

CITY OF TSHWANE

Department of Human Settlement

TENDER FOR APPOINTMENT OF A CONTRACTOR FOR DESIGN REVIEW OF BULK SEWER, TESTING AND COMMISSIONING OF BULK WATER, WATER AND SEWER RETICULATION AND PREPARATION OF AS-BUILTS AT RAMA CITY X10

Tender:.....

VOLUME 2 ATTACHMENT: TENDER DRAWINGS (reduced copies)



Prepared for:

**The Divisional Head
Housing & Human Settlements Department
P O Box 1409
PRETORIA
0001**



Prepared by:

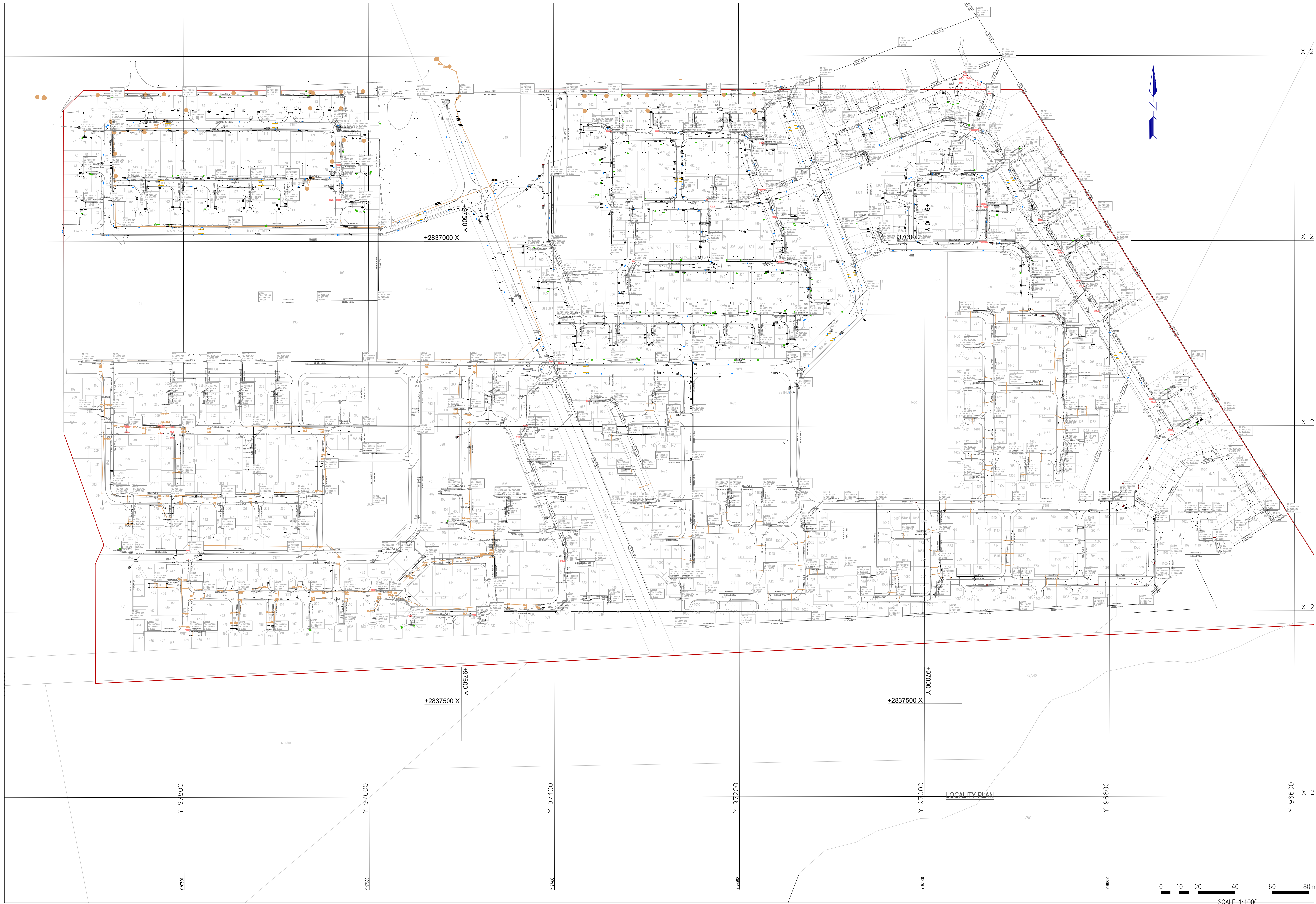
**Hokwani Consulting CC
13 Esdoring street,
Centurion,
0157**

DRAWING NUMBER

DRAWING DESCRIPTION

HHS-07-2023/24 C 300	SEWER MAIN COLLECTOR PIPELINE LAYOUT
HHS-07-2023/24 C 301	SEWER MAIN COLLECTOR PIPELINE LAYOUT
HHS-07-2023/24 C 310	STANDARD DRAWING : SEWER HOUSE CONNECTION DETAILS
HHS-07-2023/24 C 311	STANDARD DRAWING : SEWER PIPE TRENCHES AND BEDDING
HHS-07-2023/24 C 312	STANDARD DRAWING : MANHOLE DETAILS FOR SEWERS LARGER THAN 300mmØ
HHS-07-2023/24 C 313	STANDARD DRAWING : MANHOLE DETAILS FOR SEWERS UP TO 300mm ND
HHS-07-2023/24 C 314	STANDARD DRAWING : TYPICAL SEWER LAYOUT FOR SUB-DIVISIONS AND LAMPHOLE DETAIL
HHS-07-2023/24 C 400	MAIN WATER SUPPLY CHAMBER LOCATIONS
HHS-07-2023/24 C 800	PIPE JACKING DETAILS
HHS-07-2023/24 C 801	SEWER ROAD CROSSING LAYOUT
HHS-07-2023/24 C 802	SEWER ROAD AND RAILWAY CROSSING LAYOUT
HHS-07-2023/24 C 803	SEWER ROAD AND RAILWAY CROSSING LONGITUDINAL SECTION

<div><p>CITY OF TSHWANE WATER AND SANITATION DEPARTMENT</p></div> <div>SIGNATURE _____ Prof. Reg. No. _____ DATE _____</div>	AMENDMENTS		IMPLEMENTING AUTHORITIES		<div>DEVELOPER DETAIL</div> <div><p>HOKWANI CONSULTING CC 13 ESDORING STREET CENTURION 0157 TEL: 081 270 6802 FAX: 086 665 6128</p><p>I, M G TSHUMA Prof. Reg. No 20170214 HEREBY CERTIFY THAT THE SERVICES WILL BE INSTALLED ACCORDING TO THE ABOVE NOTES AND TO THE DRAWING SPECIFICATIONS</p><div>CONSULTANT DRAWING NUMBER: HHS07/ SIGNATURE: _____</div><div></div></div>	<div>DESIGNED</div> <div>NAME: _____ Prof Reg No: _____ SIGNATURE: _____ DATE: _____</div>	<div>CONTRACT No.</div> <div>HHS-07-2023/24</div>	<div>LOCATION OF PROJECT</div> <div>RAMA CITY X 10</div>	<div>PROJECT STATUS</div> <div><div> CONCEPT DRAWING</div><div> TENDER DRAWING</div><div> APPROVED CONSTRUCTION DRAWING</div><div> AS BUILT DRAWING</div></div> <div>PROJECT ENGINEER of COT:</div> <div>NAME _____ SIGNATURE _____</div> <div>Prof Reg No. _____ DATE _____</div> <div>INSPECTOR OF WORKS of COT:</div> <div>NAME _____ SIGNATURE _____</div> <div>DATE _____</div>
				<div>DRAWN</div> <div>NAME: _____ SIGNATURE: _____ DATE: _____</div>		<div>PROJECT No.</div> <div>.....</div>	<div>DESCRIPTION OF PROJECT:</div> <div>RAMA CITY TESTING AND COMMISSIONING OF BULK WATER, WATER AND SEWER RETICULATION AND PREPARATION OF AS-BUILTS</div>		
				<div>CHECKED</div> <div>NAME: _____ Prof Reg No: _____ SIGNATURE: _____ DATE: _____</div>		<div>SHEET No.</div> <div>1 OF 1</div>	<div>WBS No.</div> <div>DRAWING LIST</div>		
						<div>PAPER SIZE</div> <div>A1</div>	<div>DRAWING NUMBER</div> <div>HHS-07-2023/24 C 000</div>		
						<div>SCALE</div> <div>AS SHOWN</div>	<div>DATE:</div> <div>09/02/2024</div>		



NOTES AND SPECIFICATIONS

GENERAL

1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
2. ALL DIMENSIONS ARE IN MILLIMETRES. (UNLESS OTHERWISE SPECIFIED).
3. DO NOT SCALE FROM THESE DRAWINGS.
4. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS.
6. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS (IF APPLICABLE).
7. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
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WATER

ALL EXISTING HOUSE CONNECTIONS TO BE MOVED TO NEW LINE.
ALL PIPES TO BE CLASS 16 UPVC PIPES (UNLESS OTHERWISE SPECIFIED).

LEGEND
WATER

- NEW HYDRANT
- PROPOSED / NEW PIPE
- NEW VALVE
- NEW VALVE ON EXISTING PIPE
- NEW HYDRANT ON EXISTING PIPE
- NEW END CAP
- NEW PRV
- NEW AIR VALVE
- NEW WATER METER
- EXISTING PIPE CAPPED
- EXISTING END CAP
- EXISTING NETWORK PIPE
- EXISTING BULK PIPELINE
- EXISTING HYDRANT
- EXISTING VALVE
- EXISTING COMMUNICATION PIPES
- EXISTING AIRVALVE
- EXISTING WATER METER
- EXISTING PRV
- EXISTING PUMP
- PIPE TO BE ABANDONED
- REDUNDANT PIPE
- EXISTING RES DISTRIBUTION ZONE
- PROPOSED RES DISTRIBUTION ZONE
- EXISTING RAND WATER PIPE
- SUBURB BOUNDARY
- SASOL GAS LINE
- PETRONET PIPE
- NEW PIPE IN NEW SLEEVE

CITY OF TSHWANE
WATER AND SANITATION
DEPARTMENT

AMENDMENTS				
NR	DATE	APPROVED	DESCRIPTION	PAR
D	9/2/2024		ISSUED FOR TENDER	

IMPLEMENTING AUTHORITIES			
DIRECTOR: DEPARTMENT OF LG & HS	NAME	Prof. Reg. No	SIGNATURE DATE
DIRECTOR: PROJECT MANAGEMENT UNIT	NAME	Prof. Reg. No	SIGNATURE DATE
DIRECTOR: WATER & SANITATION: COT	NAME	Prof. Reg. No	SIGNATURE DATE
DIRECTOR: COT	NAME	Prof. Reg. No	SIGNATURE DATE

DEVELOPER DETAIL

Hokwani Consulting cc
13 ESDORING STREET
CENTURION
0157
TEL: 081 270 6802
FAX: 086 665 6128

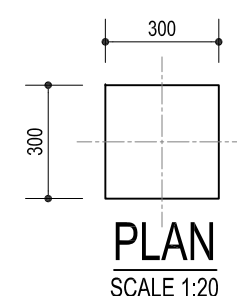
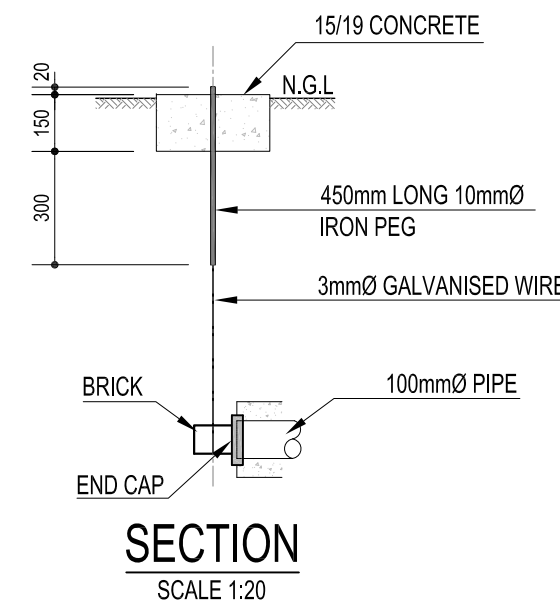
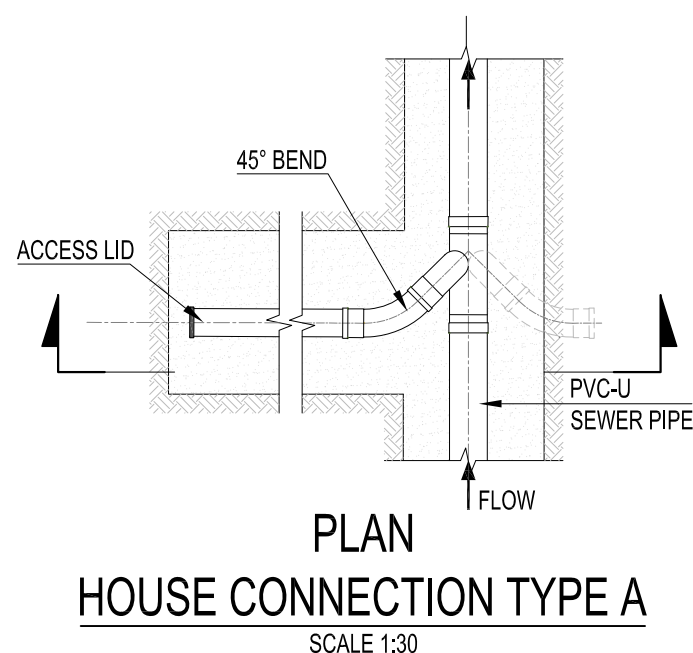
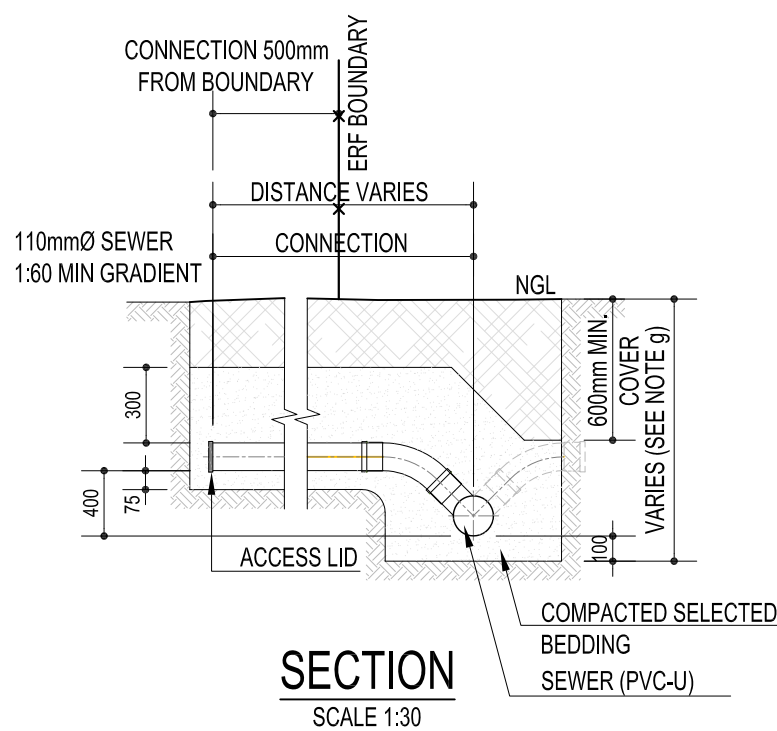
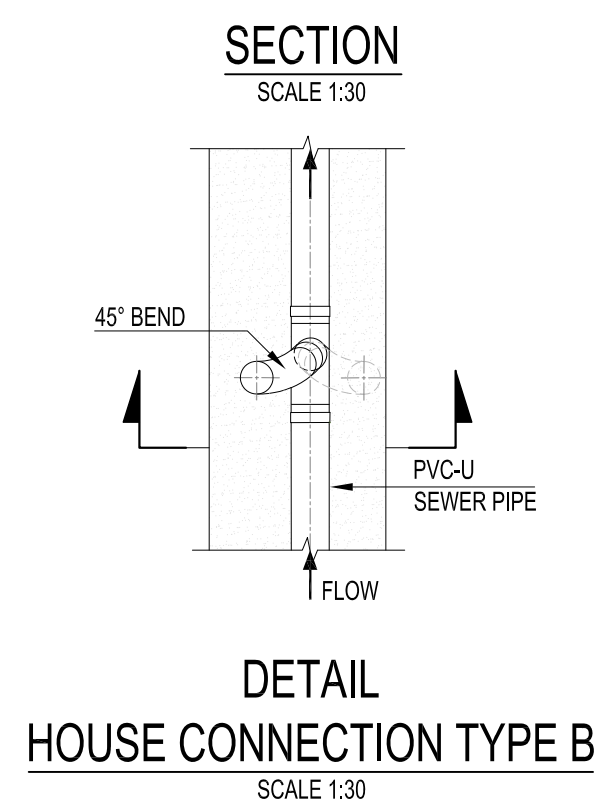
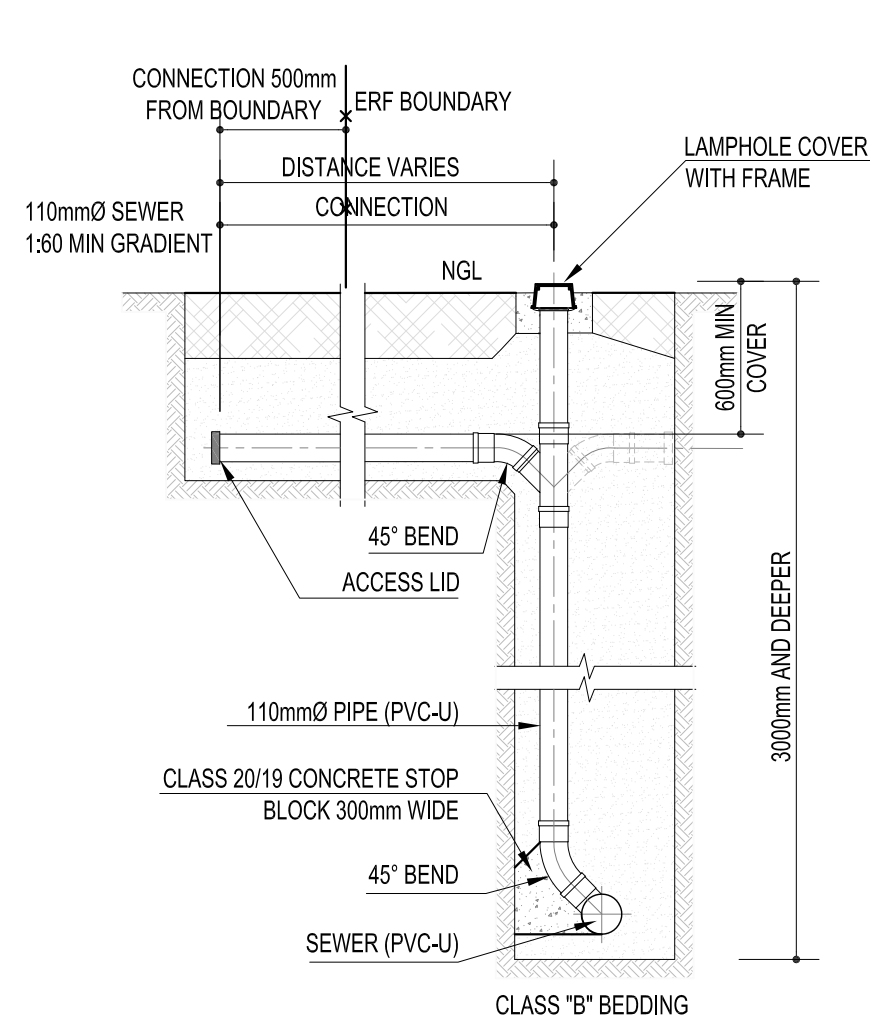
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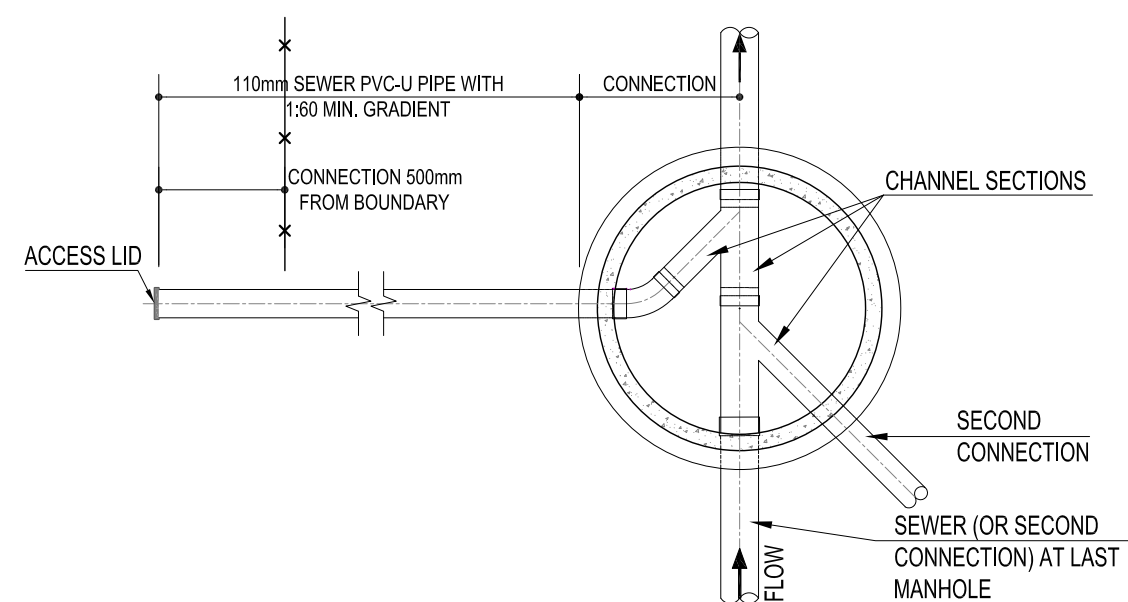
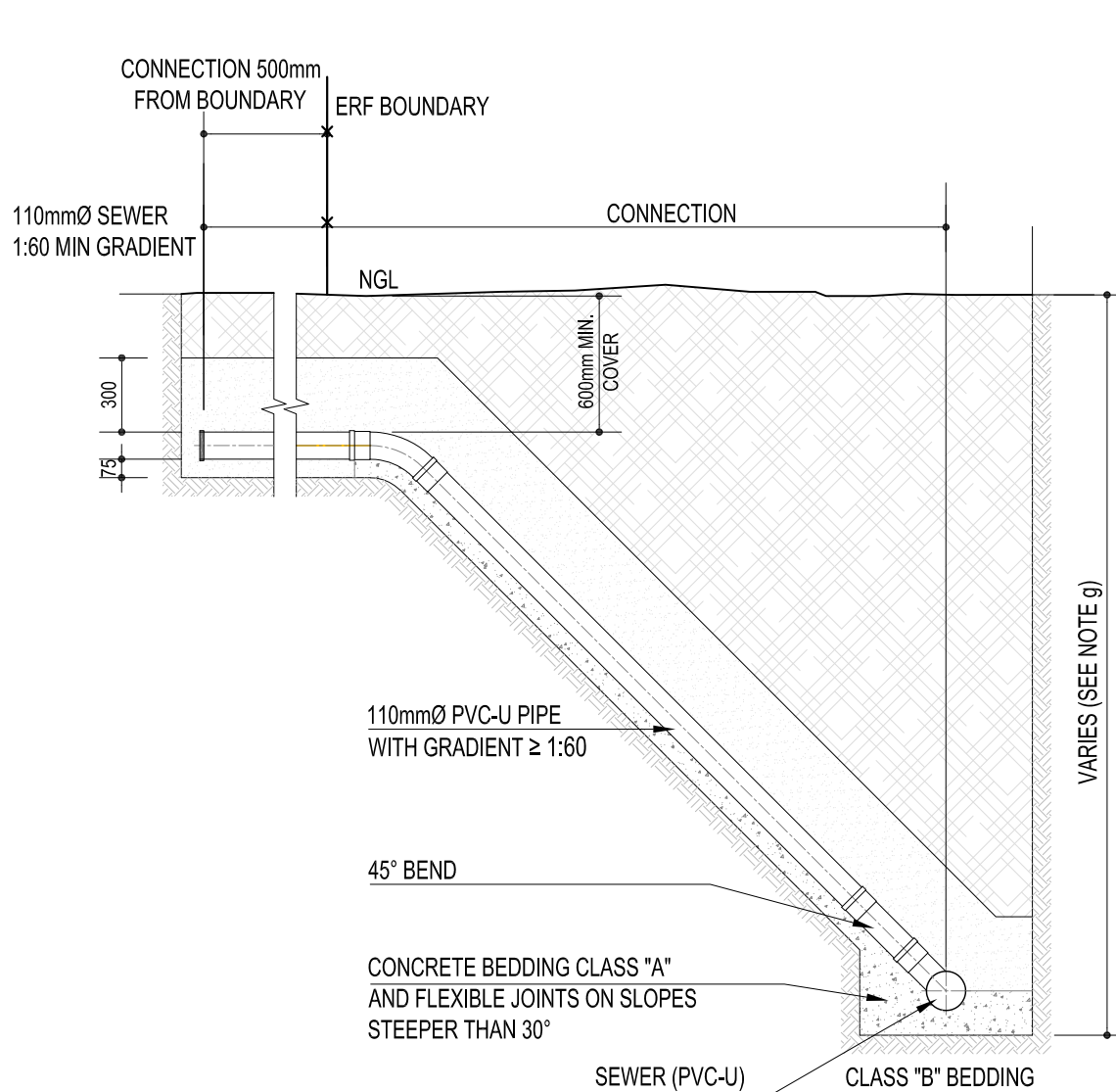
DESIGNED	
NAME:	Prof Reg No:
SIGNATURE:	DATE:
DRAWN	
NAME:	Prof Reg No:
SIGNATURE:	DATE:
CHECKED	
NAME:	Prof Reg No:
SIGNATURE:	DATE:

CONTRACT No.	
HHS-07-2023/24	
PROJECT No.	
SHEET No.	
1 OF 1	
PAPER SIZE	
A1	
SCALE	
AS SHOWN	
DATE:	
09/02/2024	
LOCATION OF PROJECT	
RAMA CITY X 10	
DESCRIPTION OF PROJECT:	
RAMA CITY TESTING AND COMMISSIONING OF BULK WATER, WATER AND SEWER RETICULATION AND PREPARATION OF AS-BUILTS	
WBS No.	
SEWER RETICULATION PIPELINE LAYOUT	
DRAWING NUMBER	
HHS-07-2023/24 C 300	

PROJECT STATUS			
CONCEPT DRAWING	TENDER DRAWING	APPROVED CONSTRUCTION DRAWING	AS BUILT DRAWING
PROJECT ENGINEER OF COT:			
NAME	SIGNATURE	NAME	SIGNATURE
Prof Reg No.	DATE	Prof Reg No.	DATE
INSPECTOR OF WORKS OF COT:			
NAME	SIGNATURE	NAME	SIGNATURE
Prof Reg No.	DATE	Prof Reg No.	DATE



HOUSE CONNECTION
MARKER BLOCK



PLAN
HOUSE CONNECTION TYPE D
(CONNECTION AT MANHOLE)

NOTES

- THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 3.
- HOUSE CONNECTION TYPE A IS BUILT WHERE SEWER IS SHALLOWER THAN 3,0m AND IS GENERALLY USED.
- HOUSE CONNECTION TYPE B IS BUILT WHERE SEWER IS DEEPER THAN 3,0m.
- HOUSE CONNECTION TYPE C IS ONLY TO BE BUILT ON WRITTEN INSTRUCTION FROM THE ENGINEER.
- HOUSE CONNECTION TYPE B IS ALSO BUILT WHERE SEWER IS SITUATED UNDER CARRIAGEWAY AND DEEPER THAN 3,0m.
- IN CASES WHERE SEWER UNDER CARRIAGEWAY IS SHALLOWER THAN 3,0m, TYPE A OR C HOUSE CONNECTION IS TO BUILT.
- HOUSE CONNECTION TYPE D IS BUILT WHERE HOUSE CONNECTION AND MANHOLE POSITION COINCIDE.
- MINIMUM COVER FOR MAIN SEWER IS 1 000mm.
- PVC PIPES AND FITTINGS SHALL COMPLY WITH SANS1601 FOR STIFFNESS CLASS 400 PIPES.
- LAMP HOLE COVER AND FRAME IN ACCORDANCE WITH SANS 558.



CITY OF TSHWANE
WATER AND SANITATION
DEPARTMENT

SIGNATURE _____ Prof. Reg. No _____ DATE _____

AMENDMENTS

NR	DATE	APPROVED	DESCRIPTION	PAR
D	09/02/2024		ISSUED FOR TENDER	

IMPLEMENTING AUTHORITIES

DIRECTOR:DEPARTMENT OF LG & HS
NAME _____ Prof. Reg. No _____ SIGNATURE _____ DATE _____
DIRECTOR: PROJECT MANAGEMENT UNIT
NAME _____ Prof. Reg. No _____ SIGNATURE _____ DATE _____
DIRECTOR: WATER & SANITATION:COT
NAME _____ Prof. Reg. No _____ SIGNATURE _____ DATE _____
DIRECTOR: COT
NAME _____ Prof. Reg. No _____ SIGNATURE _____ DATE _____

DEVELOPER DETAIL



HOKWANI CONSULTING CC
13 ESDORING STREET
CENTURION
0157
TEL: 081 270 6802
FAX: 086 665 6128

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CONSULTANT DRAWING NUMBER SIGNATURE
HHS07/ _____

DESIGNED

NAME: _____ Prof Reg No: _____
SIGNATURE: _____ DATE: _____

DRAWN

NAME: _____
SIGNATURE: _____ DATE: _____

CHECKED

NAME: _____ Prof Reg No: _____
SIGNATURE: _____ DATE: _____

CONTRACT

No.
HHS-07-2023/24
PROJECT No.

SHEET No.
1 OF 1
PAPER SIZE

A1

SCALE
AS SHOWN

DATE:
09/02/2024

LOCATION OF PROJECT

RAMA CITY X 10

DESCRIPTION OF PROJECT:

RAMA CITY TESTING AND COMMISSIONING OF BULK WATER,
WATER AND SEWER RETICULATION AND PREPARATION OF
AS-BUILTS

WBS No. STANDARD DRAWING : SEWER HOUSE CONNECTION DETAILS

DRAWING NUMBER
HHS-07-2023/24 C 310

PROJECT STATUS

CONCEPT
DRAWING
TENDER
DRAWING
APPROVED
CONSTRUCTION
DRAWING
AS BUILT
DRAWING

PROJECT ENGINEER of COT:

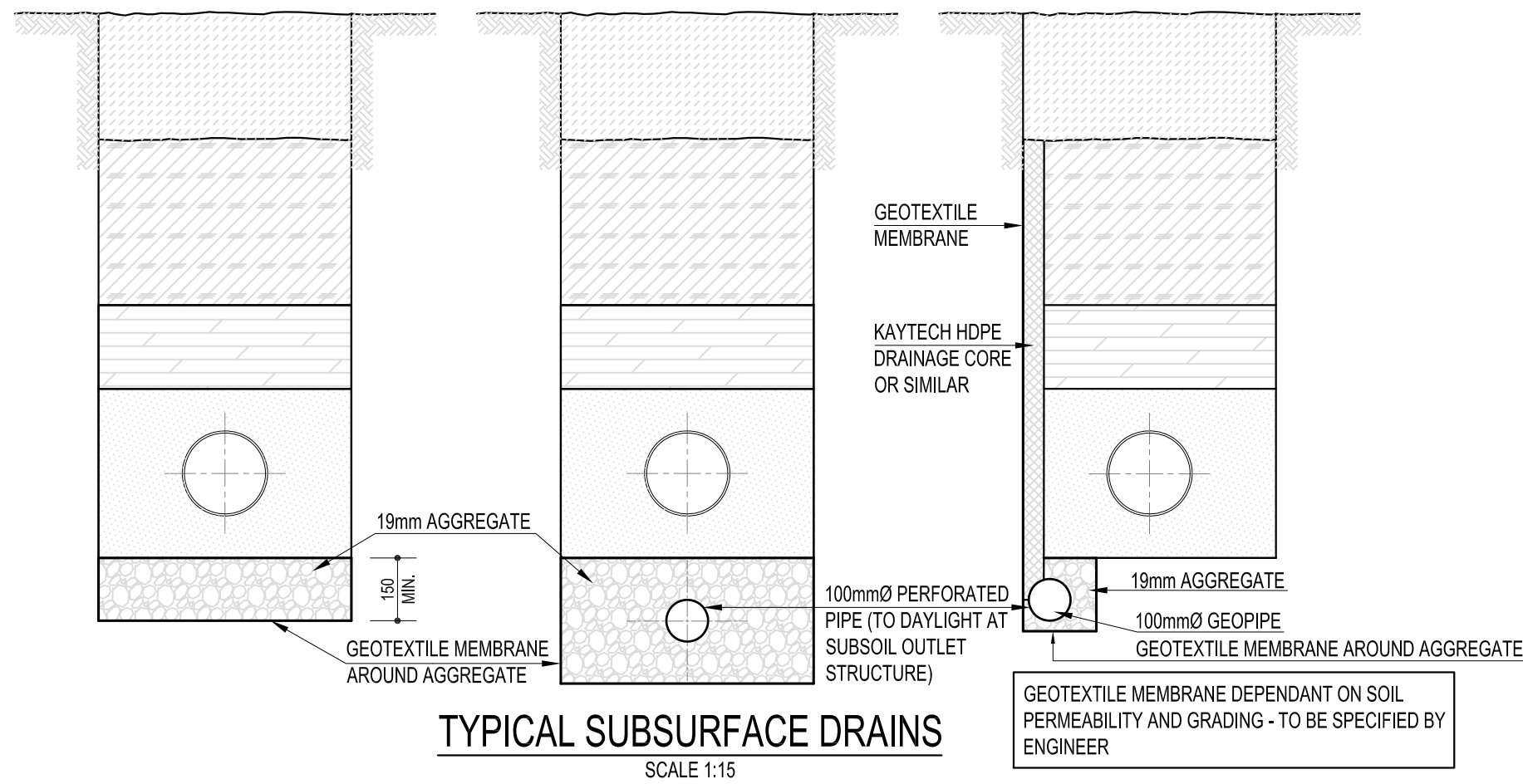
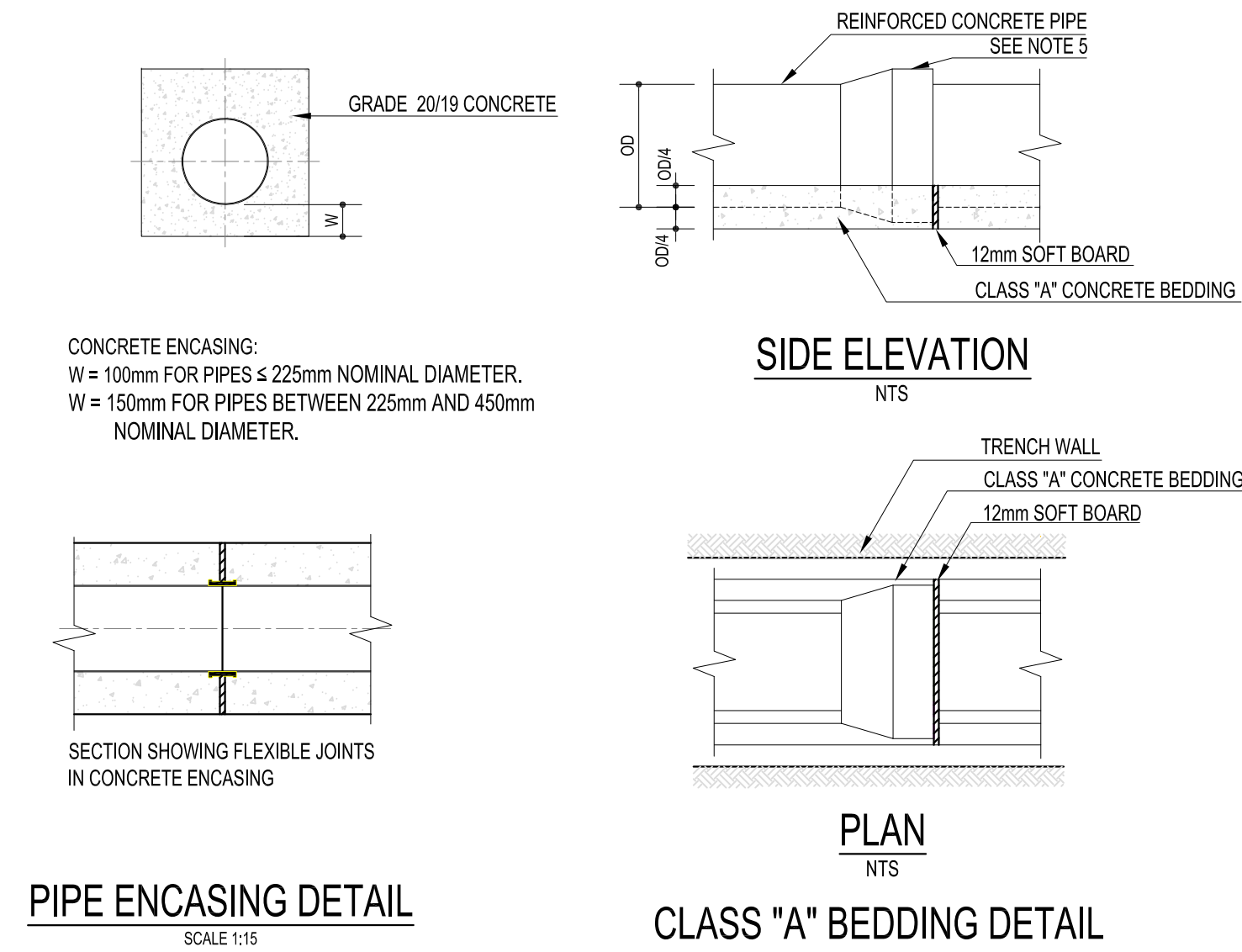
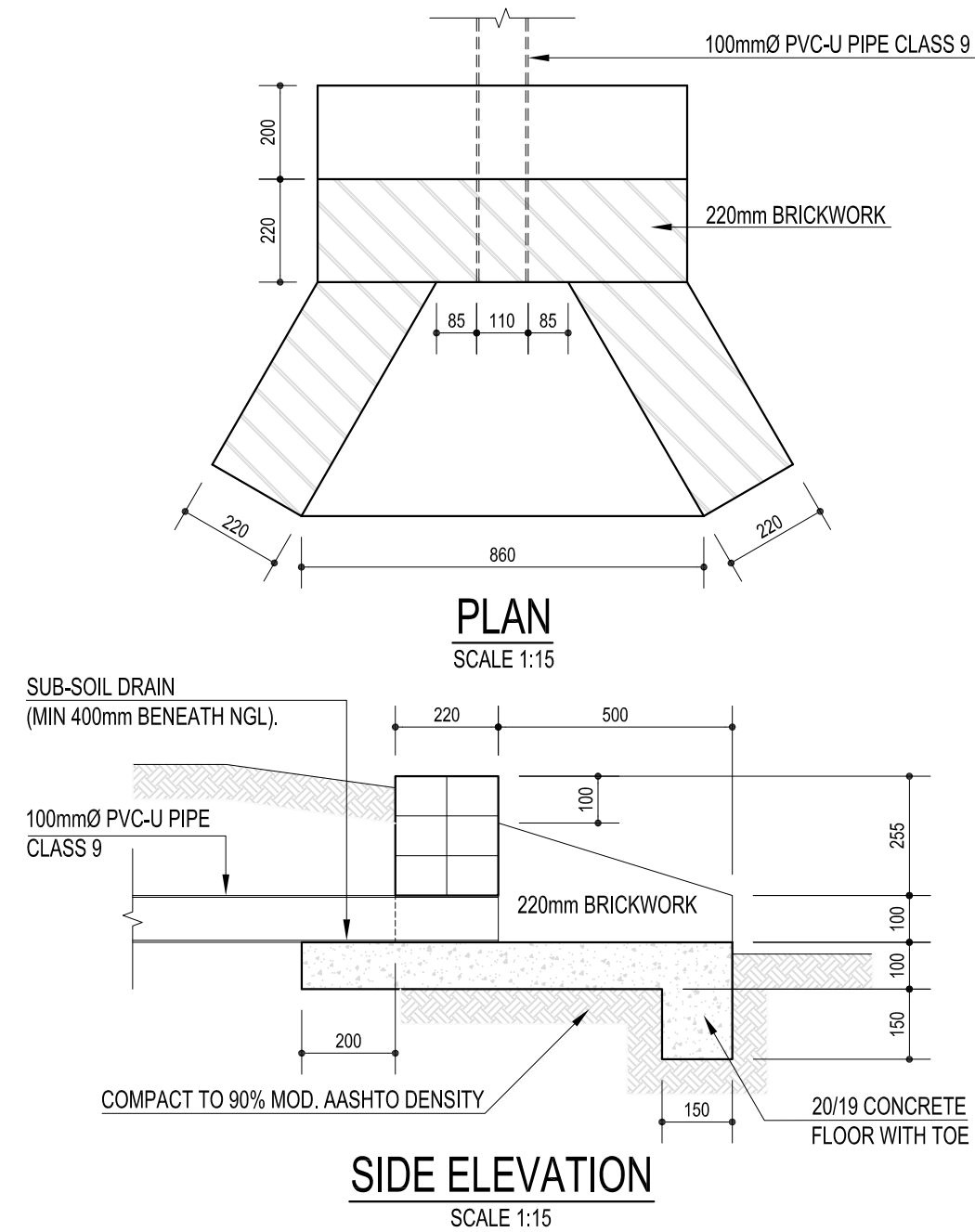
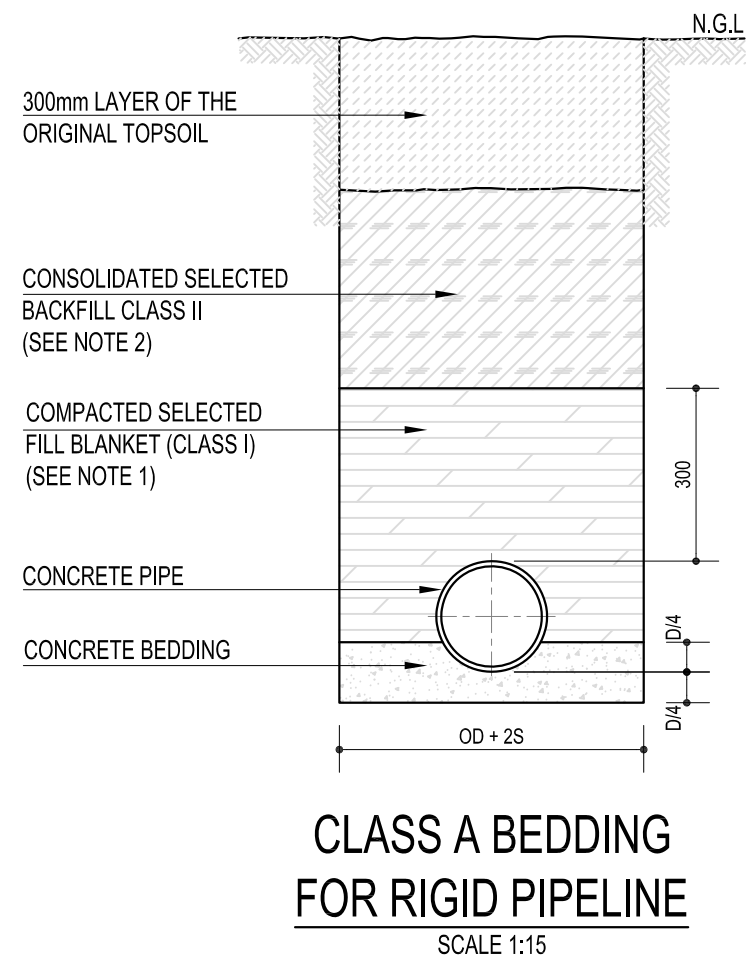
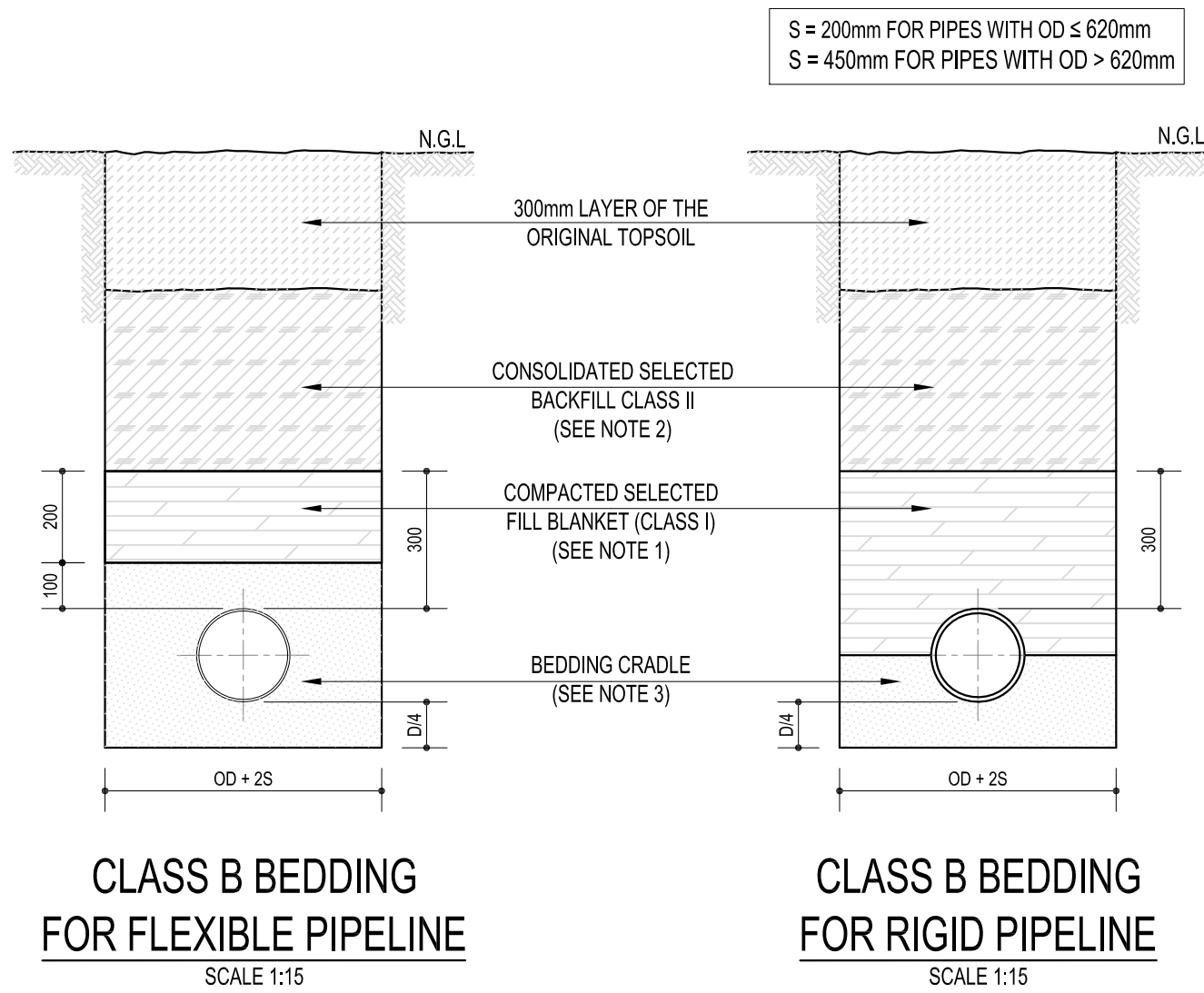
NAME _____ SIGNATURE _____
Prof Reg No. _____ DATE _____

INSPECTOR OF WORKS of COT:

NAME _____ SIGNATURE _____
DATE _____

NOTES

1. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 3.
2. SELECTED BACKFILL CLASS I : IMPLIES APPROVED ELECTED MATERIAL FROM TRENCH EXCAVATION, FREE FROM STONES AND WITH AN OPTIMUM MOISTURE CONTENT.
3. SELECTED BACKFILL CLASS II : IMPLIES SELECTED BACKFILL FROM TRENCH EXCAVATION, WHICH SHALL NOT CONTAIN ANY STONES LARGER THAN 150mmØ.
4. CLASS B BEDDING CRADLE SHALL CONSIST OF AN APPROVED SELECTED GRAVEL MATERIAL WITH A PI NOT EXCEEDING 6, FREE FROM STONES EXCEEDING 20mm, ORGANIC MATTER AND LUMPS OF CLAY.
5. CLASS "A" BEDDING / ENCASING CONCRETE BETWEEN JOINTS SHALL BE CARRIED OUT IN ONE CONTINUOUS OPERATION USING CLASS 20/19 CONCRETE.
6. FLEXIBLE JOINTS MUST BE PROVIDED, AT EACH PIPE JOINT IN A CLASS "A" CONCRETE BEDDING / ENCASING, WITH A 12mm THICK SOFTBOARD PLACED VERTICALLY FOR THE ENTIRE CONCRETE PIPE JOINTS MUST BE SEALED WITH WET CLAY TO PREVENT SLUSH FROM PENETRATING THE JOINT.
7. EXCEPT FOR THE 300mm BACKFILL ON THE TOP OF THE PIPE, THE BALANCE OF THE TRENCH MAY BE BACKFILLED WHEN THE CLASS "A" BEDDING / ENCASING HAS OBTAINED THE COMPRESSIVE STRENGTH OF 15MPa.



CITY OF TSHWANE
WATER AND SANITATION
DEPARTMENT

SIGNATURE _____ Prof. Reg. No _____ DATE _____

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IMPLEMENTING AUTHORITIES

DIRECTOR: DEPARTMENT OF LG & HS			
NAME	Prof. Reg. No	SIGNATURE	DATE
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NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: WATER & SANITATION: COT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: COT			
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DEVELOPER DETAIL



HOKWANI CONSULTING CC
13 ESDORING STREET
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TEL: 081 270 6802
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CONSULTANT DRAWING NUMBER SIGNATURE
HHS07/

DESIGNED

NAME: _____ Prof Reg No: _____

SIGNATURE: _____ DATE: _____

DRAWN

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SIGNATURE: _____ DATE: _____

CHECKED

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CONTRACT No.

HHS-07-2023/24

PROJECT No.

.....

SHEET No.

1 OF 1

PAPER SIZE

A1

SCALE

AS SHOWN

DATE:

09/02/2024

LOCATION OF PROJECT

RAMA CITY X 10

DESCRIPTION OF PROJECT:

RAMA CITY TESTING AND COMMISSIONING OF BULK WATER,
WATER AND SEWER RETICULATION AND PREPARATION OF
AS-BUILTS

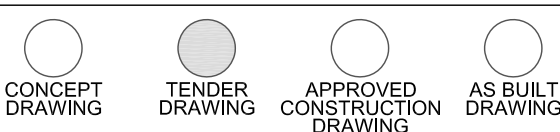
WBS No.

STANDARD DRAWING : SEWER PIPE TRENCHES AND BEDDING

DRAWING NUMBER

HHS-07-2023/24 C 311

PROJECT STATUS



PROJECT ENGINEER of COT:

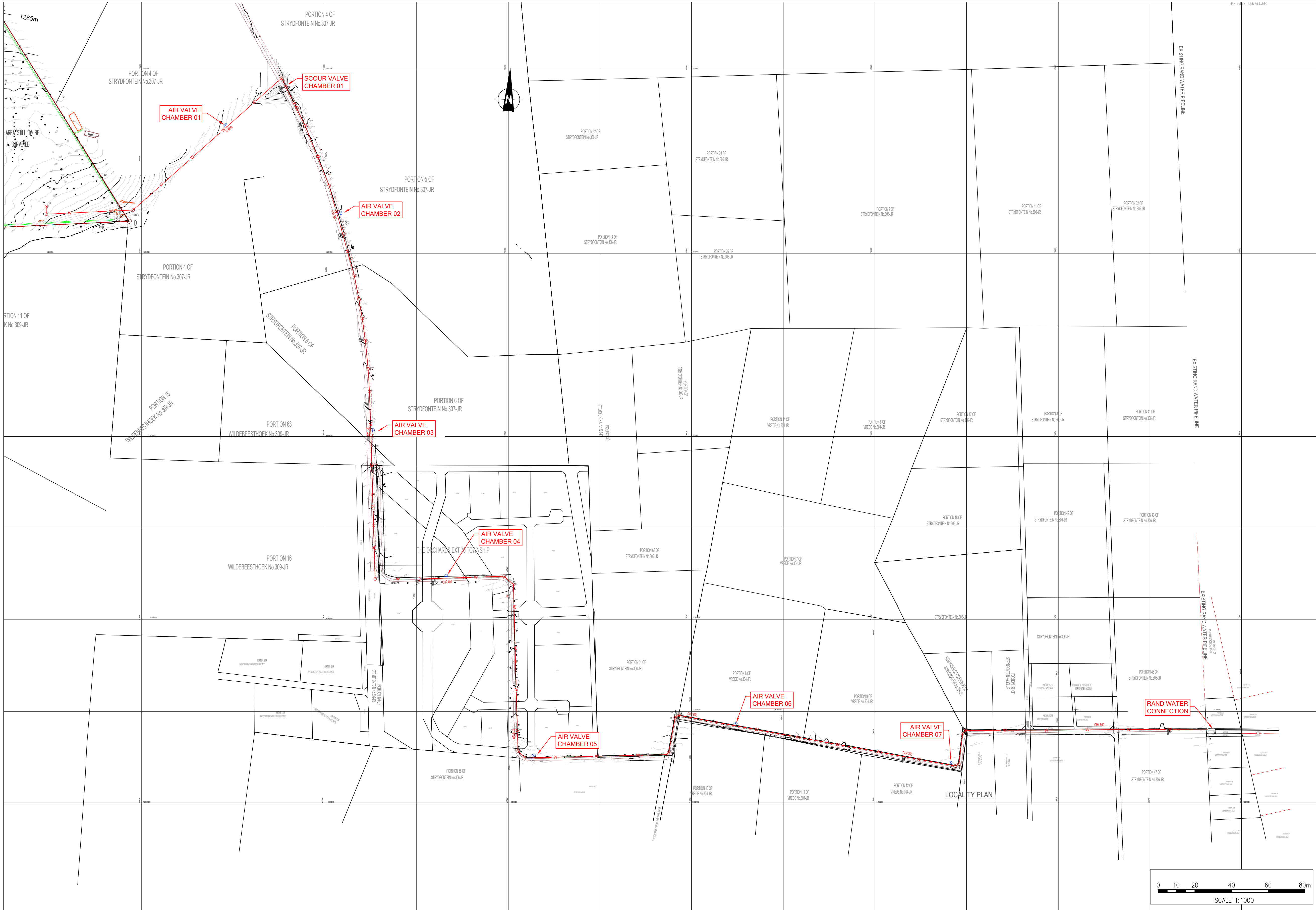
NAME _____ SIGNATURE _____

Prof Reg No. _____ DATE _____

INSPECTOR OF WORKS of COT:

NAME _____ SIGNATURE _____

NAME _____ DATE _____



NOTES AND SPECIFICATIONS

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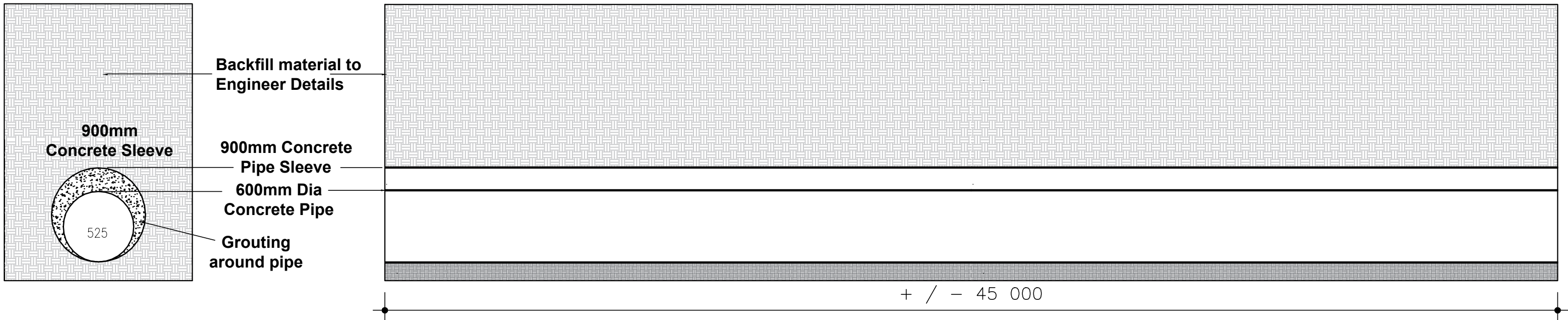
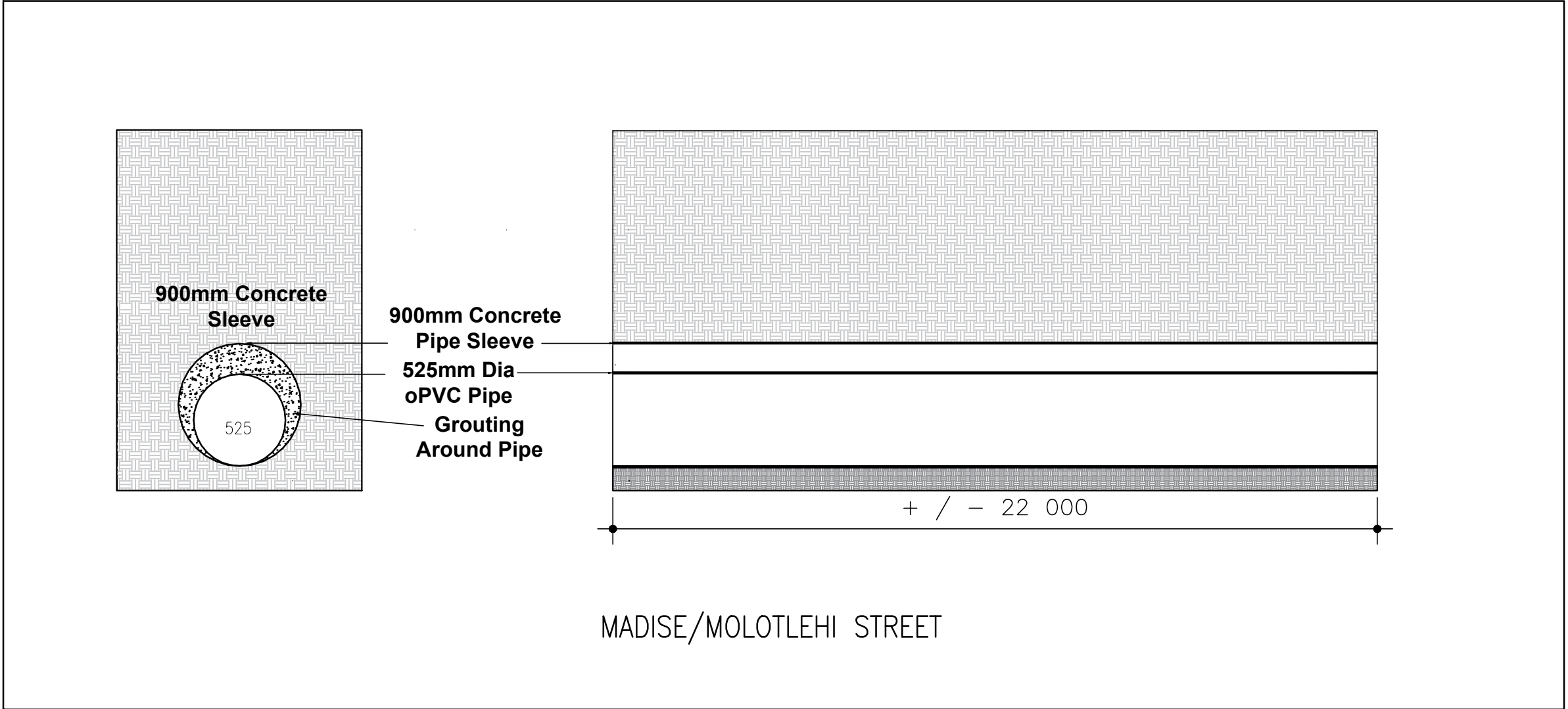
WATER

ALL EXISTING HOUSE CONNECTIONS TO BE MOVED TO NEW LINE.
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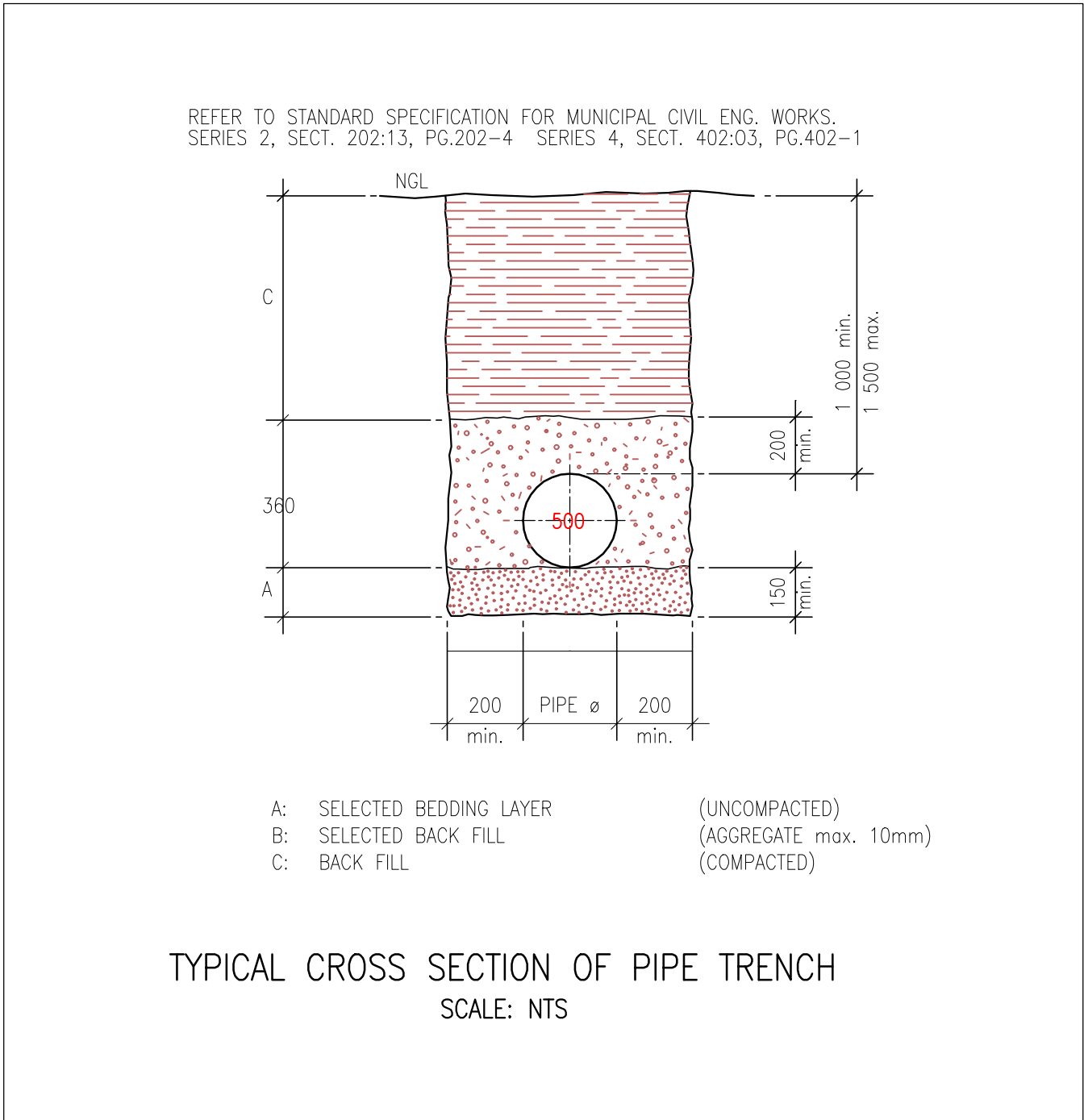
LEGEND
WATER

- NEW HYDRANT
- PROPOSED / NEW PIPE
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- NEW END CAP
- NEW PRV
- NEW AIR VALVE
- NEW WATER METER
- EXISTING PIPE CAPPED
- EXISTING END CAP
- EXISTING NETWORK PIPE
- EXISTING BULK PIPELINE
- EXISTING HYDRANT
- NODE NUMBER
- CLOSED VALVE
- EXISTING VALVE
- EXISTING COMMUNICATION PIPES
- EXISTING AIRVALVE
- EXISTING WATER METER
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- PETRONET PIPE
- NEW PIPE IN NEW SLEEVE

 CITY OF TSHWANE WATER AND SANITATION DEPARTMENT	AMENDMENTS		IMPLEMENTING AUTHORITIES		DEVELOPER DETAIL		DESIGNED		CONTRACT		LOCATION OF PROJECT		PROJECT STATUS			
	NR D	DATE 9/2/2024	APPROVED	DESCRIPTION ISSUED FOR TENDER	PAR	DIRECTOR: DEPARTMENT OF LG & HS NAME _____ Prof. Reg. No. _____ SIGNATURE _____ DATE _____ DIRECTOR: PROJECT MANAGEMENT UNIT NAME _____ Prof. Reg. No. _____ SIGNATURE _____ DATE _____ DIRECTOR: WATER & SANITATION: COT NAME _____ Prof. Reg. No. _____ SIGNATURE _____ DATE _____ DIRECTOR: COT NAME _____ Prof. Reg. No. _____ SIGNATURE _____ DATE _____		 HOKWANI CONSULTING CC 13 ESDORING STREET CENTURION 0157 TEL: 081 270 8802 FAX: 086 665 6128 I, M G TSHUMA Prof. Reg. No. 20170214 HEREBY CERTIFY THAT THE SERVICES WILL BE INSTALLED ACCORDING TO THE ABOVE NOTES AND TO THE DRAWING SPECIFICATIONS. CONSULTANT DRAWING NUMBER _____ SIGNATURE _____ HHS07/		NAME: _____ Prof. Reg. No. _____ SIGNATURE: _____ DATE: _____ DRAWN NAME: _____ SIGNATURE: _____ DATE: _____ CHECKED NAME: _____ Prof. Reg. No. _____ SIGNATURE: _____ DATE: _____		No. HHS-07-2023/24 PROJECT No. SHEET No. 1 OF 1 PAPER SIZE A1 SCALE AS SHOWN DATE: 09/02/2024		RAMA CITY X 10 DESCRIPTION OF PROJECT: RAMA CITY TESTING AND COMMISSIONING OF BULK WATER, WATER AND SEWER RETICULATION AND PREPARATION OF AS-BUILTS WBS No. _____ DRAWING NUMBER HHS-07-2023/24 C 400		PROJECT STATUS CONCEPT DRAWING TENDER DRAWING APPROVED CONSTRUCTION DRAWING AS BUILT DRAWING PROJECT ENGINEER of COT: NAME _____ SIGNATURE _____ Prof Reg No. _____ DATE _____ INSPECTOR OF WORKS of COT: NAME _____ SIGNATURE _____ DATE _____



ROAD AND PRASA CROSSING USING 900 CONCRETE SLEEVE
PIPE JACKING

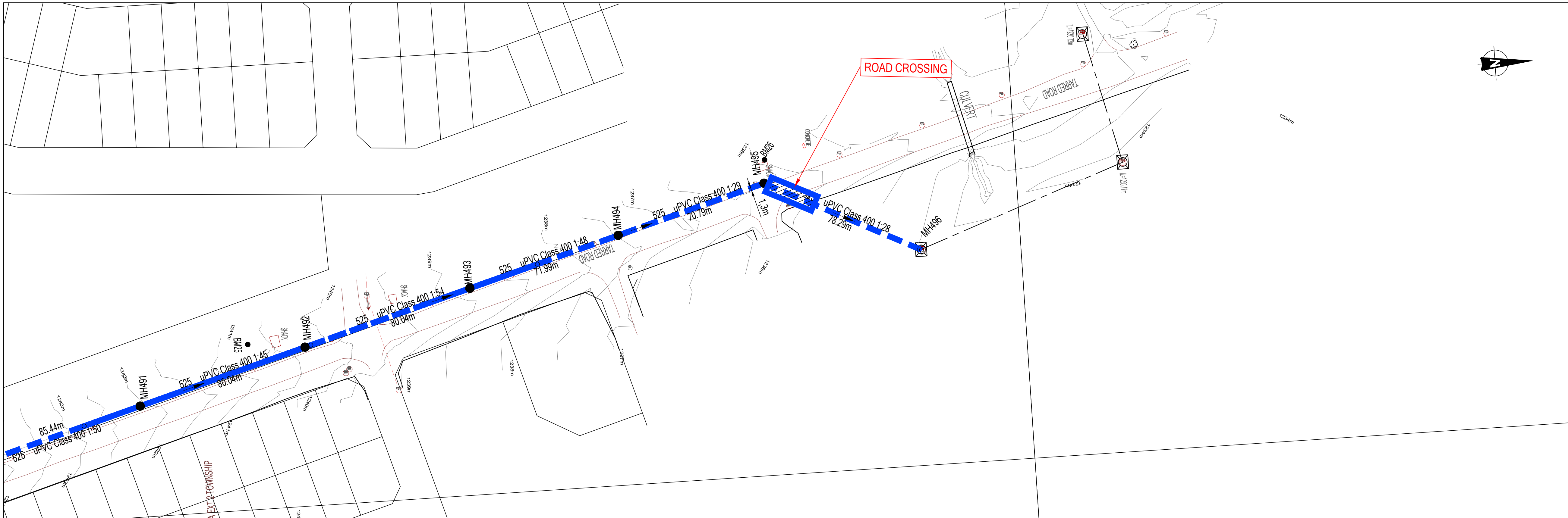


NOTES AND SPECIFICATIONS

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- WATER**
- ALL EXISTING HOUSE CONNECTIONS TO BE MOVED TO NEW LINE.
ALL PIPES TO BE CLASS 16 uPVC PIPES (UNLESS OTHERWISE SPECIFIED).

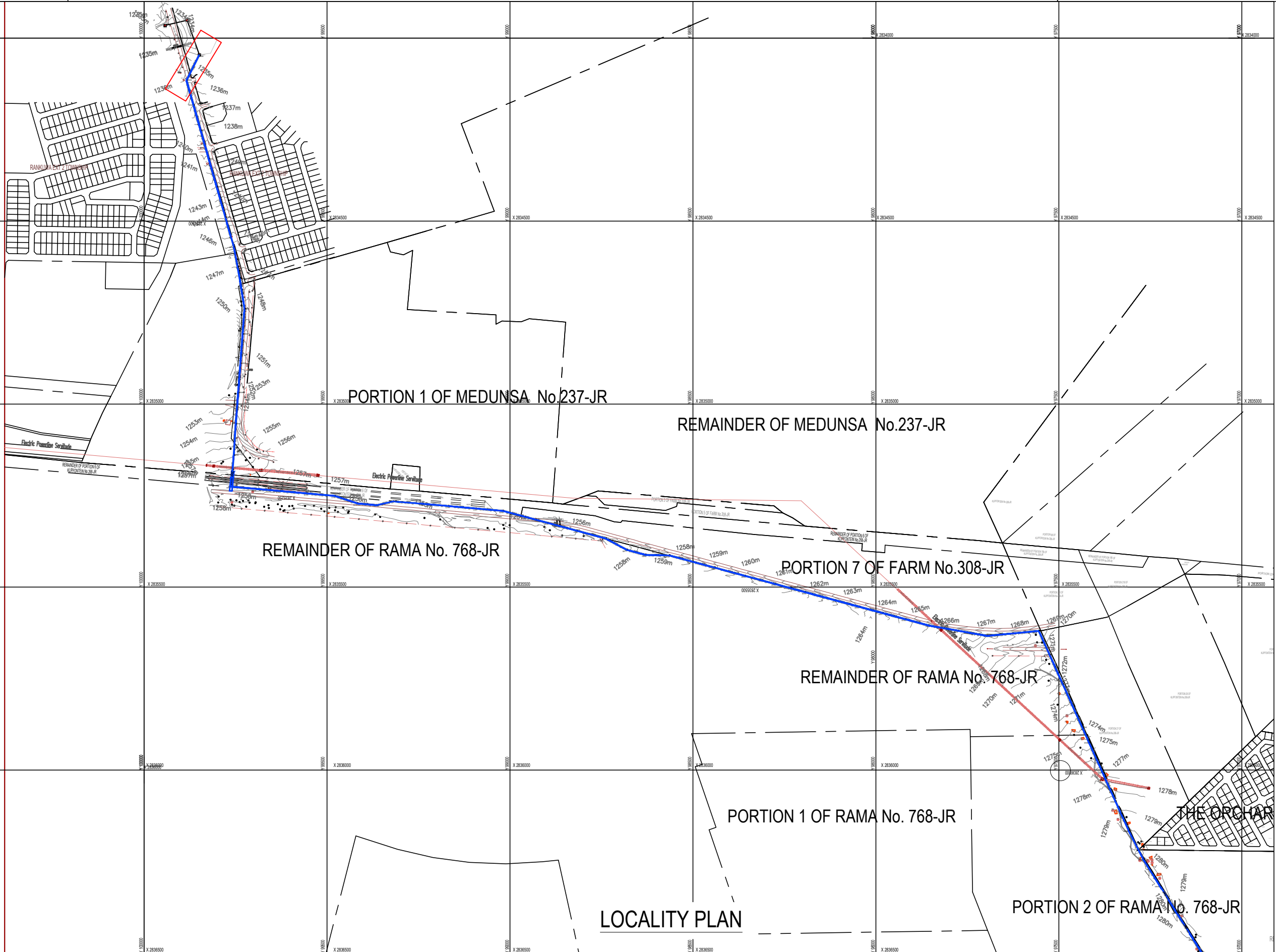
LEGEND	
WATER	
	NEW HYDRANT
	PROPOSED / NEW PIPE
	NEW VALVE
	NEW VALVE ON EXISTING PIPE
	NEW HYDRANT ON EXISTING PIPE
	NEW END CAP
	NEW PRV
	NEW AIR VALVE
	NEW WATER METER
	EXISTING PIPE CAPPED
	EXISTING END CAP
	EXISTING NETWORK PIPE
	EXISTING BULK PIPELINE
	EXISTING HYDRANT
	NODE NUMBER
	CLOSED VALVE
	EXISTING VALVE
	EXISTING COMMUNICATION PIPES
	EXISTING AIR VALVE
	EXISTING WATER METER
	EXISTING PRV
	EXISTING PUMP
	PIPE TO BE ABANDONED
	REDUNDANT PIPE
	EXISTING RES DISTRIBUTION ZONE
	PROPOSED RES DISTRIBUTION ZONE
	EXISTING RAND WATER PIPE
	SUBURB BOUNDARY
	GAS LINE
	PETRONET PIPE
	NEW PIPE IN NEW SLEEVE
SLEEVE Ø TYPE CLASS	

 CITY OF TSHWANE WATER AND SANITATION DEPARTMENT	AMENDMENTS		IMPLEMENTING AUTHORITIES		DEVELOPER DETAIL		DESIGNED		CONTRACT		LOCATION OF PROJECT		PROJECT STATUS	
	NR	DATE	APPROVED	DESCRIPTION	PAR	DIRECTOR:DEPARTMENT OF LG & HS	HOKWANI CONSULTING CC 13 ESDORING STREET CENTURION 0157 TEL: 081 270 6802 FAX: 086 665 6128 I. M. G. YSHUMA Prof. Reg. No. 20170214 HEREBY CERTIFY THAT THE SERVICES WILL BE INSTALLED ACCORDING TO THE ABOVE NOTES AND TO THE DRAWING SPECIFICATIONS. CONSULTANT DRAWING NUMBER SIGNATURE	NAME: Prof Reg No: SIGNATURE: DATE:	PROJECT No. SHEET No. 1 OF 1 PAPER SIZE A1 SCALE AS SHOWN DATE: 09/02/2024	RAMA CITY X 10		PROJECT ENGINEER of COT: NAME SIGNATURE DATE		
SIGNATURE Prof. Reg. No DATE						DIRECTOR: PROJECT MANAGEMENT UNIT NAME Prof. Reg. No SIGNATURE DATE		NAME: SIGNATURE: DATE:		DESCRIPTION OF PROJECT: RAMA CITY TESTING AND COMMISSIONING OF BULK WATER, WATER AND SEWER RETICULATION AND PREPARATION OF AS-BUILTS		INSPECTOR OF WORKS OF COT: NAME SIGNATURE DATE		
						DIRECTOR: WATER & SANITATION:COT NAME Prof. Reg. No SIGNATURE DATE		NAME: Prof Reg No: SIGNATURE: DATE:		PIPE JACKING DETAILS		DRAWING NUMBER HHS-07-2023/24 C 800		
						DIRECTOR: COT NAME Prof. Reg. No SIGNATURE DATE								

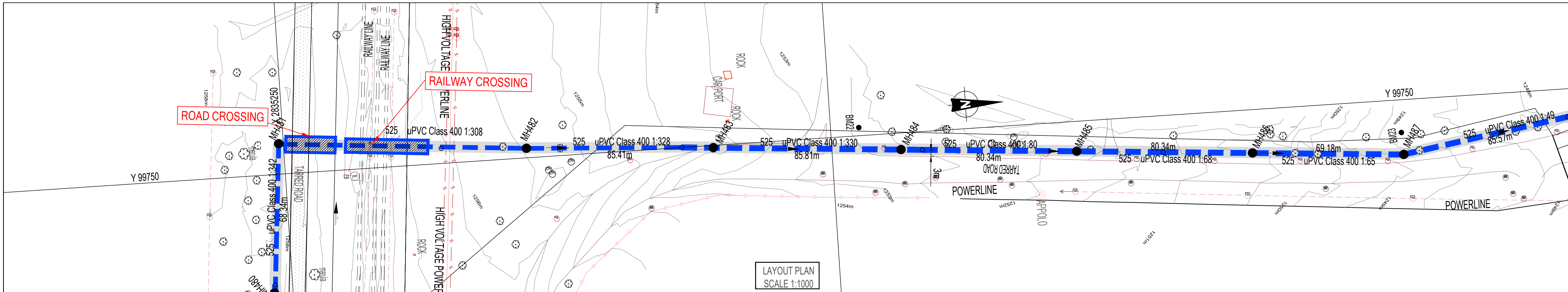


- NOTES AND SPECIFICATIONS**
- GENERAL**
1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
 2. ALL DIMENSIONS ARE IN MILLIMETRES. (UNLESS OTHERWISE SPECIFIED).
 3. DO NOT SCALE FROM THESE DRAWINGS.
 4. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
 5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS.
 6. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE STANDARD DRAWINGS (IF APPLICABLE).
 7. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
 8. THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY DIRECTOR OF THE PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
 9. THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES, STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF THE PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
 10. FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.
- SANITATION**
- ALL PIPES TO BE CLASS 400 PIPES AS PER SANS 1601 (UNLESS OTHERWISE SPECIFIED).

LEGEND	
DESCRIPTION	
MANHOLE	
CE / LH	
NEW CCTV INSPECTION	
EXIST. LINE INSPECTED BY CCTV	
NEW SEWER LINE	
OLD SEWER LINE	
HOUSE CONNECTION	
STREET LAMP	
TREE	
ELECTRIC BOX	
SIGN POST	
TELKOM/ELECTRIC MANHOLE	
TRAFFIC LIGHT	
WATER METER	
WATER VALVE	
OLD SEWER MANHOLE	
POWERLINE	
RAILWAY LINE	
WALL	



 CITY OF TSHWANE WATER AND SANITATION DEPARTMENT	AMENDMENTS		IMPLEMENTING AUTHORITIES		DEVELOPER DETAIL HOKWANI CONSULTING CC 13 ESDORING STREET CENTURION 0157 TEL: 081 270 6802 FAX: 086 665 6128 I, M G TSHUMA Prof. Reg. No. 20170214 HEREBY CERTIFY THAT THE SERVICES WILL BE INSTALLED ACCORDING TO THE ABOVE NOTES AND TO THE DRAWING SPECIFICATIONS. CONSULTANT DRAWING NUMBER: HHS07/	DESIGNED NAME: _____ Prof. Reg. No: _____ SIGNATURE: _____ DATE: _____		CONTRACT No. HHS-07-2023/24 PROJECT No. SHEET No. 1 OF 1 PAPER SIZE A1 SCALE AS SHOWN DATE: 09/02/2024	LOCATION OF PROJECT RAMA CITY X 10	PROJECT STATUS <input type="radio"/> CONCEPT DRAWING <input type="radio"/> TENDER DRAWING <input type="radio"/> APPROVED CONSTRUCTION DRAWING <input type="radio"/> AS BUILT DRAWING PROJECT ENGINEER OF COT: NAME: _____ SIGNATURE: _____ Prof. Reg. No. _____ DATE: _____ INSPECTOR OF WORKS OF COT: NAME: _____ SIGNATURE: _____ DATE: _____
	NR. DATE APPROVED DESCRIPTION PAR		DIRECTOR: DEPARTMENT OF LG & HS NAME: _____ Prof. Reg. No: _____ SIGNATURE: _____ DATE: _____ DIRECTOR: PROJECT MANAGEMENT UNIT NAME: _____ Prof. Reg. No: _____ SIGNATURE: _____ DATE: _____ DIRECTOR: WATER & SANITATION: COT NAME: _____ Prof. Reg. No: _____ SIGNATURE: _____ DATE: _____ DIRECTOR: COT NAME: _____ Prof. Reg. No: _____ SIGNATURE: _____ DATE: _____			CHECKED NAME: _____ Prof. Reg. No: _____ SIGNATURE: _____ DATE: _____				



COORDINATE LIST		
MH No.	YLo	XLo
Constant:		
MH481	99761.630	2835225.365
MH482	99754.307	2835139.304
MH483	99748.936	2835054.087
MH484	99742.396	2834968.511
MH485	99736.311	2834888.405
MH486	99730.227	2834808.300
MH487	99724.976	2834739.321
MH488	99738.532	2834654.835

MH - MH Distance		Diam.
SEWER	(m)	(mm)
MH481 - MH482	86.362	525mm uPVC Class 400
MH482 - MH483	85.406	525mm uPVC Class 400
MH483 - MH484	85.806	525mm uPVC Class 400
MH484 - MH485	80.336	525mm uPVC Class 400
MH485 - MH486	80.336	525mm uPVC Class 400
MH486 - MH487	69.179	525mm uPVC Class 400
MH487 - MH488	85.566	525mm uPVC Class 400
MH488 - MH489	85.960	525mm uPVC Class 400

NAME	Y CORD	X COORD	HEIGHT
BM22	99753.719	2834987.084	1252.839
BM23	99735.048	2834739.739	1248.847
BM24	99759.285	2834589.191	1246.439

NOTES AND SPECIFICATIONS

GENERAL

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- FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.

SANITATION

ALL PIPES TO BE CLASS 400 PIPES AS PER SANS 1601 (UNLESS OTHERWISE SPECIFIED).

LEGEND

DESCRIPTION

	MANHOLE
	CE / LH
	NEW CCTV INSPECTION
	EXIST. LINE INSPECTED BY CCTV
	NEW SEWER LINE
	OLD SEWER LINE
	HOUSE CONNECTION
	STREET LAMP
	TREE
	ELECTRIC BOX
	SIGN POST
	TELKOM/ELECTRIC MANHOLE
	TRAFFIC LIGHT
	WATER METER
	WATER VALVE
	OLD SEWER MANHOLE
	POWERLINE
	RAILWAY LINE
	WALL

SCALES:
H SCALE 1:1000
V SCALE 1:100
DATUM :1247m

MANHOLE No

DEPTH TO INVERTS

INVERT LEVEL

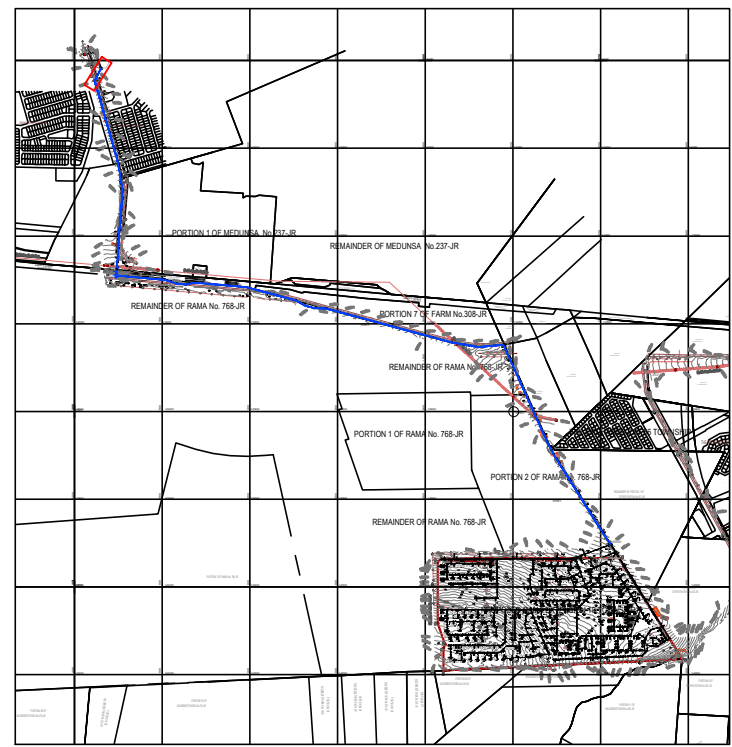
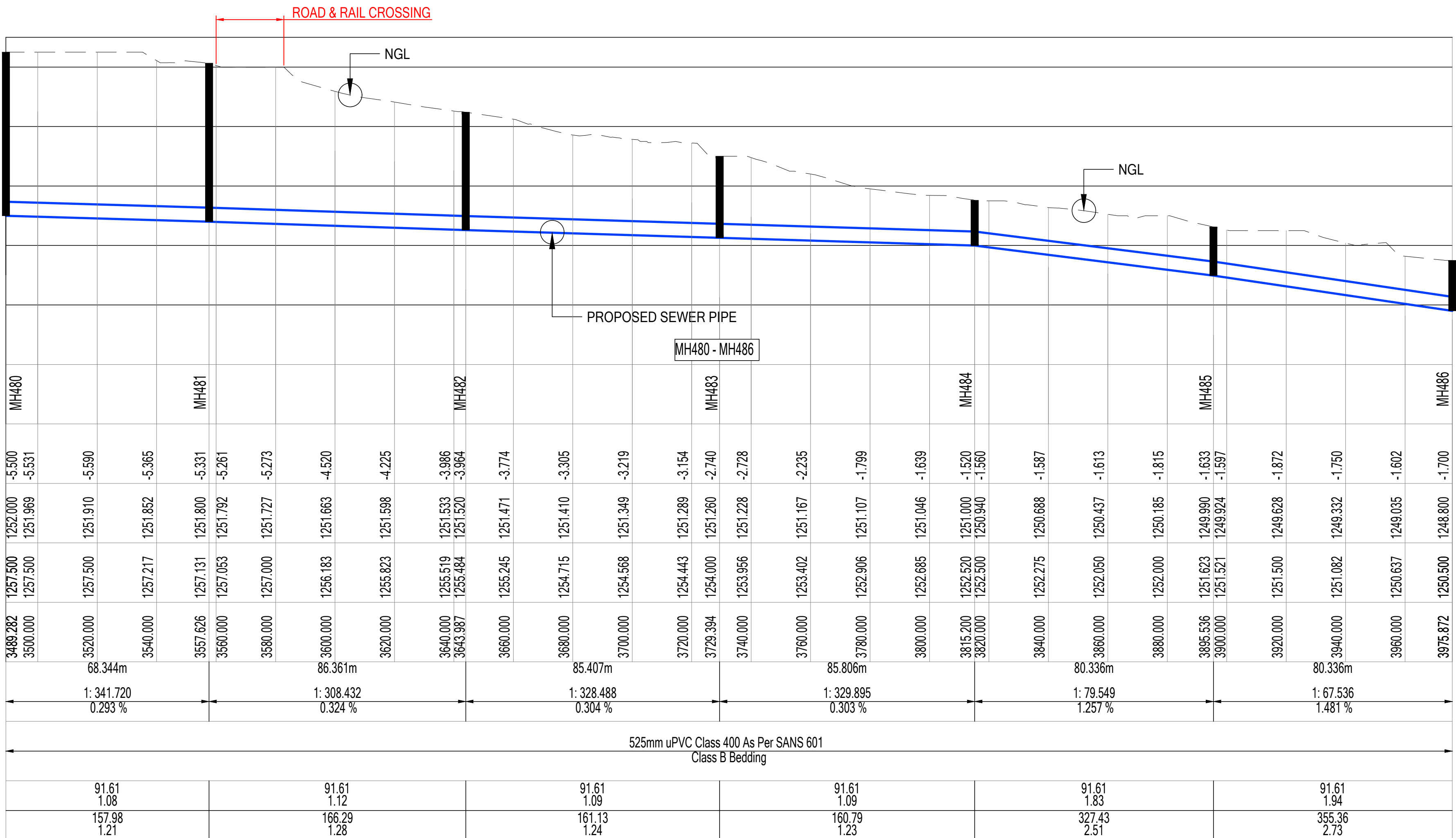
GROUND LEVEL

CHAINAGE (m)

PIPE GRADES

PIPE DETAILS

DESIGN: Q (l/s)
HYDRAULICS: V (m/s)
MAX.(0.7D): Q (l/s)
V (m/s)



CITY OF TSHWANE
WATER AND SANITATION
DEPARTMENT

SIGNATURE _____ Prof. Reg. No. _____ DATE _____

AMENDMENTS

NR	DATE	APPROVED	DESCRIPTION	PAR
D	9/2/2024		ISSUED FOR TENDER	

IMPLEMENTING AUTHORITIES

DIRECTOR:DEPARTMENT OF LG & HS			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: PROJECT MANAGEMENT UNIT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: WATER & SANITATION:COT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: COT			
NAME	Prof. Reg. No	SIGNATURE	DATE

DEVELOPER DETAIL



HOKWANI CONSULTING CC
13 ESDORING STREET
CENTURION
0157

TEL: 081 270 6802
FAX: 086 665 6128

I, M G TSHUMA Prof. Reg. No. 20170214 HEREBY
CERTIFY THAT THE SERVICES WILL BE INSTALLED
ACCORDING TO THE ABOVE NOTES AND TO THE
DRAWING SPECIFICATIONS.

CONSULTANT DRAWING NUMBER SIGNATURE
HHS07/

DESIGNED

NAME: _____ Prof. Reg. No: _____
SIGNATURE: _____ DATE: _____

DRAWN

NAME: _____
SIGNATURE: _____ DATE: _____

CHECKED

NAME: _____ Prof. Reg. No: _____
SIGNATURE: _____ DATE: _____

CONTRACT No.

HHS-07-2023/24

PROJECT No.

SHEET No.

1 OF 1

PAPER SIZE

A1

SCALE

AS SHOWN

DATE: 09/02/2024

LOCATION OF PROJECT

RAMA CITY X 10

DESCRIPTION OF PROJECT:

RAMA CITY TESTING AND COMMISSIONING OF BULK
WATER, WATER AND SEWER RETICULATION AND
PREPARATION OF AS-BUILTS

WBS No.

SEWER ROAD AND RAILWAY CROSSING
LONGITUDINAL SECTION

DRAWING NUMBER

HHS-07-2023/24 C 803

PROJECT STATUS

CONCEPT DRAWING TENDER DRAWING APPROVED CONSTRUCTION DRAWING AS BUILT DRAWING

PROJECT ENGINEER of COT:

NAME SIGNATURE

Prof. Reg No. DATE

INSPECTOR OF WORKS of COT:

NAME SIGNATURE

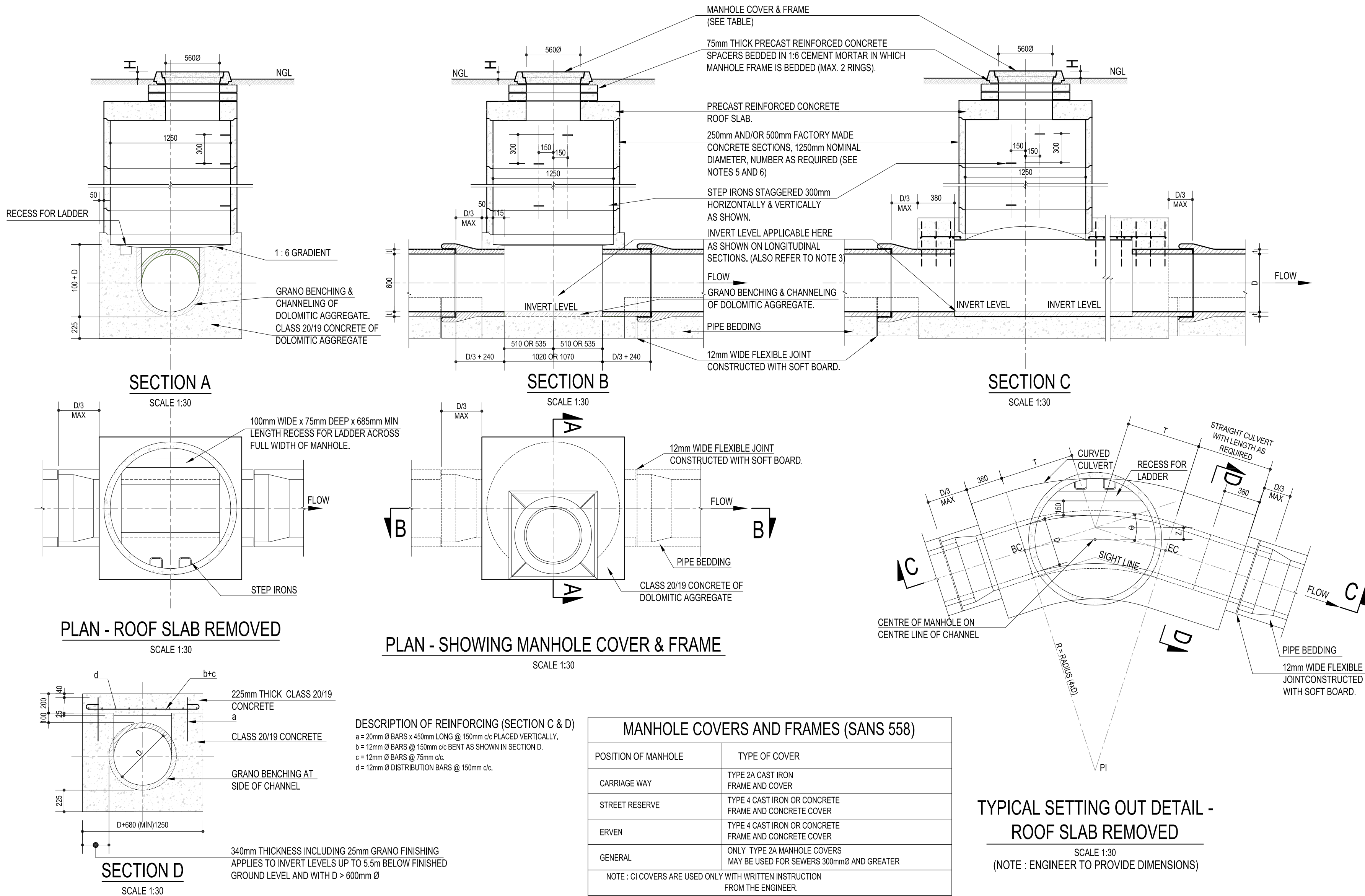
NAME DATE

NOTES

- CONCRETE FOR MANHOLES TO BE OF DOLOMITIC ORIGIN.
- CHANNELING AND BENCHING IN MANHOLES AND CULVERT SECTIONS TO BE OF GRANULITHIC CONCRETE AND MUST BE CONSTRUCTED WITH A FINAL THICKNESS OF 25mm FOR CHANNELING AND 50mm FOR BENCHING.
- THE INVERT LEVELS AS SHOWN ON LONGITUDINAL SECTIONS REFER TO THE BC AND EC OF THE CURVED CULVERT SECTION.
- CONCRETE COVER TO ALL REINFORCING TO BE 40mm MIN.
- CONCRETE SECTIONS MUST BE FIXED WITH AN APPROVED EPOXY SEALER SUCH AS EPIDERMIX 344 OR PRO-STRUCT 687.
- FACTORY MADE MANHOLE SECTIONS TO BE IN ACCORDANCE WITH SANS 1294.
- NO PART OF THE MANHOLE MAY BE FINISHED OFF WITH CEMENT-WASH OR MORTAR.
- TWO MANHOLE ACCESS SHAFTS MAY BE INSTRUCTED BY THE ENGINEER ONE AT EACH END OF CULVERT SECTION.
- ENGINEER TO PROVIDE BENDING SCHEDULE FOR REINFORCEMENT.
- THE TOP SLAB SHALL NOT BE FIXED TO THE RINGS WITH EPOXY BUT SHALL BE REMOVABLE FOR CLEANING PURPOSES, IT SHALL THEREFOR HAVE LIFTING LUGS CAST IN.
- TYPICAL VALUES FOR H.
 - H = 50 - 75mm WITHIN ERVEN AND ROAD RESERVES
 - = 250mm LOW COST HOUSING DEVELOPMENTS AND UNDEFIND ROADWAYS.
 - = 500mm OPEN VELD OR ROAD RESERVES WHERE POSITION OF MANHOLES CAN BE CONCEALED BY LONG GRASS OR OTHER GROWTH.

ABBREVIATIONS :

- BC = BEGINNING OF CURVE
EC = END OF CURVE
T = TANGENT LENGTH
B = LENGTH OF CURVE (BC TO EC)
P.I. = POINT OF INTERSECTION



CITY OF TSHWANE
WATER AND SANITATION
DEPARTMENT

SIGNATURE _____ Prof. Reg. No _____ DATE _____

AMENDMENTS

NR	DATE	APPROVED	DESCRIPTION	PAR
D	09/02/2024		ISSUED FOR TENDER	

IMPLEMENTING AUTHORITIES

DIRECTOR:DEPARTMENT OF LG & HS			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: PROJECT MANAGEMENT UNIT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: WATER & SANITATION:COT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: COT			
NAME	Prof. Reg. No	SIGNATURE	DATE

DEVELOPER DETAIL



HOKWANI CONSULTING CC
13 ESDORING STREET
CENTURION
0157

I, M G TSHUMA Prof. Reg. No 20170214 HEREBY CERTIFY THAT THE SERVICES WILL BE INSTALLED ACCORDING TO THE ABOVE NOTES AND TO THE DRAWING SPECIFICATIONS.

CONSULTANT DRAWING NUMBER SIGNATURE
HHS07/

DESIGNED

NAME: _____ Prof Reg No: _____
SIGNATURE:_____ DATE:_____

DRAWN

NAME: _____
SIGNATURE:_____ DATE:_____

CHECKED

NAME: _____ Prof Reg No: _____
SIGNATURE:_____ DATE:_____

CONTRACT No.

HHS-07-2023/24

PROJECT No.

.....

SHEET No.

1 OF 1

PAPER SIZE

A1

SCALE AS SHOWN

DATE: 09/02/2024

LOCATION OF PROJECT

RAMA CITY X 10

DESCRIPTION OF PROJECT:

RAMA CITY TESTING AND COMMISSIONING OF BULK WATER, WATER AND SEWER RETICULATION AND PREPARATION OF AS-BUILTS

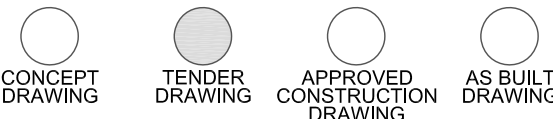
WBS No.

STANDARD DRAWING : MANHOLE DETAILS FOR SEWERS LARGER THAN 300mmØ

DRAWING NUMBER

HHS-07-2023/24 C 312

PROJECT STATUS



PROJECT ENGINEER of COT:

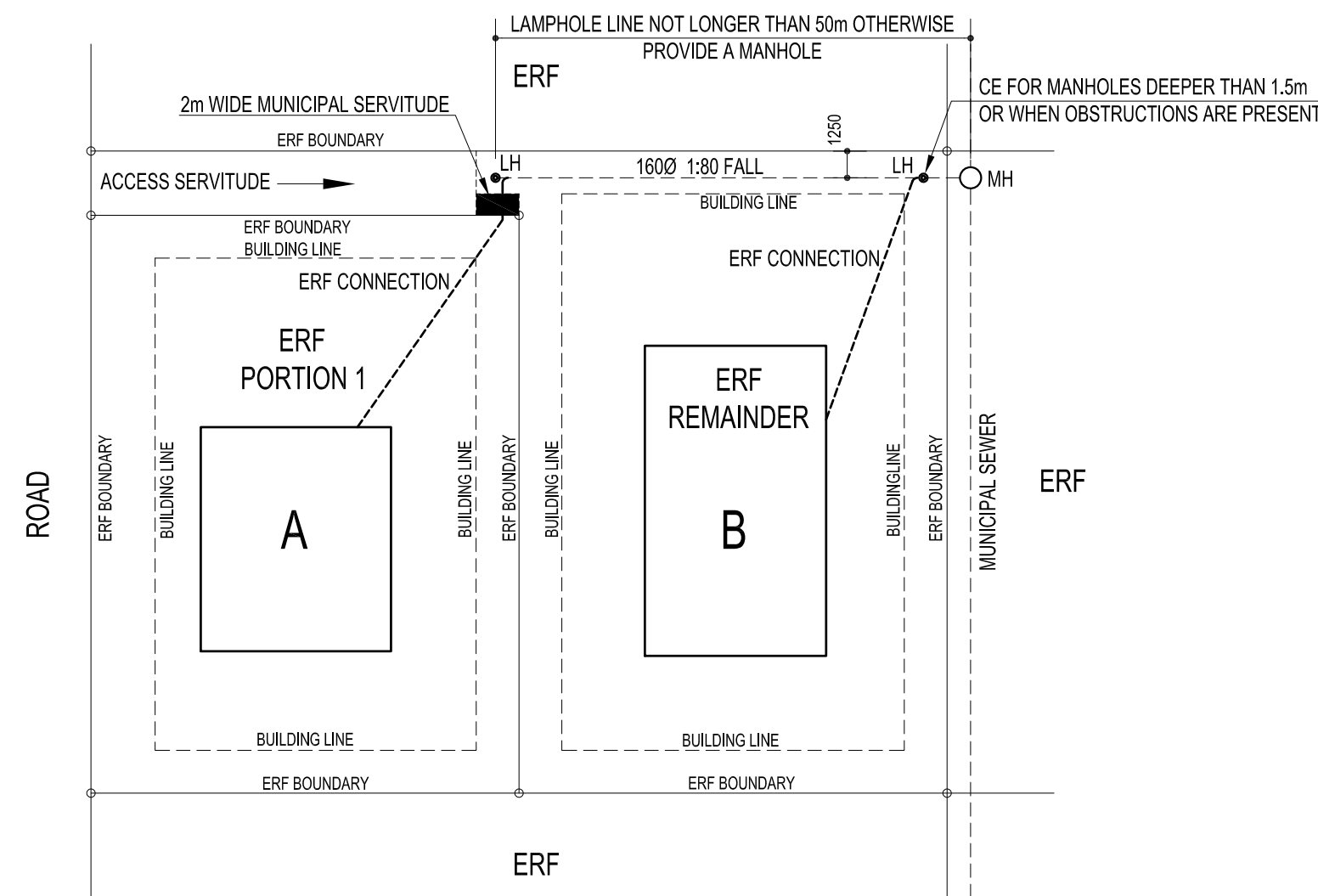
NAME _____ SIGNATURE _____

Prof Reg No. _____ DATE _____

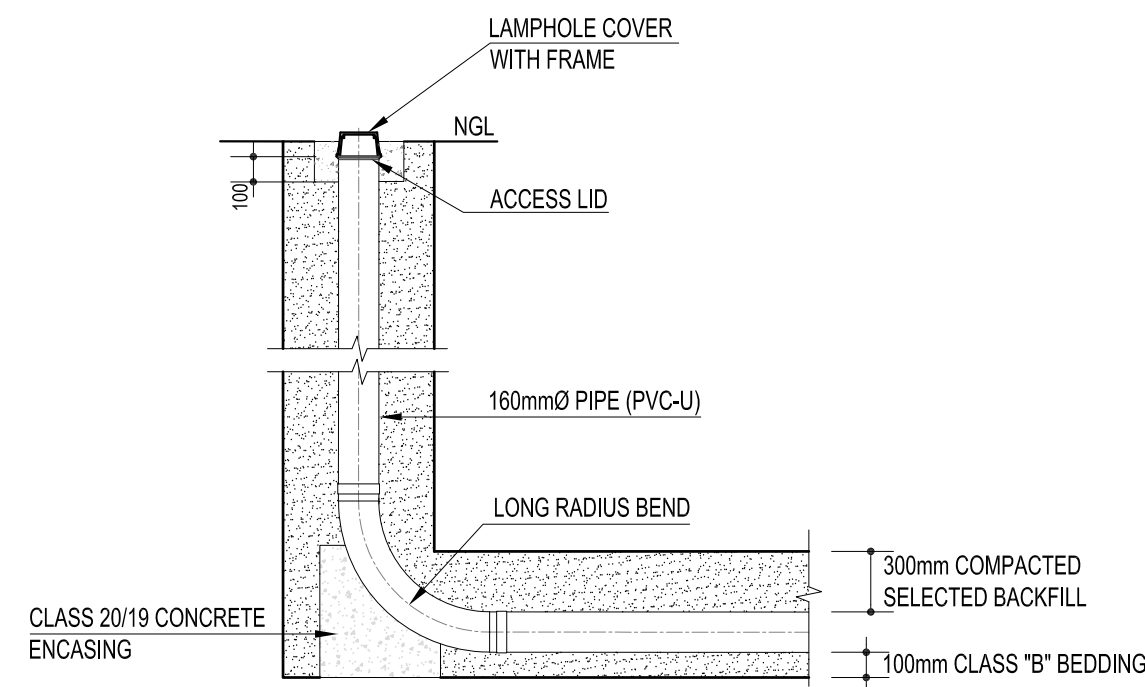
INSPECTOR OF WORKS of COT:

NAME _____ SIGNATURE _____

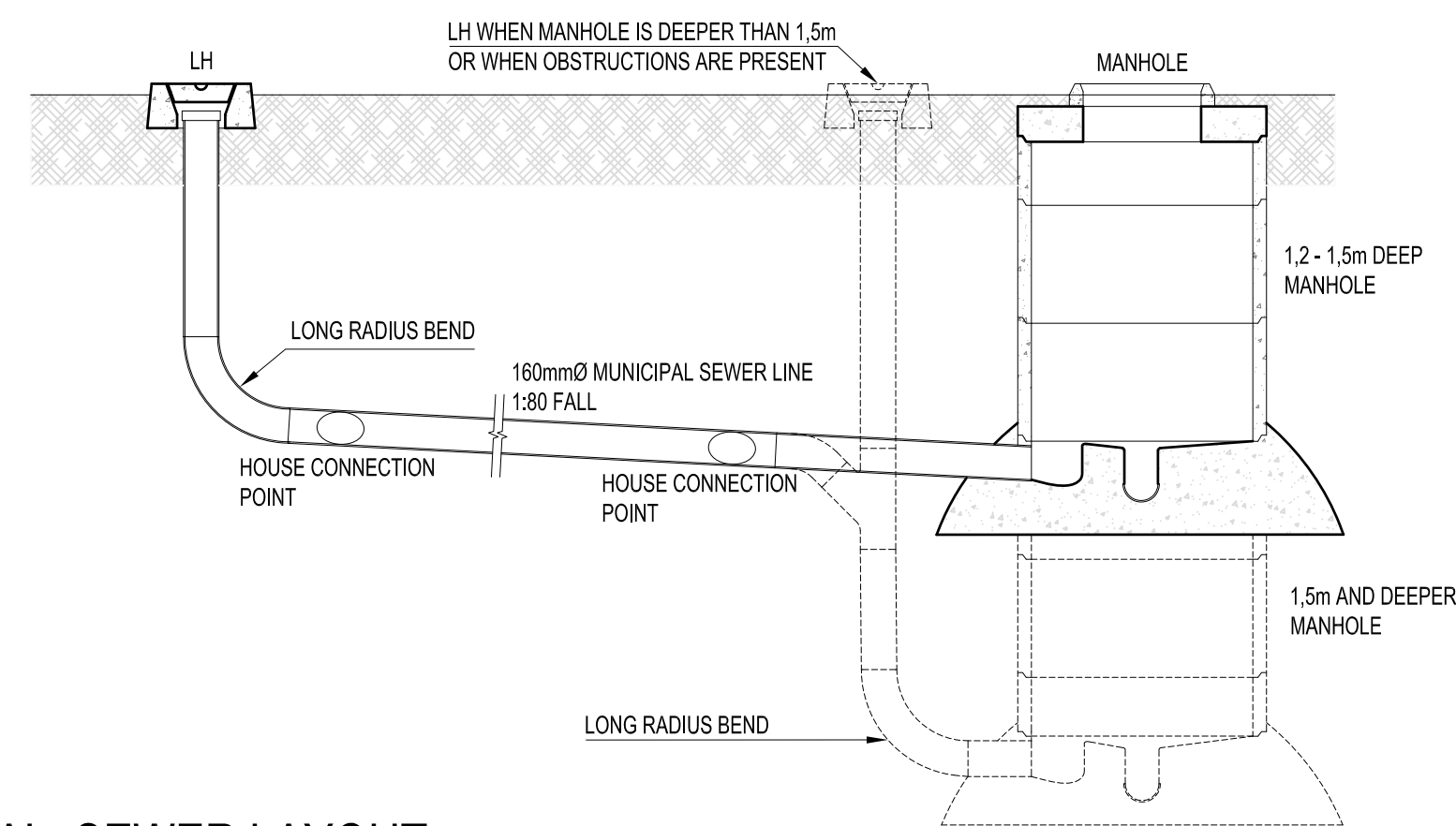
NAME _____ DATE _____



TYPICAL PLAN LAYOUT
SCALE 1:300



SECTION-CLEANING EYE DETAIL
SCALE 1:30



SECTIONAL VIEW
SCALE 1:30

NOTES:

1. LH = LAMPHOLE.
2. MAX. 3 DWELLING UNITS ON NEW SEWER LINE



CITY OF TSHWANE
WATER AND SANITATION
DEPARTMENT

SIGNATURE _____ Prof. Reg. No _____ DATE _____

AMENDMENTS

NR	DATE	APPROVED	DESCRIPTION	PAR
D	27/03/23		ISSUED FOR TENDER	

IMPLEMENTING AUTHORITIES

DIRECTOR: DEPARTMENT OF LG & HS			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: PROJECT MANAGEMENT UNIT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: WATER & SANITATION: COT			
NAME	Prof. Reg. No	SIGNATURE	DATE
DIRECTOR: COT			
NAME	Prof. Reg. No	SIGNATURE	DATE

DEVELOPER DETAIL



HOKWANI CONSULTING CC
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DRAWN

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CONTRACT No.

HHS-07-2023/24

PROJECT No.

.....

SHEET No.

1 OF 1

PAPER SIZE

A1

SCALE AS SHOWN

DATE: 09/02/2024

LOCATION OF PROJECT

RAMA CITY X 10

DESCRIPTION OF PROJECT:

RAMA CITY TESTING AND COMMISSIONING OF BULK WATER,
WATER AND SEWER RETICULATION AND PREPARATION OF
AS-BUILTS

WBS No. STANDARD DRAWING : TYPICAL SEWER LAYOUT FOR SUB-DIVISIONS AND
LAMPHOLE DETAIL

DRAWING NUMBER
HHS-07-2023/24 C 314

PROJECT STATUS

CONCEPT DRAWING TENDER DRAWING APPROVED CONSTRUCTION DRAWING AS BUILT DRAWING

PROJECT ENGINEER of COT:

NAME _____ SIGNATURE _____

Prof Reg No. _____ DATE _____

INSPECTOR OF WORKS of COT:

NAME _____ SIGNATURE _____

NAME _____ DATE _____