

# ROOIWAL WASTEWATER TREATMENT WORKS P&ID INDEX SHEET

DRAWING NUMBER	DESCRIPTION	SHEET NUMBER	REVISION NUMBER	DATE
RWWTW-P-IW01-01	INLET WORKS - SCREENING	01	B	27/09/2024
RWWTW-P-IW01-02	INLET WORKS - VORTEX DEGRITTERS	02	B	27/09/2024
RWWTW-P-IW01-03	INLET WORKS - VORTEX DEGRITTERS	03	B	27/09/2024
RWWTW-P-IW01-04	INLET WORKS - GRIT CLASSIFIERS	04	B	27/09/2024
RWWTW-P-IW01-05	INLET WORKS - MOTOR CONTROL CENTER	05	B	27/09/2024
RWWTW-P-PST-01	PRIMARY SETTLING TANK 01 & 02	06	B	27/09/2024
RWWTW-P-PST-02	PRIMARY SETTLING TANK 03 & 04	07	B	27/09/2024
RWWTW-P-PST-03	PRIMARY SETTLING TANKS MCC	08	B	27/09/2024
RWWTW-P-PST-04	PRIMARY SETTLING TANK 05 & 06	09	B	27/09/2024
RWWTW-P-PST-05	PRIMARY SETTLING TANKS MCC	10	B	27/09/2024
RWWTW-P-PP01-01	PRIMARY SLUDGE PUMP FOR PS01 & 02	11	B	27/09/2024
RWWTW-P-PP02-01	PRIMARY SLUDGE PUMP FOR PS03 & 04	12	B	27/09/2024
RWWTW-P-PP03-01	PRIMARY SLUDGE PUMP FOR PS05 & 06	13	B	27/09/2024
RWWTW-P-BR11-01	BIOLOGICAL NUTRIENT REACTOR 11	14	B	27/09/2024
RWWTW-P-BR11-02	INTERNAL RECYCLE PUMPS FOR BNR11	15	B	27/09/2024
RWWTW-P-BR11-03	RAS SCREW PUMPS RP01	16	B	27/09/2024
RWWTW-P-BR11-04	RAS AND WAS PUMPS - MCC	17	B	27/09/2024
RWWTW-P-BR12-01	BIOLOGICAL NUTRIENT REACTOR 12	18	B	27/09/2024
RWWTW-P-BR12-02	INTERNAL RECYCLE PUMPS FOR BNR12	19	B	27/09/2024
RWWTW-P-BR21-01	BIOLOGICAL NUTRIENT REACTOR 21	20	B	27/09/2024
RWWTW-P-BR21-02	INTERNAL RECYCLE PUMPS FOR BNR21	21	B	27/09/2024
RWWTW-P-BR21-03	RAS SCREW PUMPS RP02	22	B	27/09/2024
RWWTW-P-BR21-04	RAS AND WAS PUMPS - MCC	23	B	27/09/2024
RWWTW-P-BR22-01	BIOLOGICAL NUTRIENT REACTOR 22	24	B	27/09/2024
RWWTW-P-BR22-02	INTERNAL RECYCLE PUMPS FOR BNR22	25	B	27/09/2024
RWWTW-P-BR31-01	BIOLOGICAL NUTRIENT REACTOR 31	26	B	27/09/2024
RWWTW-P-BR31-02	INTERNAL RECYCLE PUMPS FOR BNR31	27	B	27/09/2024
RWWTW-P-BR31-03	RAS SCREW PUMPS RP03	28	B	27/09/2024
RWWTW-P-BR31-04	RAS AND WAS PUMPS - MCC	29	B	27/09/2024
RWWTW-P-BR32-01	BIOLOGICAL NUTRIENT REACTOR 32	30	B	27/09/2024
RWWTW-P-BR32-02	INTERNAL RECYCLE PUMPS FOR BNR32	31	B	27/09/2024
RWWTW-P-SST-01	SECONDARY SETTLING TANKS 11, 12 & 13	32	B	27/09/2024
RWWTW-P-SST-02	SECONDARY SETTLING TANKS 14, 15 & 16	33	B	27/09/2024
RWWTW-P-SST-03	SECONDARY SETTLING TANKS MCC	34	B	27/09/2024
RWWTW-P-SST-04	SECONDARY SETTLING TANKS 21, 22 & 23	35	B	27/09/2024
RWWTW-P-SST-05	SECONDARY SETTLING TANKS 24, 25 & 26	36	B	27/09/2024
RWWTW-P-SST-06	SECONDARY SETTLING TANKS MCC	37	B	27/09/2024
RWWTW-P-SST-07	SECONDARY SETTLING TANKS 31, 32 & 33	38	B	27/09/2024
RWWTW-P-SST-08	SECONDARY SETTLING TANKS 34, 35 & 36	39	B	27/09/2024
RWWTW-P-SST-09	SECONDARY SETTLING TANKS MCC	40	B	27/09/2024
RWWTW-P-BT-01	EAST BALANCING TANKS	41	B	27/09/2024
RWWTW-P-BT-02	EAST BALANCING TANKS PUMPS	42	B	27/09/2024
RWWTW-P-BT-03	WEST BALANCING TANKS	43	B	27/09/2024
RWWTW-P-BT-04	WEST BALANCING TANKS PUMPS	44	B	27/09/2024
RWWTW-P-BB01-01	BLOWERS 1, 2 & 3	45	B	27/09/2024
RWWTW-P-BB01-02	BLOWERS 4, 5 & 6	46	B	27/09/2024
RWWTW-P-BB01-03	BLOWERS 7, 8 & 9	47	B	27/09/2024
RWWTW-P-EP-01	EFFLUENT PUMP STATION	48	B	27/09/2024
RWWTW-P-EP-02	PUMPS FOR EFFLUENT PUMP STATION	49	B	27/09/2024
RWWTW-P-WP-01	WAS PUMP STATION	50	B	27/09/2024
RWWTW-P-SL-01	SLUDGE STORAGE TANK	51	B	27/09/2024
RWWTW-P-SL-02	PUMPS FOR SLUDGE STORAGE TANK	52	B	27/09/2024
RWWTW-P-SL-03	SCREENS & CONVEYORS MCC	53	B	27/09/2024
RWWTW-P-HS-01	HUMUS TANKS	54	B	27/09/2024
RWWTW-P-HP-01	PUMPS FOR HP01 & WP05	55	B	27/09/2024
RWWTW-LEGEND SHEET	LEGEND SHEET		B	27/09/2024

NOTES:

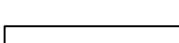
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DWG. No.	ASSOCIATED DRAWING DESCRIPTION
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Client

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Discipline  
**PROCESS**

Service

**CITY OF TSHWANE**


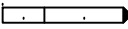

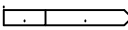









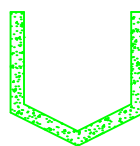

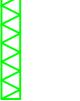

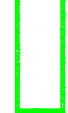

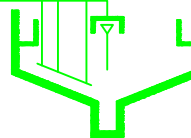
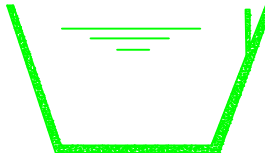

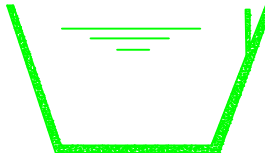

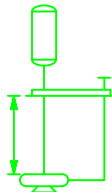

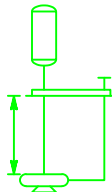

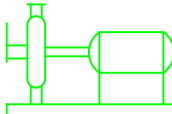
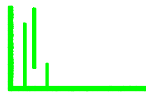
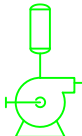

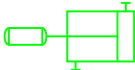
















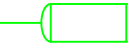
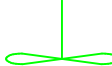
Drawing Title

ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
INDEX SHEET

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number  
**PRELIMINARY**

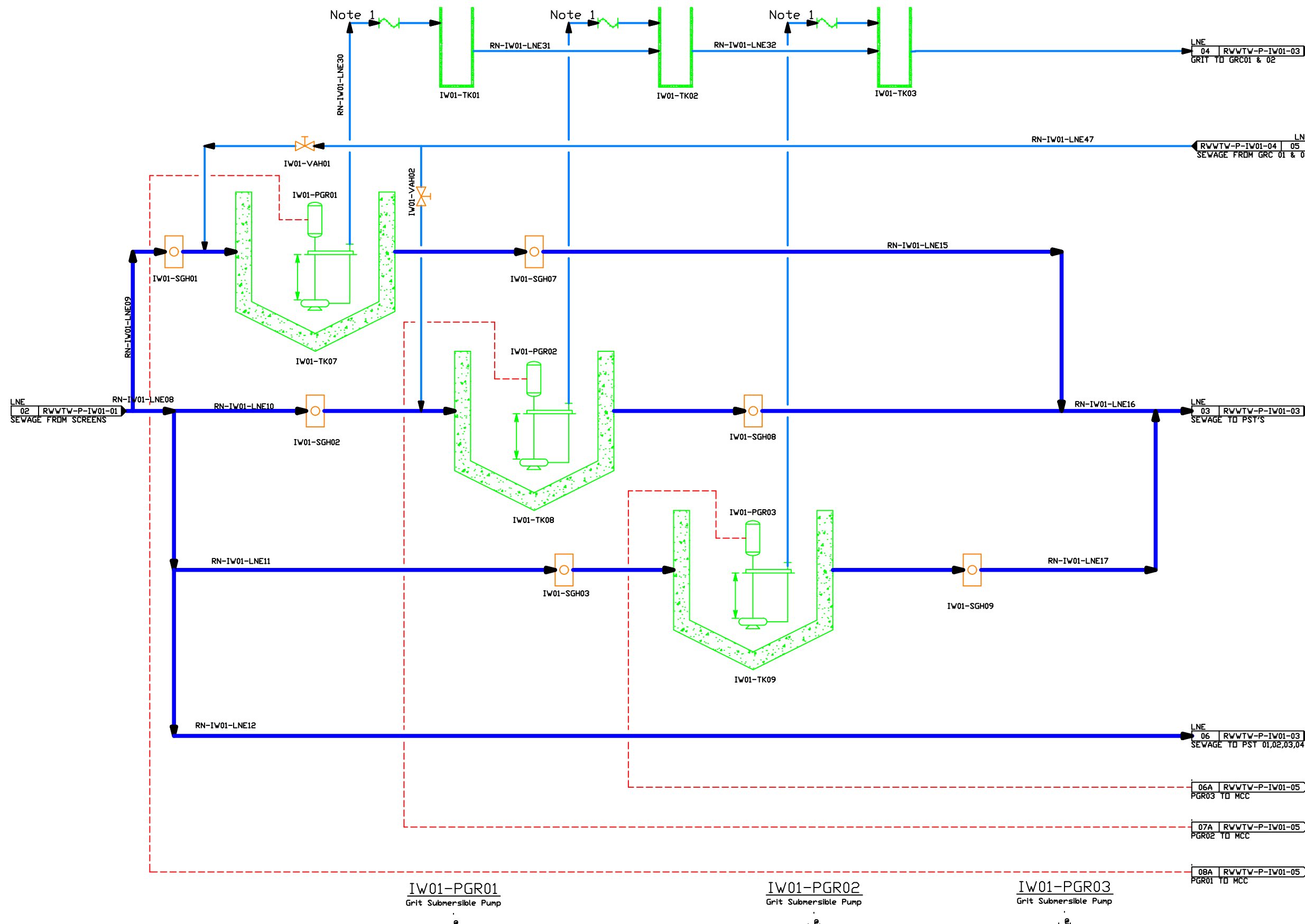
Drawing Number <b>RWWTW-IDX</b>	Revision Number <b>B</b>
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EQUIPMENT IDENTIFICATION				INSTRUMENT IDENTIFICATION			
AER B BP BR BT COM CON ED EP GRC HDS HP HS IW01 M MIX PCR	FLOATING SURFACE AERATOR BLOWER BALANCING TANK SUMP BIONUTRIENT REACTOR BALANCING TANK RECIPROCATING COMPRESSOR CONVEYOR EFFLUENT DAM RESERVOIR GRIT CLASSIFIER HAND SCREEN HUMUS SLUDGE PUMP STATION HUMUS SETTLING TANK INLET WORKS MOTOR MIXER VORTEX DEGRITTER SUBMERSIBLE PUMP	PP PS PSL PWA RP SCF SCS SD SGA SGH SL SS TK VAC VAH VAN WP	SLUDGE DRAW-OFF CHAMBER PRIMARY SETTLING TANK INTERNAL RECYCLE PUMP END SUCTION CENTRIFUGAL PUMP SCREW PUMP SCREEN MECHANICAL SCREEN SLUDGE DEWATERING BUILDING SLUICE GATE VALVE SLUICE GATE VALVE SLUDGE STORAGE TANK SECONDARY SETTLING TANK TANK GATE VALVE HAND VALVE BUTTERFLY VALVE PUMP STATION	MLI IRO LS LY MDO MFA MFL PLC ZS MRTS MFLT MRUN AMPS MSTP HS	MAGNETIC LEVEL INDICATOR INTERLOCK RELAY OUTPUT LEVEL SWITCH HAND SWITCH DISSOLVED OXYGEN MEASUREMENT AIR FLOW METER FLUME FLOW METER PROGRAMMABLE LOGIC CONTROLLER POSITION SWITCH READY TO START FAULT MOTOR RUN INDICATION AMMETER READING STOP MOTOR HAND SWITCH		
INSTRUMENT LINE SYMBOLS		PROCESS FLOW, PIPING & INSTRUMENTATION DIAGRAM SYMBOLS					
<div></div> ELECTRIC SIGNAL		<div></div> PROCESS LINE CONTINUATION SYMBOL					
<div></div> HYDRAULIC SIGNAL		<div></div> ELECTRIC LINE CONTINUATION SYMBOL					
<div></div> INSTRUMENT SUPPLY		<div></div> FLANGED NOZZLE					
		<div></div> CONCENTRIC REDUCER					
		<div></div> HOSE					
FLOWSHEET LINE SYMBOLS							
<div></div> CHANNEL						<div></div> HAND SCREEN	
<div></div> PROCESS LIQUID PIPELINE						<div></div> MECHANICAL SCREEN	
<div></div> PROCESS GAS PIPELINE						<div></div> VORTEX DEGRITTER	
<div></div> FLEXIBLE LINE						<div></div> LONG CONVEYOR	
						<div></div> GRIT CLASSIFIER	
						<div></div> GRIT CLASSIFIER SUMP	
		<div></div> STORAGE TANK				<div></div> SETTLING TANK	
		<div></div> STORAGE TANK				<div></div> DIVIDING CHAMBER	
		<div></div> STORAGE TANK				<div></div> SLUDGE DRAW-OFF CHAMBER	
		<div></div> SUMP				<div></div> HUMUS TANK	
		<div></div> SUMP				<div></div> RESERVOIR	
		<div></div> INTERNAL RECYCLE PUMP				<div></div> BALANCING TANK	
		<div></div> BLOWER				<div></div> EFFLUENT DAM	
		<div></div> PISTON COMPRESSOR				<div></div> BIOLOGICAL NUTRIENT REMOVAL REACTOR	
		<div></div> SCREW PUMP WITH SUMP					
INSTRUMENT SYMBOLS							
<div></div> FLUME FLOW METER		<div></div> HAND SWITCH					
<div></div> MAGNETIC LEVEL INDICATOR		<div></div> STOP					
<div></div> PROGRAMMABLE LOGIC CONTROLLER		<div></div> LEVEL TRANSDUCER					
<div></div> POSITION SWITCH		<div></div> LEVEL SWITCH					
<div></div> INTERLOCK RELAY OUTPUT		<div></div> AMMETER READING					
<div></div> READY TO START		<div></div> RUN INDICATION					
<div></div> FAULT MOTOR							
DRIVERS & AGITATORS							
<div></div> MOTOR							
<div></div> ELECTRIC MOTOR							
<div></div> PADDLE AGITATOR							

NOTES:




IW01-TK07/08/09	
VORTEX DEGRITTER	
DIAMETER	6 m
UPPER SETTLING CHAMBER HEIGHT	1.96 m
CONICAL SECTION HEIGHT	1.4 m



DISCIPLINE WORKING COPY

NOTES:

1. Intermittent

	</		

DWG. No.	ASSOCIATED DRAWING DESCRIPTION

Client	
--------	--

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Discipline	
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## PROCESS

Service

CITY OF TSHWANE

Drawing Title
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ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
INLET WORKS - VORTEX DEGRITTERS

Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Type Number

PRELIMINARY

Drawing Number
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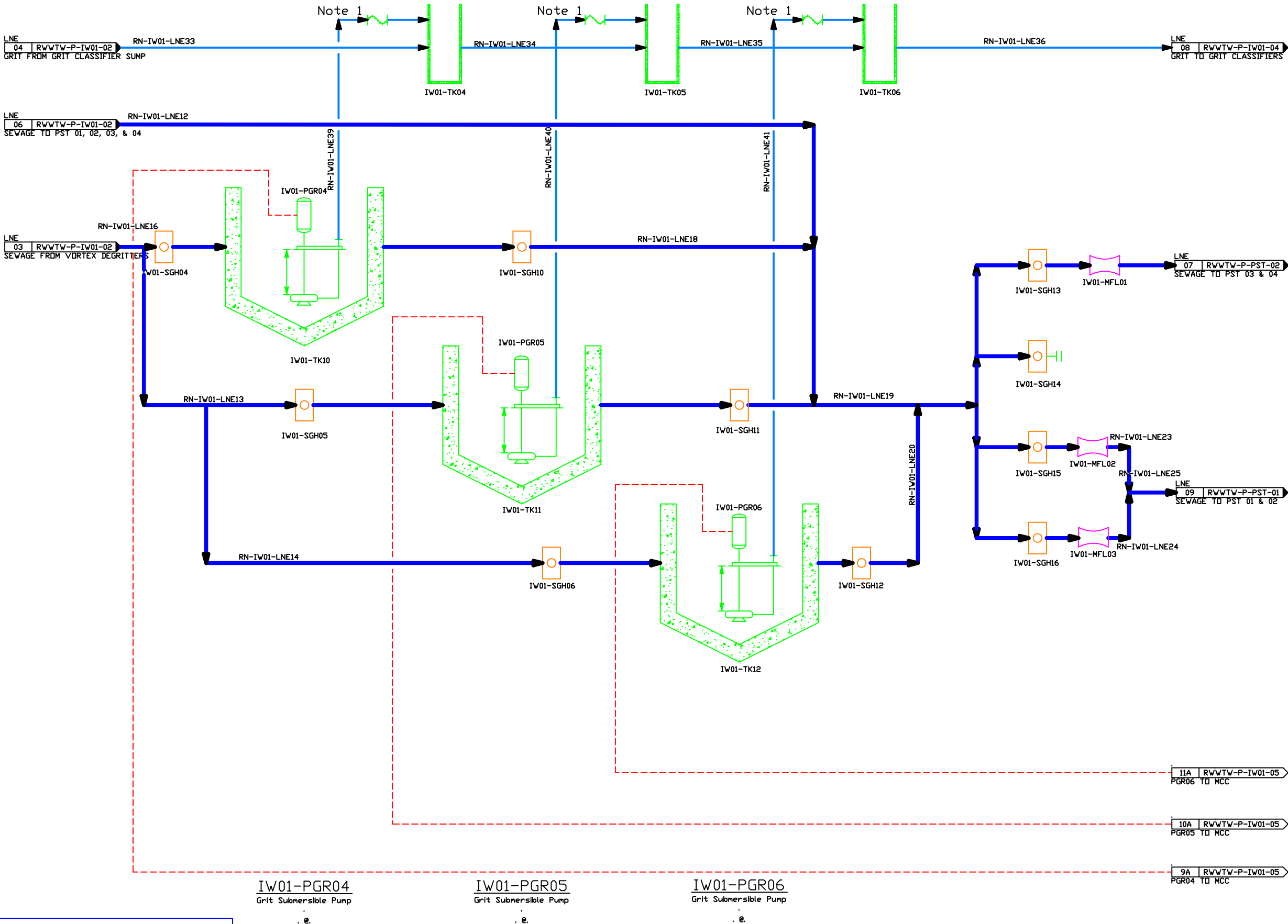
RWWTW-P-IW-02

Revision Number
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**B**



IW01-TK10/11/12	
VORTEX DEGRITTER	
DIAMETER	6 m
UPPER SETTLING CHAMBER HEIGHT	1.96 m
CONICAL SECTION HEIGHT	1.4 m



NOTES:

- Intermittent

NO.	DATE	REVISION DESCRIPTION	BY
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DWG. No.	ASSOCIATED DRAWING DESCRIPTION
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Client

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Discipline  
PROCESS

Service  
CITY OF TSHWANE

Drawing Title  
ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
INLET WORKS - VORTEX DEGRITTERS

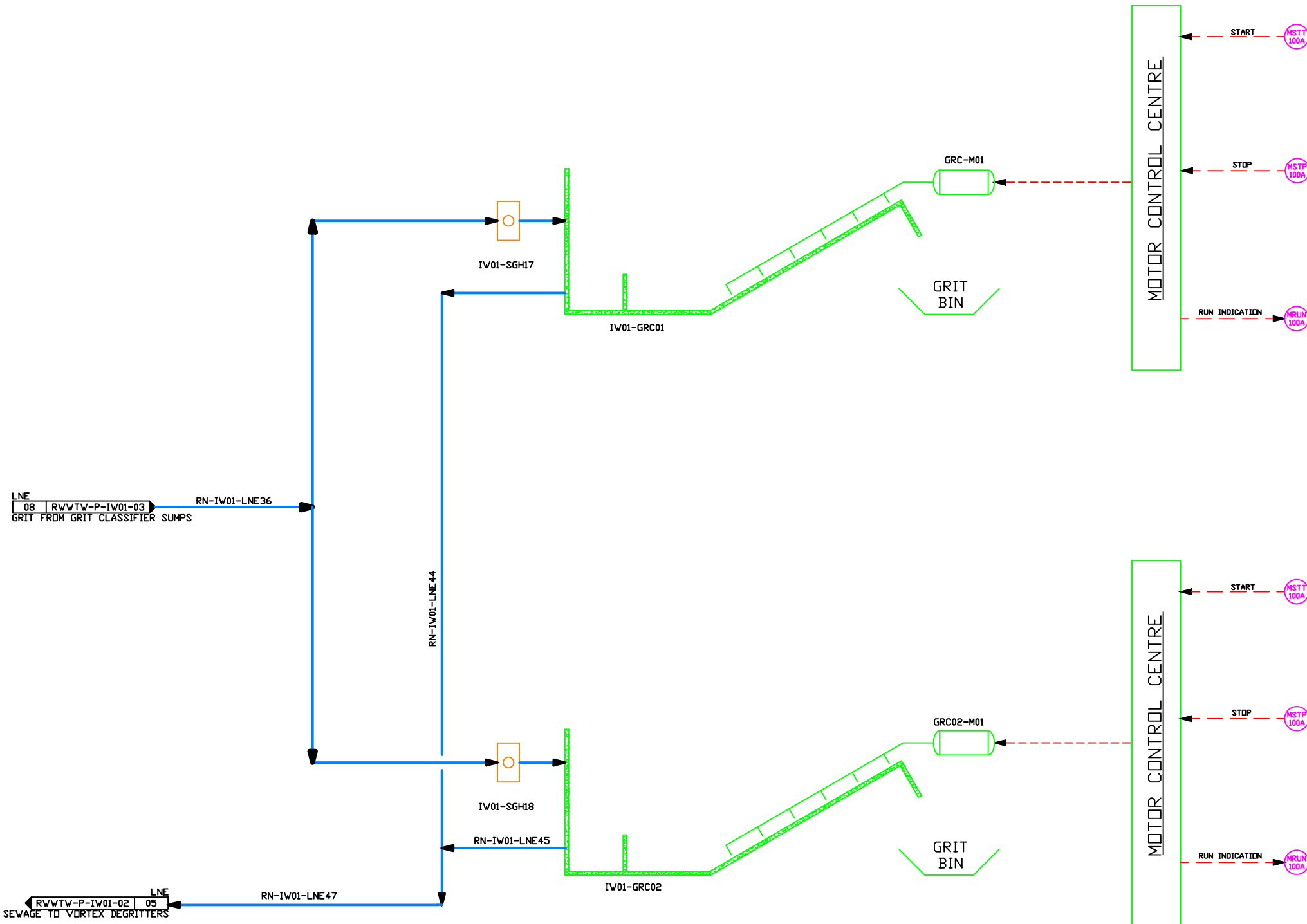
Ref. No.	Designed	NS
Scale	Drawn	NS
Date	Checked	KN

Type Number  
PRELIMINARY

Drawing Number RWWTW-P-IW-03	Revision Number B
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DISCIPLINE WORKING COPY

GRC 01 & 02	
Grit Classifier	
SCREW LENGTH	290 mm
ANGLE OF CONVEYOR	25°
MAX FLOW RATE	58m <sup>3</sup> /h



NOTES:

[illegible]

DWG. No.	ASSOCIATED DRAWING DESCRIPTION

Client

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Discipline	Topic	Author	Year
Mathematics	Calculus	Newton	1687
Physics	Mechanics	Galileo	1632
Chemistry	Chemical Reactions	Lavoisier	1789
Biology	Evolution	Darwin	1859
History	World War II	Churchill	1945
Literature	Shakespeare	Shakespeare	1616
Art	Impressionism	Monet	1874
Music	Classical Music	Bach	1722
Philosophy	Existentialism	Sartre	1943
Psychology	Behaviorism	Skinner	1938
Sociology	Urbanization	Marx	1848
Political Science	Democracy	Aristotle	350 BC
Economics	Capitalism	Smith	1776
Environmental Science	Climate Change	IPCC	2014
Health Sciences	Medicine	Hippocrates	400 BC
Law	Constitution	Madison	1787
Education	Teaching Methods	Freud	1905
Technology	Artificial Intelligence	Turing	1950
Space Exploration	Mars Mission	NASA	2020
Anthropology	Human Evolution	Jarvis	1988
Geography	Mapmaking	Strabo	100 AD
Archaeology	Excavations	Pompeii	1763
Ecology	Biodiversity	Mayr	1961
Geology	Plate Tectonics	Hutton	1785
Metallurgy	Iron Age	Archaeologists	19th Century
Botany	Plant Life	Linnaeus	1753
Zoology	Animal Kingdom	Cuvier	1795
Microbiology	Microbes	Pasteur	1861
Immunology	Vaccines	Wentworth	1926
Genetics	DNA	Watson & Crick	1953
Cell Biology	Cell Structure	Robert Brown	1830
Molecular Biology	Proteins	Linus Pauling	1939
Physiology	Human Body	Galen	2nd Century AD
Anatomy	Dissection	Vesalius	1543
Pathology	Disease	Virchow	1858
Pharmacology	Drugs	Paracelsus	1530
Biophysics	Light	Newton	1687
Biotechnology	Genetic Engineering	Franklin	1973
Environmental Health	Pollution	WHO	1948
Public Health	Hygiene	Boissier	1858
Healthcare	Hospitals	Napoleon	1803
Medical Research	Research	Boissier	1858
Healthcare Policy	Policy	Boissier	1858
Healthcare Economics	Economics	Boissier	1858
Healthcare Law	Law	Boissier	1858
Healthcare Ethics	Ethics	Boissier	1858
Healthcare Education	Education	Boissier	1858
Healthcare Training	Training	Boissier	1858
Healthcare Research	Research	Boissier	1858
Healthcare Innovation	Innovation	Boissier	1858
Healthcare Development	Development	Boissier	1858
Healthcare Improvement	Improvement	Boissier	1858
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Healthcare Monitoring	Monitoring	Boissier	1858
Healthcare Assessment	Assessment	Boissier	1858
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Healthcare Implementation	Implementation	Boissier	1858
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Healthcare Evaluation	Evaluation	Boissier	1858
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Healthcare Monitoring	Monitoring	Boissier	1858
Healthcare Assessment	Assessment	Boissier	1858
Healthcare Analysis	Analysis	Boissier	1858
Healthcare Synthesis	Synthesis	Boissier	1858
Healthcare Application	Application	Boissier	1858
Healthcare Implementation	Implementation	Boissier	1858
Healthcare Evaluation	Evaluation	Boissier	1858
Healthcare Monitoring	Monitoring	Boissier	1858
Healthcare Assessment	Assessment	Boissier	1858
Healthcare Analysis	Analysis	Boissier	1858
Healthcare Synthesis	Synthesis	Boissier	1858
Healthcare Application	Application	Boissier	1858
Healthcare Implementation	Implementation	Boissier	1858
Healthcare Evaluation	Evaluation	Boissier	1858
Healthcare Monitoring	Monitoring	Boissier	1858
Healthcare Assessment	Assessment	Boissier	1858
Healthcare Analysis	Analysis	Boissier	1858
Healthcare Synthesis	Synthesis	Boissier	1858
Healthcare Application	Application	Boissier	1858
Healthcare Implementation	Implementation	Boissier	1858
Healthcare Evaluation	Evaluation	Boissier	1858
Healthcare Monitoring	Monitoring	Boissier	1858
Healthcare Assessment	Assessment	Boissier	

## PROCESS

Service

# CITY OF TSHWANE

Drawing Title

# ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM INLET WORKS - GRIT CLASSIFIERS

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number

# PRELIMINARY

Drawing Number

RWWTW-P-IW-04

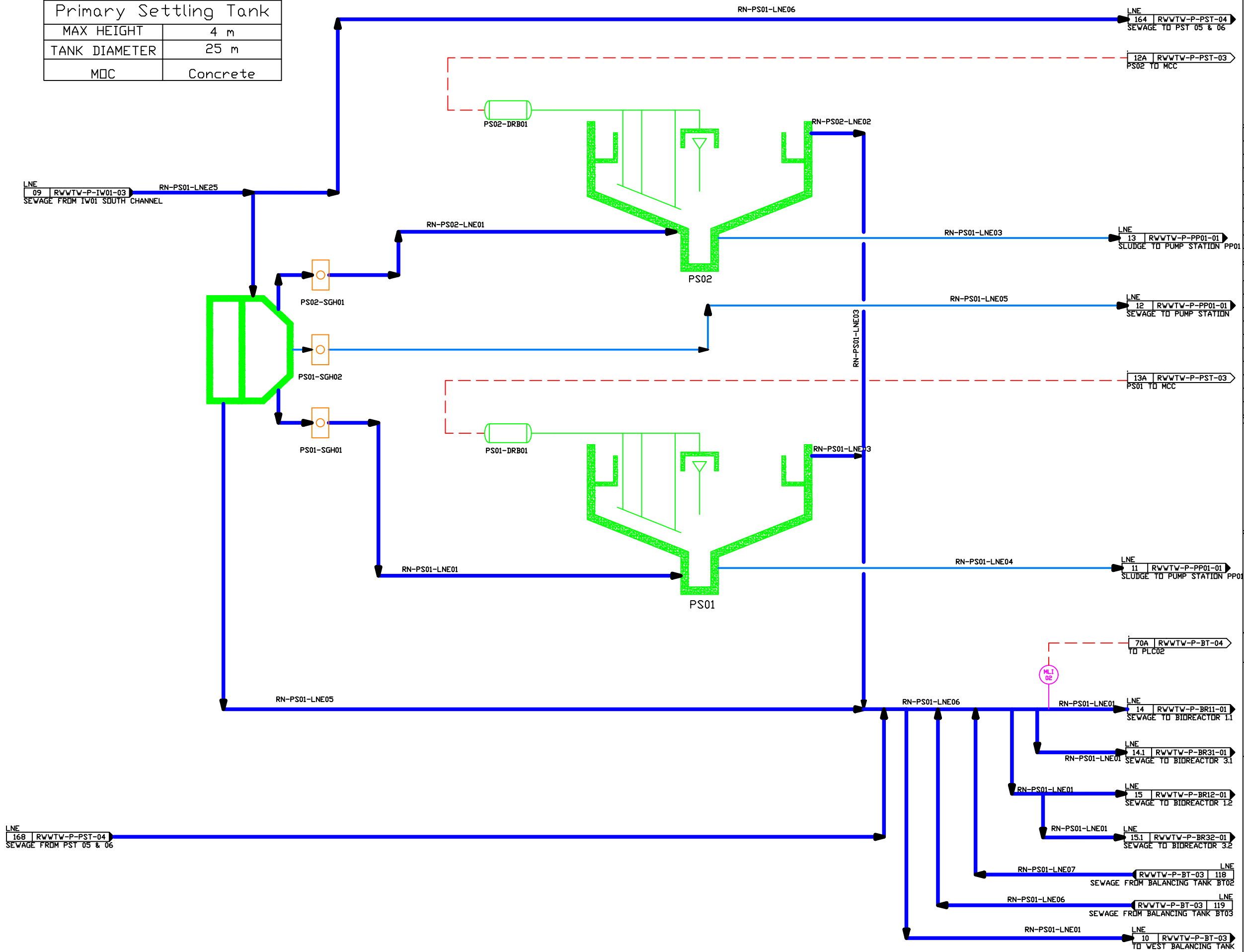
Revision Number

B

DISCIPLINE WORKING COPY



PS01/PS02	
Primary Settling Tank	
MAX HEIGHT	4 m
TANK DIAMETER	25 m
MOC	Concrete



DISCIPLINE WORKING COPY

NOTES:

[illegible]

DWG. No.	ASSOCIATED DRAWING DESCRIPTION

Client

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Discipline

## PROCESS

Service

**CITY OF TSHWANE**

Drawing Title

# ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM PRIMARY SETTLING TANKS 01 AND 02

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number

## PRELIMINARY

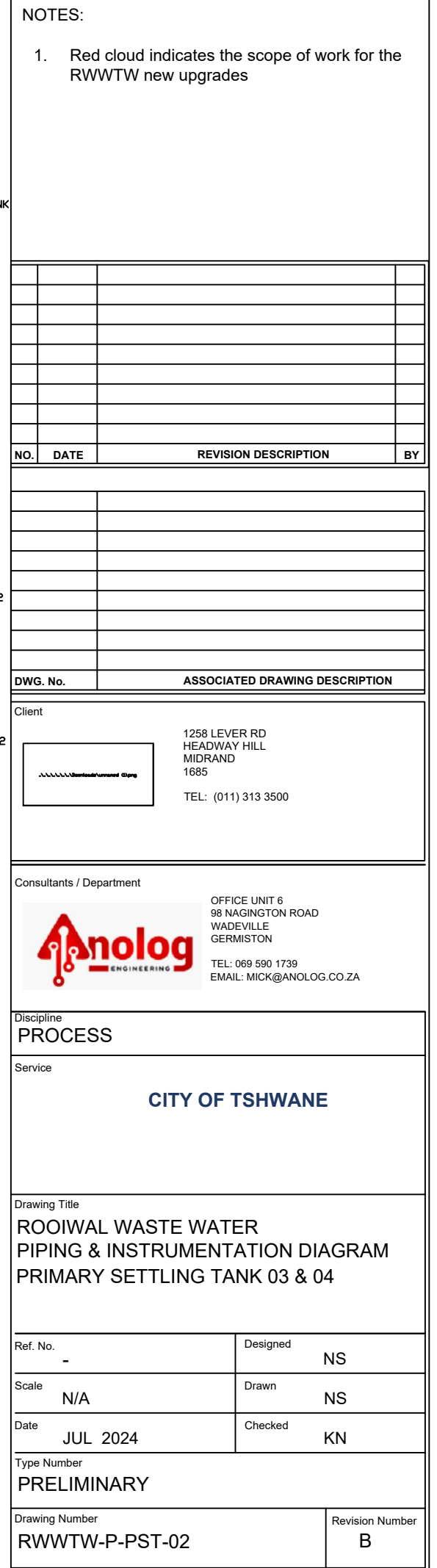
Drawing Number

RWWTW-P-PST-01

Revision Number

B

PS04	
Primary Settling Tank	
MAX HEIGHT	4.9 m
TANK DIAMETER	34 m
MDC	Concrete

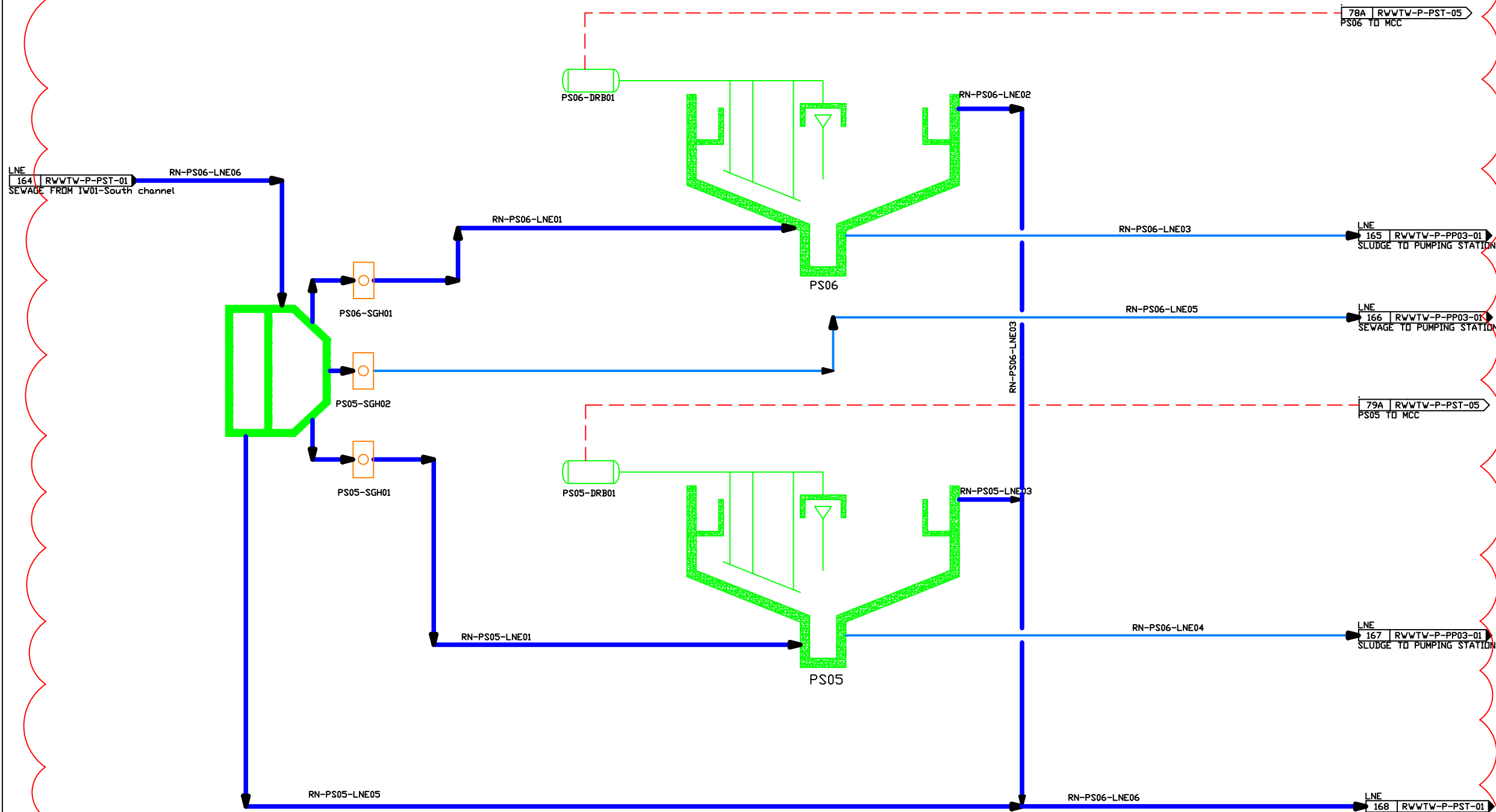


DISCIPLINE WORKING COPY





PS05/PS06	
Primary Settling Tank	
MAX HEIGHT	4.9 m
TANK DIAMETER	34 m
MDC	Concrete



NOTES:

1. Red cloud indicates the scope of work for the RWWTW new upgrades

NO.	DATE	REVISION DESCRIPTION	BY

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**PROCESS**

Service

**CITY OF TSHWANE**

Drawing Title

**ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
PRIMARY SETTLING TANK 05 & 06**

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number

**PRELIMINARY**

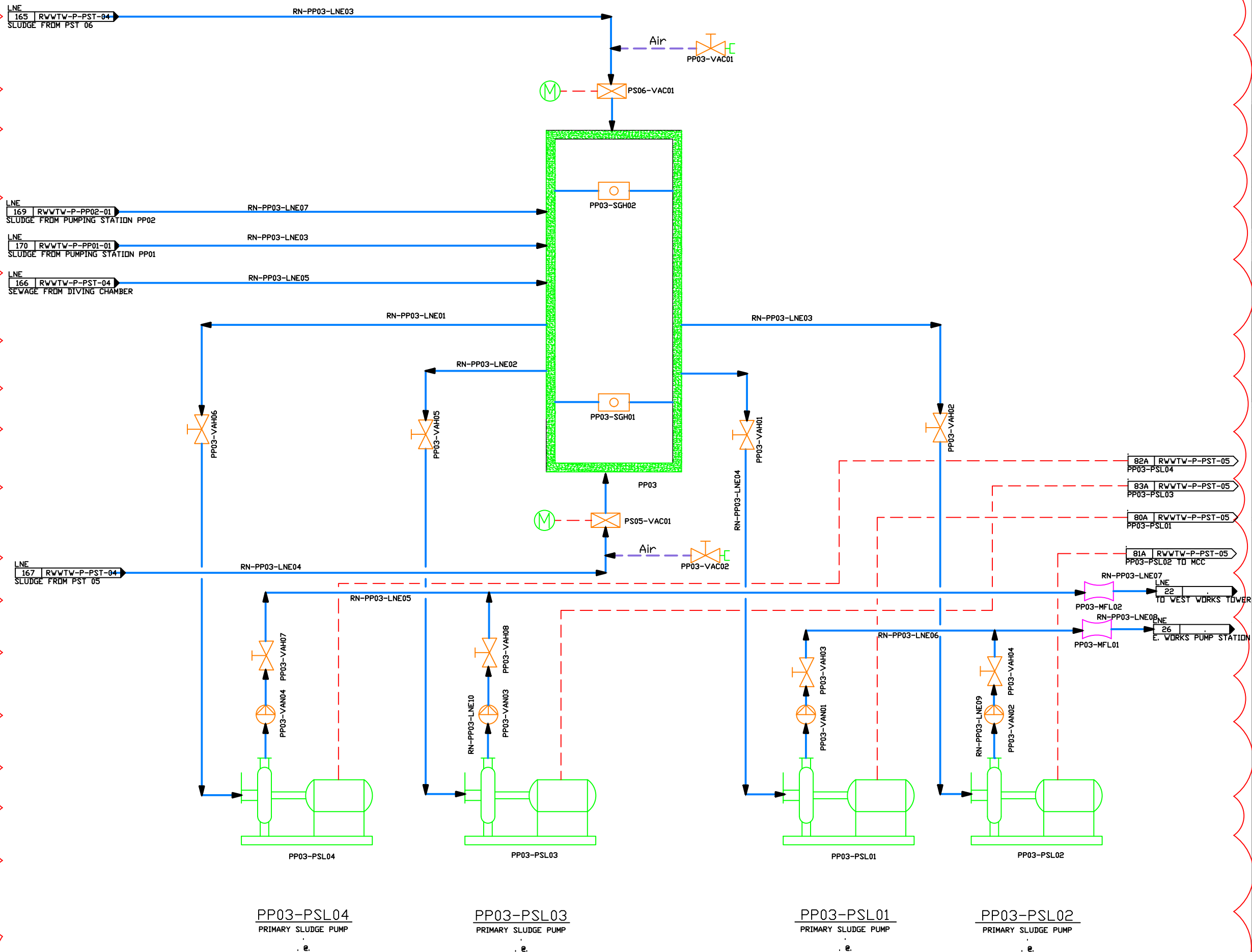
Drawing Number	RWWTW-P-PST-04	Revision Number	B
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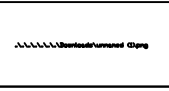
NOTES:

1. Red cloud indicates the scope of work for the RWWTW new upgrades

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**CITY OF TSHWANE**

Drawing Title  
**ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
PRIMARY SLUDGE PUMP FOR PS 05 & 06**

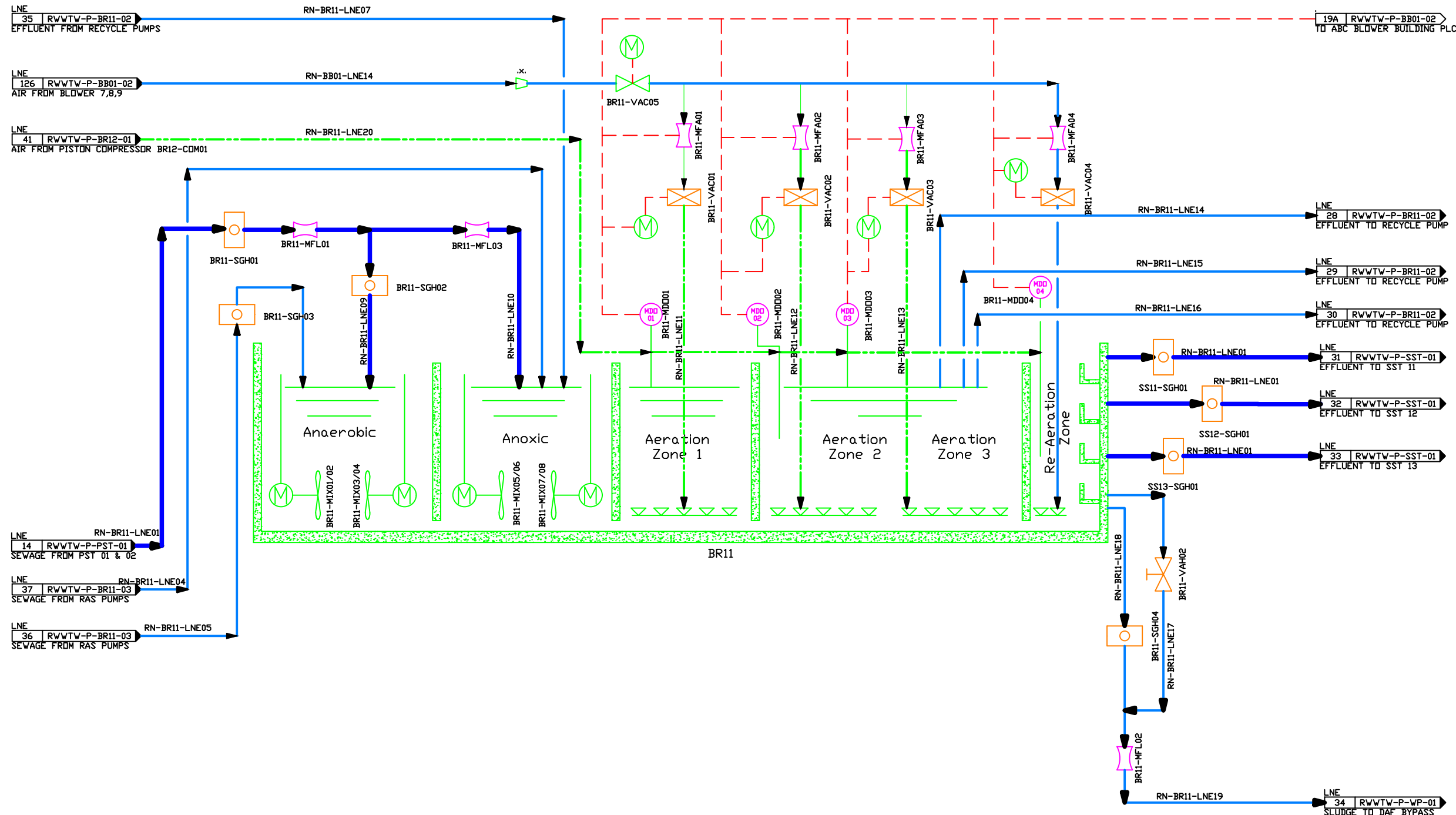
Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Type Number  
**PRELIMINARY**

Drawing Number	Revision Number
RWWTW-P-PP03-01	B

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BR11	
Biological Reactor	
TOTAL CAPACITY	14000 m <sup>3</sup>
TEMPERATURE	50°C
PRESSURE	40 kPaG



DISCIPLINE WORKING COPY

NOTES:

[illegible]

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## PROCESS

Service

CITY OF TSHWANE

Drawing Title
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ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
BIOLOGICAL NUTRIENT REACTOR 11

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number

PRELIMINARY

Drawing Number

RWWTW-P-BR11-01

Revision Number

3

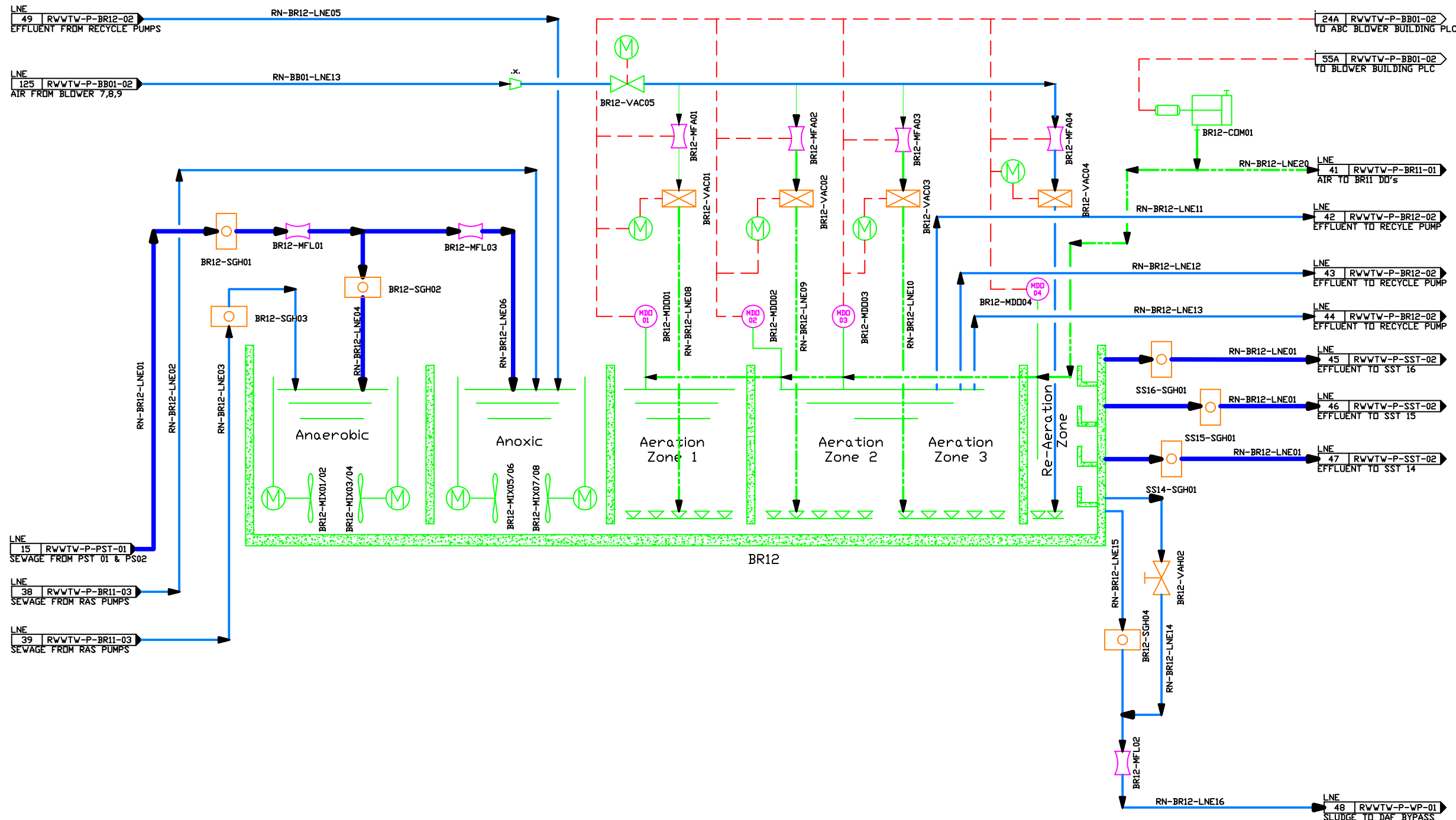








BR12	
Biological Reactor	
TOTAL CAPACITY	14000 m <sup>3</sup>
TEMPERATURE	50°C
PRESSURE	40 kPaG



NOTES:

[illegible]

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## PROCESS

Service

CITY OF TSHWANE

Drawing Title
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## ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM BIOLOGICAL NUTRIENT REACTOR 1.2

Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Type Number

PRELIMINARY

Drawing Number

RWWTW-P-BR12-01

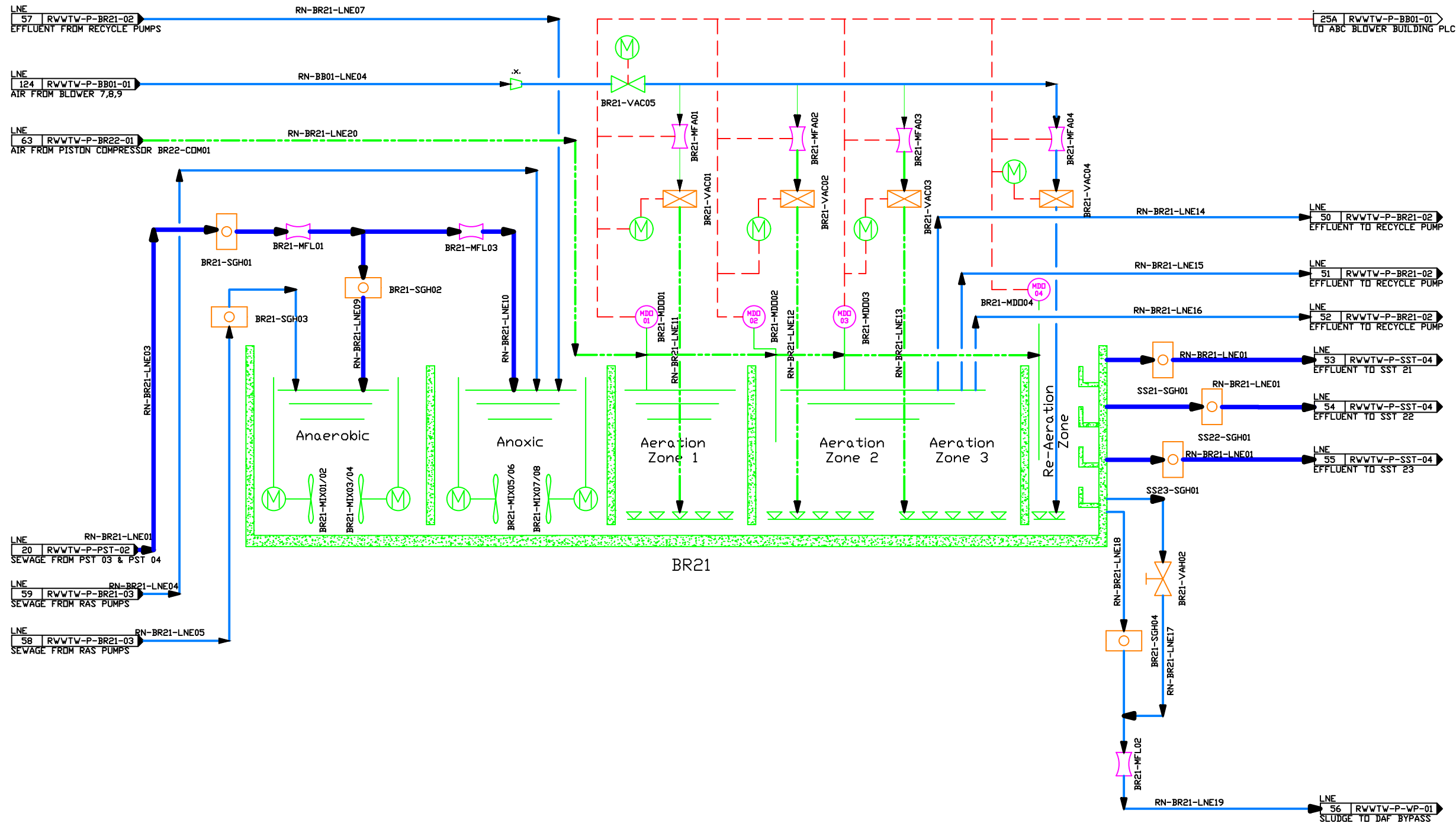
Revision Number

B

DISCIPLINE WORKING COPY



BR21	
Biological Reactor	
TOTAL CAPACITY	14000 m <sup>3</sup>
TEMPERATURE	50°C
PRESSURE	40 kPaG



NOTES:

NO.	DATE	REVISION DESCRIPTION	BY
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PROCESS

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Drawing Title

ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
BIOLOGICAL NUTRIENT REACTOR 21

Ref. No.	Designed	NS
Scale	Drawn	NS
Date	Checked	KN

Type Number

PRELIMINARY

Drawing Number	Revision Number
RWWTW-P-BR21-01	B

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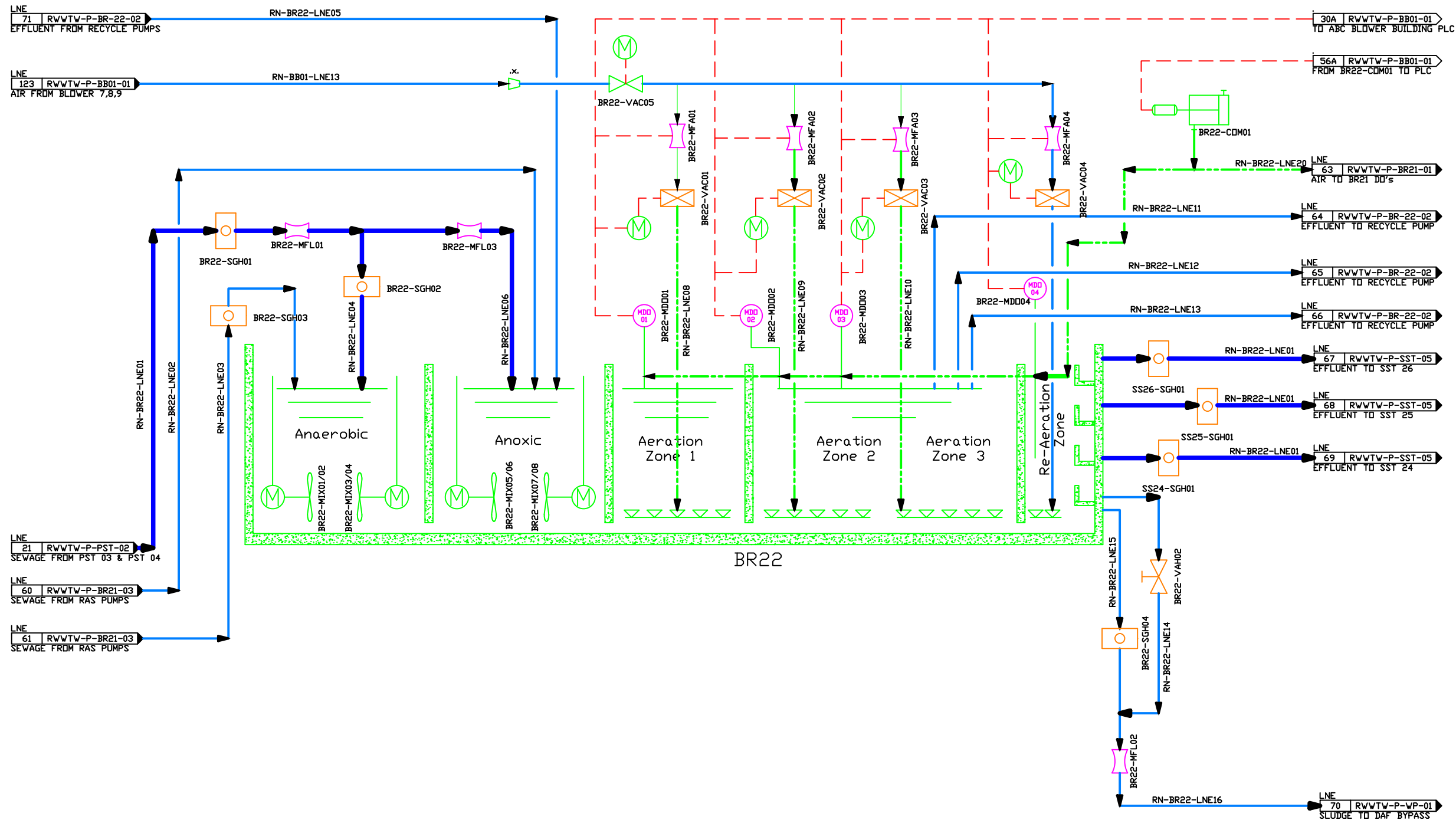








BR22	
Biological Reactor	
TOTAL CAPACITY	14000 m <sup>3</sup>
TEMPERATURE	50°C
PRESSURE	40 kPaG



NOTES:

NO.	DATE	REVISION DESCRIPTION	BY
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CITY OF TSHWANE

Drawing Title

ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
BIOLOGICAL NUTRIENT REACTOR 2.2

Ref. No.	Designed	NS
Scale	Drawn	NS
Date	Checked	KN

Type Number

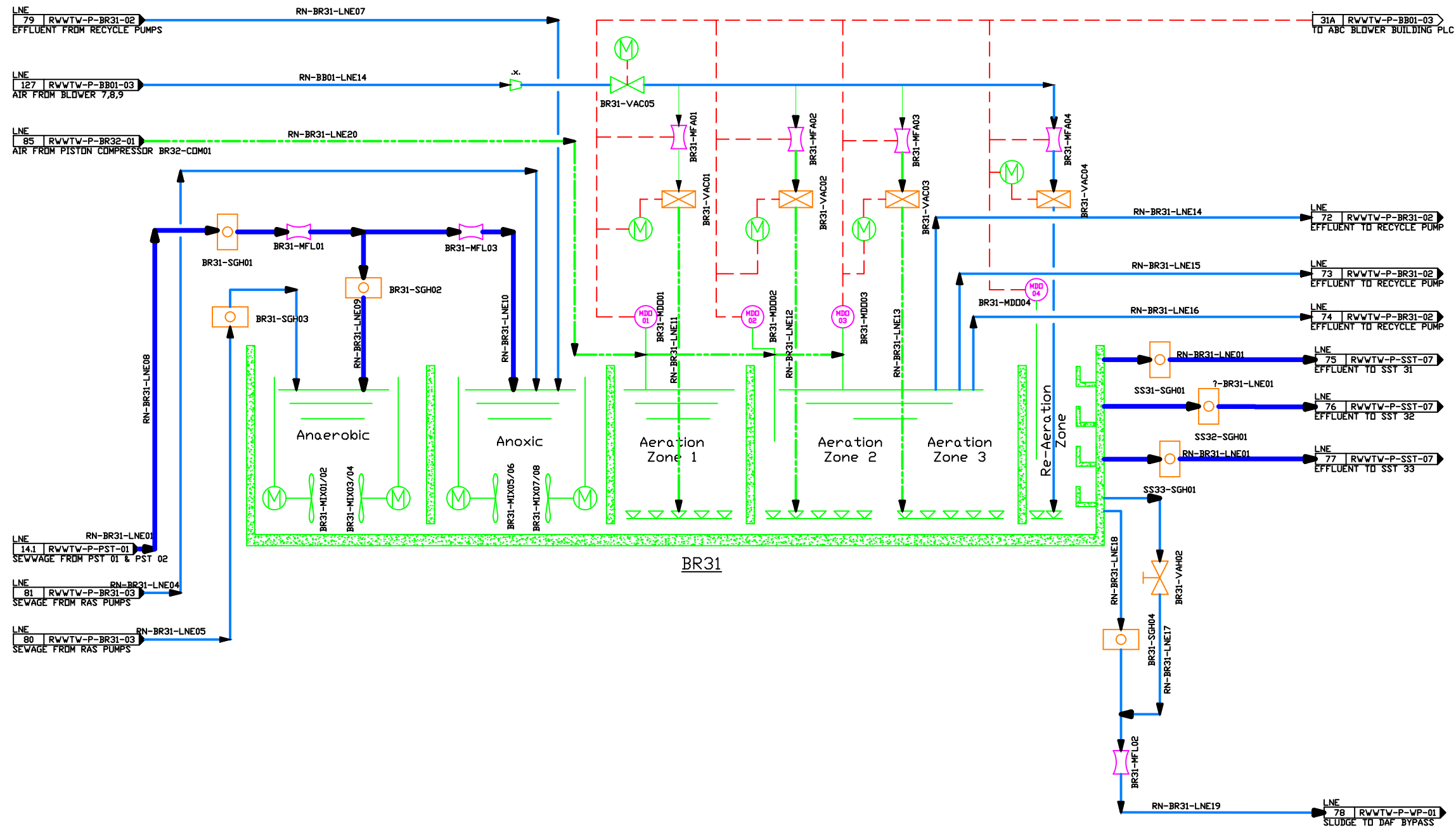
PRELIMINARY

Drawing Number	Revision Number
RWWTW-P-BR22-01	B

DISCIPLINE WORKING COPY



BR31	
Biological Reactor	
TOTAL CAPACITY	14000 m <sup>3</sup>
TEMPERATURE	50°C
PRESSURE	40 kPaG



NOTES:

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Drawing Title ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM BIOLOGICAL NUTRIENT REACTOR 31
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Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Type Number  
**PRELIMINARY**

Drawing Number	Revision Number
RWWTW-P-BR31-01	B

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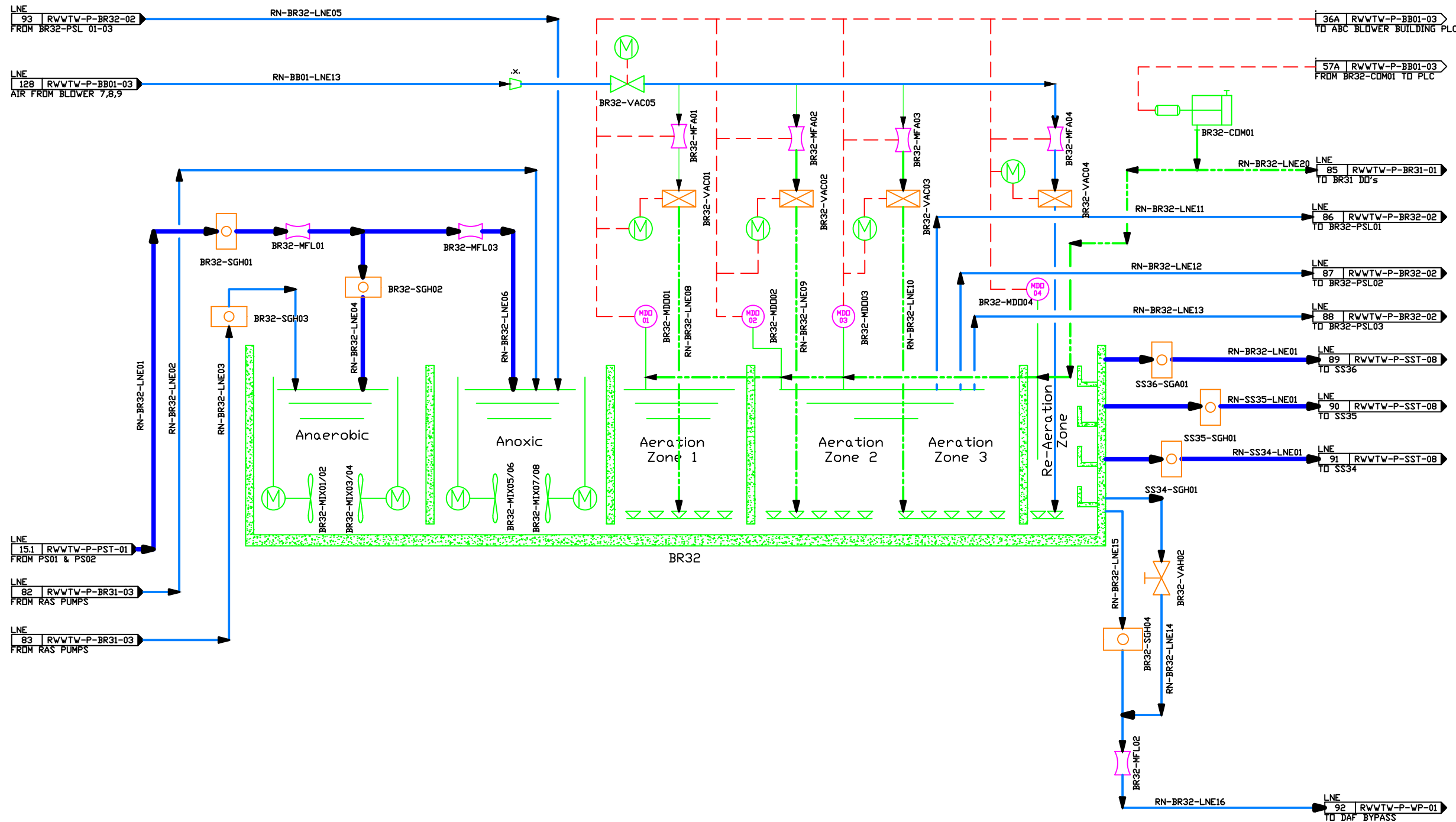








BR32	
Biological Reactor	
TOTAL CAPACITY	14000 m <sup>3</sup>
TEMPERATURE	50°C
PRESSURE	40 kPaG



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## PROCESS

Service

**CITY OF TSHWANE**

Drawing Title
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## ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM BIOLOGICAL NUTRIENT REACTOR 1.2

Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Type Number

PRELIMINARY

Drawing Number

RWWTW-P-BR32-01

Revision Number

B



SS11/12/13	
Secondary Settling Tank	
TANK HEIGHT	4.1 m
TANK DIAMETER	30 m
MDC	Concrete

The diagram illustrates the process flow for Secondary Settling Tanks SS11, SS12, and SS13. The tanks are represented by green outlines with internal structures. The flow is as follows:

- Effluent from Bioreactors:**
  - Line 31: RWWTW-P-BR11-01 (Effluent from Bioreactor 11) to SS11 via RN-SS11-LNE01.
  - Line 32: RWWTW-P-BR11-01 (Effluent from Bioreactor 11) to SS12 via RN-SS11-LNE01.
  - Line 33: RWWTW-P-BR11-01 (Effluent from Bioreactor 11) to SS13 via RN-SS11-LNE01.
  - Line 94: RWWTW-P-WP-01 (Sludge to DAF Bypass) to SS11 via RN-SS11-LNE06.
  - Line 95: RWWTW-P-BR11-03 (Sludge to RAS Pump) to SS11 via RN-SS11-LNE05.
- Sludge Return Paths:**
  - SS11 to SS12: RN-SS11-LNE03.
  - SS12 to SS11: RN-SS12-LNE02.
  - SS12 to SS13: RN-SS12-LNE02.
  - SS13 to SS11: RN-SS13-LNE03.
- Valves and Flow Control:**
  - SS11-VAH01, SS11-VAH02, SS12-VAH01, SS12-VAH02, SS13-VAH01, SS13-VAH02.
- Discharge and Connections:**
  - SS11-DRB01, SS12-DRB01, SS13-DRB01 (Diffusers).
  - SS13-MFL01 (Flow Meter).
  - SS11-MCC01, SS12-MCC02, SS13-MCC03 (Connections to RWWTW-P-SST-03).
  - Line 171: Discharge CCC.


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[illegible]

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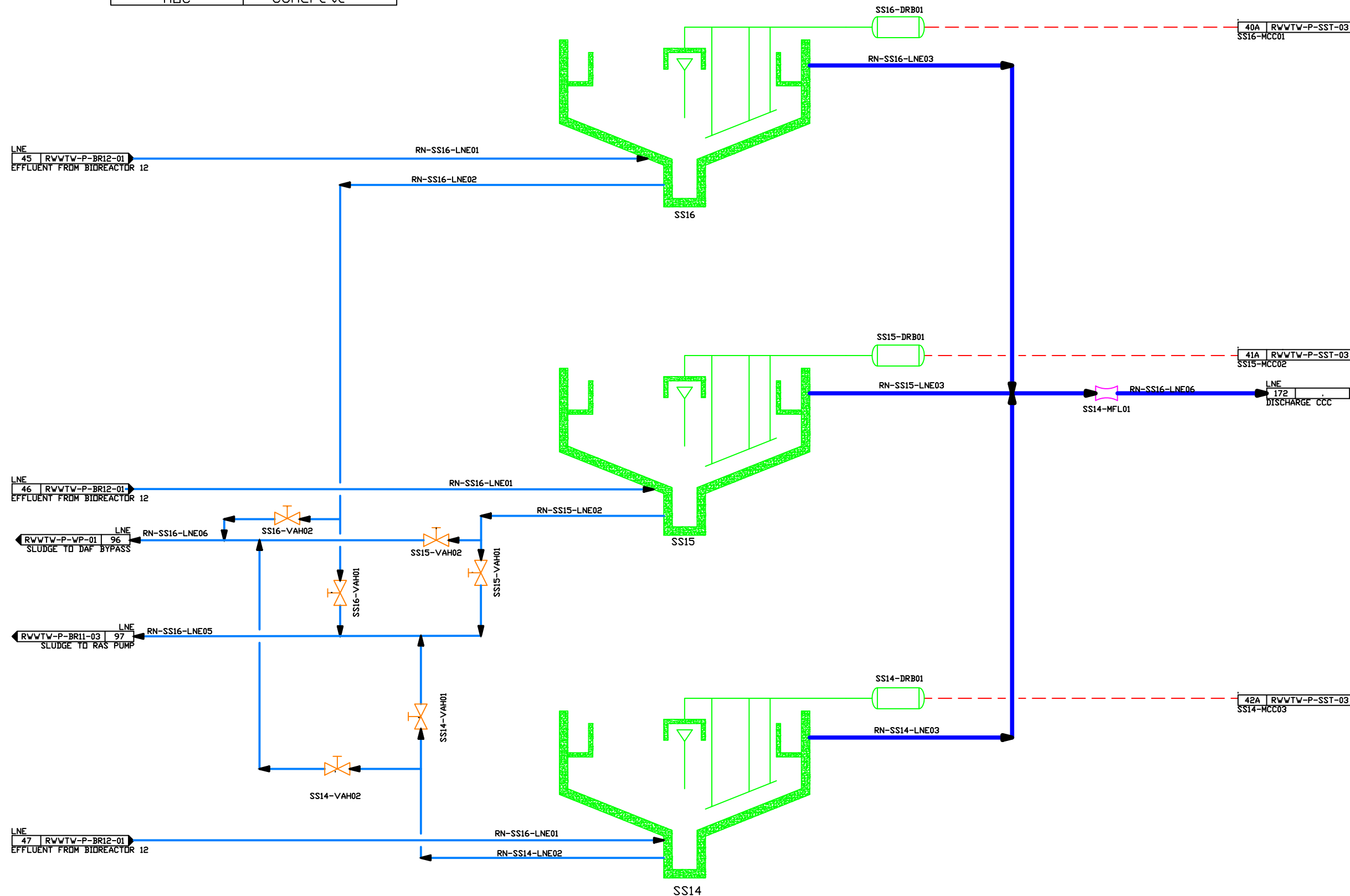
Service

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Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Drawing Number RWWTW-P-SST-01	Revision Number B
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SS14/15/16	
Secondary Settling Tank	
TANK HEIGHT	4.1 m
TANK DIAMETER	30 m
MOC	Concrete



DISCIPLINE WORKING COPY

NOTES:

[illegible]

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Discipline	PROCESS
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Service

# CITY OF TSHWANE

Drawing Title ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM SECONDARY SETTLING TANK 14, 15 & 16
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Ref. No.	Designed
-	NS
Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

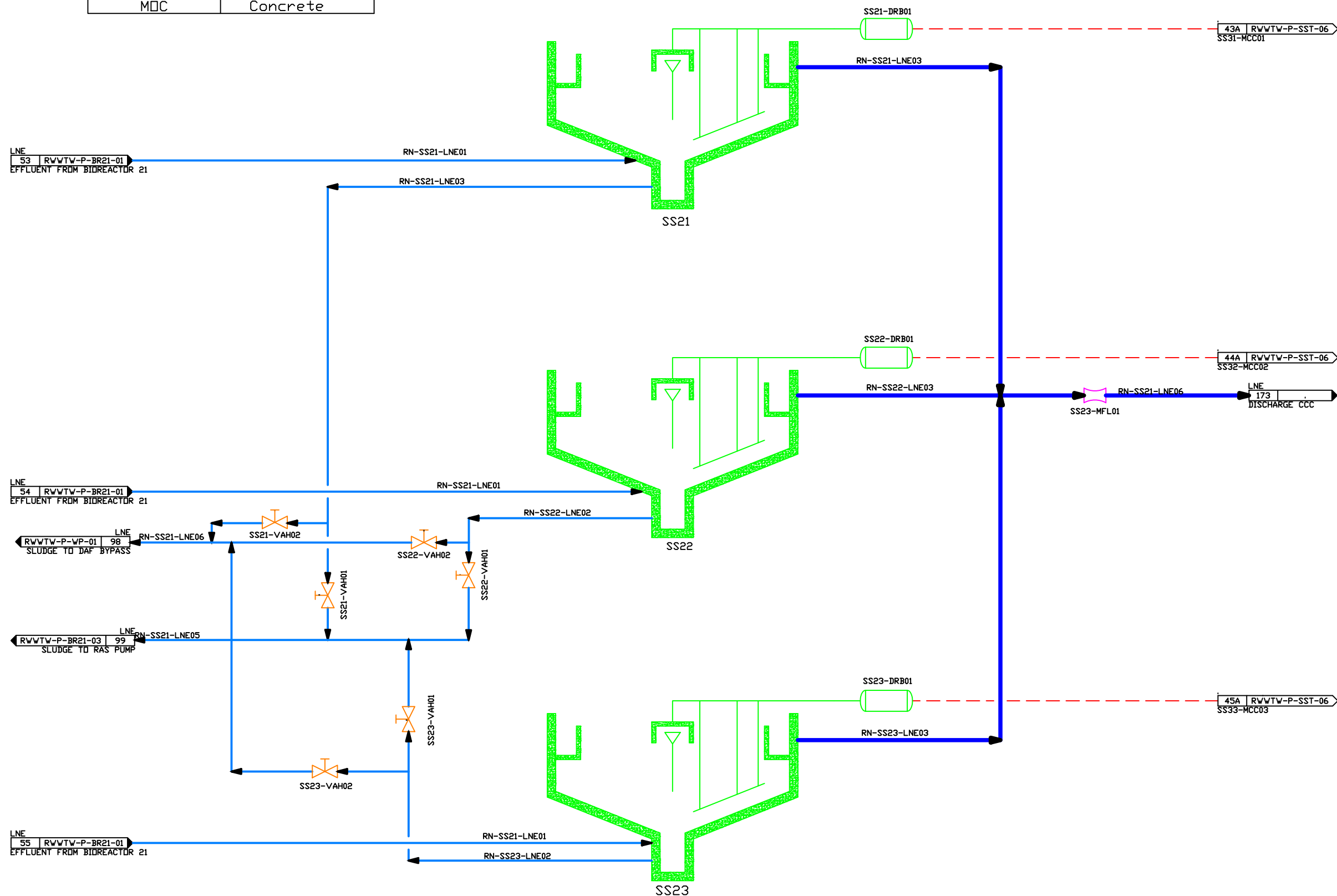
Type Number  
PRELIMINARY

Drawing Number	Revision Number
RWWTW-P-SST-02	B





SS21/22/23	
Secondary Settling Tank	
TANK HEIGHT	4.1 m
TANK DIAMETER	30 m
MOC	Concrete



DISCIPLINE WORKING COPY

NOTES:

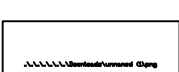
NO.	DATE	REVISION DESCRIPTION	BY

DWG. No.	ASSOCIATED DRAWING DESCRIPTION

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**CITY OF TSHWANE**

Drawing Title
ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM SECONDARY SETTLING TANK 21, 22 & 23

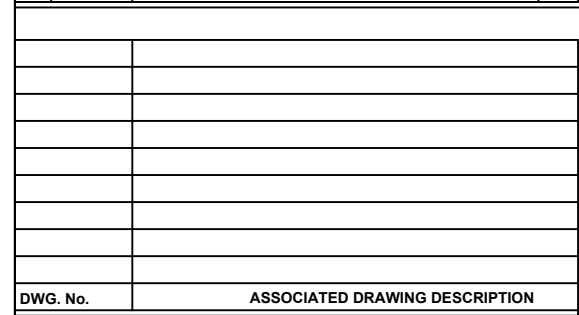
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Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number  
**PRELIMINARY**


Drawing Number	Revision Number
RWWTW-P-SST-04	B

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**CITY OF TSHWANE**

Drawing Title

**ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
SECONDARY SETTLING TANK 24, 25 & 26**

Ref. No. -	Designed NS
Scale N/A	Drawn NS
Date JUL 2024	Checked KN

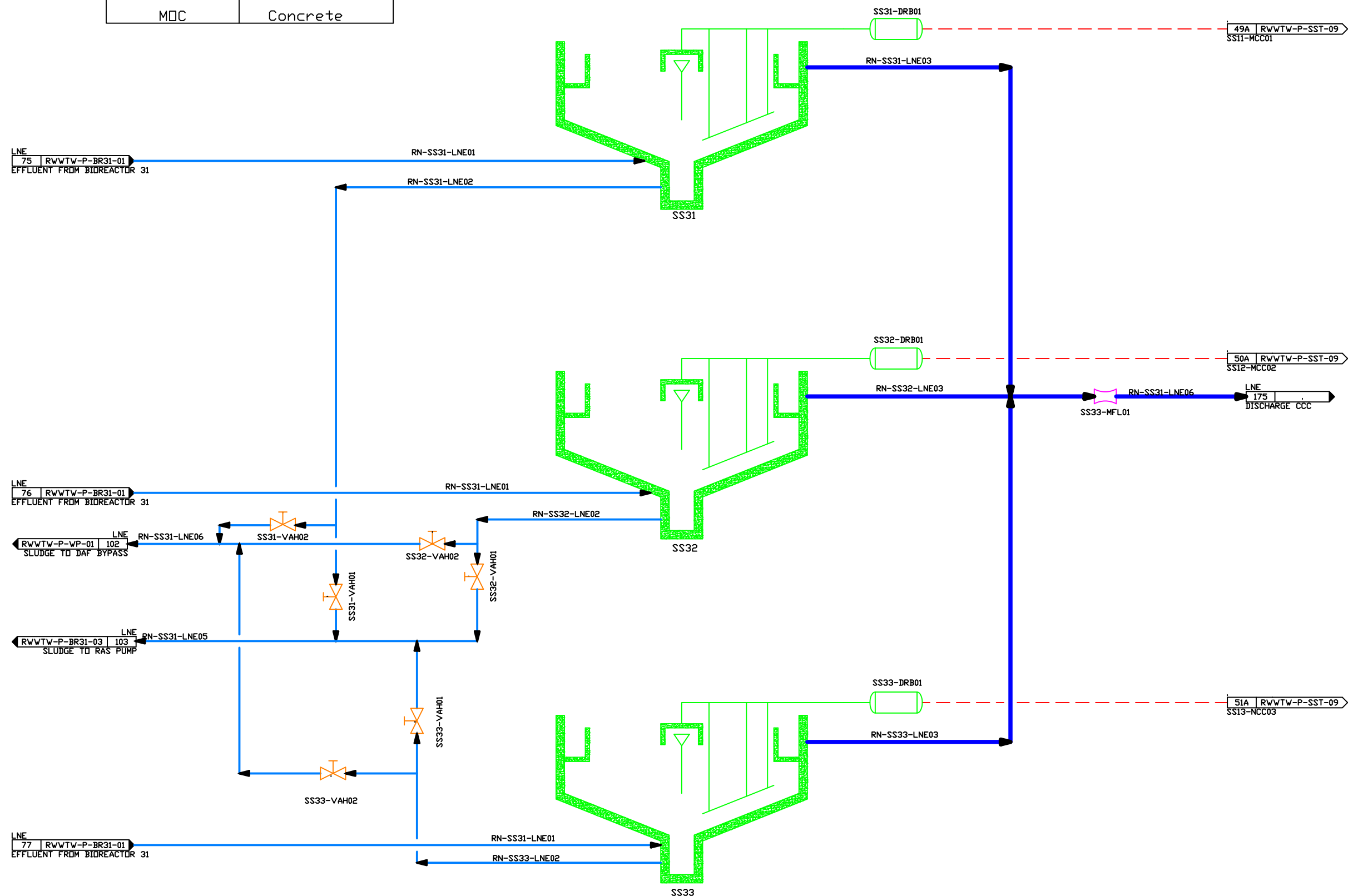
Type Number  
PRELIMINARY

Drawing Number RWWTW-P-SST-04	Revision Number B
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SS31/32/33	
Secondary Settling Tank	
TANK HEIGHT	4.1 m
TANK DIAMETER	30 m
MCC	Concrete



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Drawing Title

ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
SECONDARY SETTLING TANK 31, 32 & 33

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
Date	JUL 2024	Checked	KN

Type Number

PRELIMINARY

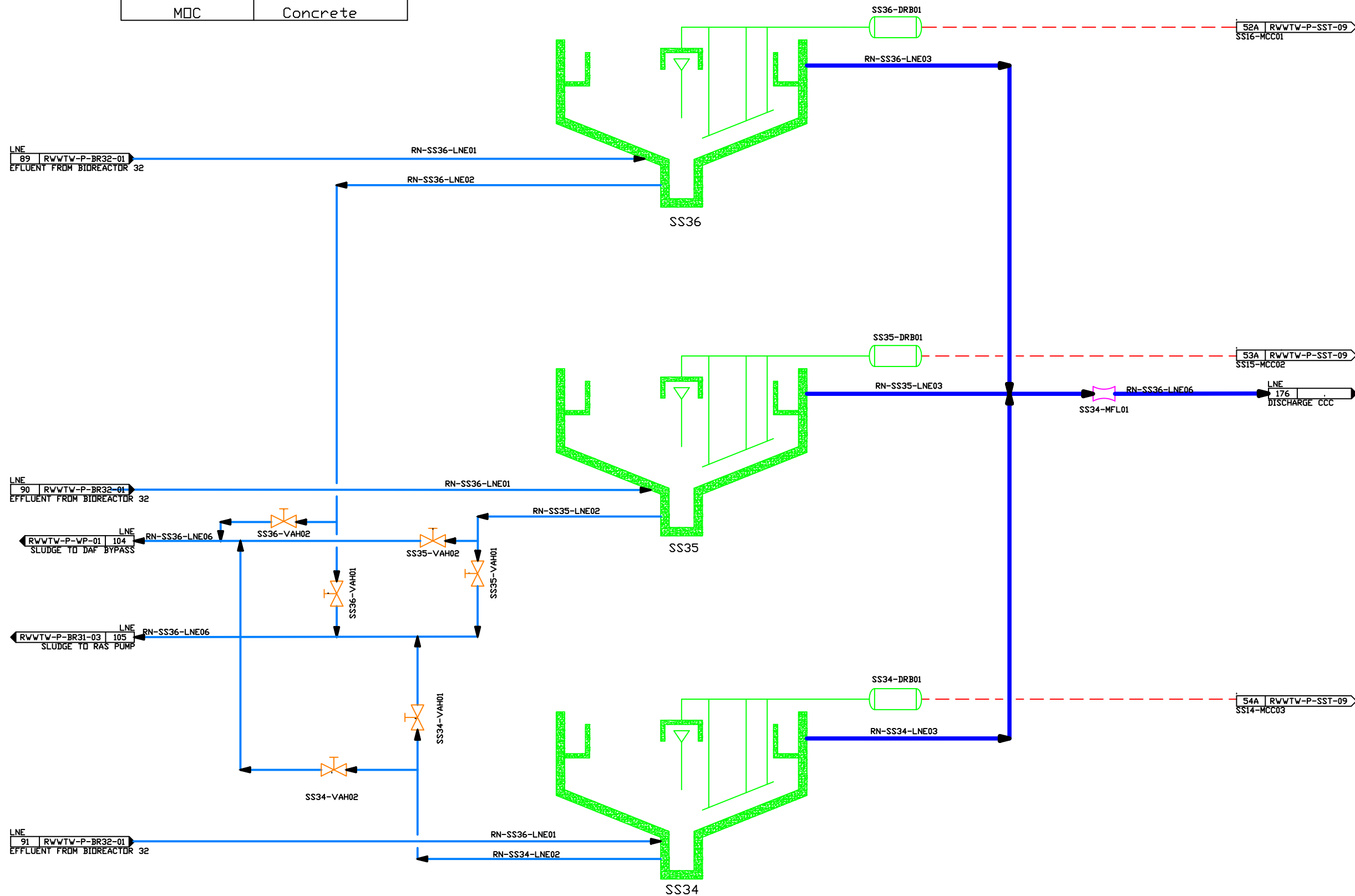
Drawing Number

RWWTW-P-SST-07

Revision Number

B

SS34/35/36	
Secondary Settling Tank	
TANK HEIGHT	4.1 m
TANK DIAMETER	30 m
MOC	Concrete



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NOTES:

[illegible]

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**CITY OF TSHWANE**

Drawing Title <b>ROOIWAL WASTE WATER          PIPING &amp; INSTRUMENTATION DIAGRAM          SECONDARY SETTLING TANK 34, 35 &amp; 36</b>
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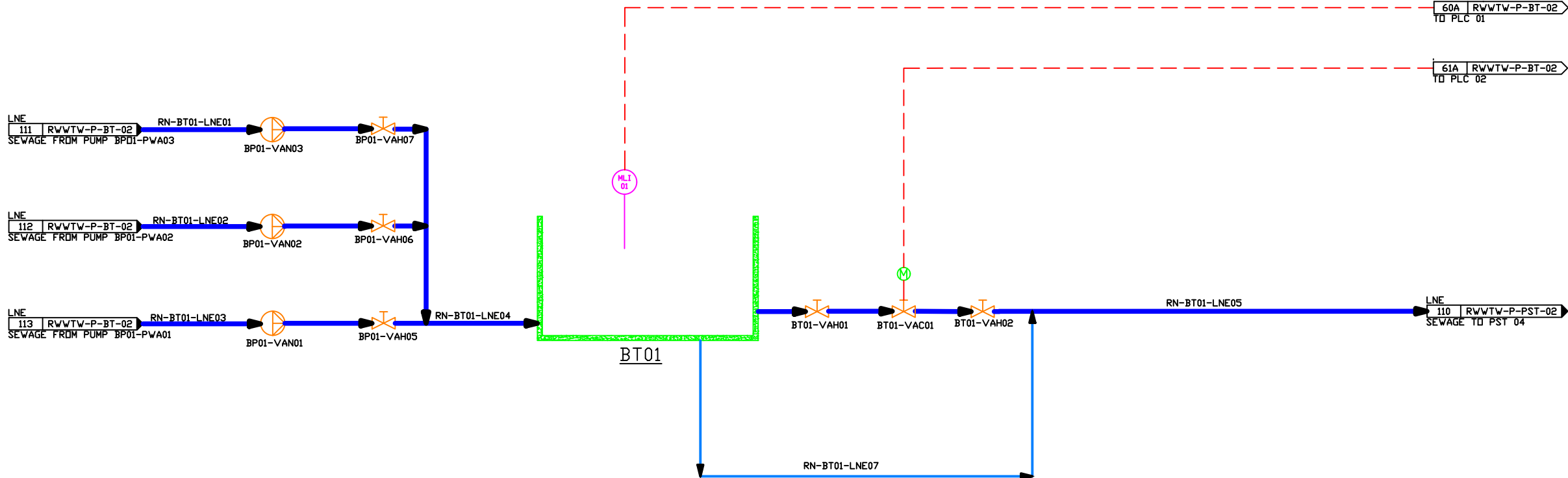
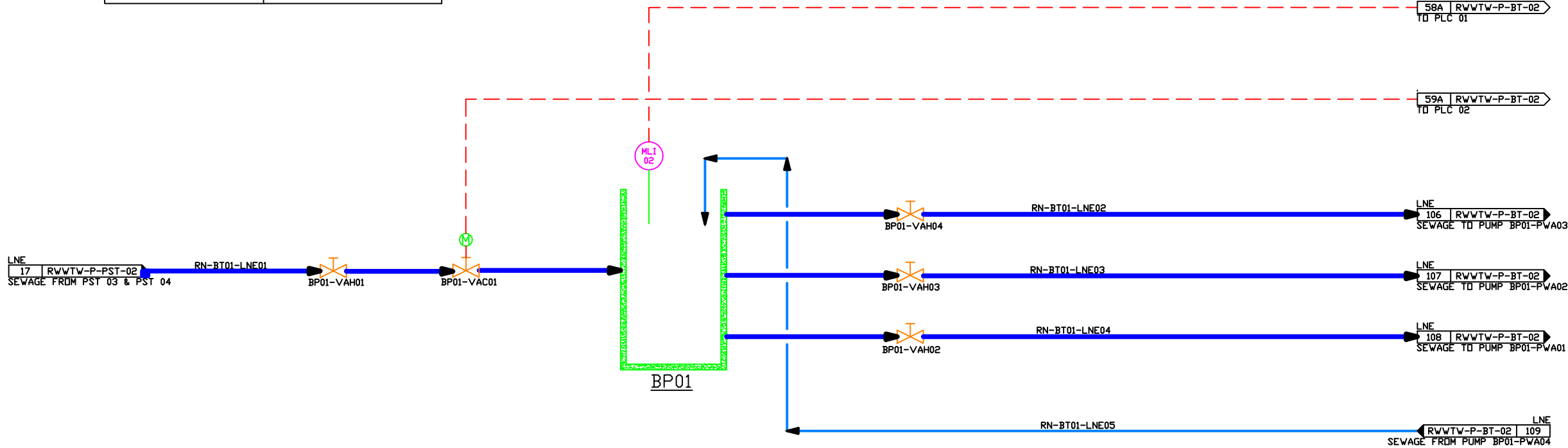
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Scale	Drawn
N/A	NS
Date	Checked
JUL 2024	KN

Type Number  
**PRELIMINARY**

Drawing Number	Revision Number
RWWTW-P-SST-08	B



BT01	
Balancing Tank	
DEPTH	3 m
WORKING CAPAITY	10000 m <sup>3</sup>
OPERATING TEMP	20°C



NOTES:

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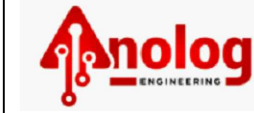
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Consultants / Department	Project	Start Date	End Date	Project Manager	Project Status
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## PROCESS

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CITY OF TSHWANE

Drawing Title

## ROOIWAL WASTE WATER PIPING & INSTRUMENTATION DIAGRAM EAST BALANCING TANKS

Ref. No.	-	Designed	NS
Scale	N/A	Drawn	NS
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Type Number

# PRELIMINARY

Drawing Number

RWWTW-P-BT-01

Revision Number

B

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The diagram illustrates a sewerage network with the following components and flow paths:

- TK04 (Tank 04):** Settled sewage from PST 01 & 02 flows into this tank.
- BP02 (Pump 02):** Receives sewage from TK04 via pipes RN-BT02-LNE01, RN-BT02-LNE02, and RN-BT02-LNE03. It has two pumps (BP02-VAC01, BP02-VAC02) and four valves (BP02-VAH01, BP02-VAH02, BP02-VAH03, BP02-VAH04). It also has a connection to MLI 01.
- BT02 (Pump 02):** Receives sewage from BP02 via pipes RN-BT02-LNE04, RN-BT02-LNE05, and RN-BT02-LNE06. It has two pumps (BT02-VAC01, BT02-VAC02) and four valves (BT02-VAH01, BT02-VAH02, BT02-VAH03, BT02-VAH04). It also has a connection to MLI 03.
- BT03 (Pump 03):** Receives sewage from BT02 via pipes RN-BT03-LNE01, RN-BT03-LNE02, and RN-BT03-LNE03. It has two pumps (BT03-VAC01, BT03-VAC02) and four valves (BT03-VAH01, BT03-VAH02, BT03-VAH03, BT03-VAH04). It also has a connection to MLI 04.
- PST 01 & 02 (Preston Sewage Treatment Works):** Receives sewage from BT02 via pipes RN-BT02-LNE07, RN-BT02-LNE08, and RN-BT02-LNE09.
- PLC01 (Programmable Logic Controller 01):** Receives signals from BT02 via pipes 63A, 64A, 65A, 66A, 67A, 68A, and 69A.
- PLC02 (Programmable Logic Controller 02):** Receives signals from BT02 via pipes 63A, 64A, 65A, 66A, 67A, 68A, and 69A.
- Main Inlet Channel:** Receives sewage from BT02 via pipes RN-BT02-LNE10, RN-BT02-LNE11, and RN-BT02-LNE12.

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<b>NO.</b>	<b>DATE</b>	<b>REVISION DESCRIPTION</b>	<b>BY</b>	

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| Drawing Title<br><b>ROOIWAL WASTE WATER<br/>         PIPING &amp; INSTRUMENTATION DIAGRAM<br/>         WEST BALANCING TANKS</b> |
|---------------------------------------------------------------------------------------------------------------------------------|

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|----------------------------------------|-----------------------------|
| Type Number<br><b>PRELIMINARY</b>      |                             |
| Drawing Number<br><b>RWWTW-P-BT-03</b> | Revision Number<br><b>B</b> |

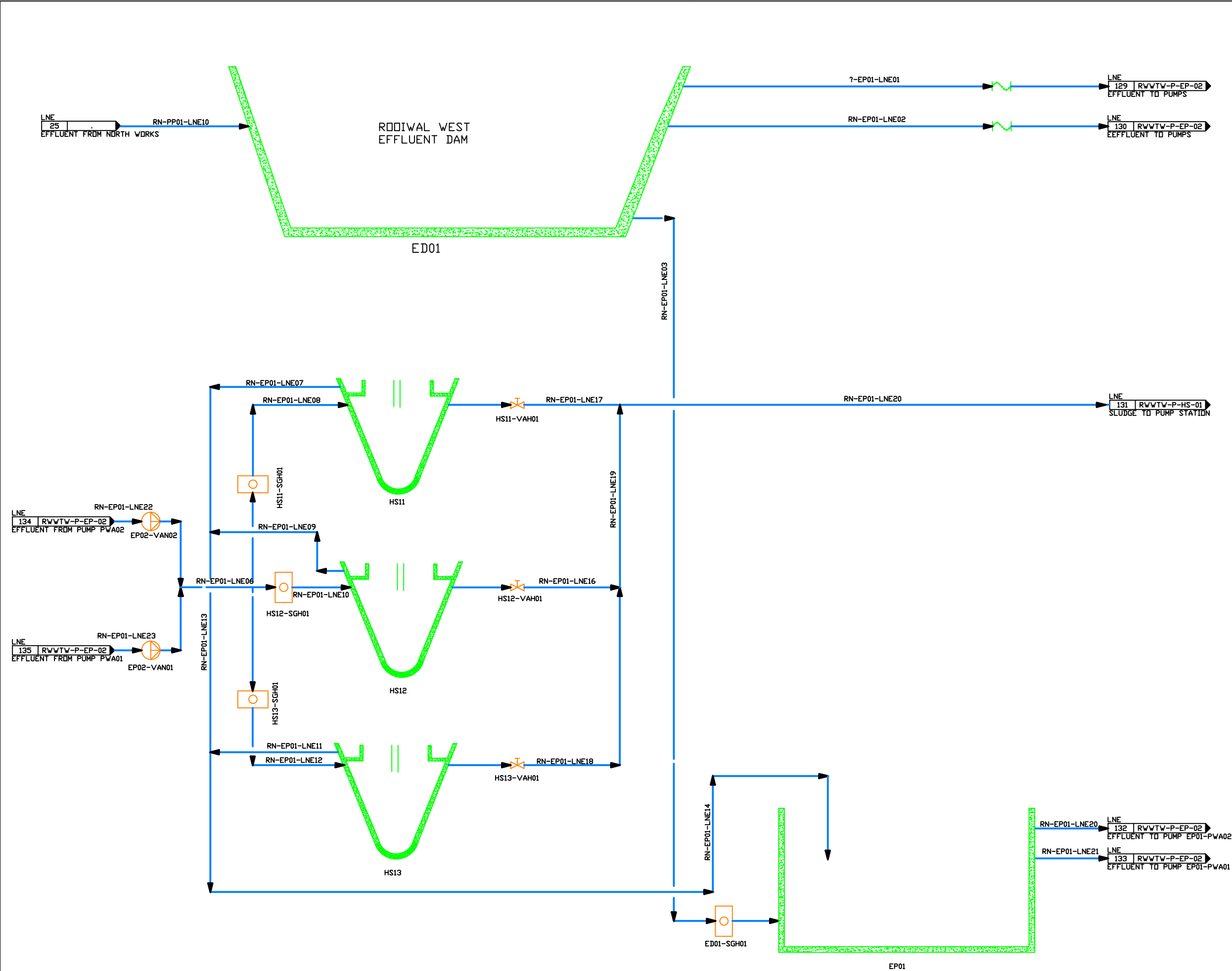
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Client



1258 LEVER RD  
HEADWAY HILL  
MIDRAND  
1685  
TEL: (011) 313 3500

Consultants / Department



OFFICE UNIT 6  
98 NAGINGTON ROAD  
WADEVILLE  
GERMISTON  
TEL: 069 590 1739  
EMAIL: MICK@ANOLOG.CO.ZA

Discipline

PROCESS

Service

CITY OF TSHWANE

Drawing Title

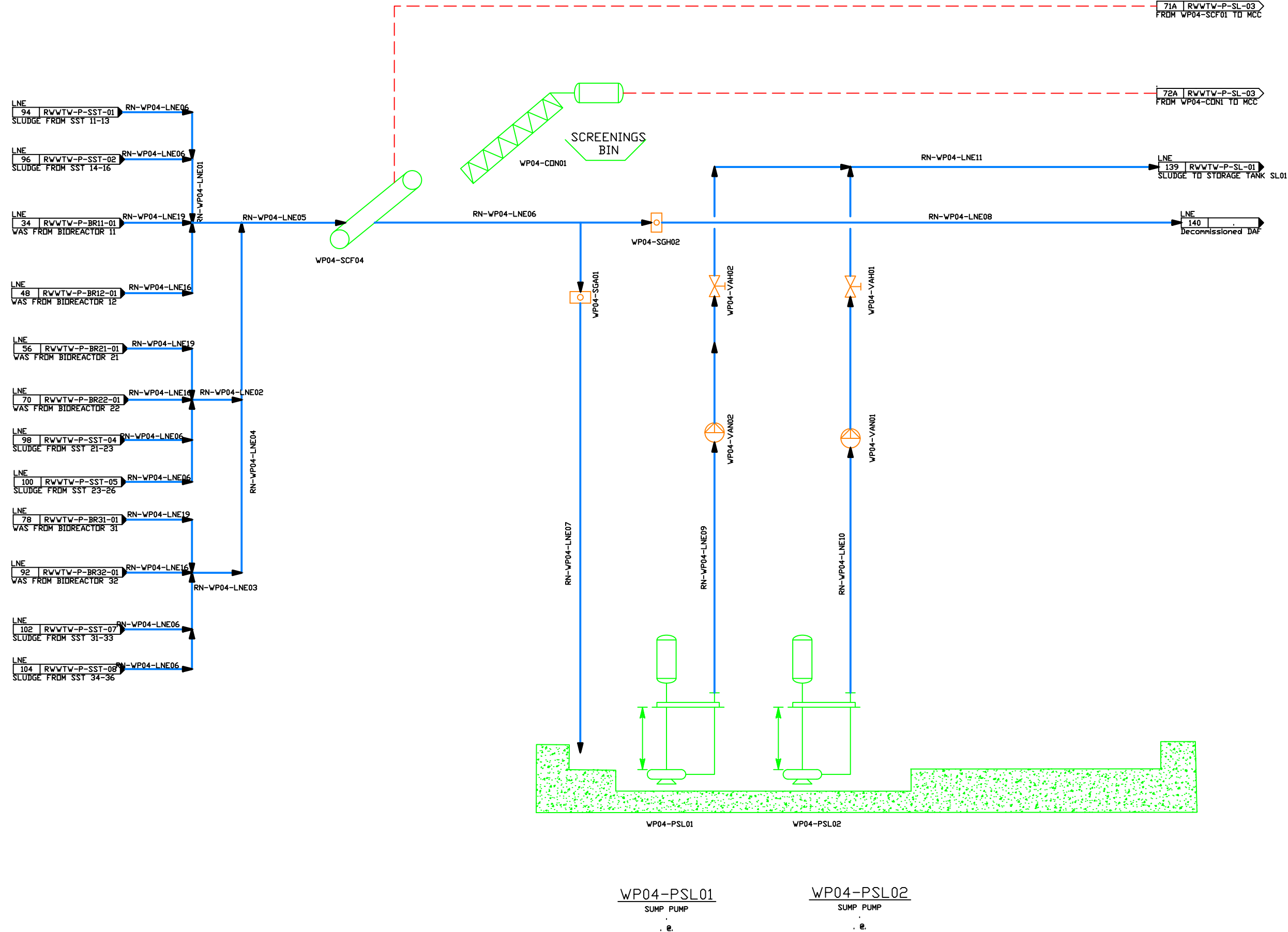
Rooiwal Waste Water  
PIPING & INSTRUMENTATION DIAGRAM  
EFFLUENT PUMP STATION

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| Date     | Checked  |
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DISCIPLINE WORKING COPY

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Client



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MIDRAND  
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Discipline  
PROCESS

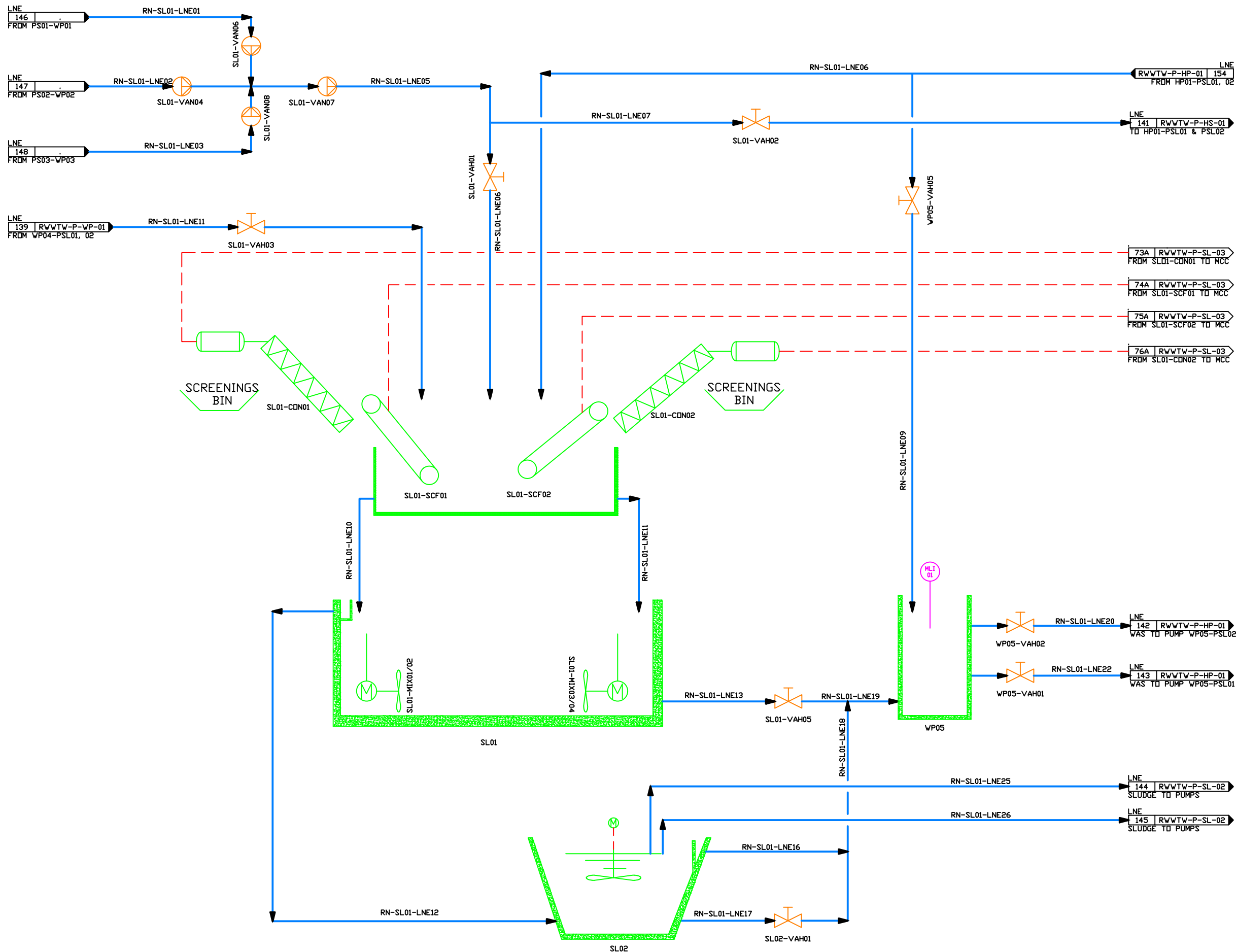
Service  
**CITY OF TSHWANE**

Drawing Title  
**ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
WAS PUMP STATION**

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| Drawing Number | Revision Number |
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DISCIPLINE WORKING COPY

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| DWG. No. | ASSOCIATED DRAWING DESCRIPTION |
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Client  
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HEADWAY HILL  
MIDRAND  
1685  
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Discipline  
PROCESS

Service  
CITY OF TSHWANE

Drawing Title  
ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
SLUDGE STORAGE TANK

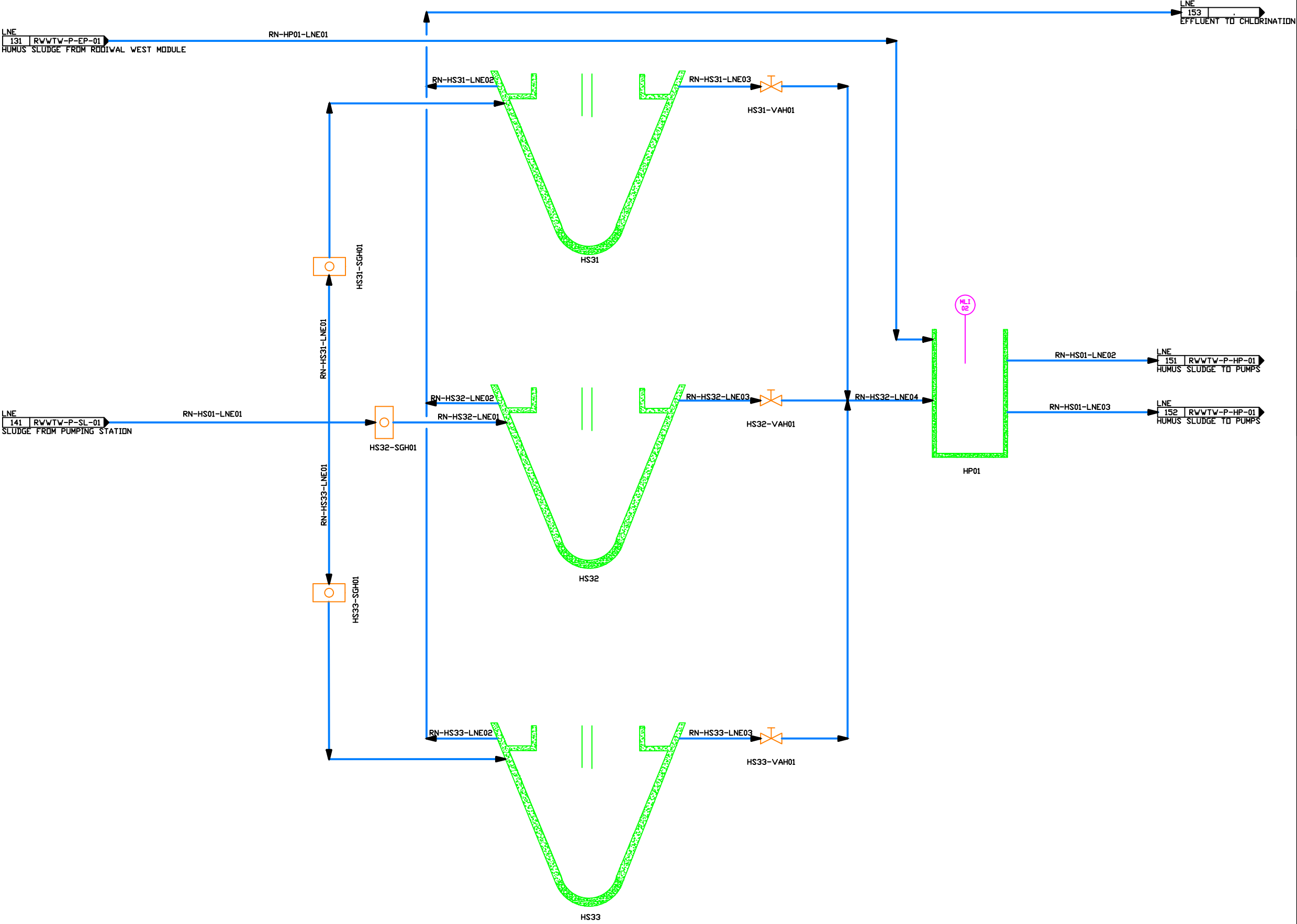
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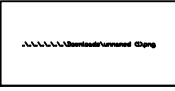
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| DWG. No. | ASSOCIATED DRAWING DESCRIPTION |

Client



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Discipline

PROCESS

Service

CITY OF TSHWANE

Drawing Title

ROOIWAL WASTE WATER  
PIPING & INSTRUMENTATION DIAGRAM  
HUMUS TANKS

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