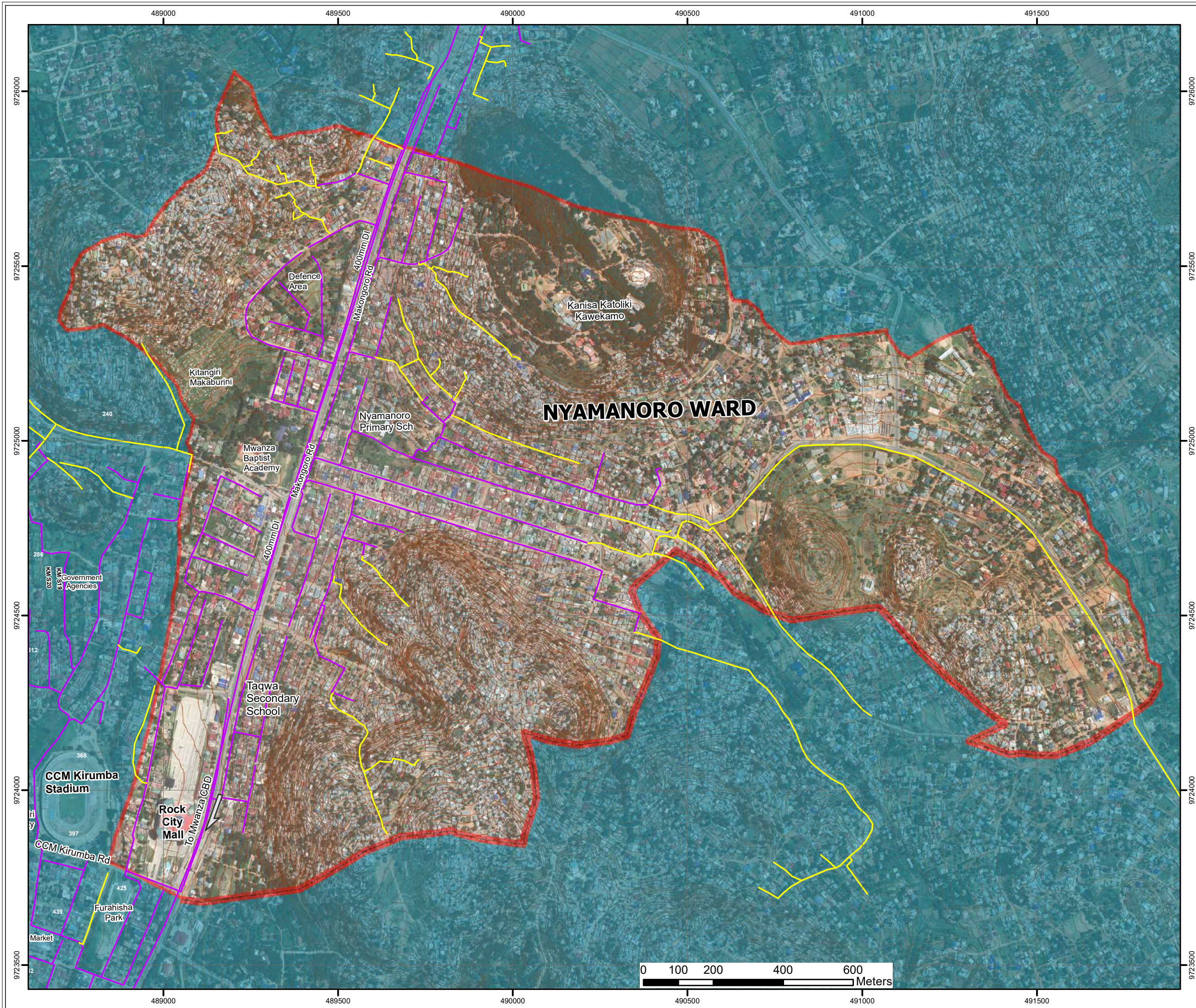


NYAMANORO



Layout Plan of Existing and Proposed Sewers Nyamanoro Ward

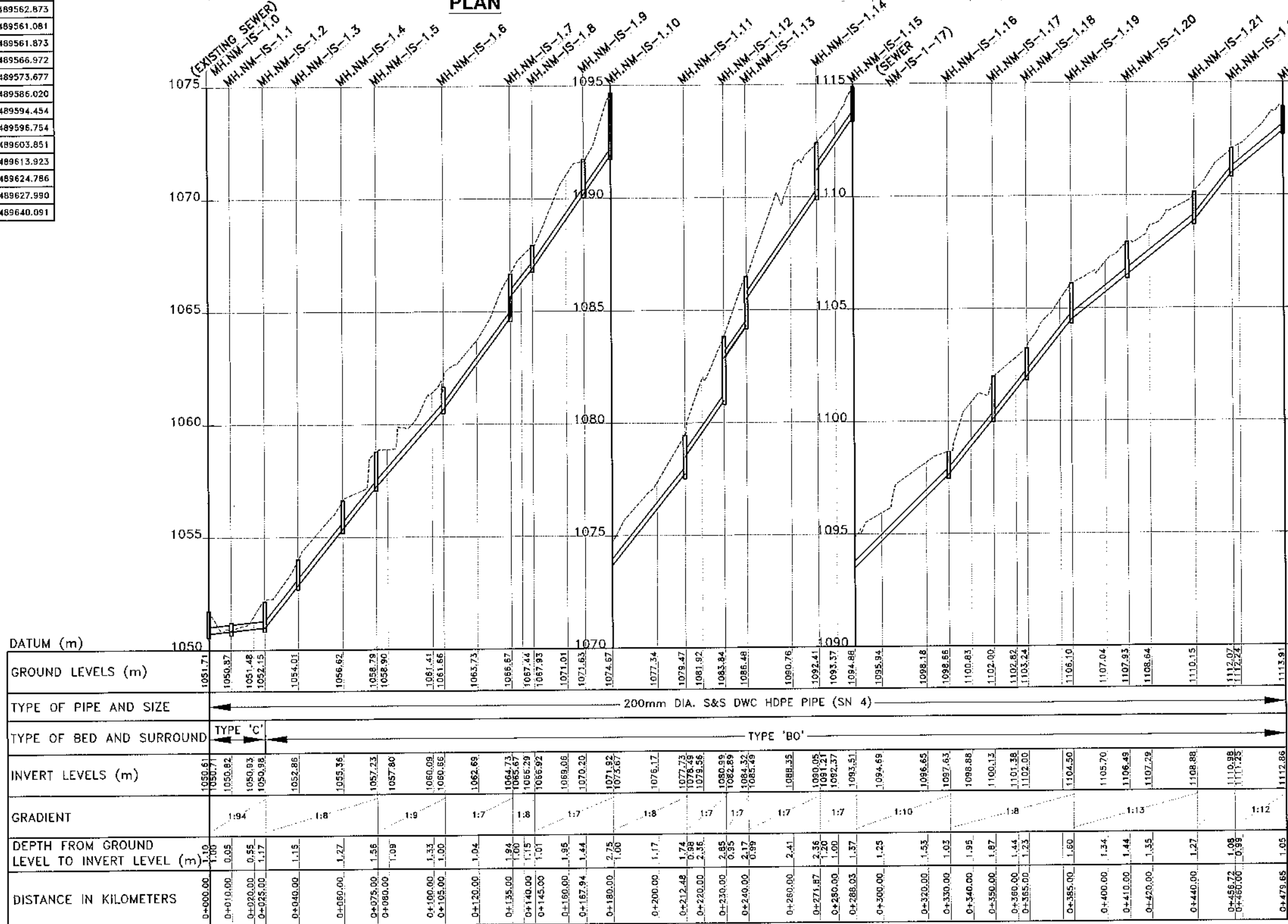
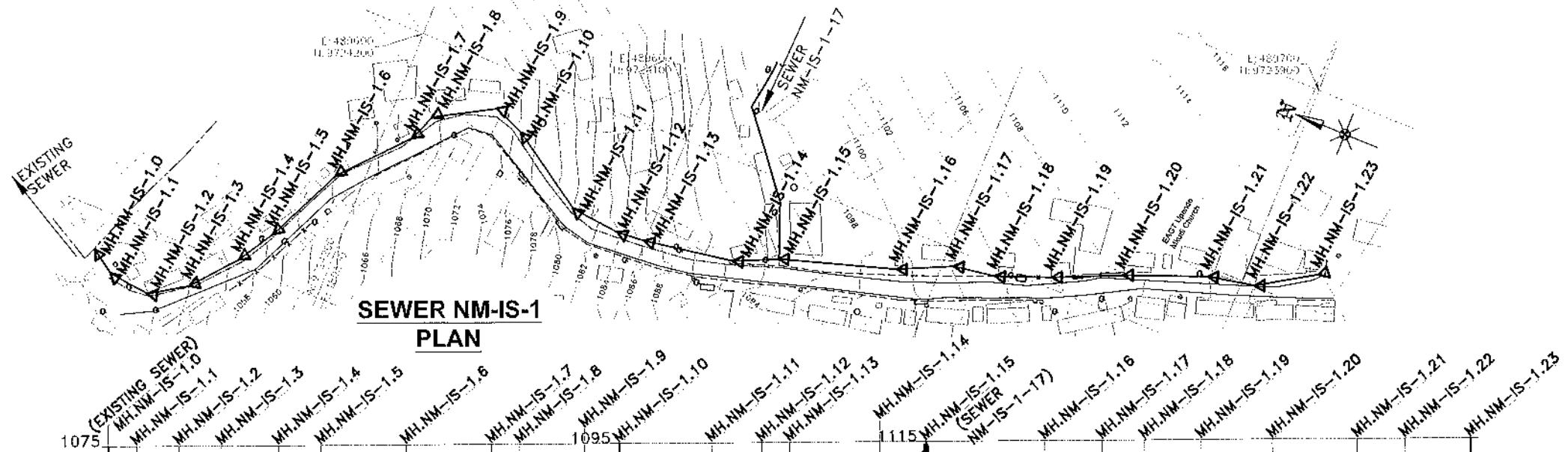


Legend

- Contours 2m Intervals
- Existing Sewers
- Proposed Sewers [For Design and Construction]
- Administrative (Ward Boundary)

REVISIONS		SIGN	DATE	APPROVED
		BY		
		CHECKED		
Client:		EAST AFRICAN COMMUNITY (EAC) LAKE VICTORIA BASIN COMMISSION (LVBC) P.O. BOX 1510 - 40100 KISUMU, KENYA TEL: +254 57 202 6344		
PROJECT IMPLEMENTATION CONSULTANTS (PIC):		JOINT VENTURE CES CONSULTING ENGINEERS SALZGITTER GmbH HAMBURGER STRASSE 227 38114 BRAUNSCHWEIG, GERMANY E-MAIL: info@ces.de TEL: +49 531 - 31704-0		
AKUT PARTNER		WATTSTRASSE 10 13355 BERLIN, GERMANY TEL: +49 30 8145460 - 0 FAX: +49 30 8145460 - 19		
MIBP CONSULTING ENGINEERS		MANGAT I.B PATEL (MIBP) LIMITED P.O BOX 48674,00100-GPO, NAIROBI, KENYA E-MAIL: mibp.nairobi@mibp.co.ke TEL: +254-2-2710500		
PROJECT NAME:		LAKE VICTORIA BASIN INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME (LVB-IWRMP)		
CONTRACT TITLE:		MWANZA SEWER CONNECTION UPGRADE		
INFILL SEWERS				
DRAWING TITLE:		Layout Plan of Existing and Proposed Sewers Nyamanoro Ward		
Designed by: V.K		Drawn by: G.O.N		
Checked by: NJN		Approved by: R.S.R		
Scale: A3- AS SHOWN		Date: MARCH 2024		
DRG No.	M394(j)/MWZ/NM/01		REV	

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-1.0	9724278.817	489486.148
MH.NM-IS-1.1	9724270.553	489480.518
MH.NM-IS-1.2	9724255.646	489478.852
MH.NM-IS-1.3	9724243.064	489487.020
MH.NM-IS-1.4	9724230.188	489502.323
MH.NM-IS-1.5	9724222.388	489515.135
MH.NM-IS-1.6	9724209.687	489542.314
MH.NM-IS-1.7	9724189.723	489564.707
MH.NM-IS-1.8	9724185.970	489573.976
MH.NM-IS-1.9	9724166.035	489585.325
MH.NM-IS-1.10	9724154.902	489580.687
MH.NM-IS-1.11	9724127.743	489562.873
MH.NM-IS-1.12	9724110.315	489561.081
MH.NM-IS-1.13	9724100.346	489561.873
MH.NM-IS-1.14	9724068.885	489566.972
MH.NM-IS-1.15	9724054.187	489573.677
MH.NM-IS-1.16	9724014.070	489586.020
MH.NM-IS-1.17	9723995.935	489594.454
MH.NM-IS-1.18	9723981.113	489596.754
MH.NM-IS-1.19	9723962.413	489603.851
MH.NM-IS-1.20	9723939.532	489613.923
MH.NM-IS-1.21	9723911.568	489624.786
MH.NM-IS-1.22	9723895.159	489627.990
MH.NM-IS-1.23	9723875.685	489640.091



DATUM (m)	1050	1055	1060	1065	1070	1075	1080	1085	1090	1095	1100	1105	1110	1115	1120	1125	1130																															
GROUND LEVELS (m)	1051.71	1050.87	1051.48	1052.15	1054.01	1056.82	1058.79	1058.90	1061.41	1061.66	1065.73	1066.67	1067.44	1067.93	1071.01	1071.63	1074.67	1077.34	1079.47	1081.92	1083.84	1086.48	1089.76	1092.41	1093.57	1094.88	1095.94	1098.18	1098.66	1100.83	1102.00	1102.82	1103.24	1105.10	1107.04	1107.93	1108.64	1110.15	1112.07	1112.94	1113.91							
TYPE OF PIPE AND SIZE	200mm DIA. S&S DWC HDPE PIPE (SN 4)																																															
TYPE OF BED AND SURROUND	TYPE 'C'														TYPE 'BO'																																	
INVERT LEVELS (m)	1050.61	1050.71	1050.82	1050.93	1050.98	1052.86	1055.36	1057.23	1057.80	1060.08	1060.56	1062.68	1064.73	1065.67	1065.29	1066.92	1068.06	1070.20	1071.92	1073.67	1076.17	1077.73	1078.49	1079.56	1080.99	1082.89	1084.32	1085.49	1088.55	1090.05	1091.21	1092.37	1093.51	1094.69	1096.65	1097.63	1098.88	1100.13	1101.38	1102.00	1104.50	1105.70	1106.45	1107.29	1108.88	1110.88	1112.26	1112.86
GRADIENT	1:94		1:8		1:9		1:7		1:8		1:7		1:8		1:7		1:7		1:8		1:7		1:10		1:8		1:13		1:12																			
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	1.10	1.00	0.65	0.55	1.17	1.15	1.27	1.56	1.09	1.33	1.00	1.04	1.94	1.00	1.15	1.01	1.95	1.44	2.75	1.00	1.17	1.74	0.98	2.35	2.85	0.85	2.17	0.89	2.41	2.36	2.20	1.00	1.57	1.25	1.53	1.03	1.95	1.87	1.44	1.23	1.60	1.34	1.44	1.35	1.27	1.98	0.99	1.05
DISTANCE IN KILOMETERS	0+000.00	0+010.00	0+020.00	0+025.00	0+040.00	0+060.00	0+080.00	0+100.00	0+105.00	0+120.00	0+135.00	0+140.00	0+145.00	0+160.00	0+167.94	0+180.00	0+200.00	0+212.48	0+220.00	0+230.00	0+240.00	0+260.00	0+271.87	0+280.00	0+288.03	0+300.00	0+320.00	0+330.00	0+340.00	0+350.00	0+360.00	0+365.00	0+385.00	0+400.00	0+410.00	0+420.00	0+440.00	0+455.72	0+460.00	0+475.65								

**SEWER NM-IS-1
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(J)MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(J)MWZ/SO/04

LEGEND - PLAN

EXISTING FEATURES:

- 1:20 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN COMMISSION (LVBC)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):
JOINT VENTURE

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CES CONSULTING ENGINEERS
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AKUT PARTNER
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TEL: +254-2-2710500

PROJECT NAME:
LAKE VICTORIA BASIN INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

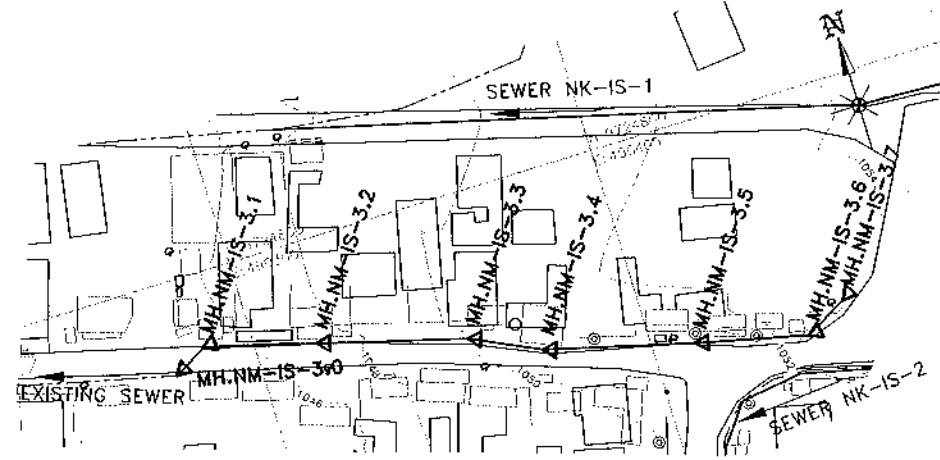
DRAWING TITLE:
SEWER NM-IS-1
PLAN AND LONGITUDINAL SECTION

SHEET 1 OF 1

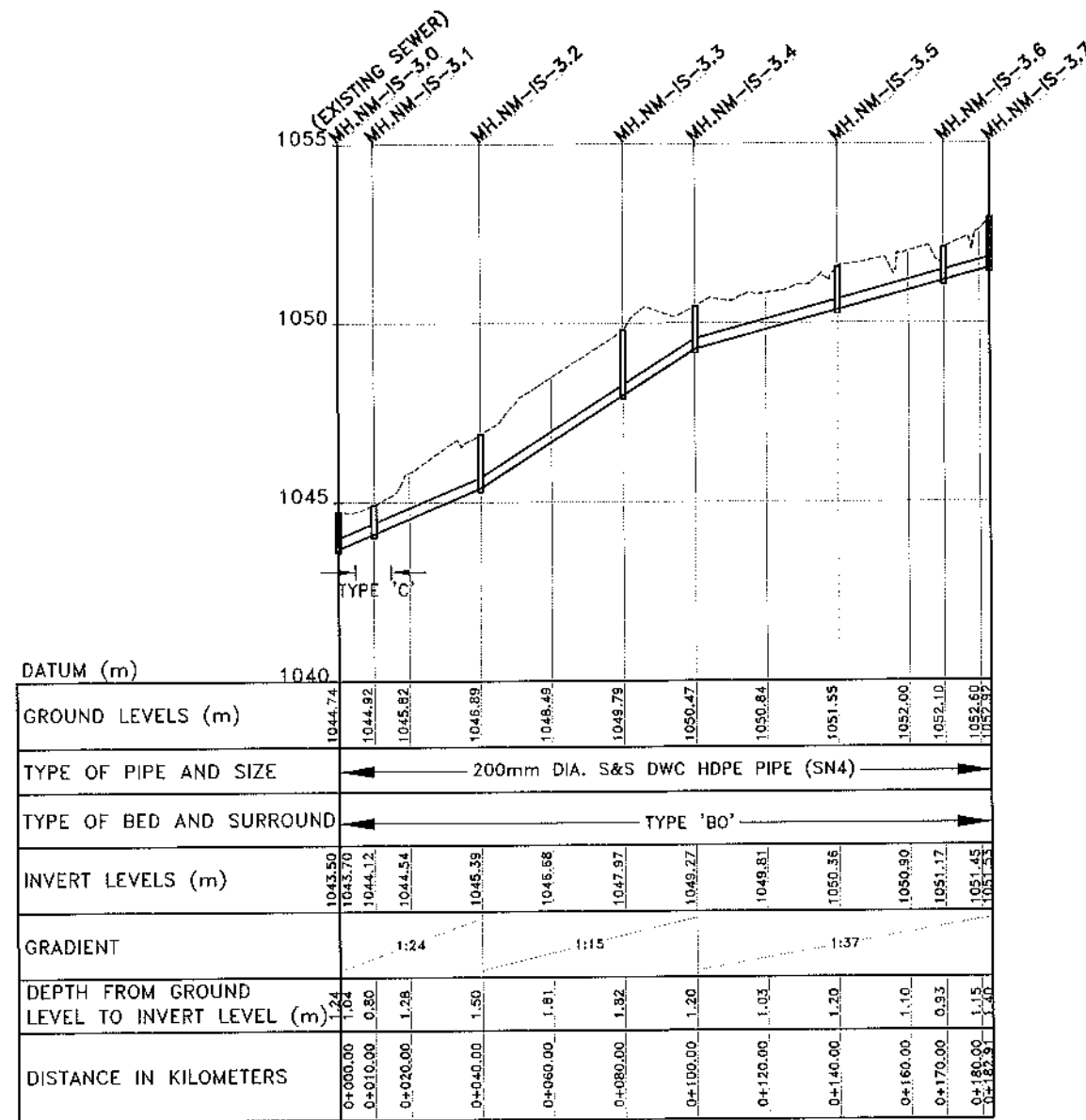
Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024

DRG No. M394(J)MWZ/NM/02

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-3.0	9724775.549	490278.428
MH.NM-IS-3.1	9724780.622	490287.045
MH.NM-IS-3.2	9724772.839	490316.018
MH.NM-IS-3.3	9724762.251	490354.592
MH.NM-IS-3.4	9724753.646	490372.646
MH.NM-IS-3.5	9724743.473	490411.329
MH.NM-IS-3.6	9724736.562	490440.523
MH.NM-IS-3.7	9724742.692	490451.884



**SEWER NM-IS-3
PLAN**



**SEWER NM-IS-3
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

**PROJECT IMPLEMENTATION CONSULTANTS (PIC):
JOINT VENTURE**

CES CONSULTING ENGINEERS
SALZGITTER GmbH
HAMBURGER STRASSE 227
38114 BRAUNSCHWEIG, GERMANY
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AKUT PARTNER
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TEL: +49 30 8145460 - 0
FAX: +49 30 8145460 - 19

MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibp.co.ke
TEL: +254-2-2710500

PROJECT NAME:
LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

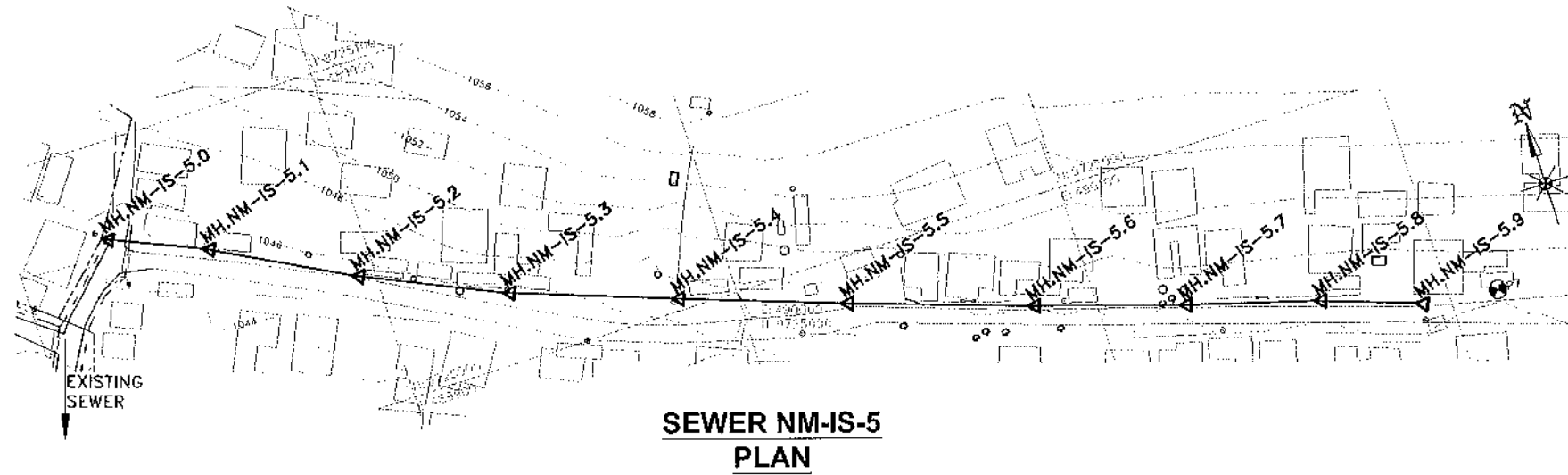
**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:
SEWER NM-IS-3
PLAN AND LONGITUDINAL SECTION

SHEET 1 OF 1

Designed by: V.K	Drawn by: V.K
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(j)/MWZ/NM/03	REV

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-5.0	9725072.772	489826.115
MH.NM-IS-5.1	9725060.860	489853.648
MH.NM-IS-5.2	9725039.719	489893.374
MH.NM-IS-5.3	9725021.166	489934.371
MH.NM-IS-5.4	9725004.112	489981.372
MH.NM-IS-5.5	9724987.409	490028.501
MH.NM-IS-5.6	9724969.689	490060.568
MH.NM-IS-5.7	9724956.026	490123.443
MH.NM-IS-5.8	9724944.908	490161.867
MH.NM-IS-5.9	9724935.059	490190.203



- NOTES:**
- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
 - CONTOUR LEVELS ARE AT 2 METER INTERVALS
 - GRID VALUES ARE AT 100 METER INTERVALS
 - FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- +220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:
 EAST AFRICAN COMMUNITY (EAC)
 LAKE VICTORIA BASIN COMMISSION (LVBC)
 P.O. BOX 1510 - 40100
 KISUMU, KENYA
 TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):
 JOINT VENTURE
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 SALZGITTER GmbH
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 38114 BRAUNSCHWEIG, GERMANY
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MANGAT LB PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibp.co.ke
 TEL: +254-2-2710500

PROJECT NAME:
 LAKE VICTORIA BASIN INTEGRATED
 WATER RESOURCES MANAGEMENT
 PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
 MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
 NYAMANORO WARD**

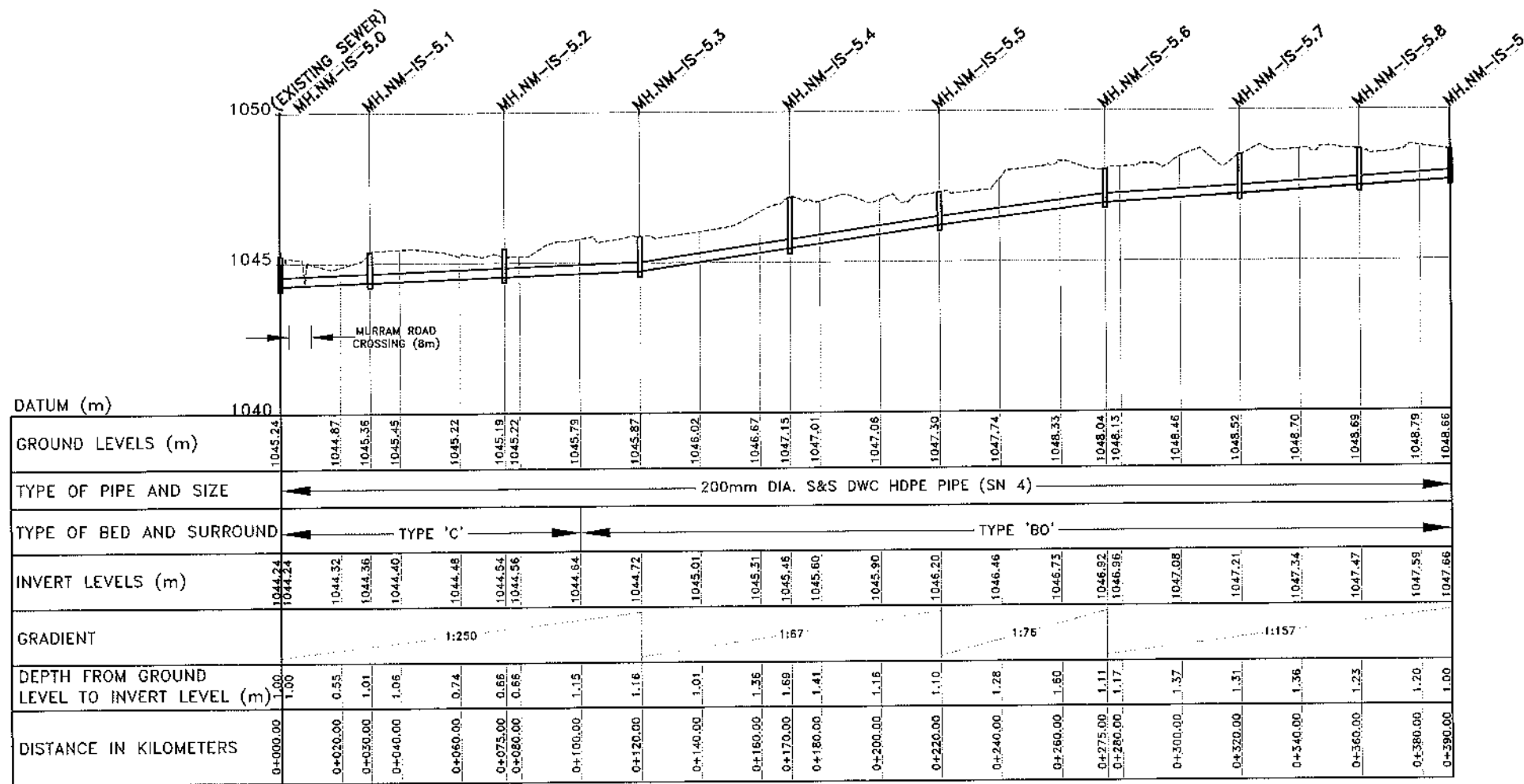
DRAWING TITLE:
 SEWER NM-IS-5
 PLAN AND LONGITUDINAL SECTION

SHEET 1 OF 1

Designed by: V.C Drawn by: V.C
 Checked by: N.J.N Approved by: R.S.R

Scale: A3- HOR: 1:2,000 Date: MARCH 2024
 VER: 1:200

DRG No. M394(j)/MWZ/NM/04



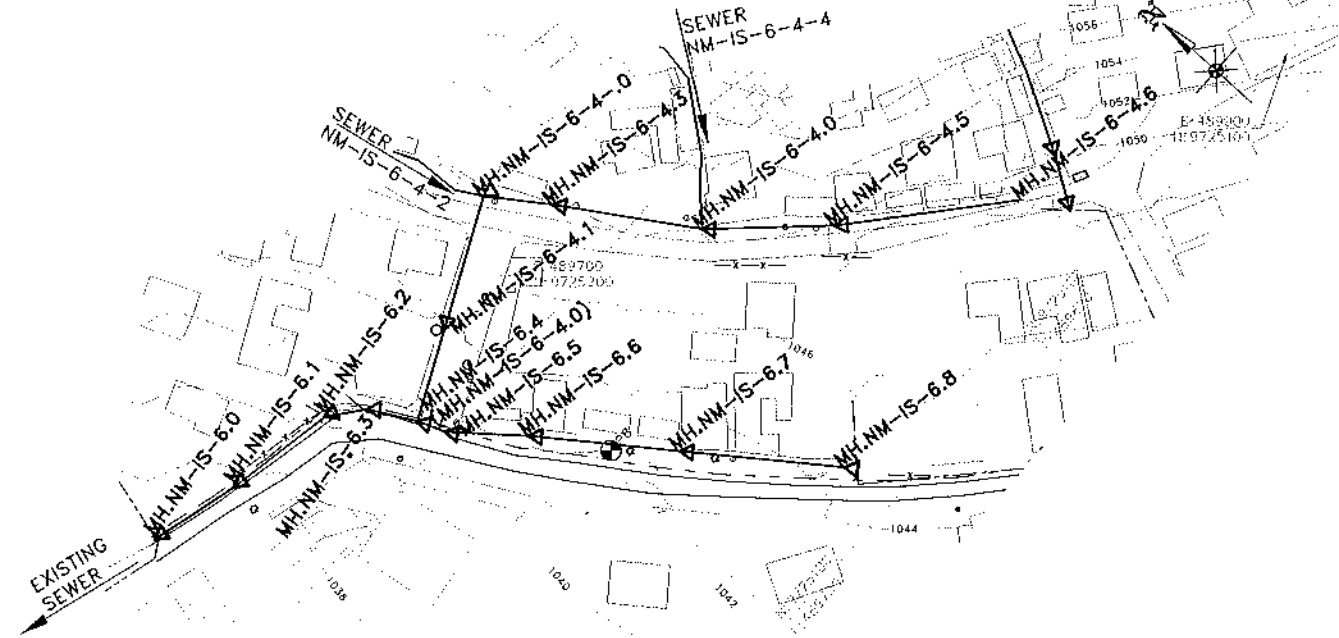
**SEWER NM-IS-5
 LONGITUDINAL SECTION**

SEWER NM-IS-6

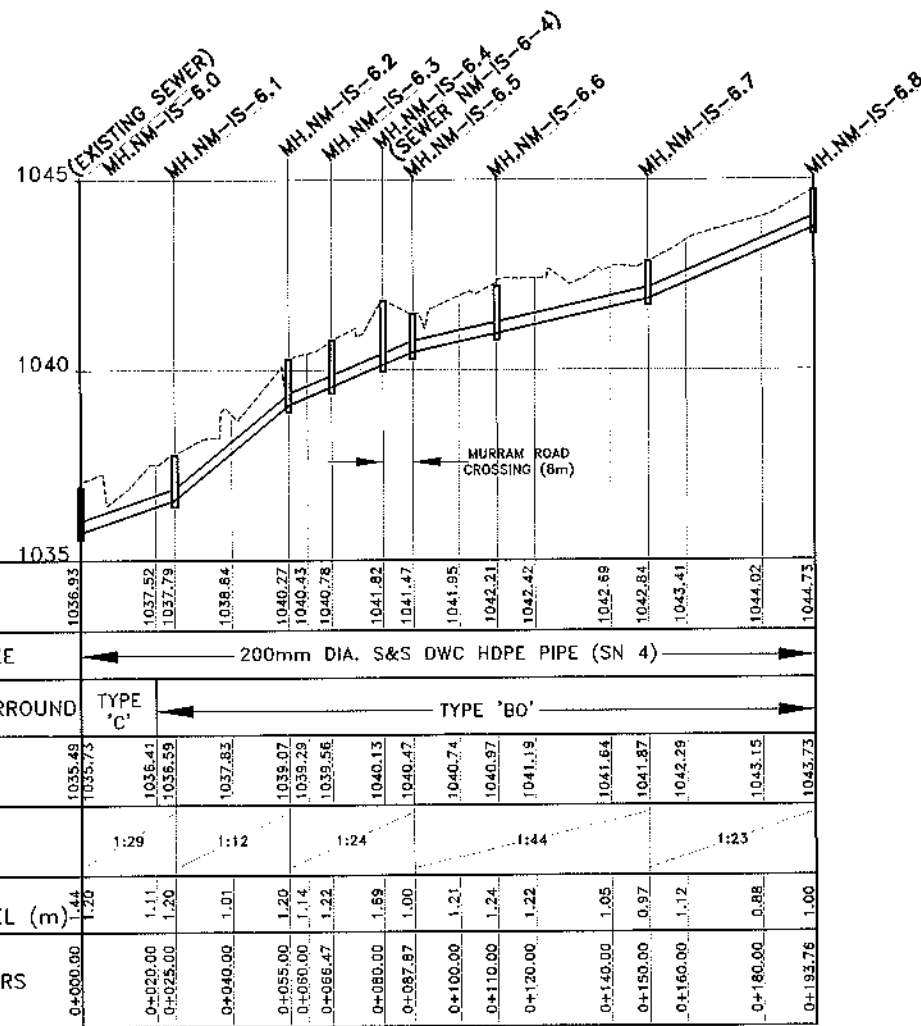
MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-6.0	9725239.304	489606.842
MH.NM-IS-6.1	9725232.704	489630.955
MH.NM-IS-6.2	9725227.142	489660.435
MH.NM-IS-6.3	9725219.928	489669.347
MH.NM-IS-6.4	9725208.009	489675.759
MH.NM-IS-6.5	9725200.646	489678.529
MH.NM-IS-6.6	9725183.368	489692.351
MH.NM-IS-6.7	9725150.896	489715.719
MH.NM-IS-6.8	9725115.423	489741.335

SEWER NM-IS-6-4

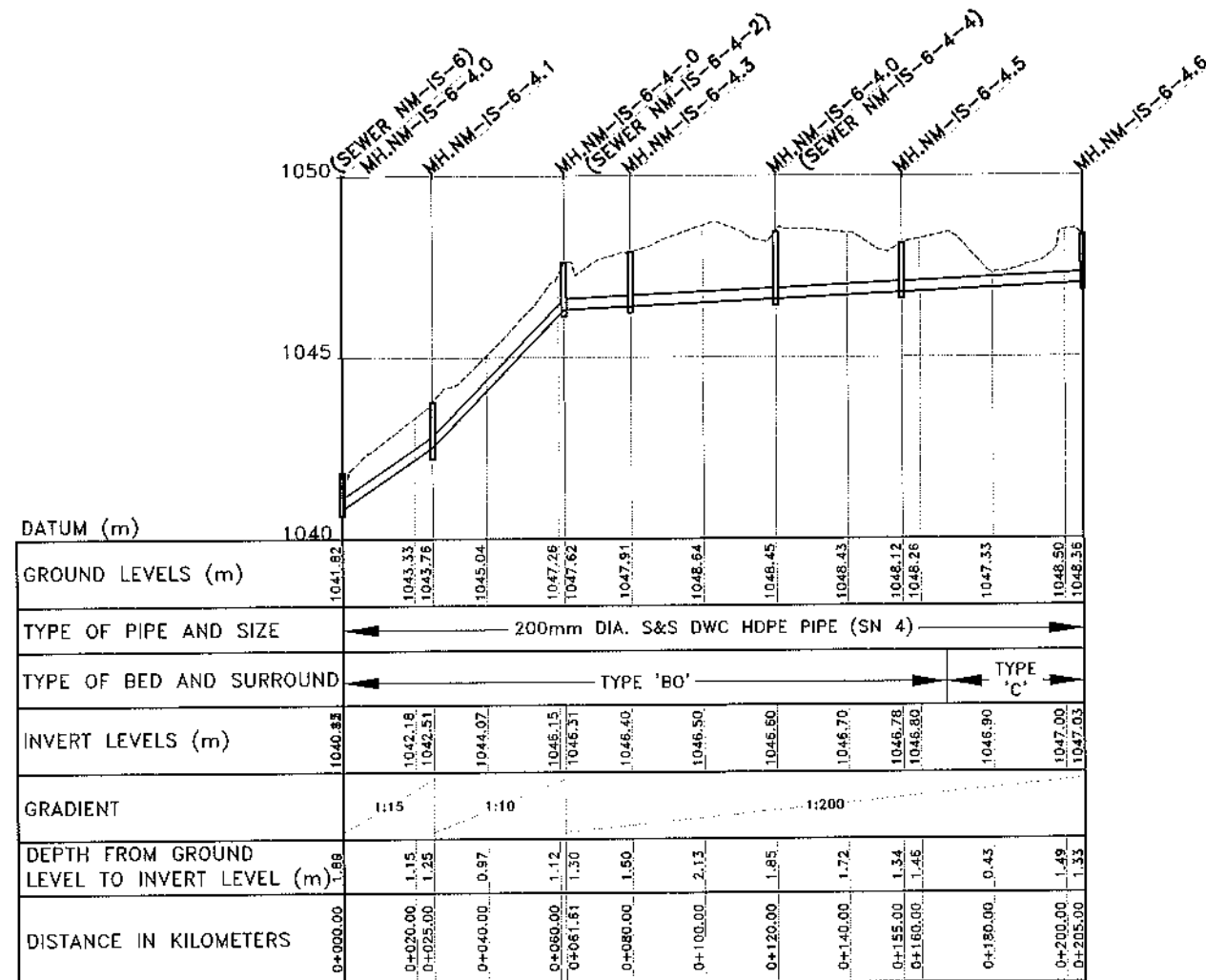
MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
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MH.NM-IS-6-4.0	9725185.099	489763.283
MH.NM-IS-6-4.1	9725218.601	489698.404
MH.NM-IS-6-4.2	9725208.009	489675.759
MH.NM-IS-6-4.3	9725218.920	489741.926
MH.NM-IS-6-4.5	9725159.426	489767.071
MH.NM-IS-6-4.6	9725126.808	489824.967



SEWERS NM-IS-6 & NM-IS-6-4 PLAN



SEWER NM-IS-6 LONGITUDINAL SECTION



SEWER NM-IS-6-4 LONGITUDINAL SECTION

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN COMMISSION (LVB/C)
P.O. BOX 1510 - 40100
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TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):

JOINT VENTURE

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CES CONSULTING ENGINEERS
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AKUT
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FAX: +49 30 8145460-19

MIBP

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TEL: +254-2-2710500

PROJECT NAME:

LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

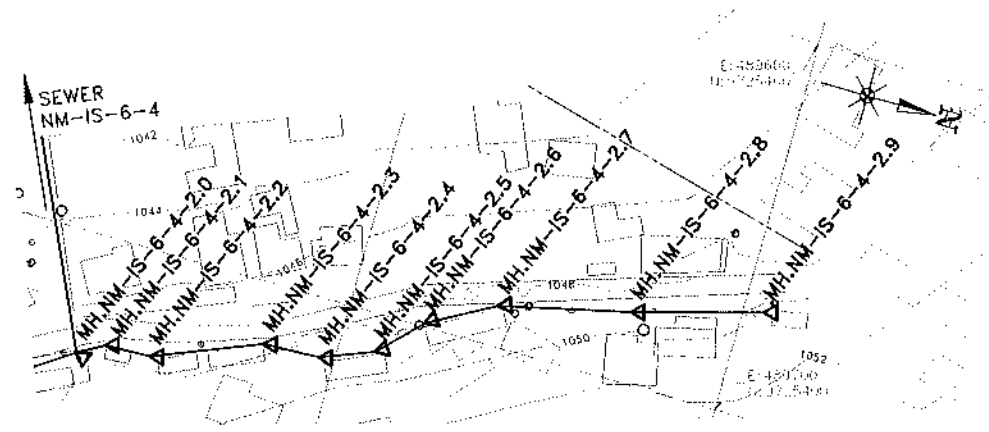
**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:
SEWERS NM-IS-6 & NM-IS-6-4
PLAN AND LONGITUDINAL SECTIONS

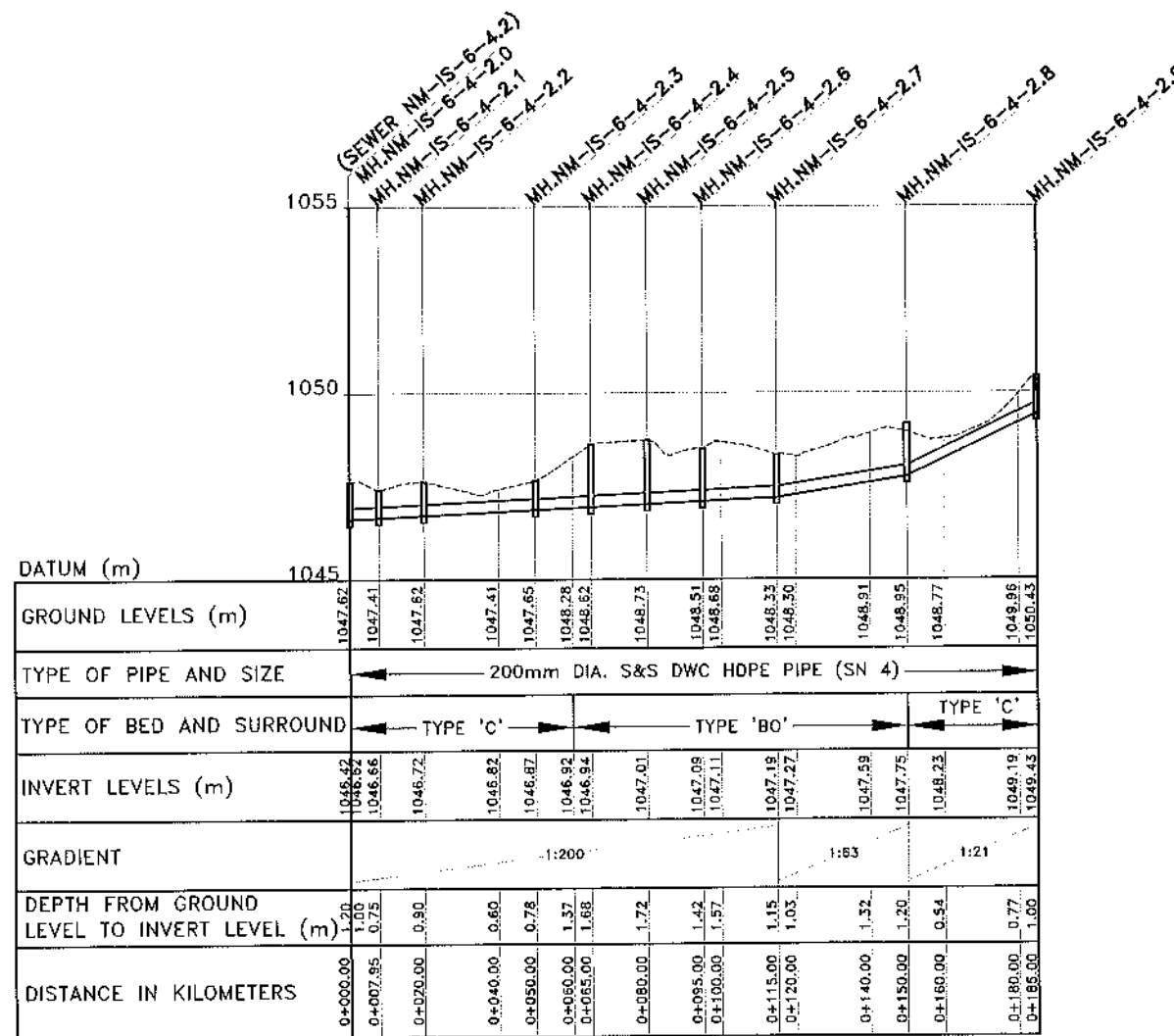
SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000	Date: MARCH 2024
VER: 1:200	
DRG No. M394(j)/MWZ/NM/05	REV

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-6-4-2.0	9725234.113	489731.569
MH.NM-IS-6-4-2.1	9725241.032	489727.662
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MH.NM-IS-6-4-2.3	9725280.879	489715.946
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MH.NM-IS-6-4-2.5	9725309.837	489709.827
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MH.NM-IS-6-4-2.7	9725337.756	489689.337
MH.NM-IS-6-4-2.8	9725371.825	489681.319
MH.NM-IS-6-4-2.9	9725405.520	489671.850



SEWER NM-IS-6-4-2 PLAN



SEWER NM-IS-6-4-2 LONGITUDINAL SECTION

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC): JOINT VENTURE

CES CONSULTING ENGINEERS
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HAMBURGER STRASSE 227
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MANGAT LB PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibp.co.ke
TEL: +254-2-2710500

PROJECT NAME:

LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:

MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

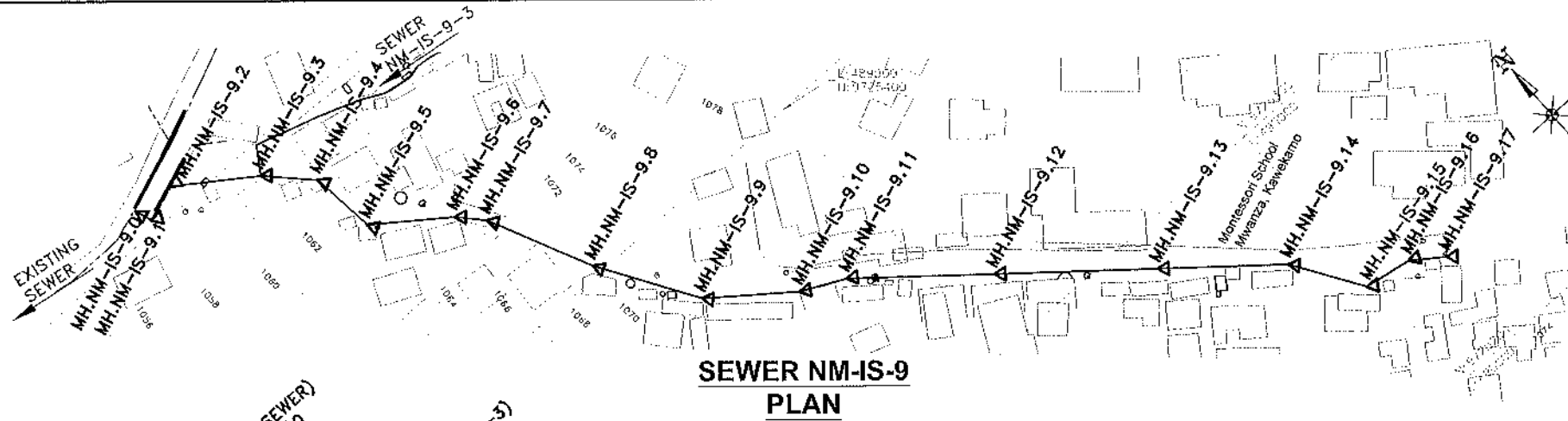
DRAWING TITLE:

SEWER NM-IS-6-4-2
PLAN AND LONGITUDINAL SECTION

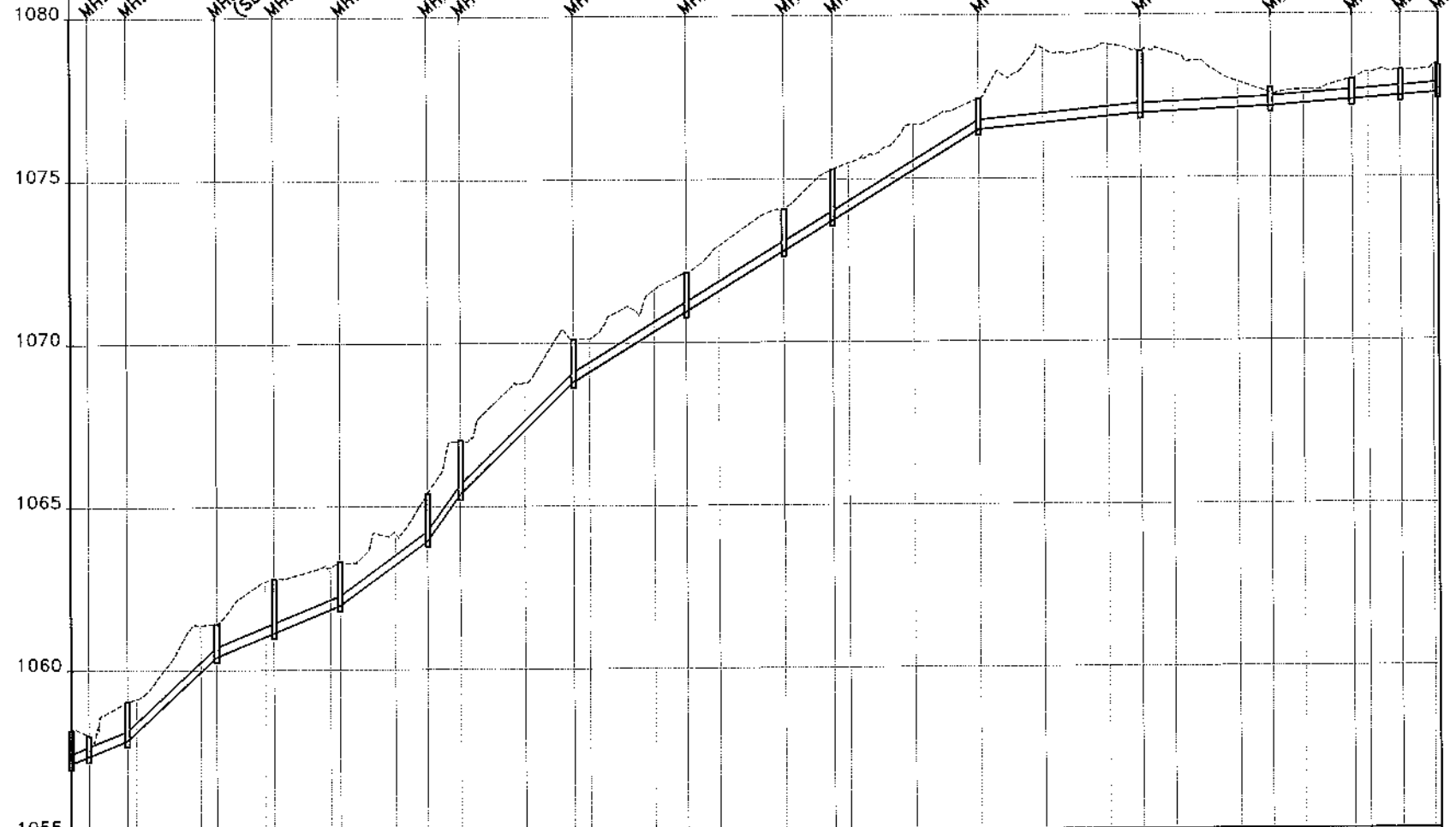
SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(j)/MWZ/NM/06	

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-9.0	9725508.176	489730.968
MH.NM-IS-9.1	9725503.051	489732.768
MH.NM-IS-9.2	9725506.971	489743.932
MH.NM-IS-9.3	9725491.100	489765.615
MH.NM-IS-9.4	9725478.385	489778.993
MH.NM-IS-9.5	9725458.158	489781.284
MH.NM-IS-9.6	9725442.146	489802.952
MH.NM-IS-9.7	9725434.761	489809.706
MH.NM-IS-9.8	9725403.064	489824.548
MH.NM-IS-9.9	9725373.359	489843.058
MH.NM-IS-9.10	9725355.063	489866.832
MH.NM-IS-9.11	9725348.387	489880.263
MH.NM-IS-9.12	9725319.537	489914.802
MH.NM-IS-9.13	9725287.567	489953.245
MH.NM-IS-9.14	9725261.977	489983.988
MH.NM-IS-9.15	9725240.954	489997.517
MH.NM-IS-9.16	9725238.433	490012.304
MH.NM-IS-9.17	9725231.579	490021.687



**SEWER NM-IS-9
PLAN**



DATUM (m)	1055																																					
GROUND LEVELS (m)	1058.13	1057.99	1059.04	1059.12	1061.38	1061.40	1062.71	1062.79	1063.14	1063.51	1064.18	1065.40	1067.03	1068.79	1070.10	1070.12	1071.62	1072.16	1072.95	1074.09	1075.29	1075.49	1076.55	1077.44	1078.95	1079.08	1078.88	1078.79	1077.82	1077.58	1077.67	1077.99	1078.21	1078.27	1078.39	1078.39		
TYPE OF PIPE AND SIZE	200mm DIA. S&S DWC HDPE PIPE (SN 4)																																					
TYPE OF BED AND SURROUND	TYPE 'C'			TYPE 'B0'																								TYPE 'C'										
INVERT LEVELS (m)	1056.19	1057.13	1057.36	1057.84	1058.09	1059.95	1060.40	1061.02	1061.13	1061.84	1061.86	1063.21	1063.95	1065.39	1065.77	1067.34	1068.80	1069.11	1070.34	1070.95	1071.57	1072.80	1073.72	1074.03	1075.26	1075.49	1076.68	1076.88	1076.98	1077.03	1077.13	1077.18	1077.25	1077.37	1077.41	1077.48	1077.55	1077.57
GRADIENT	1:25	1:11	1:24	1:14	1:7	1:10	1:16	1:102	1:200	1:130																												
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	1.94	1.00	0.83	1.20	1.02	1.43	1.00	1.69	1.66	1.30	1.35	0.97	1.45	2.74	1.65	1.45	1.30	1.00	1.28	1.20	1.39	1.29	1.57	1.46	1.39	0.95	2.27	2.20	1.91	1.77	0.79	0.40	0.41	0.67	0.61	0.78	0.83	0.82
DISTANCE IN KILOMETERS	0+000.00	0+005.43	0+017.29	0+020.00	0+040.00	0+044.95	0+060.00	0+062.99	0+080.00	0+083.05	0+100.00	0+110.00	0+120.00	0+140.00	0+155.00	0+160.00	0+180.00	0+190.00	0+200.00	0+220.00	0+235.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+330.00	0+340.00	0+360.00	0+370.00	0+390.00	0+395.00	0+400.00	0+410.00	0+420.00	0+421.82	0+421.82	

**SEWER NM-IS-9
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(J)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(J)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN COMMISSION (LVBC)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):

JOINT VENTURE

CES
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SALZGITTER GmbH
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TEL: +254-2-2710500

PROJECT NAME:
LAKE VICTORIA BASIN INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

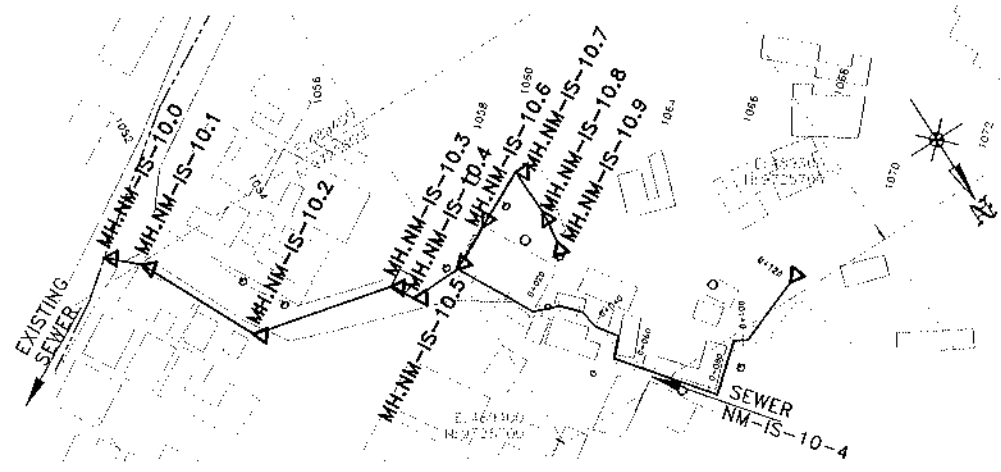
DRAWING TITLE:
SEWER NM-IS-9
PLAN AND LONGITUDINAL SECTION

SHEET 1 OF 1

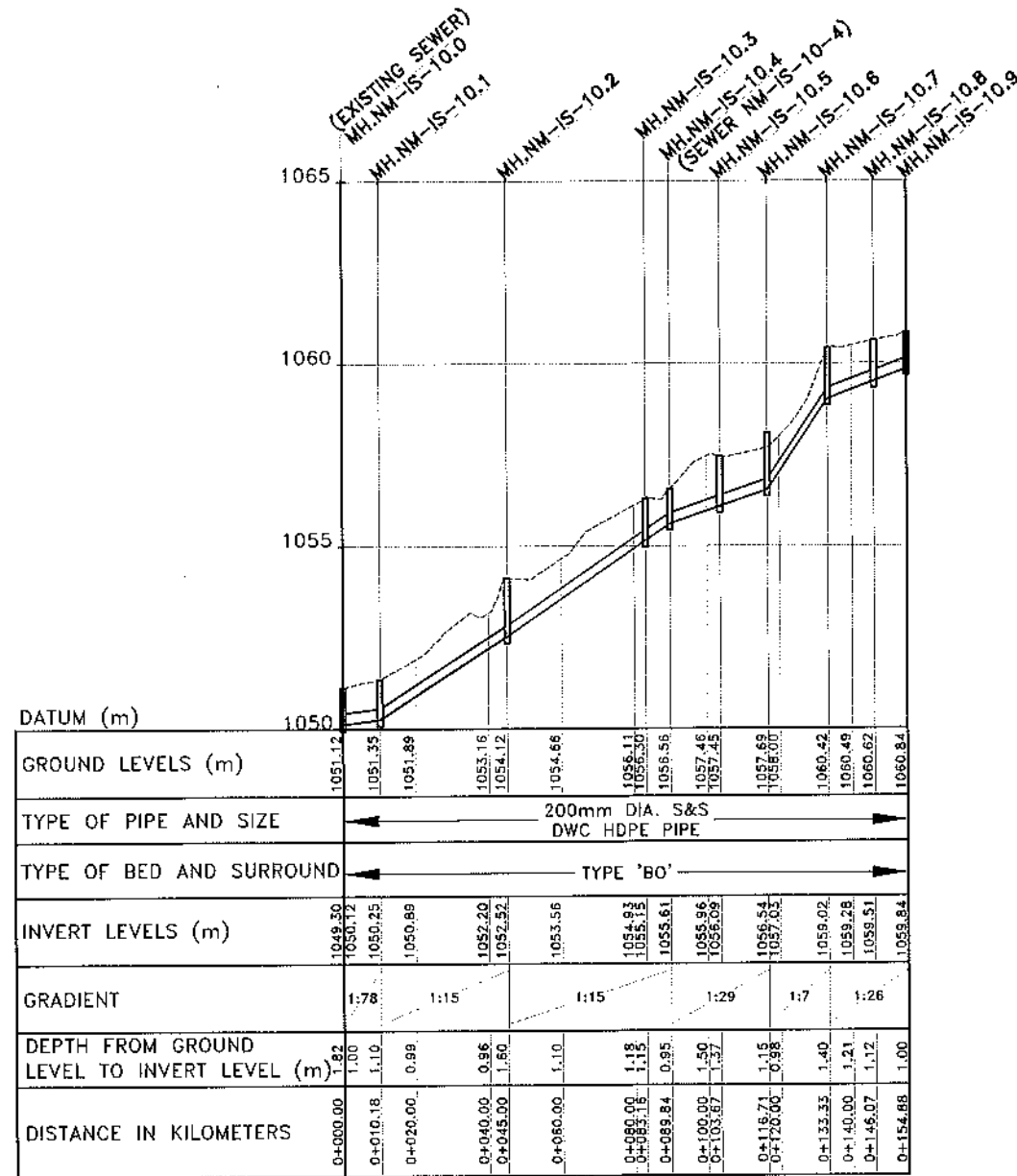
Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024

DRG No. M394(J)/MWZ/NM/07

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-10.0	9725593.614	489476.216
MH.NM-IS-10.1	9725600.548	489468.759
MH.NM-IS-10.2	9725631.870	489455.555
MH.NM-IS-10.3	9725640.752	489416.445
MH.NM-IS-10.4	9725646.512	489413.059
MH.NM-IS-10.5	9725646.138	489399.238
MH.NM-IS-10.6	9725640.262	489387.586
MH.NM-IS-10.7	9725632.887	489372.700
MH.NM-IS-10.8	9725645.624	489372.201
MH.NM-IS-10.9	9725654.373	489373.228



**SEWER NM-IS-10
PLAN**



**SEWER NM-IS-10
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1:20 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS				SIGN	DATE	APPROVED
NO.	DESCRIPTION	BY	CHECKED			

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)
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**PROJECT IMPLEMENTATION CONSULTANTS (PIC):
JOINT VENTURE**

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PROJECT NAME:

LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

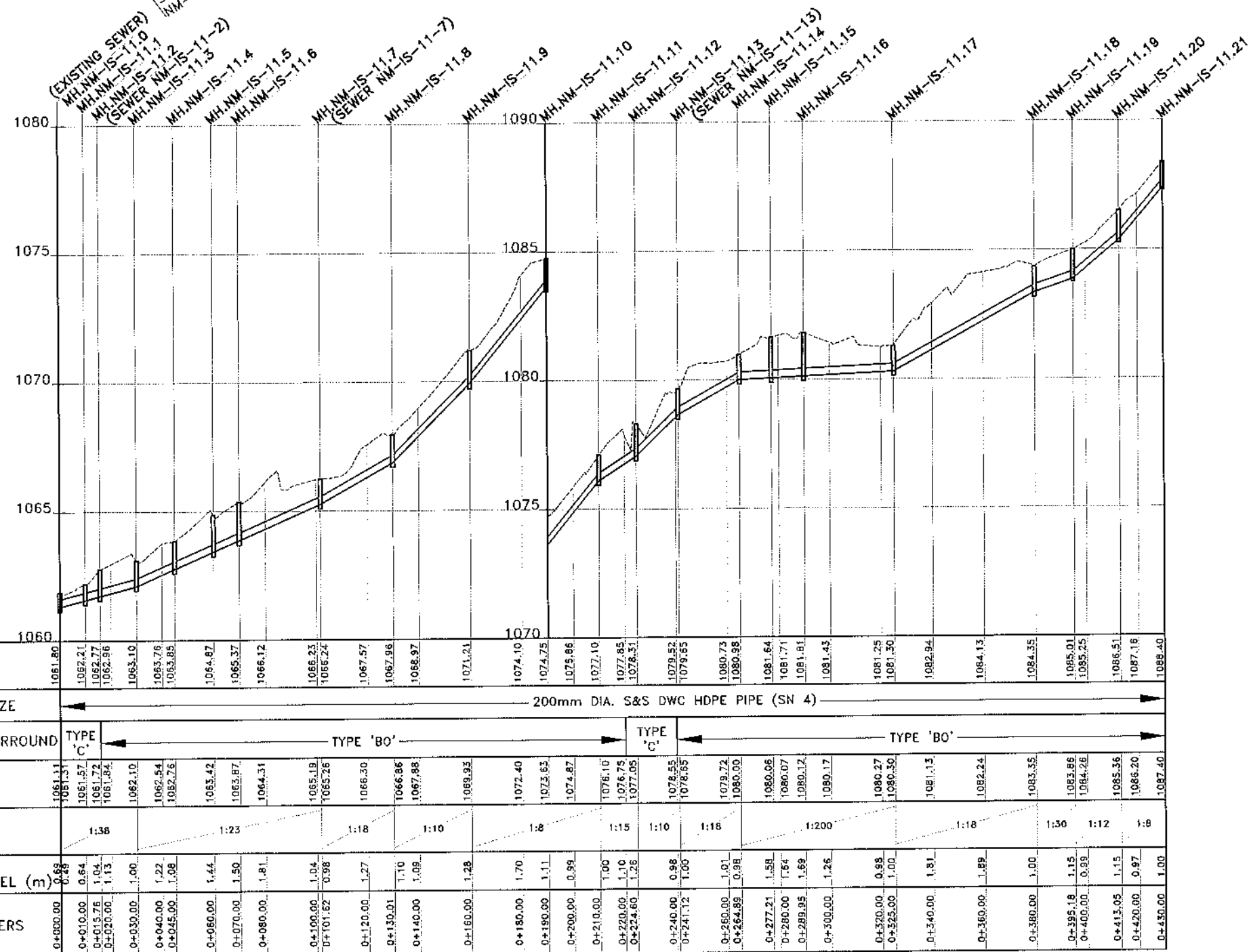
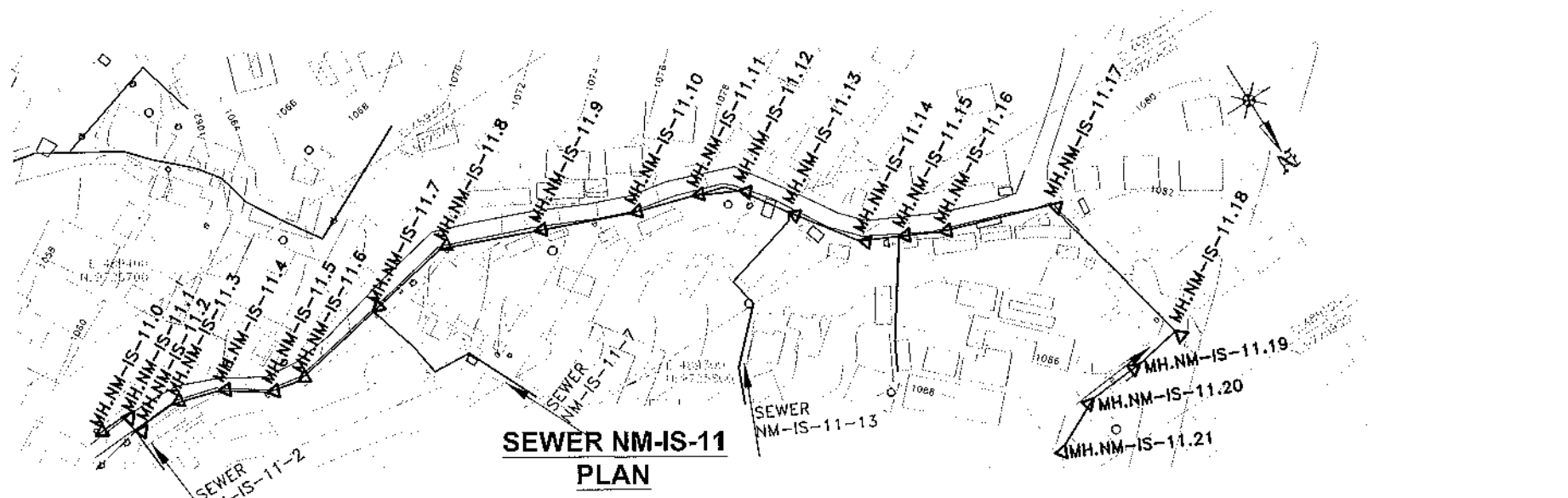
**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:
SEWER NM-IS-10
PLAN AND LONGITUDINAL SECTION

SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(j)/MWZ/NM/08	REV

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-11.0	9725724.492	489447.530
MH.NM-IS-11.1	9725724.149	489437.535
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MH.NM-IS-11.3	9725729.143	489422.259
MH.NM-IS-11.4	9725733.432	489407.888
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MH.NM-IS-11.6	9725744.130	489385.752
MH.NM-IS-11.7	9725738.462	489354.647
MH.NM-IS-11.8	9725733.345	489326.721
MH.NM-IS-11.9	9725744.586	489298.914
MH.NM-IS-11.10	9725755.827	489271.107
MH.NM-IS-11.11	9725761.685	489251.978
MH.NM-IS-11.12	9725768.166	489238.898
MH.NM-IS-11.13	9725781.876	489229.671
MH.NM-IS-11.14	9725801.227	489215.866
MH.NM-IS-11.15	9725806.512	489204.788
MH.NM-IS-11.16	9725812.307	489193.396
MH.NM-IS-11.17	9725823.716	489160.252
MH.NM-IS-11.18	9725877.396	489148.275
MH.NM-IS-11.19	9725879.949	489163.244



**SEWER NM-IS-11
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	DESCRIPTION	SIGN	DATE

CLIENT:

**EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)**
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):
JOINT VENTURE

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CES CONSULTING ENGINEERS
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TEL: +254-2-2710500

PROJECT NAME:
**LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)**

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:
**SEWER NM-IS-11
PLAN AND LONGITUDINAL SECTION**

SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024

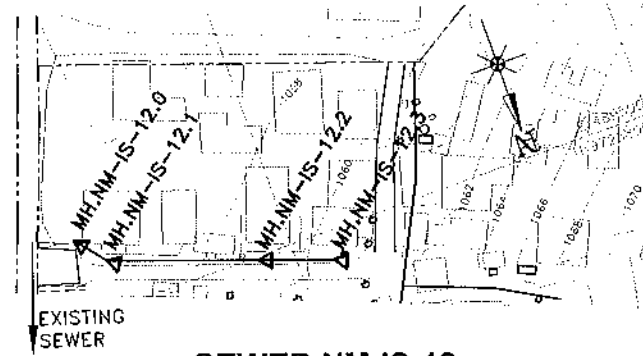
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SEWER NM-IS-12

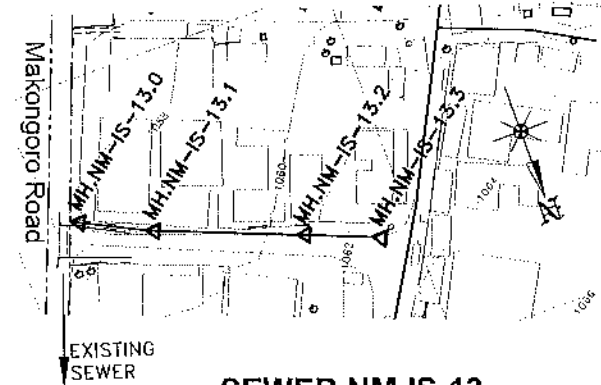
MANHOLE COORDINATES		
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MH.NM-IS-12.3	9725807.697	489590.565

SEWER NM-IS-13

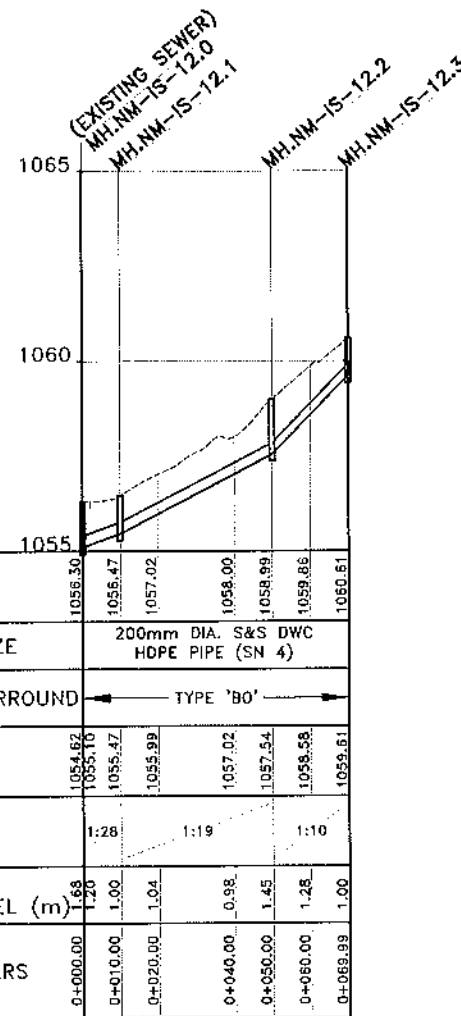
MANHOLE COORDINATES		
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MH.NM-IS-13.3	9725866.304	489610.458



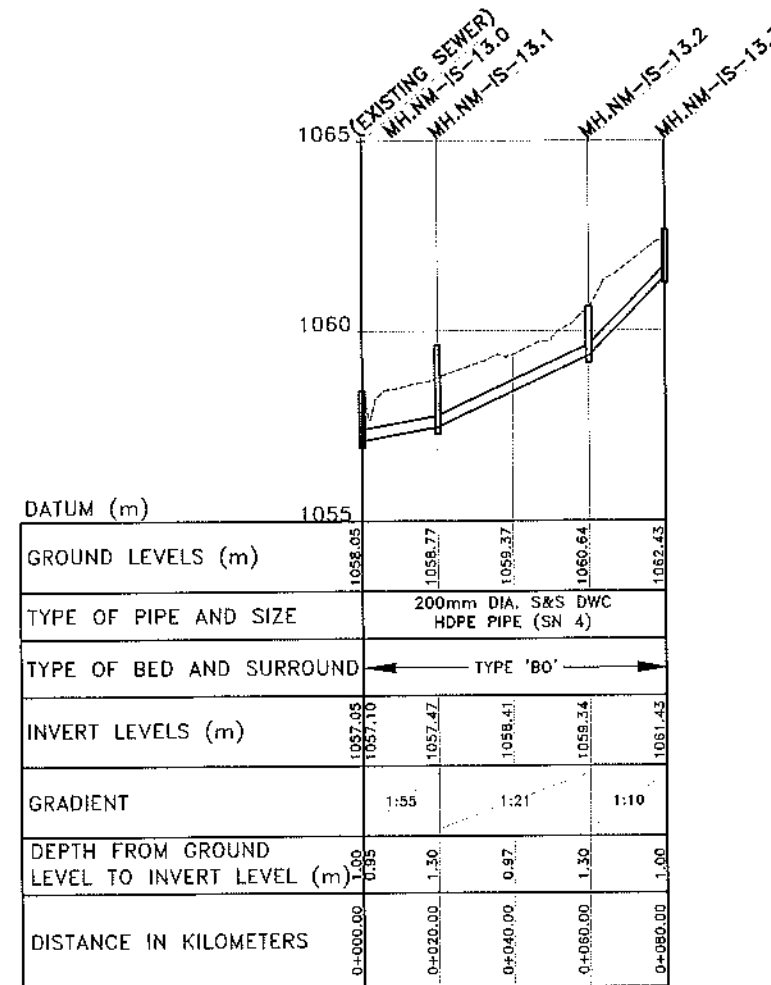
SEWER NM-IS-12 PLAN



SEWER NM-IS-13 PLAN



SEWER NM-IS-12 LONGITUDINAL SECTION



SEWER NM-IS-13 LONGITUDINAL SECTION

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1:220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 8 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS				SIGN	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN COMMISSION (LVBC)
P.O. BOX 1510 - 40100
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PROJECT NAME:

LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:

MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:

SEWERS NM-IS-12 & NM-IS-13
PLAN AND LONGITUDINAL SECTIONS

SHEET 1 OF 1

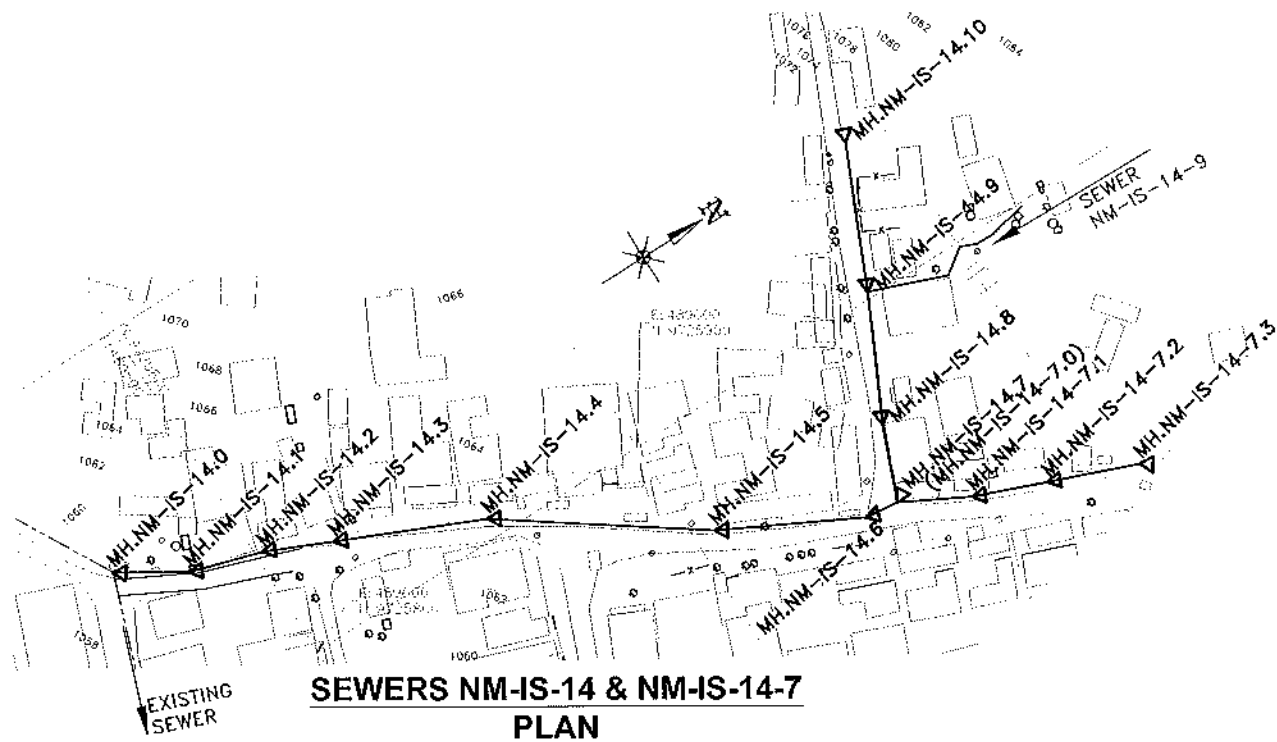
Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(j)MWZ/NM/10	REV

SEWER NM-IS-14

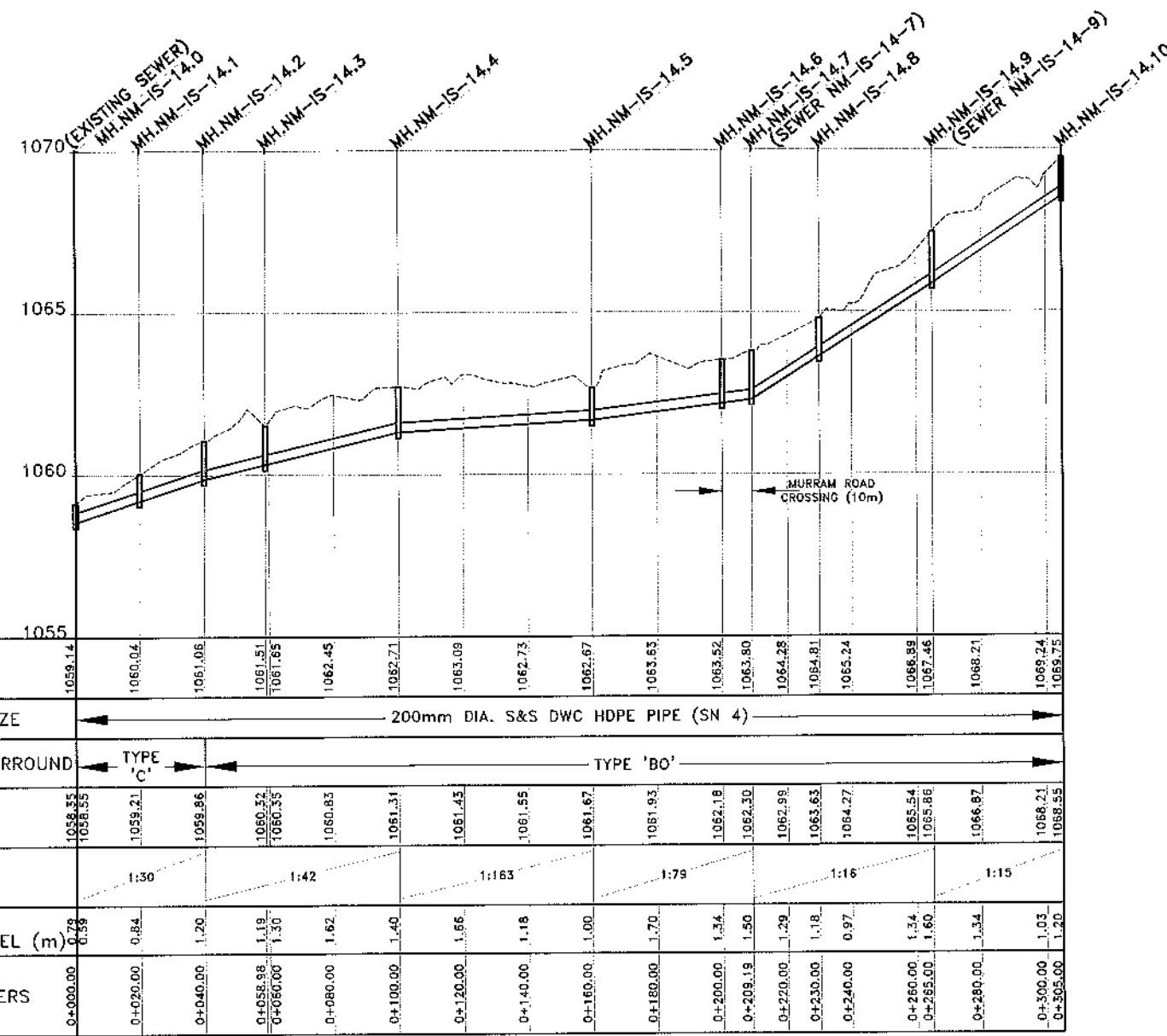
MANHOLE COORDINATES		
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MH.NM-IS-14.3	9725819.375	489577.919
MH.NM-IS-14.4	9725856.785	489594.745
MH.NM-IS-14.5	9725905.716	489629.469
MH.NM-IS-14.6	9725941.182	489647.966
MH.NM-IS-14.7	9725950.308	489649.044
MH.NM-IS-14.8	9725957.916	489629.678
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SEWER NM-IS-14-7

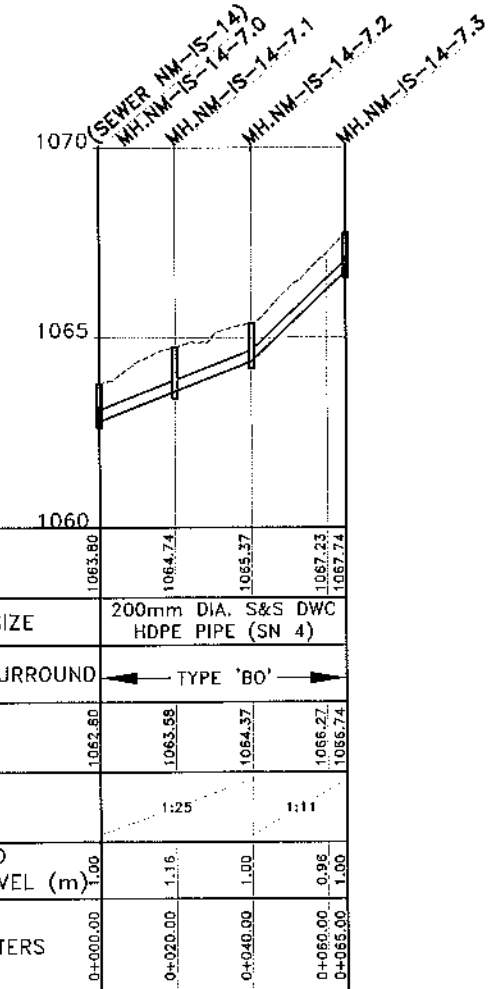
MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
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MH.NM-IS-14-7.2	9725986.558	489665.788
MH.NM-IS-14-7.3	9726009.832	489674.918



SEWERS NM-IS-14 & NM-IS-14-7
PLAN



SEWER NM-IS-14
LONGITUDINAL SECTION



SEWER NM-IS-14-7
LONGITUDINAL SECTION

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	DESCRIPTION	SIGN	DATE

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN COMMISSION (LVB/C)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):
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HAMBURGER STRASSE 227
38114 BRAUNSCHWEIG, GERMANY
E-MAIL: info@ces.de
TEL: +49 531 - 31704-0

AKUT PARTNER
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13355 BERLIN, GERMANY
TEL: +49 30 8145460 - 0
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MIBP
MANGAT LB PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibp.co.ke
TEL: +254-2-2710500

PROJECT NAME:
LAKE VICTORIA BASIN INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:
SEWERS NM-IS-14 & NM-IS-14-7
PLAN AND LONGITUDINAL SECTIONS

SHEET 1 OF 1

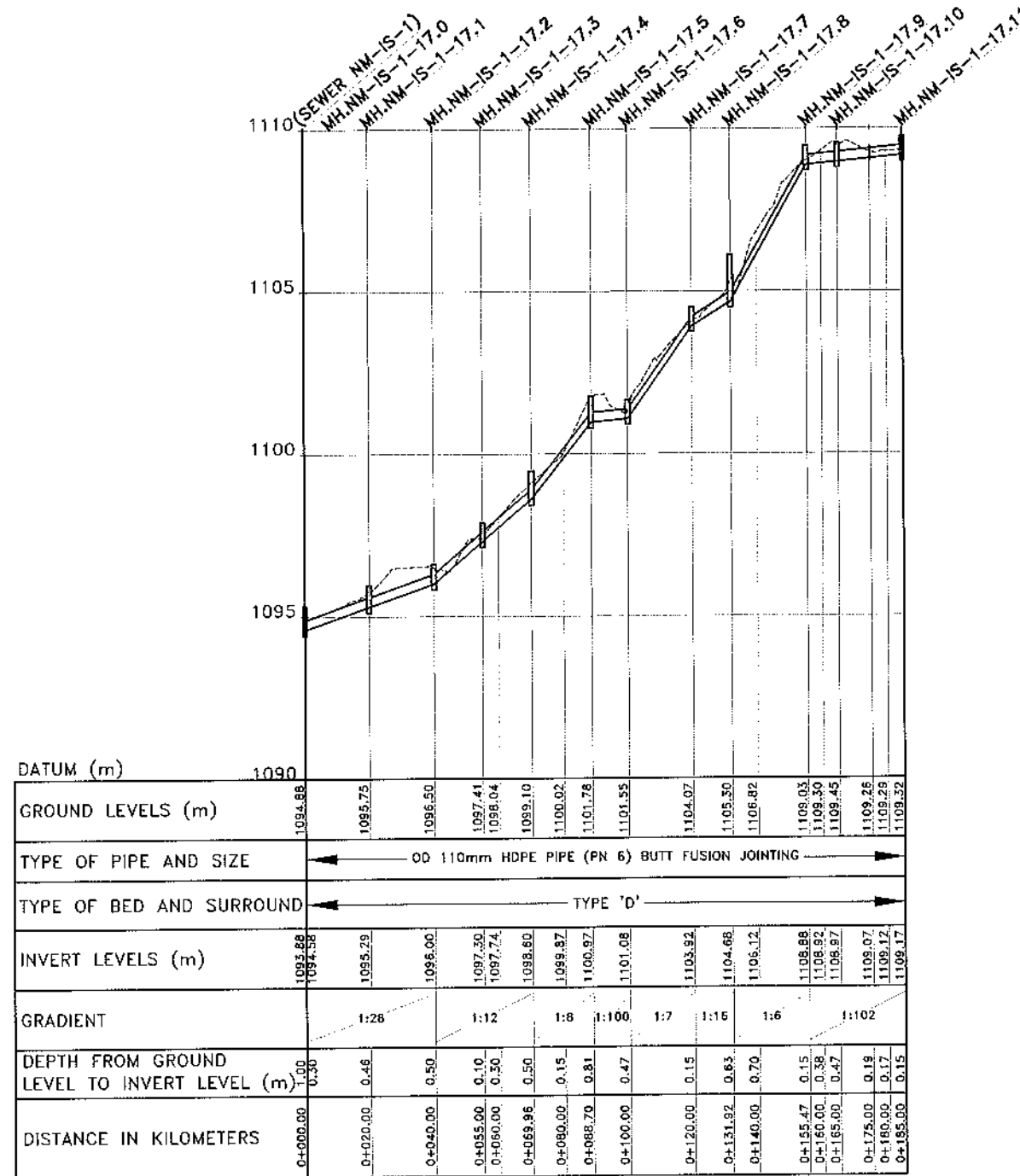
Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2000 VER: 1:200	Date: JUNE 2023

DRG No. M394(j)/MWZ/NM/11

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-1-17.0	9724054.187	489573.677
MH.NM-IS-1-17.1	9724061.364	489592.345
MH.NM-IS-1-17.2	9724073.775	489608.028
MH.NM-IS-1-17.3	9724083.272	489619.639
MH.NM-IS-1-17.4	9724080.853	489634.401
MH.NM-IS-1-17.5	9724080.575	489653.143
MH.NM-IS-1-17.6	9724091.101	489657.247
MH.NM-IS-1-17.7	9724086.729	489676.764
MH.NM-IS-1-17.8	9724084.502	489688.470
MH.NM-IS-1-17.9	9724074.050	489709.573
MH.NM-IS-1-17.10	9724071.884	489718.857
MH.NM-IS-1-17.11	9724087.601	489730.861



**SEWER NM-IS-1-17
PLAN**



**SEWER NM-IS-1-17
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SO/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

**EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)**
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):

JOINT VENTURE

CES
CES CONSULTING ENGINEERS
SALZGITTER GmbH
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TEL: +254-2-2710500

PROJECT NAME:

**LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)**

CONTRACT TITLE:

MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:

**SEWER NM-IS-1-17
PLAN AND LONGITUDINAL SECTION**

SHEET 1 OF 1

Designed by: C.N.M Drawn by: V.C

Checked by: N.J.N Approved by: R.S.R

Scale: A3- HOR: 1:200 Date: MARCH 2024
VER: 1:200

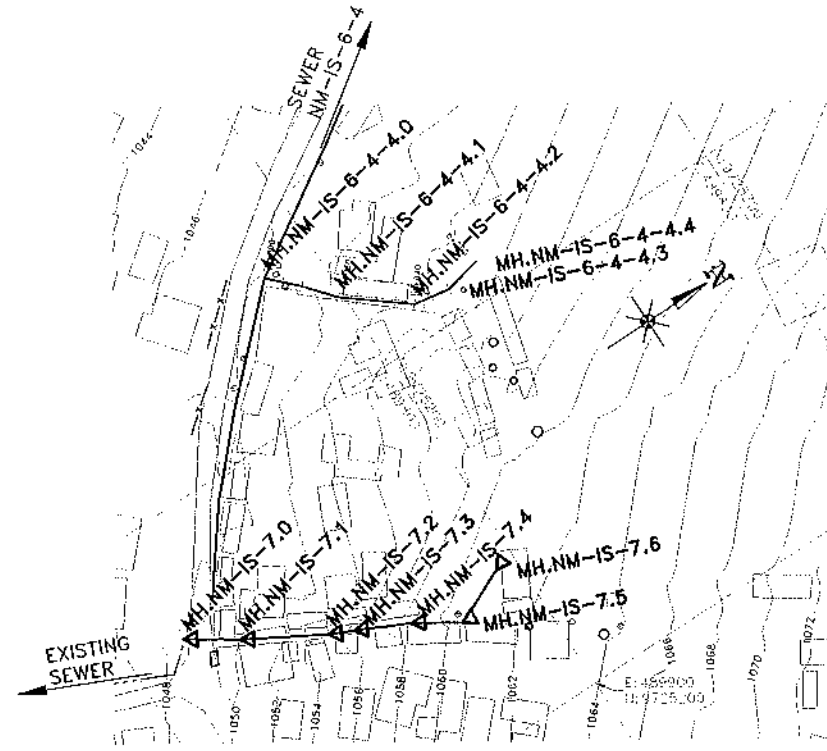
DRG No. M394(j)/MWZ/NM/12

SEWER NM-IS-6-4-4

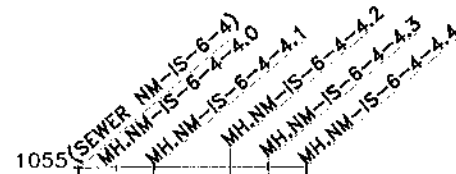
MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
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MH.NM-IS-6-4-4.3	9725224.076	489792.192
MH.NM-IS-6-4-4.4	9725233.834	489790.008

SEWER NM-IS-7

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-7.0	9725115.662	489831.113
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MH.NM-IS-7.2	9725148.283	489850.885
MH.NM-IS-7.3	9725154.492	489853.744
MH.NM-IS-7.4	9725168.001	489860.265
MH.NM-IS-7.5	9725179.411	489867.468
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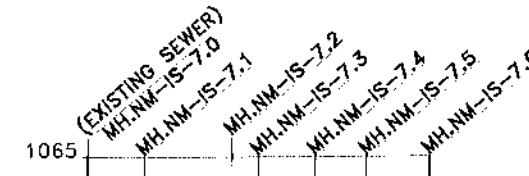


**SEWERS NM-IS-6-4-4 & NM-IS-7
PLAN**



DATUM (m)	1045					
GROUND LEVELS (m)	1048.45	1049.62	1050.34	1051.43	1052.75	1053.16
TYPE OF PIPE AND SIZE	OD 110mm HDPE PIPE (PN 6) BUTT FUSION JOINTING					
TYPE OF BED AND SURROUND	TYPE 'D'					
INVERT LEVELS (m)	1046.80	1047.85	1049.02	1050.19	1051.28	1052.60
GRADIENT		1:9	1:18	1:8	1:24	
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	0.65	0.60	0.15	0.15	0.15	0.15
DISTANCE IN KILOMETERS	0+000.00	0+010.00	0+020.00	0+040.00	0+050.00	0+060.00

**SEWER NM-IS-6-4-4
LONGITUDINAL SECTION**



DATUM (m)	1045									
GROUND LEVELS (m)	1048.39	1050.01	1050.85	1055.09	1058.00	1058.56	1058.99	1060.75	1060.62	1060.80
TYPE OF PIPE AND SIZE	OD 110mm HDPE PIPE (PN 6) BUTT FUSION JOINTING									
TYPE OF BED AND SURROUND	TYPE 'D'									
INVERT LEVELS (m)	1047.49	1047.59	1049.51	1049.52	1054.19	1054.74	1056.26	1058.36	1060.25	1060.41
GRADIENT		1:8	1:5	1:3	1:7	1:41				
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	0.90	0.80	0.50	0.33	0.90	3.25	0.30	0.63	0.50	0.21
DISTANCE IN KILOMETERS	0+000.00	0+015.00	0+020.00	0+038.15	0+040.00	0+045.00	0+060.00	0+073.49	0+080.00	0+090.00

**SEWER NM-IS-7
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(J)MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(J)MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVB/C)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

**PROJECT IMPLEMENTATION CONSULTANTS (PIC):
JOINT VENTURE**

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SALZGITTER GmbH
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TEL: +254-2-2710500

PROJECT NAME:
LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

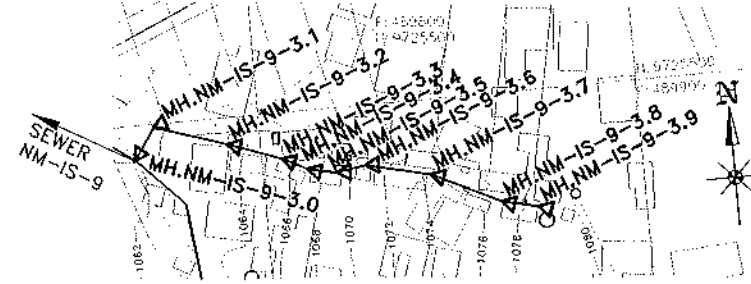
**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:
SEWERS NM-IS-6-4-4 & NM-IS-7
PLAN AND LONGITUDINAL SECTIONS

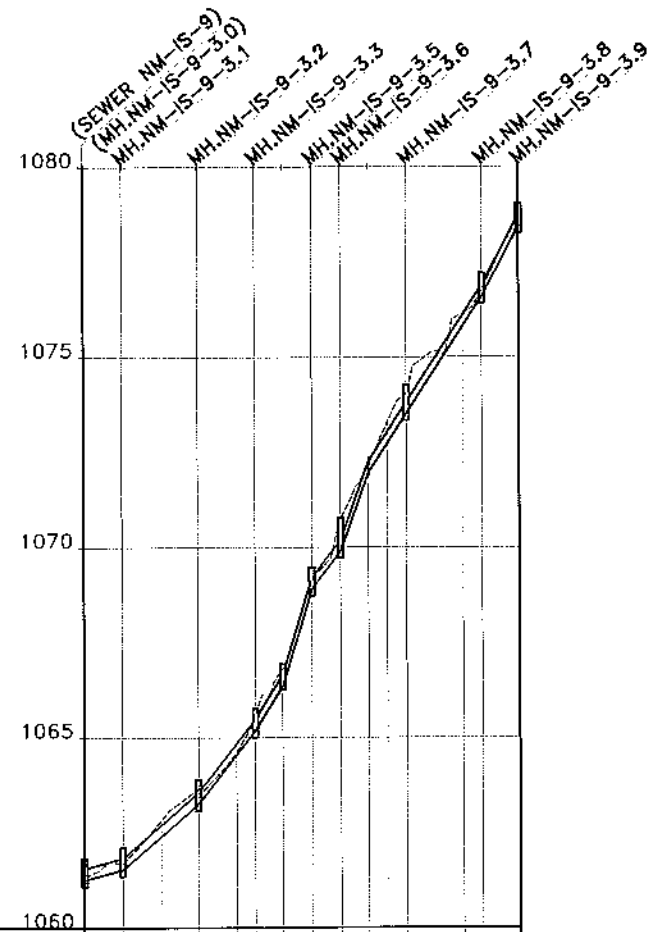
SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(J)MWZ/NM/14	REV

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-9-3.0	9725491.063	489766.652
MH.NM-IS-9-3.1	9725499.290	489772.338
MH.NM-IS-9-3.2	9725493.030	489791.333
MH.NM-IS-9-3.3	9725487.919	489805.435
MH.NM-IS-9-3.4	9725484.592	489811.926
MH.NM-IS-9-3.5	9725483.023	489819.471
MH.NM-IS-9-3.6	9725484.262	489827.002
MH.NM-IS-9-3.7	9725480.253	489844.002
MH.NM-IS-9-3.8	9725471.522	489861.996
MH.NM-IS-9-3.9	9725469.368	489871.547



**SEWER NM-IS-9-3
PLAN**



DATUM (m)	1061.40	1061.65	1062.81	1063.65	1064.62	1065.64	1066.63	1068.12	1070.78	1072.19	1073.26	1074.04	1076.15	1076.78	1078.61
GROUND LEVELS (m)	1061.40	1061.65	1062.81	1063.65	1064.62	1065.64	1066.63	1068.12	1070.78	1072.19	1073.26	1074.04	1076.15	1076.78	1078.61
TYPE OF PIPE AND SIZE	OD 110mm HDPE PIPE (PN 6) BUTT FUSION JOINTING														
TYPE OF BED AND SURROUND	TYPE 'D'														
INVERT LEVELS (m)	1063.68	1061.43	1061.53	1062.39	1063.25	1064.54	1065.18	1066.35	1068.90	1069.90	1071.97	1072.74	1073.92	1075.81	1076.99
GRADIENT	1:37	1:12	1:8	1:6	1:3	1:6	1:4	1:7	1:5						
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	0.72	0.15	0.42	0.40	0.08	0.46	0.47	0.22	0.87	0.22	0.54	0.52	0.34	0.19	0.19
DISTANCE IN KILOMETERS	0+000.00	0+010.00	0+020.00	0+030.00	0+040.00	0+045.00	0+052.29	0+060.00	0+067.63	0+075.00	0+080.00	0+085.10	0+100.00	0+105.10	0+114.89

**SEWER NM-IS-9-3
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1:220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS	SIGN	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)
P.O. BOX 1510 - 40100
KISUMU, KENYA
TEL: +254 57 202 6344

PROJECT IMPLEMENTATION CONSULTANTS (PIC):

JOINT VENTURE

CES CONSULTING ENGINEERS
SALZGITTER GmbH
HAMBURGER STRASSE 227
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TEL: +254-2-2710500

PROJECT NAME:

LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:

MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

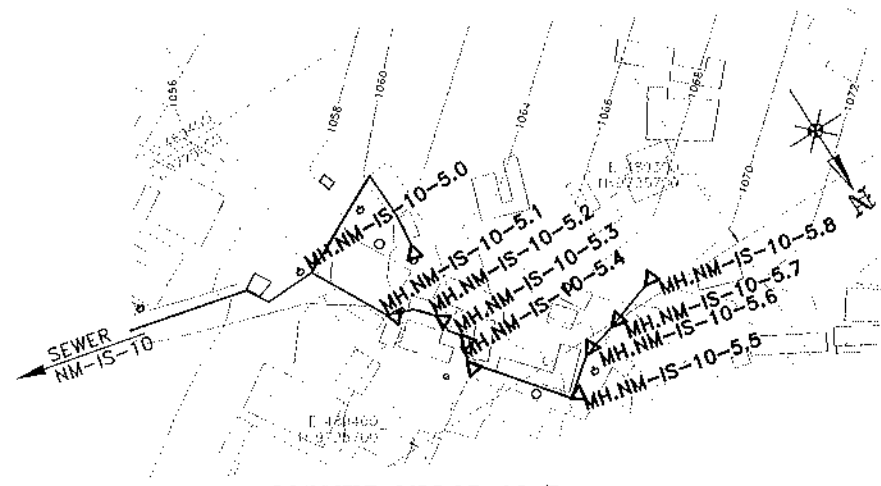
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**SEWER NM-IS-9-3
PLAN AND LONGITUDINAL SECTION**

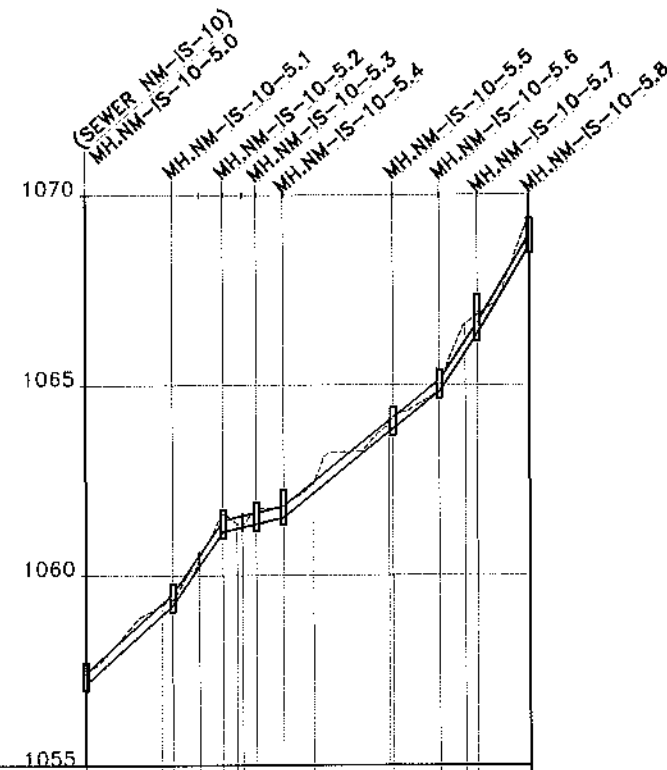
SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:200 VER: 1:200	Date: MARCH 2024
DRG No. M394(j)/MWZ/NM/15	REV

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-10-5.0	9725646.138	489399.238
MH.NM-IS-10-5.1	9725666.321	489388.384
MH.NM-IS-10-5.2	9725673.483	489377.521
MH.NM-IS-10-5.3	9725681.398	489374.660
MH.NM-IS-10-5.4	9725688.090	489377.051
MH.NM-IS-10-5.5	9725710.736	489359.115
MH.NM-IS-10-5.6	9725703.292	489349.500
MH.NM-IS-10-5.7	9725700.643	489339.857
MH.NM-IS-10-5.8	9725696.168	489326.738



**SEWER NM-IS-10-5
PLAN**



	0+000.00	0+020.00	0+030.00	0+036.30	0+041.37	0+045.00	0+052.11	0+060.00	0+060.59	0+093.15	0+100.00	0+103.15	0+117.02
GROUND LEVELS (m)	1057.45	1059.21	1059.26	1060.42	1061.61	1061.76	1061.82	1062.43	1064.16	1064.98	1066.61	1066.84	1069.59
TYPE OF PIPE AND SIZE	OD 110mm HDPE PIPE (PN 6) BUTT FUSION JOINTING												
TYPE OF BED AND SURROUND	TYPE 'D'												
INVERT LEVELS (m)	1057.14	1058.95	1058.23	1060.23	1061.14	1061.26	1061.35	1061.52	1062.16	1063.86	1064.83	1065.87	1068.84
GRADIENT		1:11	1:7	1:42		1:12	1:7	1:6					
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	0.31	0.26	0.19	0.46	0.08	0.41	0.30	0.27	0.30	0.15	0.74	0.50	0.75
DISTANCE IN KILOMETERS	0+000.00	0+020.00	0+030.00	0+036.30	0+041.37	0+045.00	0+052.11	0+060.00	0+060.59	0+093.15	0+100.00	0+103.15	0+117.02

**SEWER NM-IS-10-5
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(j)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(j)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS	SIGN	DATE	APPROVED
	BY		
	CHECKED		

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN
COMMISSION (LVBC)
P.O. BOX 1510 - 40100
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PROJECT NAME:

**LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)**

**CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE**

**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:

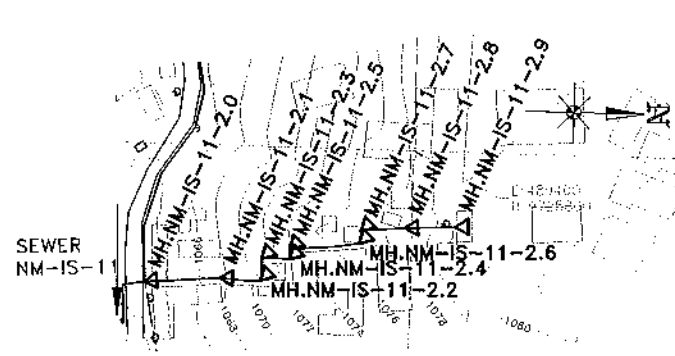
**SEWER NM-IS-10-5
PLAN AND LONGITUDINAL SECTION**

SHEET 1 OF 1

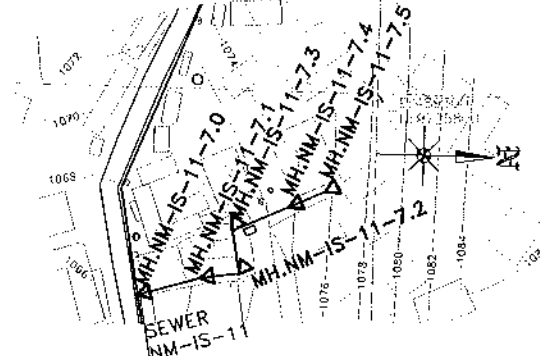
Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(j)/MWZ/NM/16	REV

SEWER NM-IS-11-2

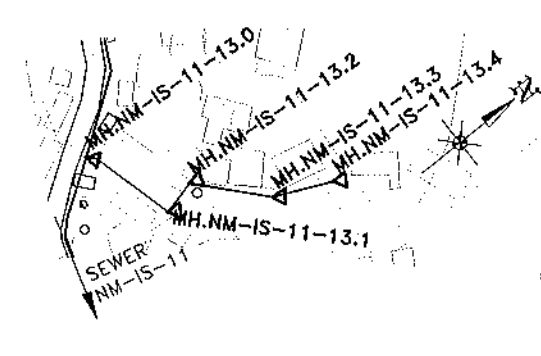
MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-11-2.0	9725729.812	489436.484
MH.NM-IS-11-2.1	9725749.752	489434.969
MH.NM-IS-11-2.2	9725760.592	489435.248
MH.NM-IS-11-2.3	9725760.645	489429.443
MH.NM-IS-11-2.4	9725767.978	489429.376
MH.NM-IS-11-2.5	9725768.039	489426.871
MH.NM-IS-11-2.6	9725786.367	489424.755
MH.NM-IS-11-2.7	9725786.691	489421.419
MH.NM-IS-11-2.8	9725798.284	489420.397
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SEWER NM-IS-11-2 PLAN



SEWER NM-IS-11-7 PLAN



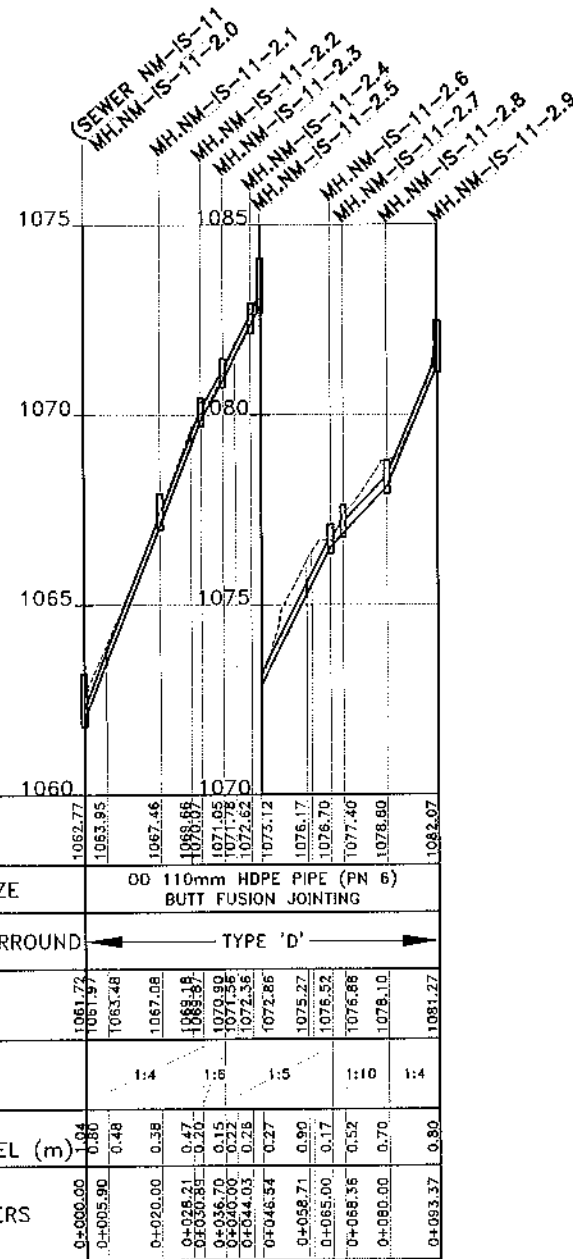
SEWER NM-IS-11-13 PLAN

SEWER NM-IS-11-7

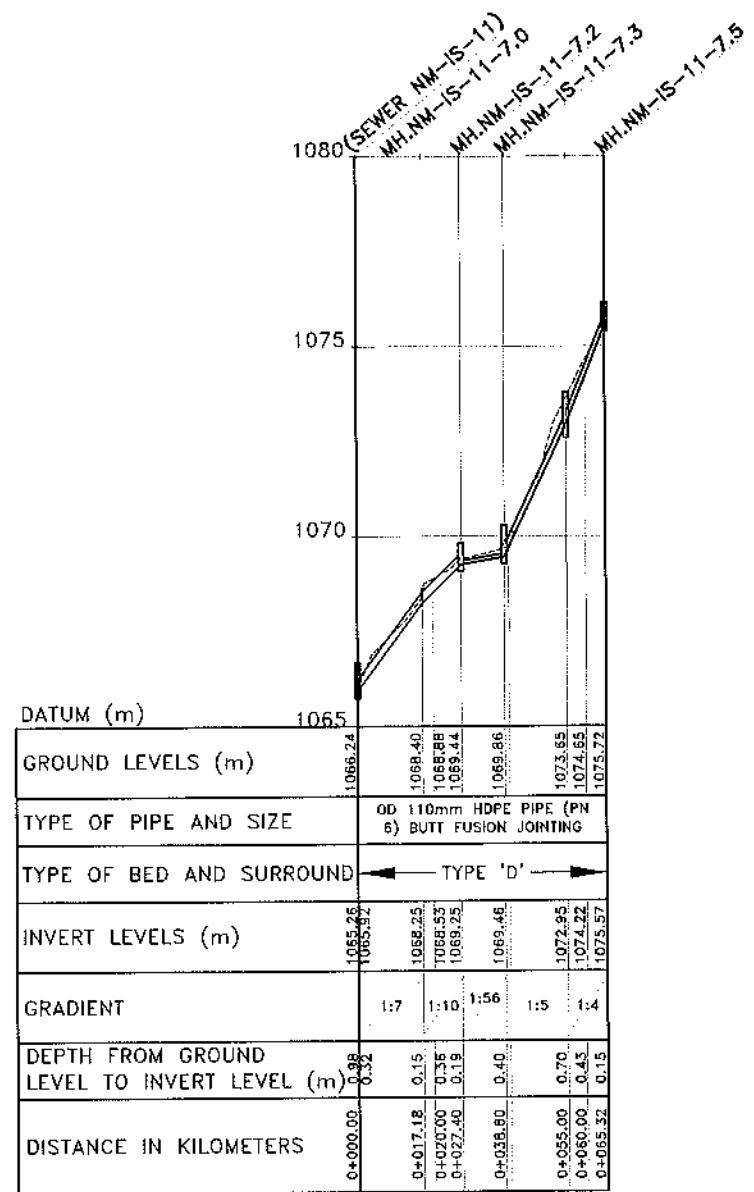
MANHOLE COORDINATES		
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MH.NM-IS-11-7.2	9725765.062	489348.333
MH.NM-IS-11-7.3	9725763.043	489337.110
MH.NM-IS-11-7.4	9725777.784	489330.397
MH.NM-IS-11-7.5	9725787.179	489326.119

SEWER NM-IS-11-13

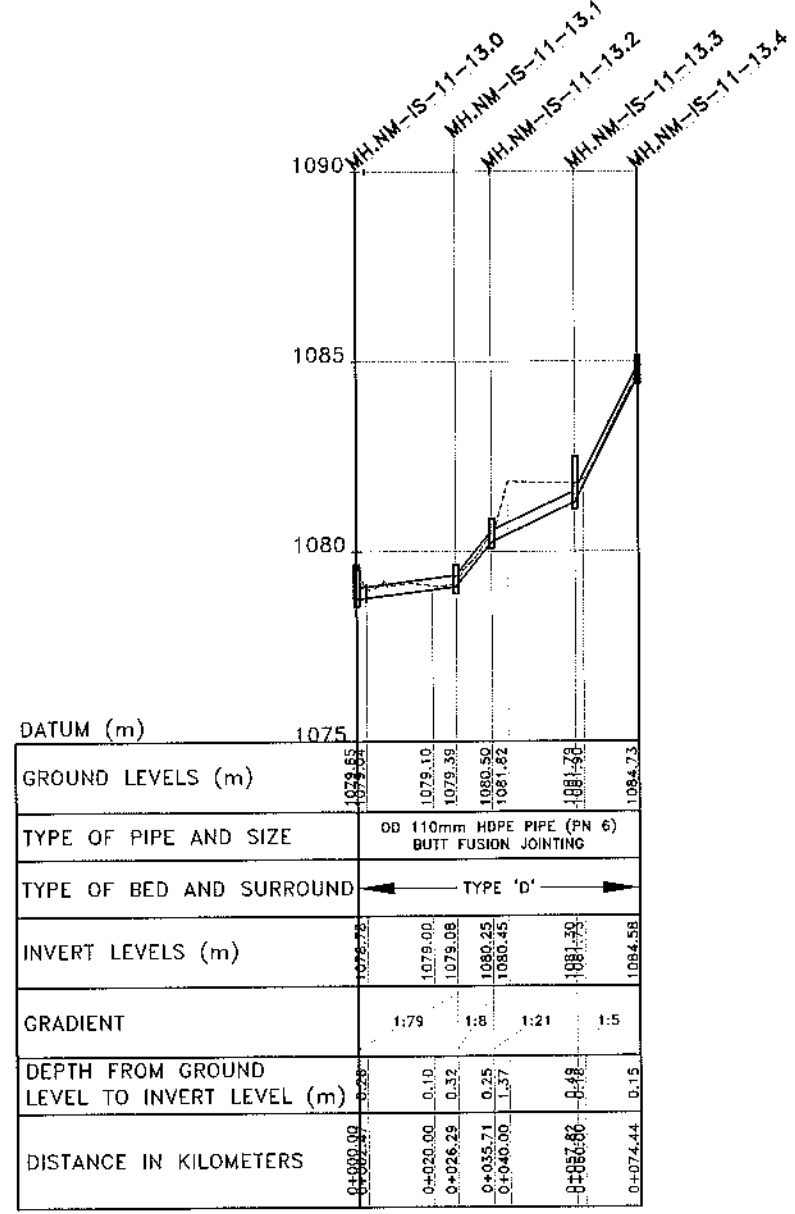
MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-11-13.0	9725781.876	489229.671
MH.NM-IS-11-13.1	9725789.954	489254.336
MH.NM-IS-11-13.2	9725799.090	489252.018
MH.NM-IS-11-13.3	9725813.910	489268.427
MH.NM-IS-11-13.4	9725826.286	489273.678
MH.NM-IS-11-13.5	9725829.080	489275.215



SEWER NM-IS-11-2 LONGITUDINAL SECTION



SEWER NM-IS-11-7 LONGITUDINAL SECTION



SEWER NM-IS-11-13 LONGITUDINAL SECTION

- NOTES:**
- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(J)/MWZ/NM/01
 - CONTOUR LEVELS ARE AT 2 METER INTERVALS
 - GRID VALUES ARE AT 100 METER INTERVALS
 - FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(J)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT:

EAST AFRICAN COMMUNITY (EAC)
LAKE VICTORIA BASIN COMMISSION (LVBC)
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TEL: +254-2-2710500

PROJECT NAME:
LAKE VICTORIA BASIN INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:
MWANZA SEWER CONNECTION UPGRADE

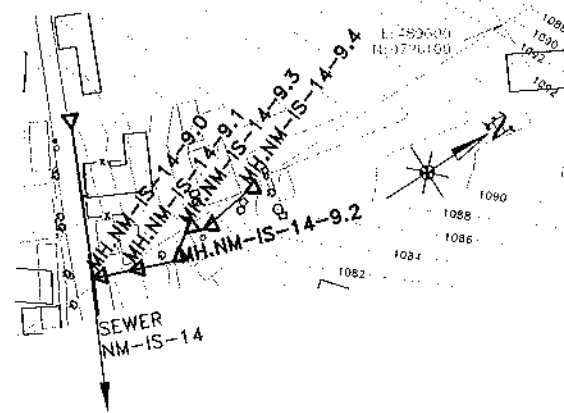
INFILL SEWERS NYAMANORO WARD

DRAWING TITLE:
SEWERS NM-IS-11-2, NM-IS-11-7 & NM-IS-11-13 PLANS AND LONGITUDINAL SECTIONS

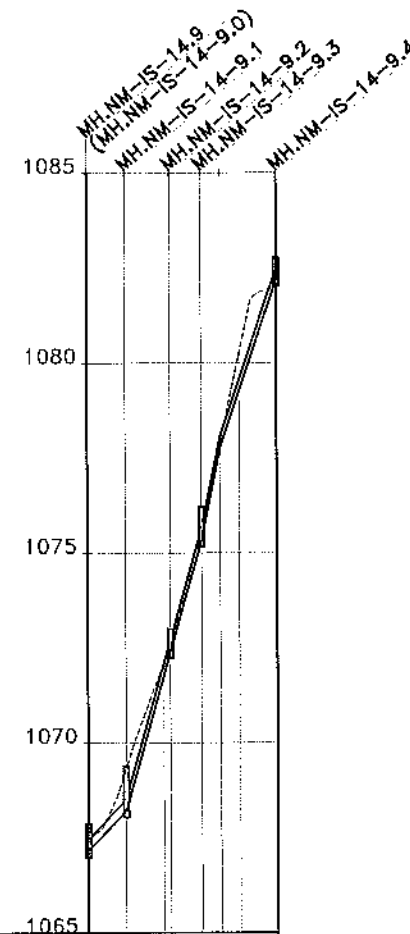
SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3- HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(J)/MWZ/NM/17	REV

MANHOLE COORDINATES		
REF. No	NORTHING	EASTING
MH.NM-IS-14-9.0	9725973.206	489598.194
MH.NM-IS-14-9.1	9725982.549	489601.759
MH.NM-IS-14-9.2	9725993.560	489605.960
MH.NM-IS-14-9.3	9726000.264	489601.219
MH.NM-IS-14-9.4	9726019.513	489600.905



**SEWER NM-IS-14-9
PLAN**



	1067.45	1069.32	1072.00	1072.59	1075.75	1077.54	1080.25	1082.37
GROUND LEVELS (m)	1067.45	1069.32	1072.00	1072.59	1075.75	1077.54	1080.25	1082.37
TYPE OF PIPE AND SIZE	ØD 110mm HDPE PIPE (PN 6) BUTT FUSION JOINTING							
TYPE OF BED AND SURROUND	TYPE 'D'							
INVERT LEVELS (m)	1068.88	1068.22	1071.78	1072.42	1075.34	1077.78	1079.28	1082.19
GRADIENT	1:9	1:3	1:2	1:3				
DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	0.58	1.10	0.22	0.18	0.41	0.15	0.07	0.18
DISTANCE IN KILOMETERS	0+000.00	0+010.00	0+020.00	0+027.78	0+030.00	0+035.00	0+040.00	0+049.76

**SEWER NM-IS-14-9
LONGITUDINAL SECTION**

NOTES:

- FOR GENERAL SEWER LAYOUT PLAN SEE DRG. No. M394(J)/MWZ/NM/01
- CONTOUR LEVELS ARE AT 2 METER INTERVALS
- GRID VALUES ARE AT 100 METER INTERVALS
- FOR BED AND SURROUND DETAILS REFER TO DRG. No. M394(J)/MWZ/SD/04

LEGEND - PLAN

EXISTING FEATURES:

- 1220 CONTOUR WITH ELEVATIONS
- SEWER
- DRAIN
- FENCE
- PAVED ROAD
- MURRAM / EARTH ROAD
- PERMANENT BUILDING
- TEMPORARY BUILDING
- POWER POLE
- GATE
- CULVERT
- TP 9 TRIAL PIT

PROPOSED FEATURES:

- SEWER WITH MANHOLE

LEGEND - PROFILE

EXISTING FEATURES:

- GROUND LEVEL

PROPOSED FEATURES:

- GRAVITY SEWER WITH MANHOLE

REVISIONS				SIGN	DATE	APPROVED
				BY		
				CHECKED		

CLIENT:

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PROJECT NAME:

LAKE VICTORIA BASIN INTEGRATED
WATER RESOURCES MANAGEMENT
PROGRAMME (LVB-IWRMP)

CONTRACT TITLE:

MWANZA SEWER CONNECTION UPGRADE

**INFILL SEWERS
NYAMANORO WARD**

DRAWING TITLE:

SEWER NM-IS-14-9
PLAN AND LONGITUDINAL SECTION

SHEET 1 OF 1

Designed by: V.C	Drawn by: V.C
Checked by: N.J.N	Approved by: R.S.R
Scale: A3, HOR: 1:2,000 VER: 1:200	Date: MARCH 2024
DRG No. M394(J)/MWZ/NM/18	REV