section		Revision	1
										Schedule No		791	