COAST WATER WORKS DEVELOPMENT AGENCY (CWWDA)

PROJECT NAME - IMPROVEMENT OF DRINKING WATER AND SANITATION SYSTEMS IN MOMBASA – MWACHE PROJECT (CKE 1103)

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

BID N0: *(TO BE INSERTED)*

BIDDING DOCUMENT VOLUME IV OF IV - CONSTRUCTION DRAWINGS

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MOMBASA WATER DISTRIBUTION PIPELINES PROJECT - LIST OF DRAWINGS

SOUTH AND WEST MAINLAND

	DRAWING No.	DESCRIPTION		DRAWING No.	DRAWING TITLE
1	6000002-W&S-C-G-000	LIST OF DRAWINGS - SHEET 1 OF 2			**ABLUTION BLOCK**
2	6000002-W&S-C-G-000A	LIST OF DRAWINGS - SHEET 2 OF 2	61	6000002-W&S-SM-G-060	SITE LAYOUT PLAN
			62	6000002-W&S-SM-D-061	ELEVATIONS
		SOUTH MAINLAND	63	6000002-W&S-SM-D-062	SECTIONS
		LAYOUTS			
3	6000002-W&S-C-G-001	LOCATION PLAN			
4	6000002-W&S-C-G-002	SUB-LOCATION BOUNDARIES			**WEST MAINLAND**
5	6000002-W&S-C-G-003	WATER PIPELINES GENERAL LAYOUT			**LAYOUTS**
6	6000002-W&S-C-G-004	BULK WATER METERS - GENERAL LAYOUT	64	6000002-W&S-C-G-003	WATER PIPELINES GENERAL LAYOUT
			65	6000002-W&S-C-G-004	BULK WATER METERS - GENERAL LAYOUT
		WATER LINES			
7	6000002-W&S-SM-P-002	LINE SB-01 PLAN AND PROFILE (SHEET 1 OF 3)			**WATER LINES**
8	6000002-W&S-SM-P-003	LINE SB-01 PLAN AND PROFILE (SHEET 2 OF 3)			**WM**
9	6000002-W&S-SM-P-004	LINE SB-01 PLAN AND PROFILE (SHEET 3 OF 3)	66	6000002-W&S-WM-P-004	LINE WM-03 PLAN AND PROFILE (SHEET 1 OF 1)
10	6000002-W&S-SM-P-005	LINE SB-04 PLAN AND PROFILE (SHEET 1 OF 2)	67	6000002-W&S-WM-P-005	LINE WM-05 PLAN AND PROFILE (SHEET 1 OF 3)
11	6000002-W&S-SM-P-006	LINE SB-04 PIPE FITTING DETAILS (SHEET 2 OF 2)	68	6000002-W&S-WM-P-006	LINE WM-05 PLAN AND PROFILE (SHEET 2 OF 3)
12	6000002-W&S-SM-P-007	LINE SB-06 PLAN AND PROFILE (SHEET 1 OF 1)	69	6000002-W&S-WM-P-007	LINE WM-05 PIPE FITTING DETAILS (SHEET 3 OF 3)
13	6000002-W&S-SM-P-007A	LINE SB-07 PLAN AND PROFILE (SHEET 1 OF 2)	70	6000002-W&S-WM-P-008	LINE WM-07 PLAN AND PROFILE (SHEET 1 OF 2)
14	6000002-W&S-SM-P-007B	LINE SB-07 PLAN AND PROFILE (SHEET 2 OF 2)	71	6000002-W&S-WM-P-009	LINE WM-07 PIPE FITTING DETAILS (SHEET 2 OF 2)
15	6000002-W&S-SM-P-008	LINE SB-10 PLAN AND PROFILE (SHEET 1 OF 3)	72	6000002-W&S-WM-P-010	LINE WM-08 PLAN AND PROFILE (SHEET 1 OF 1)
16	6000002-W&S-SM-P-009	LINE SB-10 PLAN AND PROFILE (SHEET 2 OF 3)	73	6000002-W&S-WM-P-011	LINE WM-11 PLAN AND PROFILE (SHEET 1 OF 1)
17	6000002-W&S-SM-P-010	LINE SB-10 PIPE FITTING DETAILS (SHEET 3 OF 3)	74	6000002-W&S-WM-P-012	LINE WM-12 PLAN AND PROFILE (SHEET 1 OF 5)
18	6000002-W&S-SM-P-011	LINE SB-12 PLAN AND PROFILE (SHEET 1 OF 3)	75	6000002-W&S-WM-P-013	LINE WM-12 PLAN AND PROFILE (SHEET 2 OF 5)
19	6000002-W&S-SM-P-012	LINE SB-12 PLAN AND PROFILE (SHEET 2 OF 3)	76	6000002-W&S-WM-P-014	LINE WM-12 PLAN AND PROFILE (SHEET 3 OF 5)
20	6000002-W&S-SM-P-013	LINE SB-12 PIPE FITTING DETAILS (SHEET 3 OF 3)	77	6000002-W&S-WM-P-015	LINE WM-12 PLAN AND PROFILE (SHEET 4 OF 5)
21	6000002-W&S-SM-P-014	LINE SB-13 PLAN AND PROFILE (SHEET 1 OF 4)	78	6000002-W&S-WM-P-016	LINE WM-12 PLAN AND PROFILE (SHEET 5 OF 5)
22	6000002-W&S-SM-P-015	LINE SB-13 PLAN AND PROFILE (SHEET 2 OF 4)	79	6000002-W&S-WM-P-017	LINE WM-13 PLAN AND PROFILE (SHEET 1 OF 5)
23	6000002-W&S-SM-P-016	LINE SB-13 PIPE FITTING DETAILS (SHEET 3 OF 4)	80	6000002-W&S-WM-P-018	LINE WM-13 PLAN AND PROFILE (SHEET 2 OF 5)
24	6000002-W&S-SM-P-017	LINE SB-13 PIPE FITTING DETAILS (SHEET 4 OF 4)	81	6000002-W&S-WM-P-019	LINE WM-13 PLAN AND PROFILE (SHEET 3 OF 5)
25	6000002-W&S-SM-P-018	LINE SB-15 PLAN AND PROFILE (SHEET 1 OF 2)	82	6000002-W&S-WM-P-020	LINE WM-13 PLAN AND PROFILE (SHEET 4 OF 5)
26	6000002-W&S-SM-P-019	LINE SB-15 PIPE FITTING DETAILS (SHEET 2 OF 2)	83	6000002-W&S-WM-P-021	LINE WM-13 PLAN AND PROFILE (SHEET 5 OF 5)
27	6000002-W&S-SM-P-020	LINE SB-16 PLAN AND PROFILE (SHEET 1 OF 3)	84	6000002-W&S-WM-P-022	LINE WM-14 PLAN AND PROFILE (SHEET 1 OF 4)
28	6000002-W&S-SM-P-021	LINE SB-16 PLAN AND PROFILE (SHEET 2 OF 3)	85	6000002-W&S-WM-P-023	LINE WM-14 PLAN AND PROFILE (SHEET 2 OF 4)
29	6000002-W&S-SM-P-022	LINE SB-16 PIPE FITTING DETAILS (SHEET 3 OF 3)	86	6000002-W&S-WM-P-024	LINE WM-14 PLAN AND PROFILE (SHEET 3 OF 4)
30	6000002-W&S-SM-P-023	LINE SB-18 PLAN AND PROFILE (SHEET 1 OF 2)	87	6000002-W&S-WM-P-025	LINE WM-14 PLAN AND PROFILE (SHEET 4 OF 4)
31	6000002-W&S-SM-P-024	LINE SB-18 PIPE FITTING DETAILS (SHEET 2 OF 2)	88	6000002-W&S-WM-P-026	LINE WM-17 PLAN AND PROFILE (SHEET 1 OF 1)
32	6000002-W&S-SM-P-025	LINE SB-19 PLAN AND PROFILE (SHEET 1 OF 2)	89	6000002-W&S-WM-P-027	LINE WM-18 PLAN AND PROFILE (SHEET 1 OF 1)
33	6000002-W&S-SM-P-026	LINE SB-19 PIPE FITTING DETAILS (SHEET 2 OF 2)	90	6000002-W&S-WM-P-028	LINE WM-19 PLAN AND PROFILE (SHEET 1 OF 3)
34	6000002-W&S-SM-P-027	LINE SB-20 PLAN AND PROFILE (SHEET 1 OF 2)	91	6000002-W&S-WM-P-029	LINE WM-19 PLAN AND PROFILE (SHEET 2 OF 3)
35	6000002-W&S-SM-P-028	LINE SB-20 PIPE FITTING DETAILS (SHEET 2 OF 2)	92	6000002-W&S-WM-P-030	LINE WM-19 PIPE FITTING DETAILS (SHEET 3 OF 3)
36	6000002-W&S-SM-P-029	LINE SB-23 PLAN AND PROFILE (SHEET 1 OF 2)	93	6000002-W&S-WM-P-031	LINE WM-20 PLAN AND PROFILE (SHEET 1 OF 1)
37	6000002-W&S-SM-P-030	LINE SB-23 PIPE FITTING DETAILS (SHEET 2 OF 2)	94	6000002-W&S-WM-P-032	LINE WM-21 PLAN AND PROFILE (SHEET 1 OF 1)
38	6000002-W&S-SM-P-031	LINE SB-24 PLAN AND PROFILE (SHEET 1 OF 2)			
39	6000002-W&S-SM-P-033	LINE SB-24 PLAN AND PROFILE (SHEET 2 OF 2)			
40	6000002-W&S-SM-P-034	LINE SB-26 PLAN AND PROFILE (SHEET 1 OF 2)			**WN**
41	6000002-W&S-SM-P-035	LINE SB-26 PIPE FITTING DETAILS (SHEET 2 OF 2)	95	6000002-W&S-WM-P-033	LINE WN-01 PLAN AND PROFILE (SHEET 1 OF 3)
42	6000002-W&S-SM-P-036	LINE SB-27 PLAN AND PROFILE (SHEET 1 OF 2)	96	6000002-W&S-WM-P-034	LINE WN-01 PLAN AND PROFILE (SHEET 2 OF 3)
43	6000002-W&S-SM-P-037	LINE SB-27 PIPE FITTING DETAILS (SHEET 2 OF 2)	97	6000002-W&S-WM-P-035	LINE WN-01 PIPE FITTING DETAILS (SHEET 3 OF 3)
44	6000002-W&S-SM-P-038	LINE SB-28 PLAN AND PROFILE (SHEET 1 OF 2)	98	6000002-W&S-WM-P-036	LINE WN-02 PLAN AND PROFILE (SHEET 1 OF 2)
45	6000002-W&S-SM-P-039	LINE SB-28 PIPE FITTING DETAILS (SHEET 2 OF 2)	99	6000002-W&S-WM-P-037	LINE WN-02 PIPE FITTING DETAILS (SHEET 2 OF 2)
46	6000002-W&S-SM-P-040	LINE SB-29 PLAN AND PROFILE (SHEET 1 OF 2)	100	6000002-W&S-WM-P-038	LINE WN-03 PLAN AND PROFILE (SHEET 1 OF 1)
47	6000002-W&S-SM-P-041	LINE SB-29 PIPE FITTING DETAILS (SHEET 2 OF 2)	101	6000002-W&S-WM-P-039	LINE WN-05 PLAN AND PROFILE (SHEET 1 OF 10)
48	6000002-W&S-SM-P-042	LINE SB-30 PLAN AND PROFILE (SHEET 1 OF 2)	102	6000002-W&S-WM-P-040	LINE WN-05 PLAN AND PROFILE (SHEET 2 OF 10)
49	6000002-W&S-SM-P-043	LINE SB-30 PIPE FITTING DETAILS (SHEET 2 OF 2)	103	6000002-W&S-WM-P-041	LINE WN-05 PLAN AND PROFILE (SHEET 3 OF 10)
50	6000002-W&S-SM-P-044	LINE SB-31 PLAN AND PROFILE (SHEET 1 OF 2)	104	6000002-W&S-WM-P-042	LINE WN-05 PLAN AND PROFILE (SHEET 4 OF 10)
51	6000002-W&S-SM-P-045	LINE SB-31 PIPE FITTING DETAILS (SHEET 2 OF 2)	105	6000002-W&S-WM-P-043	LINE WN-05 PLAN AND PROFILE (SHEET 5 OF 10)
52	6000002-W&S-SM-P-046	LINE SB-32 PLAN AND PROFILE (SHEET 1 OF 2)	106	6000002-W&S-WM-P-044	LINE WN-05 PLAN AND PROFILE (SHEET 6 OF 10)
53	6000002-W&S-SM-P-047	LINE SB-32 PIPE FITTING DETAILS (SHEET 2 OF 2)	107	6000002-W&S-WM-P-045	LINE WN-05 PLAN AND PROFILE (SHEET 7 OF 10)
54	6000002-W&S-SM-P-048	LINE SB-33 PLAN AND PROFILE (SHEET 1 OF 2)	108	6000002-W&S-WM-P-046	LINE WN-05 PLAN AND PROFILE (SHEET 8 OF 10)
55	6000002-W&S-SM-P-049	LINE SB-33 PIPE FITTING DETAILS (SHEET 2 OF 2)	109	6000002-W&S-WM-P-047	LINE WN-05 PLAN AND PROFILE (SHEET 9 OF 10)
56	6000002-W&S-SM-P-050	LINE SB-35 PLAN AND PROFILE (SHEET 1 OF 2)	110	6000002-W&S-WM-P-048	LINE WN-05 PLAN AND PROFILE (SHEET 10 OF 10)
57	6000002-W&S-SM-P-051	LINE SB-35 PIPE FITTING DETAILS (SHEET 2 OF 2)	111	6000002-W&S-WM-P-049	LINE WN-08 PLAN AND PROFILE (SHEET 1 OF 3)
			112	6000002-W&S-WM-P-050	LINE WN-08 PLAN AND PROFILE (SHEET 2 OF 3)
			113	6000002-W&S-WM-P-051	LINE WN-08 PLAN AND PROFILE (SHEET 3 OF 3)
		BULK WATER METERS	114	6000002-W&S-WM-P-052	LINE WN-09 PLAN AND PROFILE (SHEET 1 OF 1)
58	6000002-W&S-C-G-004A	DISTRICT METERED AREAS	115	6000002-W&S-WM-P-053	LINE WN-10 PLAN AND PROFILE (SHEET 1 OF 2)
59	6000002-W&S-C-G-004B	BULK WATER METERS WITH DIAMETERS	116	6000002-W&S-WM-P-054	LINE WN-10 PIPE FITTING DETAILS (SHEET 2 OF 2)
60	6000002-W&S-C-G-004C	ELECTROMAGNETIC METERS CHAMBER - PLAN & PIPE FITTINGS	117	6000002-W&S-WM-P-055	LINE WN-11 PLAN AND PROFILE (SHEET 1 OF 1)

NOTES

TENDER ISSUE
Signed: SLM/DOO____________

REV	REVISIONS		SIGN	DATE	APPROVED
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Project Implementing Agency:
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Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
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Drawing Title
LIST OF DRAWINGS
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-000C0
C STATUS	DRAWING No. 6000002-W&S-C-G-000 CO REV

MOMBASA WATER DISTRIBUTION PIPELINES PROJECT - LIST OF DRAWINGS

SOUTH AND WEST MAINLAND

	DRAWING No.	DESCRIPTION		DRAWING No.	DRAWING TITLE
		WP			**BULK WATER METERS**
118	6000002-W&S-WM-P-057	LINE WP-01 PLAN AND PROFILE (SHEET 1 OF 2)	143	6000002-W&S-C-G-003	DISTRICT METERED AREAS
119	6000002-W&S-WM-P-058	LINE WP-01 PIPE FITTING DETAILS (SHEET 2 OF 2)	144	6000002-W&S-C-G-003A	BULK WATER METERS WITH DIAMETERS
120	6000002-W&S-WM-P-059	LINE WP-02 PLAN AND PROFILE (SHEET 1 OF 3)	145	6000002-W&S-C-G-004C	ELECTROMAGNETIC METERS CHAMBER - PLAN & PIPE FITTINGS
121	6000002-W&S-WM-P-060	LINE WP-02 PLAN AND PROFILE (SHEET 2 OF 3)			
122	6000002-W&S-WM-P-061	LINE WP-02 PIPE FITTING DETAILS (SHEET 3 OF 3)			
123	6000002-W&S-WM-P-062	LINE WP-03 PLAN AND PROFILE (SHEET 1 OF 3)			**STANDARD DRAWINGS**
124	6000002-W&S-WM-P-063	LINE WP-03 PLAN AND PROFILE (SHEET 2 OF 3)	146	6000002-W&S-C-S-001	Chamber cover- Plan and Sections Sheet 1 Of 2
125	6000002-W&S-WM-P-064	LINE WP-03 PIPE FITTING DETAILS (SHEET 3 OF 3)	147	6000002-W&S-C-S-002	Chamber cover- Plan and Sections Sheet 2 Of 2
126	6000002-W&S-WM-P-065	LINE WP-04 PLAN AND PROFILE (SHEET 1 OF 3)	148	6000002-W&S-C-S-003	Consumer Water Supply Connection Details
127	6000002-W&S-WM-P-066	LINE WP-04 PLAN AND PROFILE (SHEET 2 OF 3)	149	6000002-W&S-C-S-004	Airvalve Chambers & Fittings Details
128	6000002-W&S-WM-P-067	LINE WP-04 PIPE FITTING DETAILS (SHEET 3 OF 3)	150	6000002-W&S-C-S-005	Washout Chamber and Pipe Fitting Details
129	6000002-W&S-WM-P-068	LINE WP-05 PLAN AND PROFILE (SHEET 1 OF 3)	151	6000002-W&S-C-S-006	Fire Hydrant Details
130	6000002-W&S-WM-P-069	LINE WP-05 PLAN AND PROFILE (SHEET 2 OF 3)	152	6000002-W&S-C-S-007	Typical Road Section Details
131	6000002-W&S-WM-P-070	LINE WP-05 PIPE FITTING DETAILS (SHEET 3 OF 3)	153	6000002-W&S-C-S-008	Thrust and Anchor blocks Details
132	6000002-W&S-WM-P-071	LINE WP-08 PLAN AND PROFILE (SHEET 1 OF 1)	154	6000002-W&S-C-S-009	Typical Crossings Details
133	6000002-W&S-WM-P-072	LINE WP-09 PLAN AND PROFILE (SHEET 1 OF 2)	155	6000002-W&S-C-S-010	Fence & Gate Details
134	6000002-W&S-WM-P-073	LINE WP-09 PLAN AND PROFILE (SHEET 2 OF 2)	156	6000002-W&S-C-S-011	Marker Posts Details
135	6000002-W&S-WM-P-074	LINE WP-10 PLAN AND PROFILE (SHEET 1 OF 2)	157	6000002-W&S-C-S-012	Project Signboard Details
136	6000002-W&S-WM-P-075	LINE WP-10 PLAN AND PROFILE (SHEET 2 OF 2)			
137	6000002-W&S-WM-P-076	LINE WP-14 PLAN AND PROFILE (SHEET 1 OF 2)			
138	6000002-W&S-WM-P-077	LINE WP-14 PLAN AND PROFILE (SHEET 2 OF 2)			
139	6000002-W&S-WM-P-078	LINE WP-15 PLAN AND PROFILE (SHEET 1 OF 2)			
140	6000002-W&S-WM-P-079	LINE WP-15 PLAN AND PROFILE (SHEET 2 OF 2)			
141	6000002-W&S-WM-P-080	ADDITIONAL PIPELINES - GENERAL LAYOUT			
142	6000002-W&S-WM-P-081	PIPE FITTINGS FOR ADDITIONAL LINES			

NOTES

TENDER ISSUE

Signed: SLM/DOO____________

REV	REVISIONS		SIGN	DATE	APPROVED
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Project Implementing Agency:

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MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

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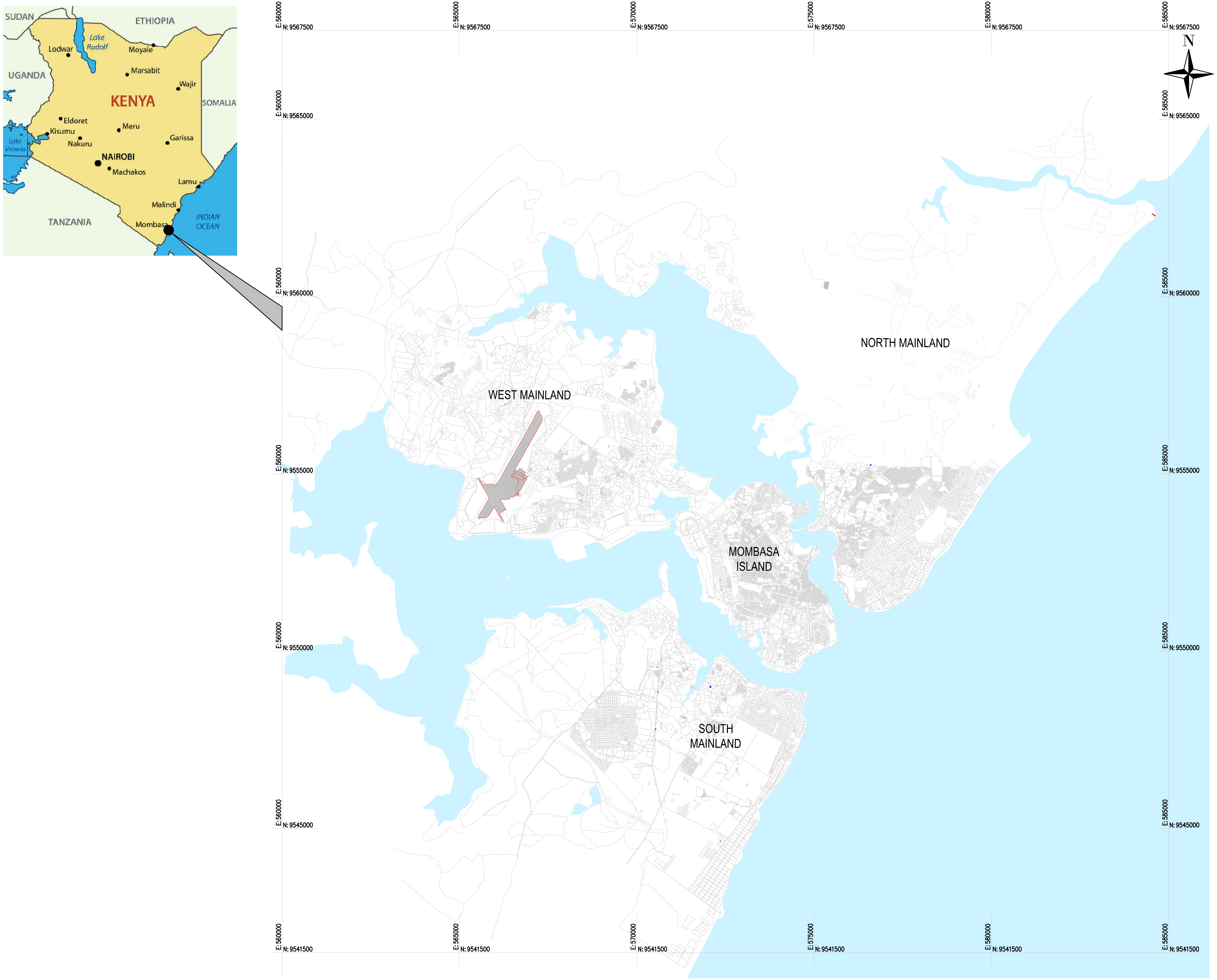
Nairobi.

Drawing Title

LIST OF DRAWINGS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-000AC0

C STATUS | DRAWING No. 6000002-W&S-C-G-000A | C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 5000 METER INTERVALS.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
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C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

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Program & Project Title.

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IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
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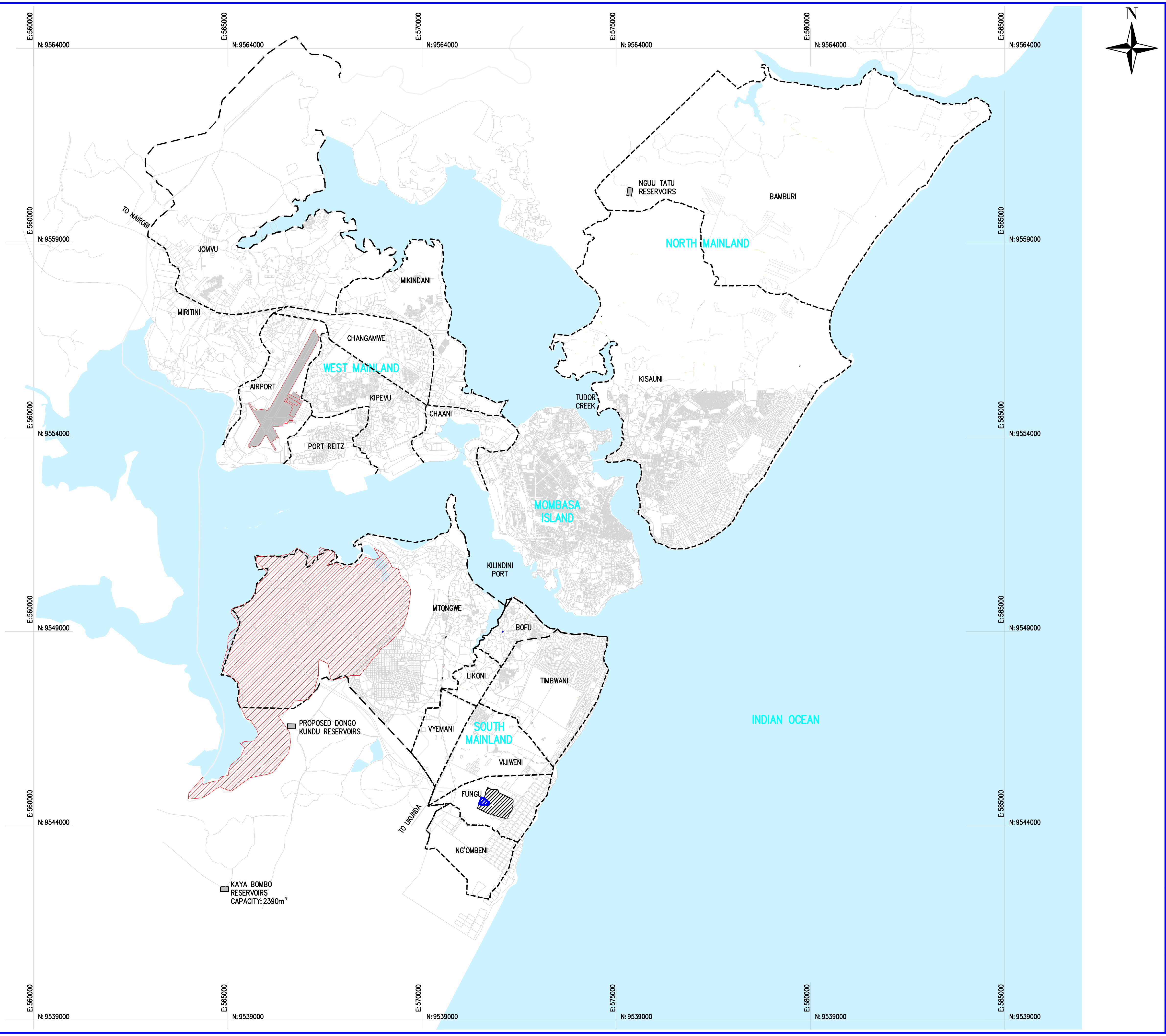
Nairobi.

Drawing Title

MOMBASA WATER DISTRIBUTION
PIPELINES
PROJECT LOCATION PLAN

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-001C0
C STATUS	DRAWING No. 6000002-W&S-C-G-001	C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 5000 METER INTERVALS.

LEGEND:

- - -	SUB-LOCATION BOUNDARIES
▨	DONGO KUNDU SPECIAL ECONOMIC ZONE
▨	50Ha PROPOSED WWTP LAND
▨	3.5Ha PROPOSED FAECAL SLUDGE MANAGEMENT FACILITY

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
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Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

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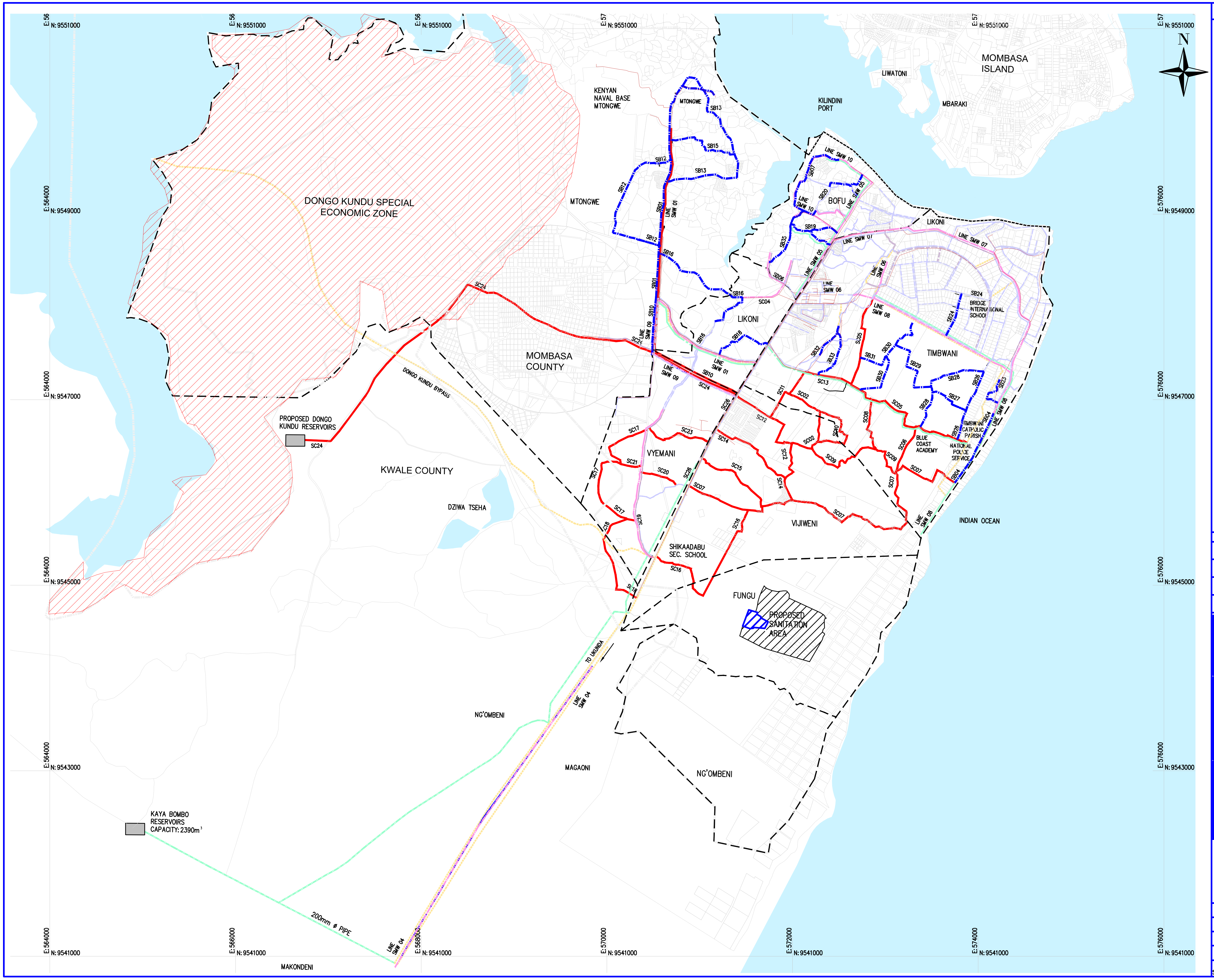
Drawing Title

MOMBASA WATER DISTRIBUTION PIPELINES – SUB LOCATION BOUNDARIES GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-002C0
C STATUS	DRAWING No. 6000002-W&S-C-G-002 CO REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

🟥	PROPOSED 2030 WATER PIPELINES
▬	PROPOSED 2020 WATER PIPELINES
▬	EXISTING WATER LINES
▬	SUB–LOCATION BOUNDARIES
▬	WORKS UNDER IMPLEMENTATION BY MOWASCO
▬	MOWASCO PROJECT – WSDP
▬	MOWASCO PROJECT – KWSCRP
▬	WASSIP
▨	DONGO KUNDU SPECIAL ECONOMIC ZONE
▨	50Ha PROPOSED WWTP LAND
▨	3.5Ha PROPOSED FAECAL SLUDGE MANAGEMENT FACILITY

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
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Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

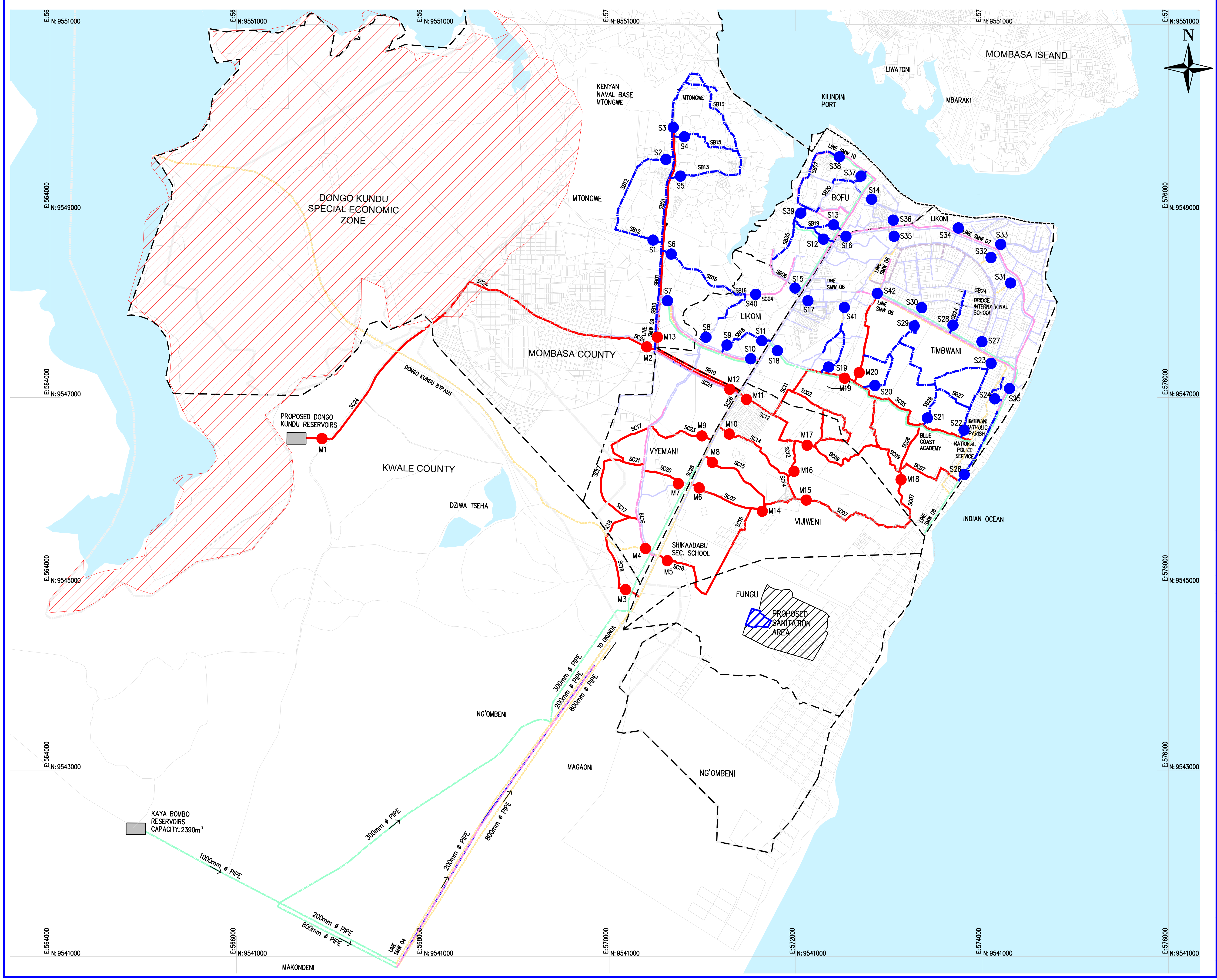
INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

MOMBASA WATER DISTRIBUTION PIPELINES – SOUTH MAINLAND GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–C–G–003C0
C STATUS	DRAWING No. 6000002–W&S–C–G–003 C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

🟥	PROPOSED 2030 WATER PIPELINES
🟦	PROPOSED 2020 WATER PIPELINES
🟨	EXISTING WATER LINES
▬ ▬	SUB-LOCATION BOUNDARIES
▬ ▬	WORKS UNDER IMPLEMENTATION BY MOWASCO
▬ ▬	MOWASCO PROJECT – WSDP
▬ ▬	MOWASCO PROJECT – KWSCRP
▬ ▬	WASSIP
▨	DONGO KUNDU SPECIAL ECONOMIC ZONE
▨	50Ha PROPOSED WWTP LAND
▨	3.5Ha PROPOSED FAECAL SLUDGE MANAGEMENT FACILITY
● M1	MEDIUM–TERM BULK METERS
● S1	SHORT–TERM BULK METERS

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

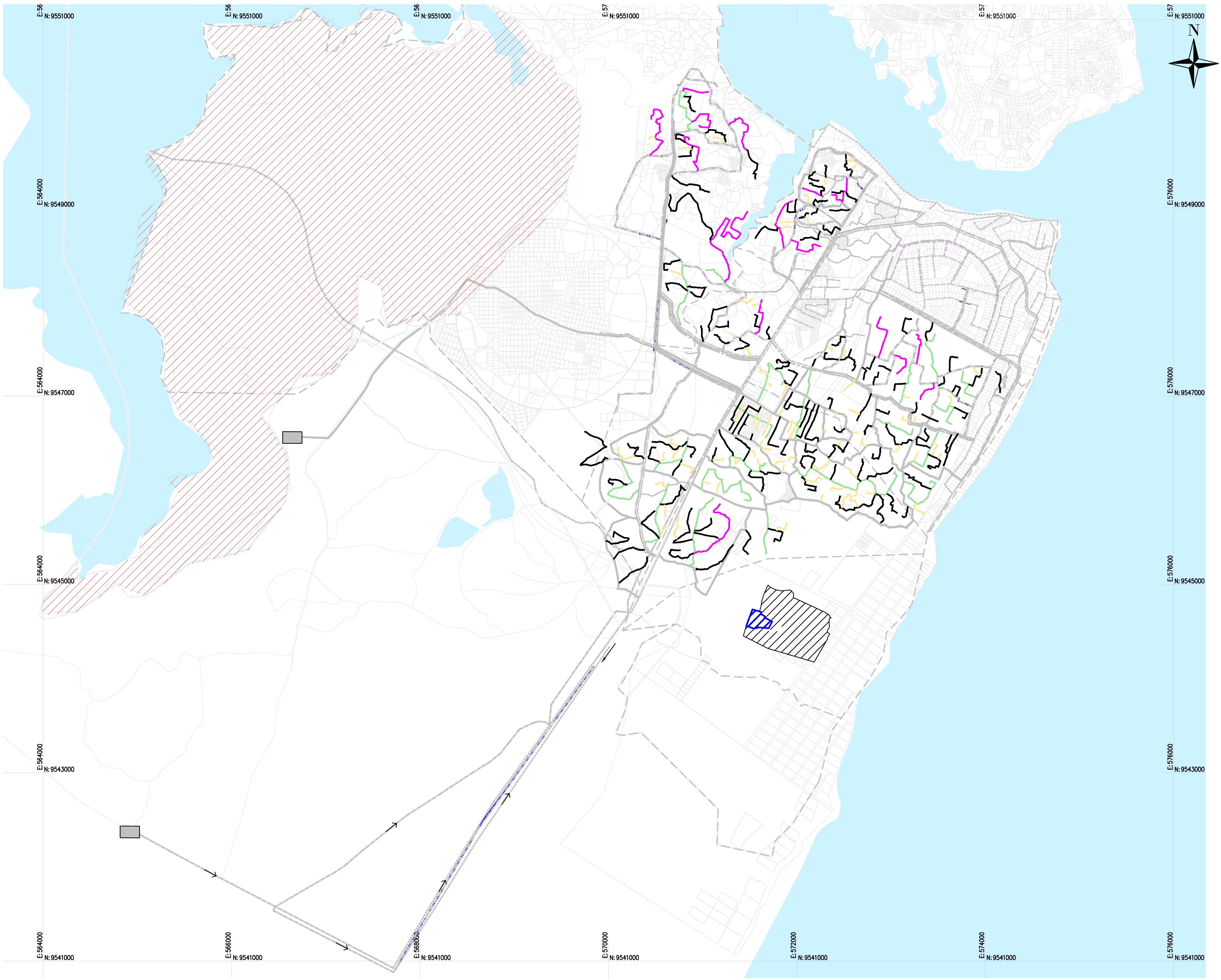
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND
BULK WATER METERS
GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–C–G–004C0
C STATUS	DRAWING No. 6000002–W&S–C–G–004 C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

🟩	PROPOSED 90mm HDPE PIPE
■	PROPOSED 50mm HDPE PIPE
🟪	PROPOSED 75mm HDPE PIPE
🟨	PROPOSED 32mm HDPE PIPE

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

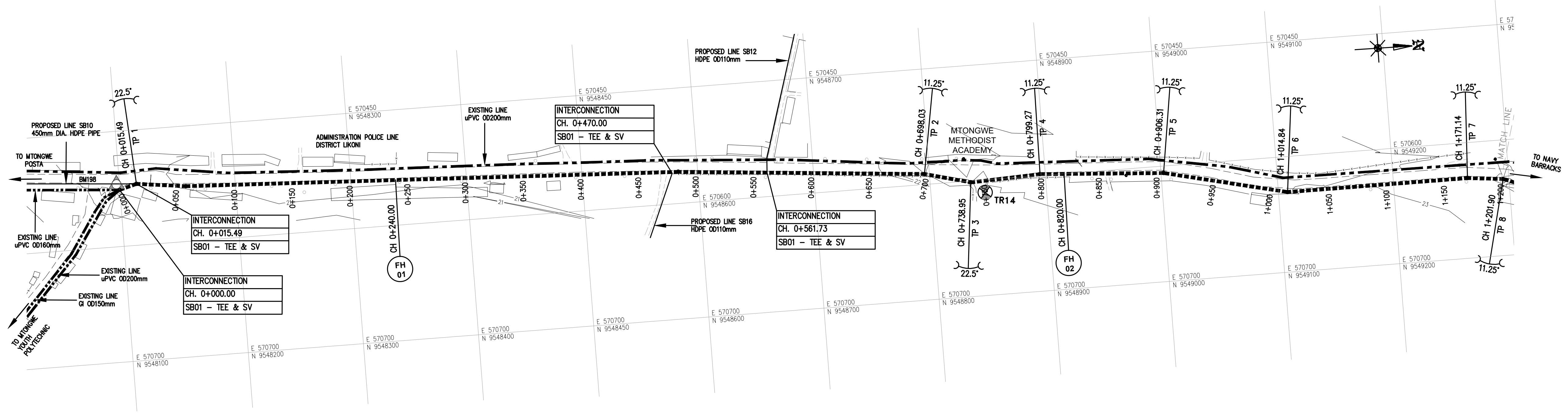
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

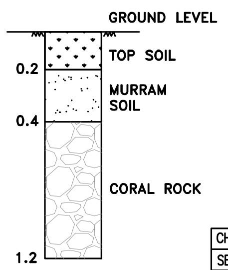
SOUTH MAINLAND
TERTIARY LINES
GENERAL LAYOUT

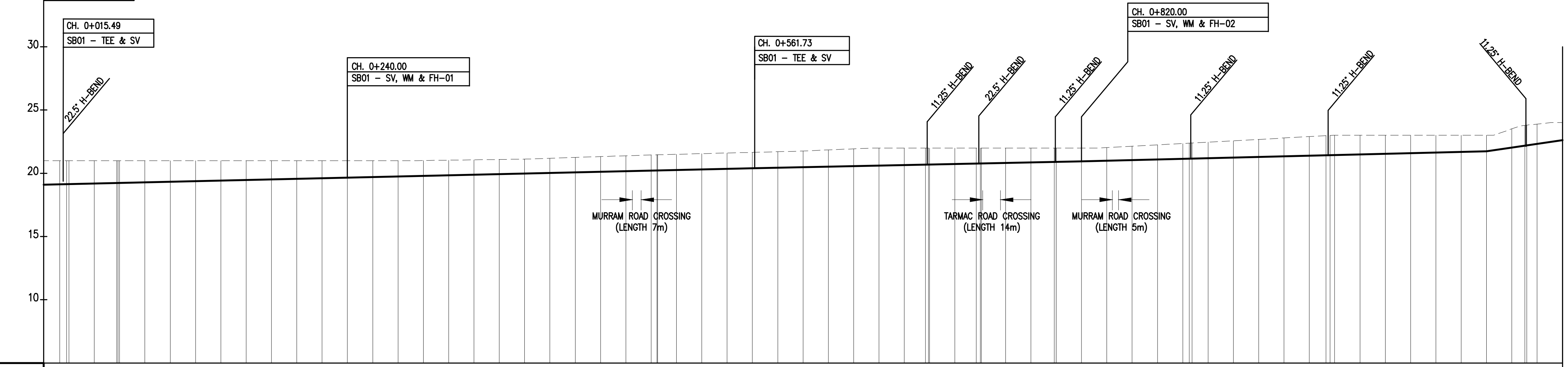
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-005C0
C STATUS	DRAWING No. 6000002-W&S-C-G-005	C0 REV



PLAN

SCALE HOR 1:2000


TRIAL HOLE TR14 DETAILS



TYPE AND SIZE OF PIPE	DN 450mm HDPE PIPE TO PN 10
GEOLOGICAL CONDITION	MURRAM SOIL UNDERLAIN WITH CORAL ROCK

CHAINAGES (M)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)
0+000	21.00	19.10	1.90
0+020	21.00	19.15	1.85
0+040	21.00	19.19	1.81
0+060	21.00	19.24	1.76
0+080	21.00	19.29	1.71
0+100	21.00	19.33	1.67
0+120	21.00	19.38	1.62
0+140	21.00	19.43	1.57
0+160	21.00	19.47	1.53
0+180	21.00	19.52	1.48
0+200	21.00	19.56	1.44
0+220	21.00	19.61	1.39
0+240	21.00	19.66	1.34
0+260	21.00	19.70	1.30
0+280	21.00	19.75	1.25
0+300	21.01	19.80	1.21
0+320	21.03	19.84	1.19
0+340	21.06	19.89	1.17
0+360	21.09	19.94	1.15
0+380	21.12	19.98	1.14
0+400	21.19	20.03	1.16
0+420	21.25	20.07	1.18
0+440	21.32	20.12	1.20
0+460	21.39	20.17	1.22
0+480	21.45	20.21	1.23
0+500	21.50	20.26	1.24
0+520	21.55	20.31	1.24
0+540	21.60	20.35	1.25
0+560	21.65	20.40	1.25
0+580	21.71	20.44	1.27
0+600	21.76	20.48	1.28
0+620	21.85	20.52	1.32
0+640	21.93	20.56	1.37
0+660	22.00	20.61	1.39
0+680	22.00	20.65	1.35
0+700	22.00	20.69	1.31
0+720	22.00	20.73	1.27
0+740	22.00	20.77	1.23
0+760	22.00	20.81	1.19
0+780	22.00	20.85	1.15
0+800	22.00	20.89	1.11
0+820	22.00	20.93	1.07
0+840	22.03	20.98	1.04
0+860	22.14	21.04	1.10
0+880	22.25	21.09	1.16
0+900	22.35	21.14	1.22
0+920	22.46	21.19	1.27
0+940	22.57	21.24	1.33
0+960	22.68	21.29	1.39
0+980	22.79	21.34	1.45
1+000	22.90	21.39	1.51
1+020	23.00	21.44	1.56
1+040	23.00	21.49	1.51
1+060	23.00	21.54	1.46
1+080	23.00	21.59	1.41
1+100	23.00	21.64	1.36
1+120	23.00	21.69	1.31
1+140	23.00	21.74	1.26
1+160	23.51	22.03	1.48
1+180	23.89	22.32	1.57
1+200	24.00	22.61	1.39

SLOPE OF PIPE (%): 0.23% (0+000 – 0+560); 0.21% (0+560 – 0+820); 0.25% (0+820 – 1+140); 1.46% (1+140 – 1+200)

REFERENCE PEG No.: TP 1 (0+015); TP 2 (0+698); TP 3 (0+739); TP 4 (0+799); TP 5 (0+906); TP 6 (1+015); TP 7 (1+171)

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:450
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM198 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM198	570,545.95	9,548,097.43	20.59

LEGEND:

	ROAD (TARMAC)
	ROAD/TRACK (EARTH/CABRO/MURRAM)
—x—x—x—	FENCE / HEDGE
14	CONTOURS, lm INTERVAL
	ELECTRIC POST
	CULVERT
	GATE
	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

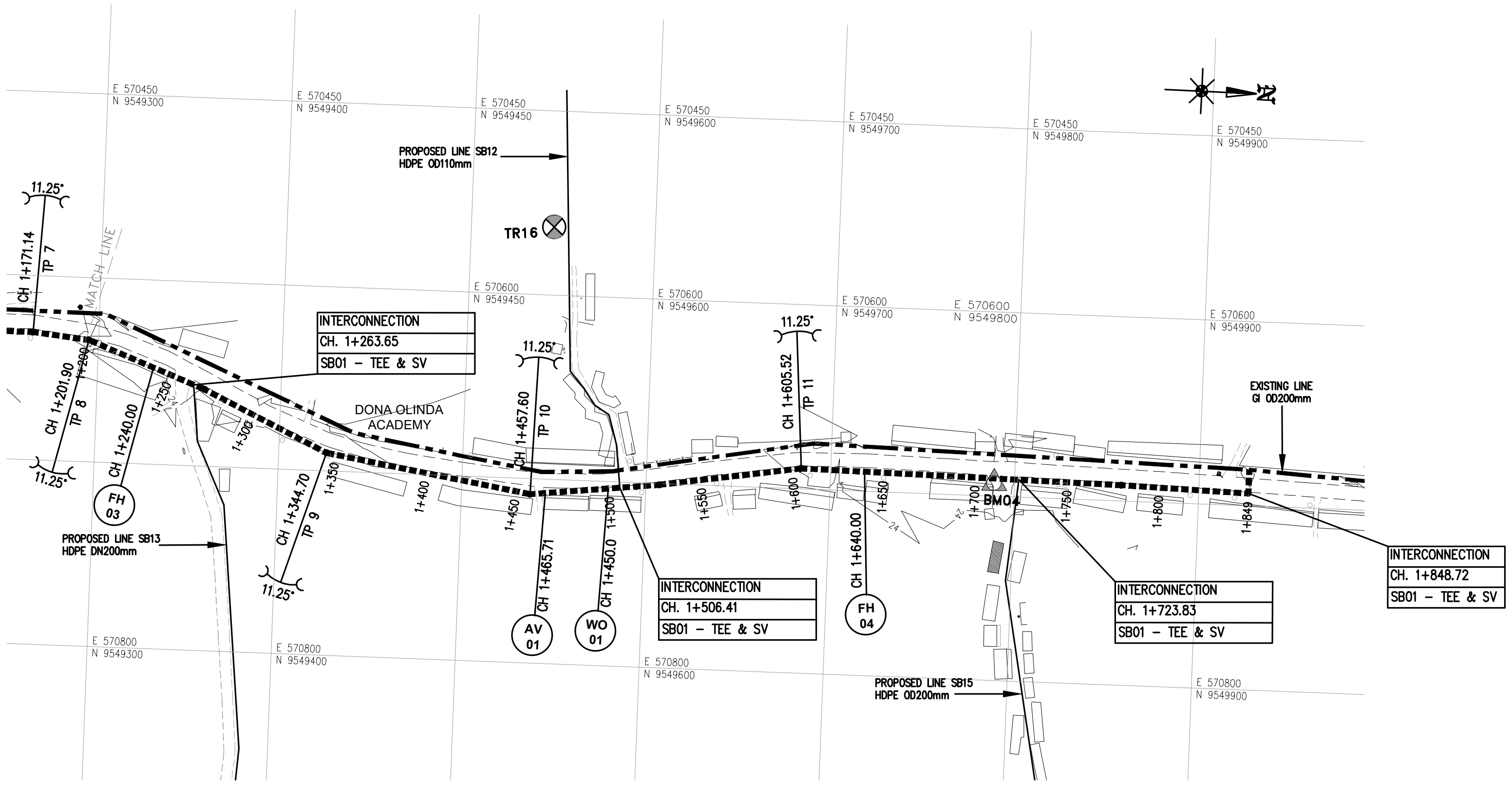
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB01
PLAN AND PROFILE
(CH. 0+000–1+200)
SHEET 1 OF 3

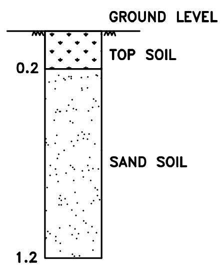
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-002C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-002	C0 REV

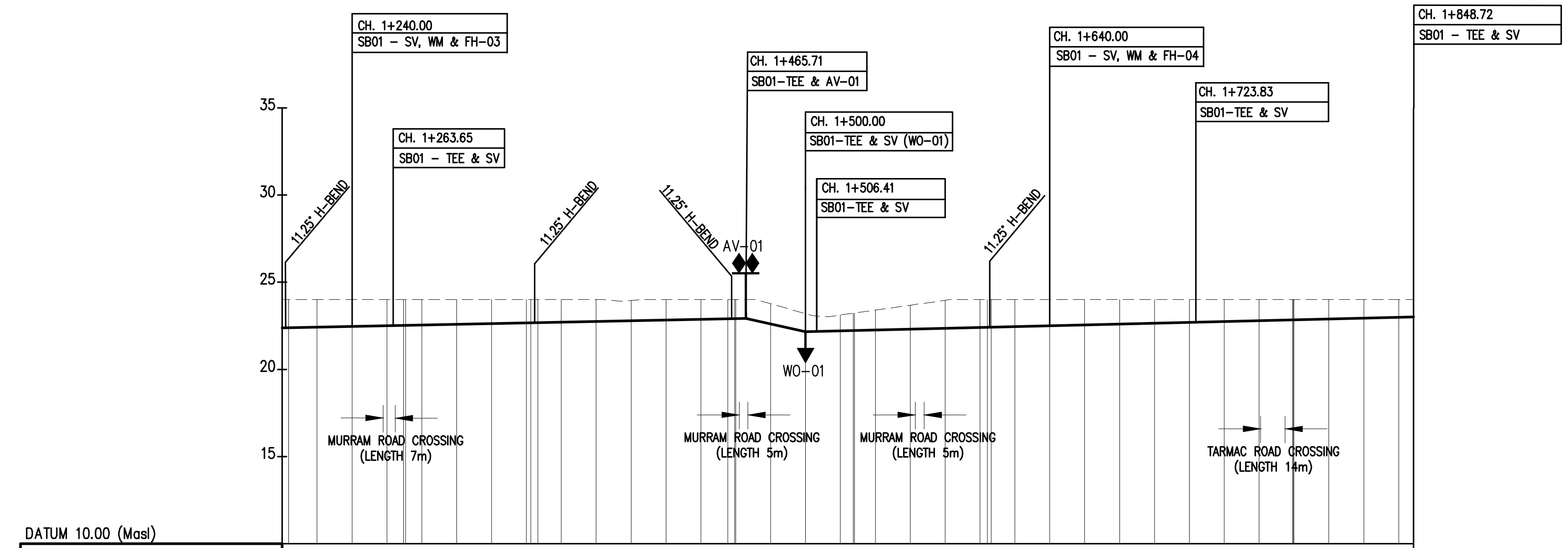


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR16 DETAILS





DATUM 10.00 (Masl)

TYPE AND SIZE OF PIPE	DN 450 HDPE PIPE TO PN 10										
GEOLOGICAL CONDITION	MURRAM SOIL UNDERLAIN WITH CORAL ROCK										
EXISTING GROUND LEVEL (m)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	23.95
INVERT LEVELS (m)	22.39	22.43	22.47	22.51	22.55	22.59	22.63	22.67	22.71	22.75	22.79
CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400
DEPTH OF INVERT (m)	1.61	1.57	1.53	1.49	1.45	1.41	1.37	1.33	1.29	1.25	1.16
SLOPE OF PIPE (%)	0.20%										
REFERENCE PEG No.	TP 8							TP 9			

EXISTING GROUND LEVEL (m)	24.00	24.00	24.00	23.76	23.19	23.12	23.40	23.68	23.96	24.00	24.00
INVERT LEVELS (m)	22.83	22.87	22.91	22.60	22.16	22.21	22.26	22.31	22.36	22.41	22.46
CHAINAGES (M)	1+420	1+440	1+460	1+480	1+500	1+520	1+540	1+560	1+580	1+600	1+620
DEPTH OF INVERT (m)	1.17	1.13	1.09	1.16	1.03	0.91	1.14	1.37	1.60	1.59	1.54
SLOPE OF PIPE (%)			−2.21%		0.24%						
REFERENCE PEG No.			TP 10							TP 11	

EXISTING GROUND LEVEL (m)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
INVERT LEVELS (m)	22.50	22.55	22.60	22.65	22.70	22.75	22.80	22.85	22.90	22.95	22.99	23.02
CHAINAGES (M)	1+640	1+660	1+680	1+700	1+720	1+740	1+760	1+780	1+800	1+820	1+840	1+848
DEPTH OF INVERT (m)	1.50	1.45	1.40	1.35	1.30	1.25	1.20	1.15	1.10	1.05	1.01	0.98
SLOPE OF PIPE (%)												
REFERENCE PEG No.												

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:450
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM198 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM198	570,545.95	9,548,097.43	20.59

LEGEND:

– – – – – –	ROAD (TARMAC)
- - - - - - -	ROAD/TRACK (EARTH/CABRO/MURRAM)
–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▬ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

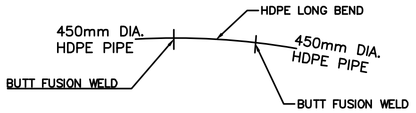
SOUTH MAINLAND – LINE SB01
PLAN AND PROFILE
(CH. 1+200–1+848.72)
SHEET 2 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-003C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-003 | C0 REV

DETAIL

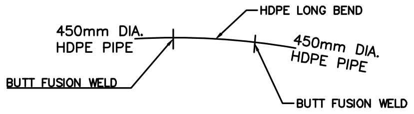
CH. 0+015.49 & 0+738.95
LINE SB01 - 22.5° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+698.03, 0+799.27, 0+906.31, 1+014.84, 1+171.14, 1+201.90, 1+344.70, 1+457.60 & 1+605.52
LINE SB02 - 11.25° H.BEND

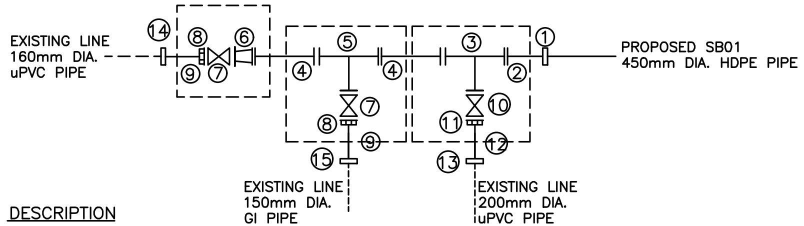


DESCRIPTION
9 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200, 1450x1450, 1450x1450

DETAIL

CH. 0+000.00
SB01 - INTERCONNECTION



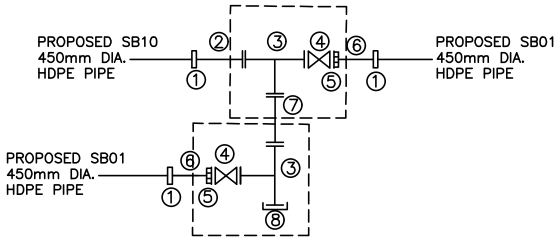
DESCRIPTION
1 No. REQUIRED

① 1 No. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑤ 1 No. 400x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 400x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑧ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑨ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑪ 1 No. 200mm DIA. FLANGE ADAPTOR
⑫ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑬ 1 No. 200/200mm DIA. STEPPED COUPLING
⑭ 1 No. 160/150mm DIA. STEPPED COUPLING
⑮ 1 No. 150mm DIA. STRAIGHT COUPLING

CHAMBER SIZE, 2No.
1450x1450

DETAIL

CH. 0+015.49
LINE SB01 - INTERCONNECTION



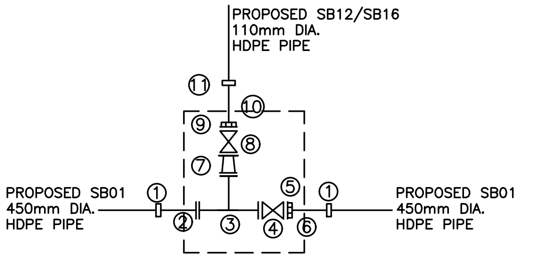
DESCRIPTION
1 No. REQUIRED

① 3 Nos. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 No. 400x400mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 400mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 400mm DIA. FLANGE ADAPTER
⑥ 2 Nos. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑧ 1 No. 400mm DIA. BLANK FLANGE

CHAMBER SIZE
1450x1450

DETAIL

CH. 0+470.00, 0+561.73 & 1+506.41
LINE SB01 - INTERCONNECTION



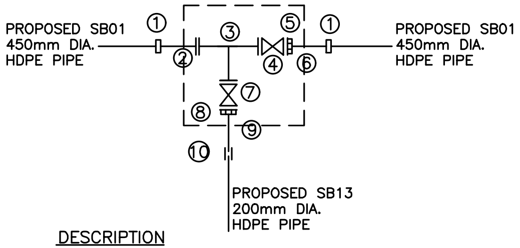
DESCRIPTION
3 Nos. REQUIRED

① 2 Nos. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 400mm DIA. FLANGE ADAPTOR
⑥ 1 No. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑧ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑨ 1 No. 100mm DIA. FLANGE ADAPTOR
⑩ 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑪ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1450x1450

DETAIL

CH. 1+263.65
LINE SB01 - INTERCONNECTION



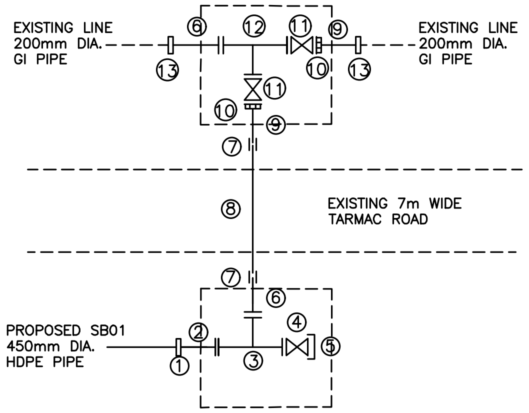
DESCRIPTION
1 No. REQUIRED

① 2 Nos. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 400mm DIA. FLANGE ADAPTOR
⑥ 1 No. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 200mm DIA. FLANGE ADAPTOR
⑨ 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 200mm DIA. STRAIGHT COUPLING

CHAMBER SIZE
1450x1450, 1450x1450

DETAIL

CH. 1+848.72
LINE SB01 - INTERCONNECTION



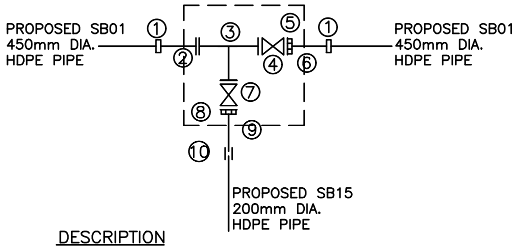
DESCRIPTION
1 No. REQUIRED

① 1 No. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 400mm DIA. BLANK FLANGE
⑥ 2 Nos. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 2 Nos. 200mm DIA. STRAIGHT COUPLING
⑧ 1 No. 200mm DIA. HDPE PIPE INSIDE STEEL ROAD CROSSING SLEEVE 13m LONG (CUT TO SUIT ON SITE)
⑨ 2 Nos. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 2 Nos. 200mm DIA. FLANGE ADAPTOR
⑪ 2 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑫ 1 No. 200x200mm DIA. ALL FLANGED STEEL TEE
⑬ 2 Nos. 200/200mm DIA. STEPPED COUPLING

CHAMBER SIZE
1450x1450

DETAIL

CH. 1+723.83
LINE SB01 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 2 Nos. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 400mm DIA. FLANGE ADAPTOR
⑥ 1 No. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 200mm DIA. FLANGE ADAPTOR
⑨ 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 200mm DIA. STRAIGHT COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌐ ¬	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

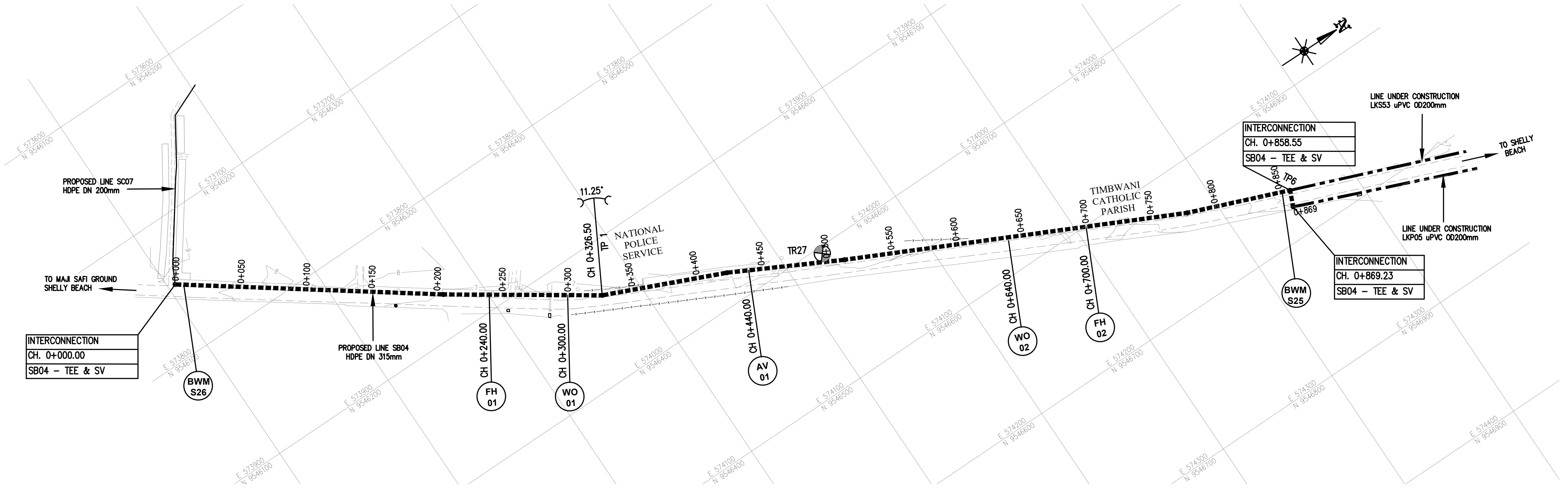
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

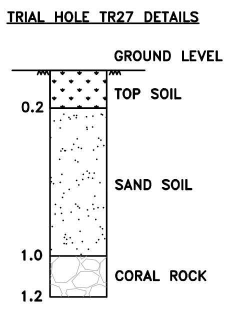
Drawing Title
SOUTH MAINLAND – LINE SB01
PIPE FITTING DETAILS
SHEET 3 OF 3

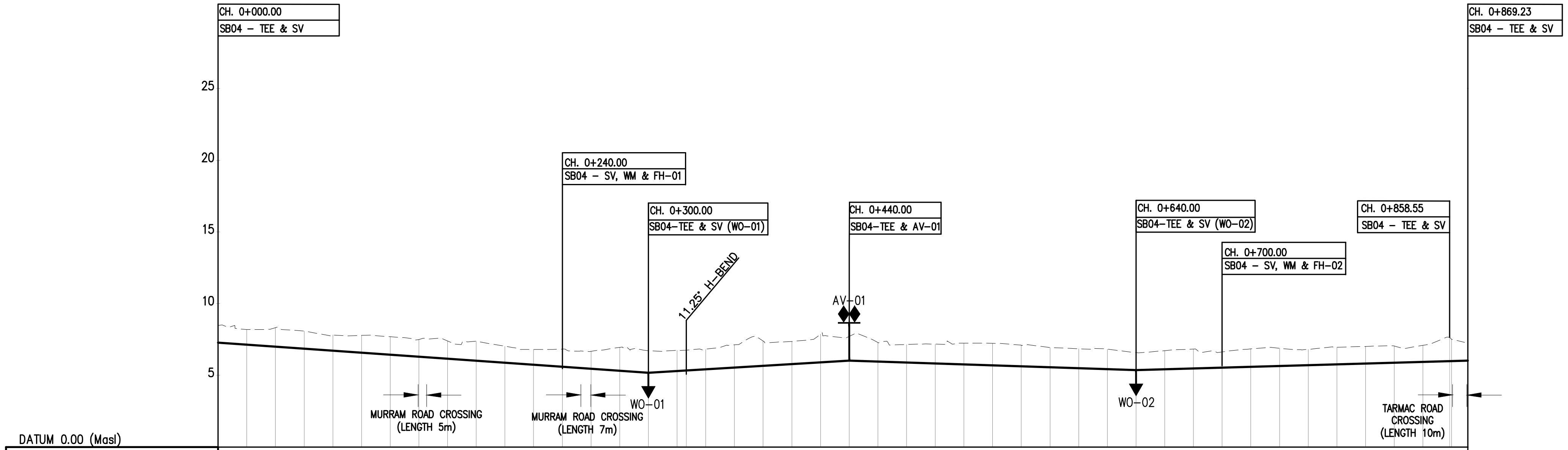
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-004C0
C STATUS	DRAWING No. **6000002-W&S-SM-P-004** C0 REV



PLAN

SCALE HOR 1:2000





DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE	DN 315 HDPE PIPE TO PN 10
GEOLOGICAL CONDITION	SAND SOIL UNDERLAIN WITH CORAL ROCK

EXISTING GROUND LEVEL (m)	8.48	8.19	8.33	8.08	7.81	7.78	7.69	7.50	7.40	7.37	7.03	6.80	6.83	6.68	6.95	6.72
INVERT LEVELS (m)	7.28	7.14	7.00	6.86	6.72	6.58	6.44	6.30	6.16	6.02	5.88	5.74	5.60	5.46	5.32	5.18
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00
DEPTH OF INVERT (m)	1.20	1.06	1.33	1.23	1.10	1.20	1.25	1.20	1.24	1.35	1.15	1.06	1.23	1.22	1.63	1.54
SLOPE OF PIPE (%)	-0.70%															
REFERENCE PEG NO.																

EXISTING GROUND LEVEL (m)	6.73	6.75	6.81	7.12	7.39	7.36	7.87	7.71	7.28	7.15	7.17	7.25	7.23	7.10	6.94	6.85
INVERT LEVELS (m)	5.30	5.34	5.42	5.54	5.67	5.79	5.91	6.03	5.96	5.90	5.83	5.76	5.70	5.63	5.56	5.49
CHAINAGE (m)	0+320.00	0+326.50	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+600.00
DEPTH OF INVERT (m)	1.43	1.41	1.39	1.58	1.73	1.57	1.97	1.68	1.32	1.25	1.34	1.48	1.54	1.47	1.38	1.36
SLOPE OF PIPE (%)	0.61%								-0.33%							
REFERENCE PEG NO.		TP 1														

EXISTING GROUND LEVEL (m)	6.82	6.58	6.72	6.82	6.63	6.84	6.89	6.81	6.95	7.02	7.05	7.09	7.64	7.51	7.23
INVERT LEVELS (m)	5.43	5.36	5.42	5.48	5.53	5.59	5.65	5.71	5.76	5.82	5.88	5.94	5.99	6.00	6.03
CHAINAGE (m)	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00	0+800.00	0+820.00	0+840.00	0+858.55	0+860.00	0+869.23
DEPTH OF INVERT (m)	1.40	1.22	1.30	1.35	1.10	1.25	1.24	1.10	1.18	1.19	1.17	1.15	1.65	1.51	1.20
SLOPE OF PIPE (%)			0.29%												
REFERENCE PEG NO.															

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
– – – –	FOOTPATH
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
⋈	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB04
PLAN AND PROFILE
(CH. 0+000–0+869.23)
SHEET 1 OF 2

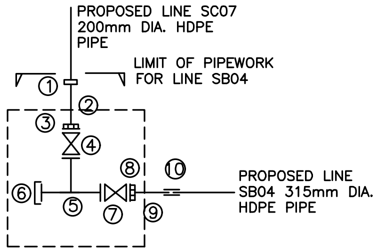
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–005C0

C STATUS | DRAWING No. 6000002–W&S–SM–P–005 | C0 REV

CHAMBER SIZE
1500x1500

DETAIL

CH. 0+000.00
LINE SB04 - INTERCONNECTION



DESCRIPTION

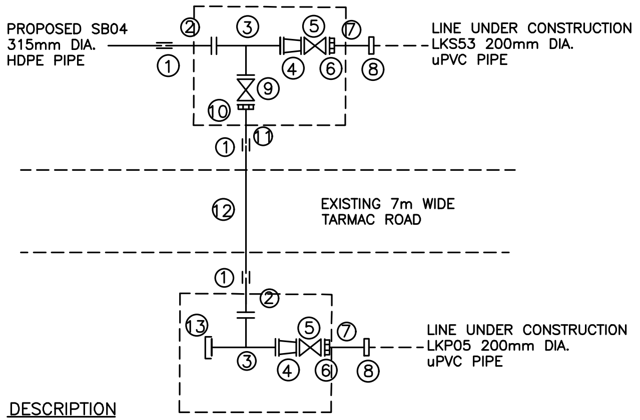
1 No. REQUIRED

① 1 No. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 200mm DIA. FLANGE ADAPTOR
④ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 300x200mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 300mm DIA. BLANK FLANGE
⑦ 1 No. 300mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 300mm DIA. FLANGE ADAPTOR
⑨ 1 No. 300mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 315/300mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1500, 1500x1500

DETAIL

CH. 0+871.26
LINE SB04 - INTERCONNECTION



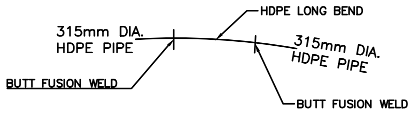
DESCRIPTION

1 No. REQUIRED

① 3 Nos. 315/300mm DIA. STEPPED COUPLING
② 2 Nos. 300mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 300x300mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 300x200mm DIA. ALL FLANGED CONCENTRIC TAPER
⑤ 2 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑥ 2 Nos. 200mm DIA. FLANGE ADAPTOR
⑦ 2 Nos. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑧ 2 Nos. 200/200mm DIA. STEPPED COUPLING
⑨ 1 No. 300mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 300mm DIA. FLANGE ADAPTOR
⑪ 1 No. 300mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 315mm DIA. HDPE PIPE INSIDE STEEL ROAD CROSSING SLEEVE 13m LONG (CUT TO SUIT ON SITE)
⑬ 1 No. 300mm DIA. BLANK FLANGE

DETAIL

CH. 0+326.50
LINE SB04 - 11.25° H.BEND



DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

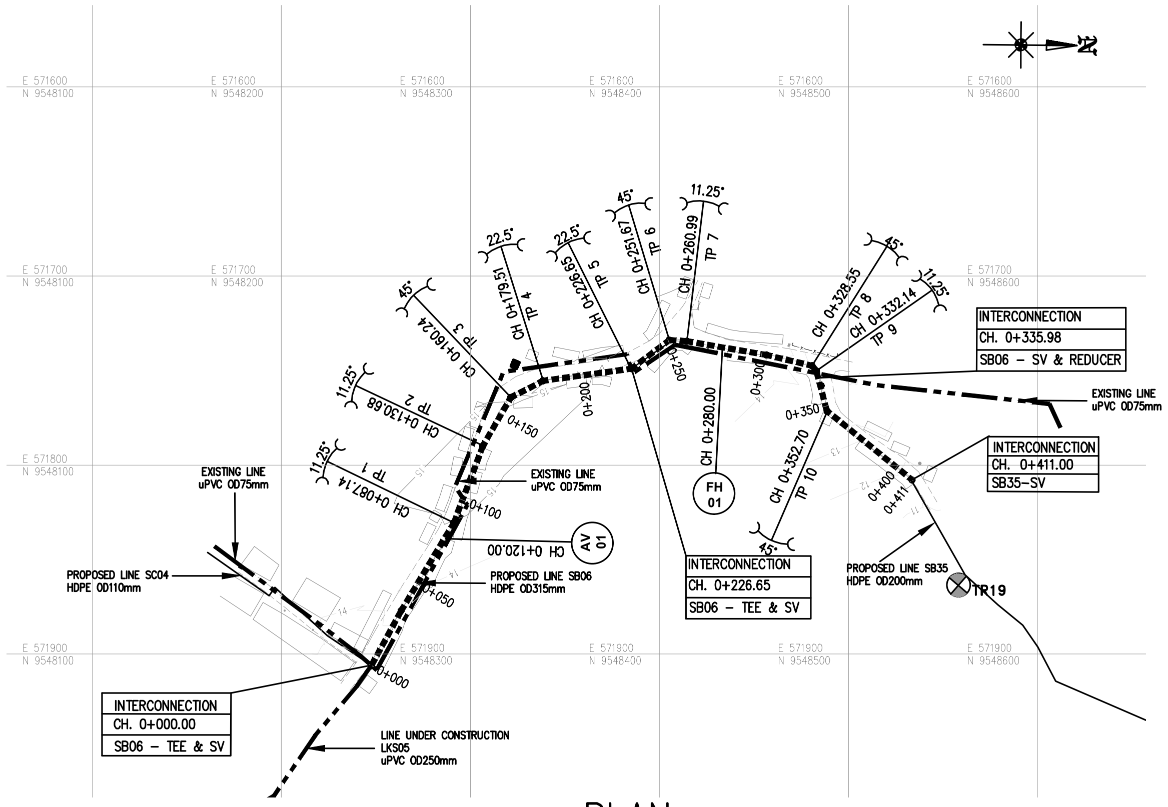
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB04
PIPE FITTING DETAILS
SHEET 2 OF 2

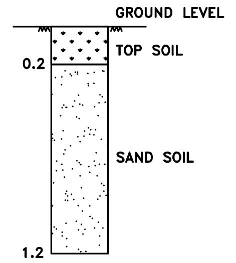
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-006C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-006 — C0 REV

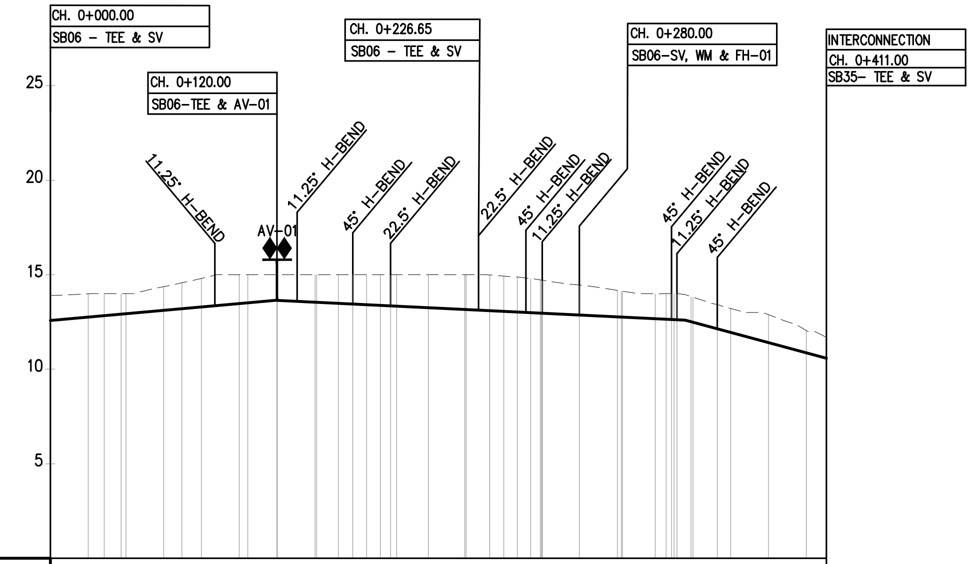


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR19 DETAILS





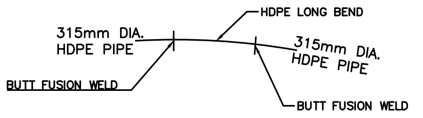
DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE	DN 315 HDPE PIPE TO PN 10																					
GEOLOGICAL CONDITION	SAND SOIL																					
EXISTING GROUND LEVEL (m)	13.90	13.98	14.00	14.37	14.80	15.00	15.00	15.00	15.00	15.00	15.00	14.99	14.93	14.72	14.45	14.17	13.99	13.81	13.22	12.89	12.05	11.69
INVERT LEVELS (m)	12.58	12.76	12.94	13.12	13.29	13.47	13.64	13.55	13.45	13.35	13.26	13.16	13.06	12.97	12.87	12.78	12.68	12.49	11.95	11.41	10.87	10.59
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+411
DEPTH OF INVERT (m)	1.32	1.23	1.07	1.25	1.51	1.53	1.36	1.45	1.55	1.65	1.74	1.83	1.87	1.75	1.58	1.40	1.31	1.31	1.26	1.48	1.18	1.10
SLOPE OF PIPE (%)	0.89%							-0.48%											-2.71%			
REFERENCE PEG No.	TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 7 TP 8 TP 9 TP 10																					

LONGITUDINAL PROFILE

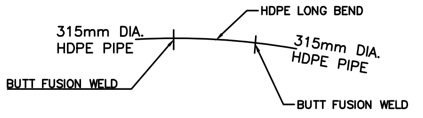
SCALE HOR 1:2000 VERT 1:200

DETAIL CH. 0+087.14, 0+130.68, 0+260.99 & 0+332.14
LINE SB06 - 11.25° H.BEND



DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

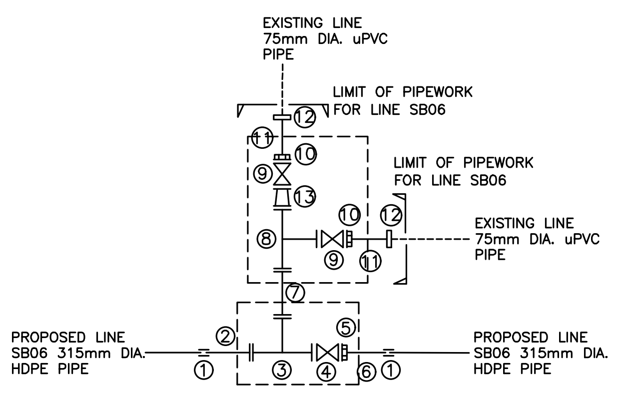
DETAIL CH. 0+179.51 & 0+226.65
LINE SB06 - 22.5° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1500x1500, 1200x1200

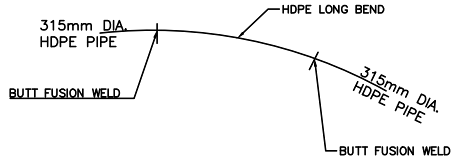
DETAIL CH. 0+226.65
LINE SB06 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 2 No. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 250x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250mm DIA. FLANGE ADAPTOR
⑥ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑦ 1 No. 150mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH PUDDLE FLANGE
⑧ 1 No. 150x80mm DIA. ALL FLANGED STEEL TEE
⑨ 2 Nos. 80mm DIA. ALL FLANGED SLUICE VALVE
⑩ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
⑪ 2 Nos. 80mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG WITH PUDDLE FLANGE
⑫ 2 Nos. 75/80mm DIA. STEPPED COUPLING
⑬ 1 No. 150x80mm DIA. ALL FLANGED CONCENTRIC TAPER

DETAIL CH. 0+160.24, 0+251.67 & 0+328.55
LINE SB06 - 45° H.BEND



DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – – – –	ROAD (TARMAC)
– – – – – –	ROAD / TRACK (EARTH / MURRAM)
– – – – – –	FOOTPATH
–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

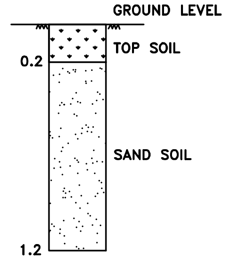
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

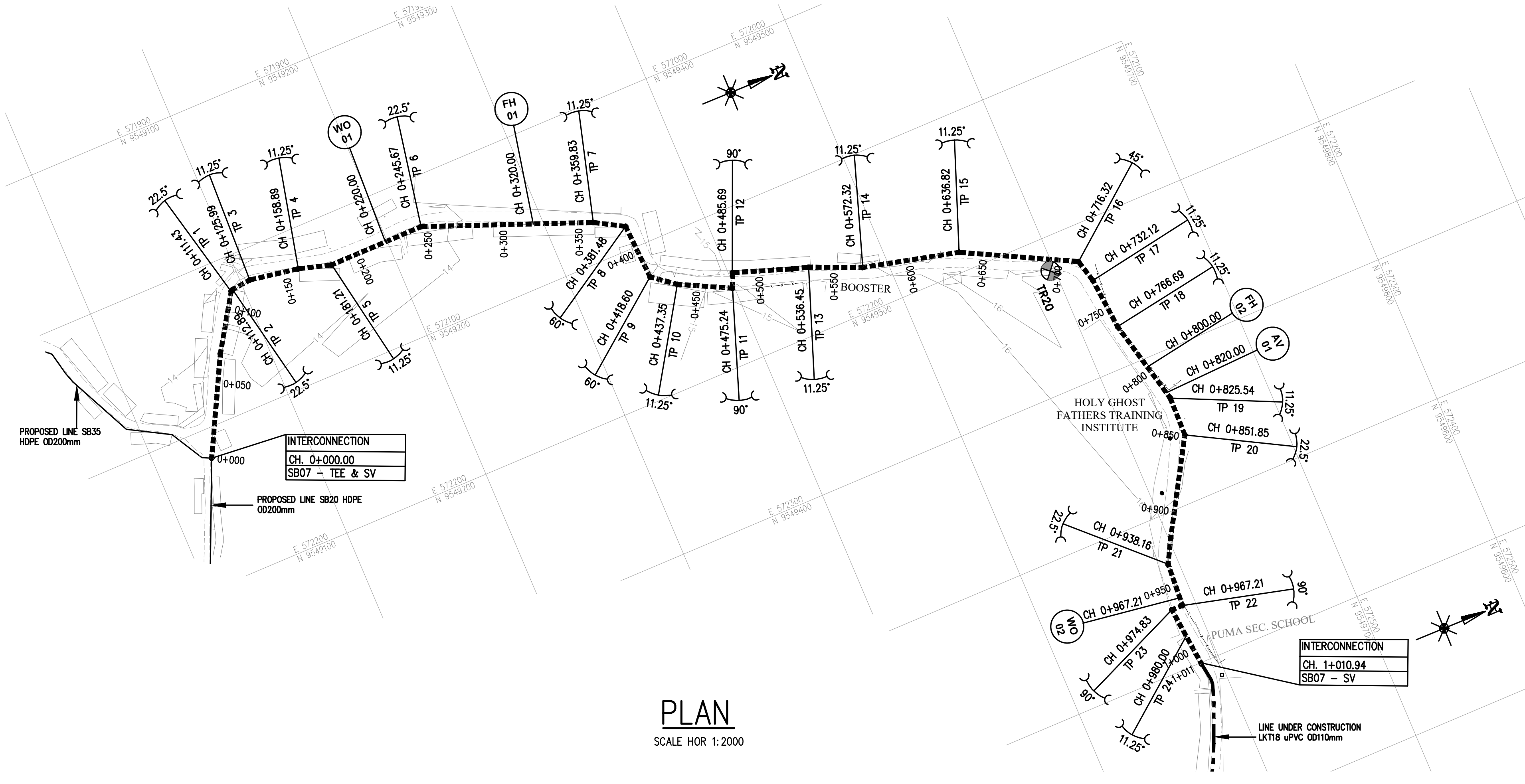
Drawing Title

SOUTH MAINLAND – LINE SB06
PLAN, PROFILE & PIPE FITTING DETAILS
(CH.0+000–0+411.00)
SHEET 1 OF 1

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-007C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-007 C0 REV

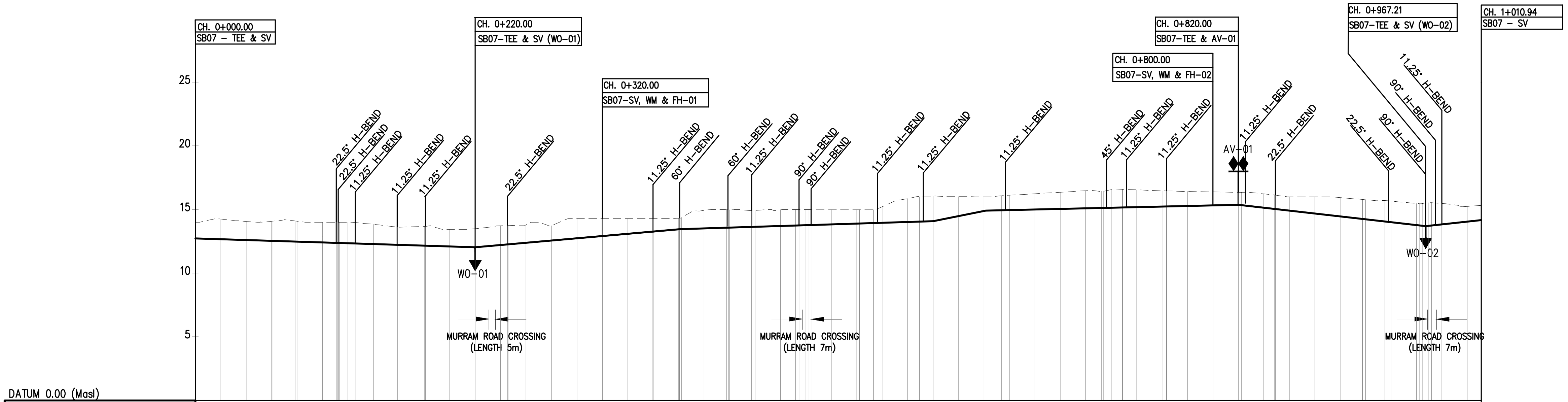
TRIAL HOLE TR20 DETAILS





PLAN

SCALE HOR 1:2000



TYPE AND SIZE OF PIPE: DN 200 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: SAND SOIL

EXISTING GROUND LEVEL (m)	14.00	14.25	14.06	14.07	14.08	14.00	14.00	13.83	13.61	13.67	13.43	13.49	13.72
INVERT LEVELS (m)	12.73	12.67	12.60	12.54	12.48	12.41	12.35	12.29	12.22	12.16	12.10	12.04	12.21
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240
DEPTH OF INVERT (m)	1.27	1.58	1.46	1.53	1.60	1.59	1.65	1.54	1.39	1.51	1.34	1.45	1.51
SLOPE OF PIPE (%)	-0.32%												0.88%
REFERENCE PEG No.							TP 1 TP 2 TP 3		TP 4	TP 5			TP 6

EXISTING GROUND LEVEL (m)	13.79	13.73	14.28	14.28	14.28	14.28	14.31	14.93	14.97	14.93	14.97	15.00	14.98
INVERT LEVELS (m)	12.39	12.56	12.74	12.91	13.09	13.27	13.44	13.51	13.57	13.64	13.70	13.76	13.83
CHAINAGES (M)	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500
DEPTH OF INVERT (m)	1.40	1.17	1.54	1.36	1.19	1.02	0.87	1.42	1.40	1.29	1.27	1.23	1.16
SLOPE OF PIPE (%)								0.31%					
REFERENCE PEG No.						TP 7	TP 8		TP 9	TP 10		TP 11 TP 12	

EXISTING GROUND LEVEL (m)	14.98	15.22	15.85	16.03	16.01	16.00	16.12	16.24	16.35	16.47	16.55	16.54	16.47
INVERT LEVELS (m)	13.89	13.95	14.01	14.08	14.48	14.88	14.95	15.00	15.04	15.09	15.14	15.18	15.23
CHAINAGES (M)	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760
DEPTH OF INVERT (m)	1.10	1.27	1.84	1.95	1.53	1.12	1.17	1.24	1.31	1.38	1.42	1.36	1.24
SLOPE OF PIPE (%)					2.02%		0.23%						
REFERENCE PEG No.		TP 13		TP 14			TP 15				TP 16	TP 17	TP 18

EXISTING GROUND LEVEL (m)	16.42	16.38	16.34	16.23	16.00	16.00	15.93	15.77	15.66	15.47	15.47	15.24	15.32
INVERT LEVELS (m)	15.27	15.32	15.37	15.14	14.91	14.69	14.46	14.23	14.01	13.78	13.83	14.05	14.17
CHAINAGES (M)	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+011
DEPTH OF INVERT (m)	1.14	1.06	0.97	1.09	1.09	1.31	1.47	1.53	1.65	1.69	1.63	1.19	1.15
SLOPE OF PIPE (%)				-1.13%								1.07%	
REFERENCE PEG No.			TP 19		TP 20				TP 21	TP 22	TP 23 TP 24		

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

ROAD (TARMAC)
ROAD / TRACK (EARTH / MURRAM)
FOOTPATH
FENCE / HEDGE
14 CONTOURS, Im INTERVAL
ELECTRIC POST
CULVERT
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH FIRE HYDRANT
WO-01 WASHOUT VALVE & No.
AV-01 COMBINATION AIR VALVE & No.
WM WATER METER
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

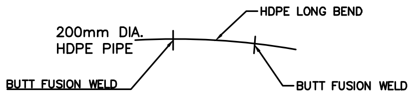
SOUTH MAINLAND – LINE SB07
PLAN AND PROFILE(CH. 0+000–1+010.94)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–007AC0
C STATUS	DRAWING No. 6000002–W&S–SM–P–007A
C0 REV	

DETAIL

CH. 0+111.43, 0+112.89, 0+245.67, 0+851.85 & 0+938.16

LINE SB07 - 22.5° H.BEND



DESCRIPTION

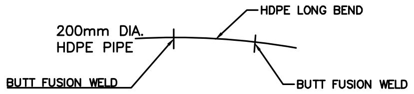
5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+125.99, 0+158.89, 0+181.21, 0+359.83, 0+437.35,
0+536.45, 0+572.32, 0+636.82, 0+732.12, 0+766.69,
0.825.54, & 0+980.00

LINE SB07 - 11.25° H.BEND



DESCRIPTION

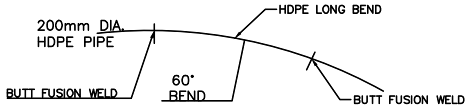
12 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+381.48 & 0+418.60

LINE SB07 - 60° H.BEND



DESCRIPTION

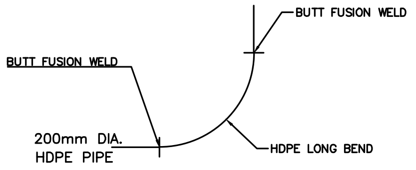
2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+485.69, 0+475.24, 0+967.21, & 0+974.83

LINE SB07 - 90° H.BEND



DESCRIPTION

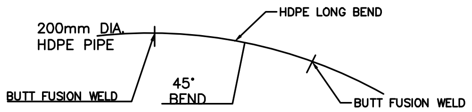
4 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+716.32

LINE SB07 - 45° H.BEND



DESCRIPTION

1 No. REQUIRED

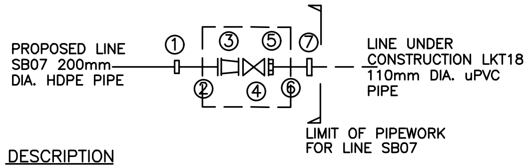
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 1+010.94

LINE SB07 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED MASONRY CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

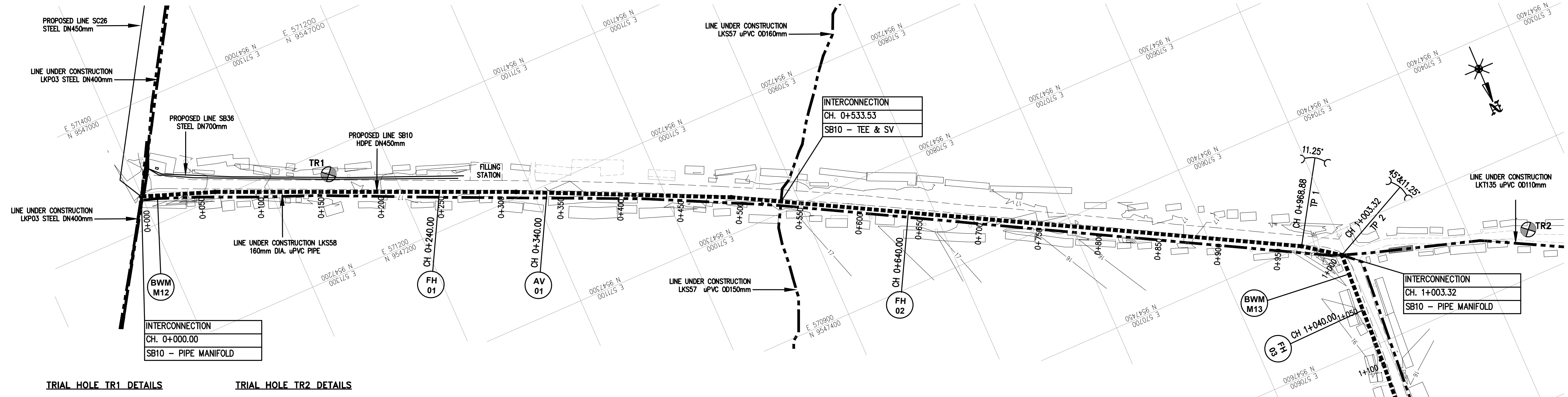
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB07
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-007BC0

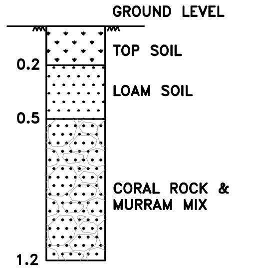
C STATUS | DRAWING No. 6000002-W&S-C-G-007B | C0 REV



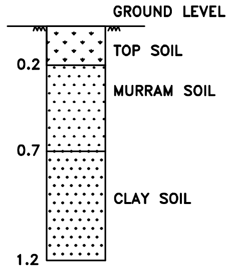
PLAN

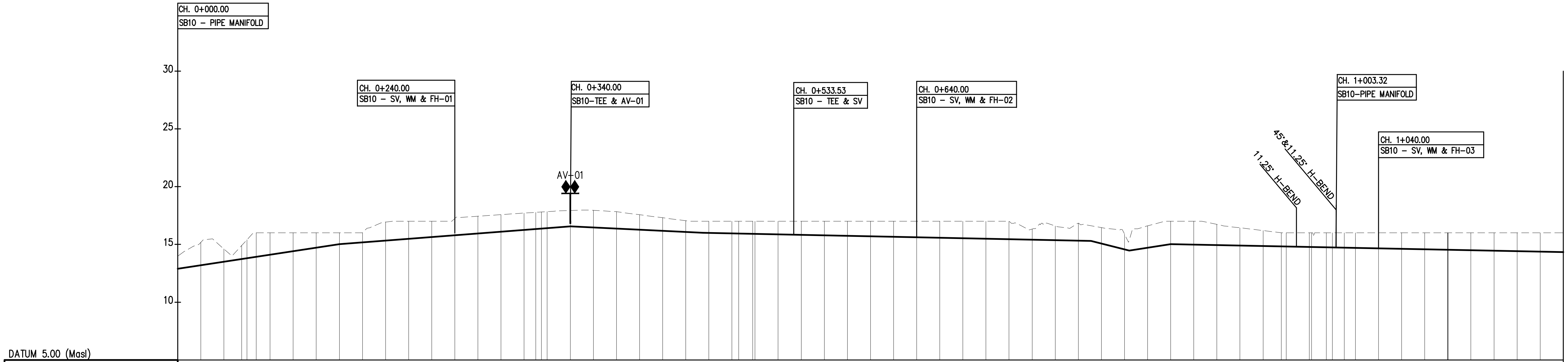
SCALE HOR 1:2000

TRIAL HOLE TR1 DETAILS



TRIAL HOLE TR2 DETAILS





DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE: DN 450 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: LOAM SOIL UNDERLAIN WITH CORAL ROCK AND MURRAM MIX

EXISTING GROUND LEVEL (m)	14.00	15.18	14.61	15.39	16.00	16.00	16.00	16.00	16.02	16.94	17.00	17.00	17.24	17.44	17.57	17.71	17.84	17.94	17.95	17.83	17.57
INVERT LEVELS (m)	12.89	13.19	13.50	13.80	14.11	14.41	14.72	15.02	15.17	15.33	15.48	15.64	15.79	15.94	16.10	16.25	16.40	16.56	16.47	16.37	16.27
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400
DEPTH OF INVERT (m)	1.11	1.98	1.11	1.59	1.89	1.59	1.28	0.98	0.85	1.61	1.52	1.36	1.45	1.50	1.48	1.46	1.43	1.38	1.48	1.46	1.29
SLOPE OF PIPE (%)	1.52%							0.77%										−0.48%			
REFERENCE PEG No.																					

EXISTING GROUND LEVEL (m)	17.31	17.05	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	16.33	16.59	16.84	16.45
INVERT LEVELS (m)	16.18	16.08	16.00	15.96	15.91	15.87	15.83	15.79	15.74	15.70	15.66	15.62	15.57	15.53	15.49	15.45	15.40	15.36	15.32	15.07
CHAINAGES (M)	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800
DEPTH OF INVERT (m)	1.13	0.97	1.00	1.04	1.09	1.13	1.17	1.21	1.26	1.30	1.34	1.38	1.43	1.47	1.51	1.55	0.93	1.23	1.52	1.38
SLOPE OF PIPE (%)			−0.21%																	−2.53%
REFERENCE PEG No.																				

EXISTING GROUND LEVEL (m)	15.89	16.61	17.00	17.00	16.73	16.43	16.20	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
INVERT LEVELS (m)	14.56	14.71	15.01	14.97	14.93	14.89	14.85	14.81	14.77	14.73	14.69	14.65	14.61	14.57	14.53	14.49	14.45	14.41	14.37	14.33
CHAINAGES (M)	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
DEPTH OF INVERT (m)	1.33	1.90	1.99	2.03	1.79	1.54	1.34	1.19	1.23	1.27	1.31	1.35	1.39	1.43	1.47	1.51	1.55	1.59	1.63	1.67
SLOPE OF PIPE (%)	1.54%		−0.20%																	
REFERENCE PEG No.								TP 1		TP 2										

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:450
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
	FOOTPATH
	FENCE / HEDGE
14	CONTOURS, lm INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

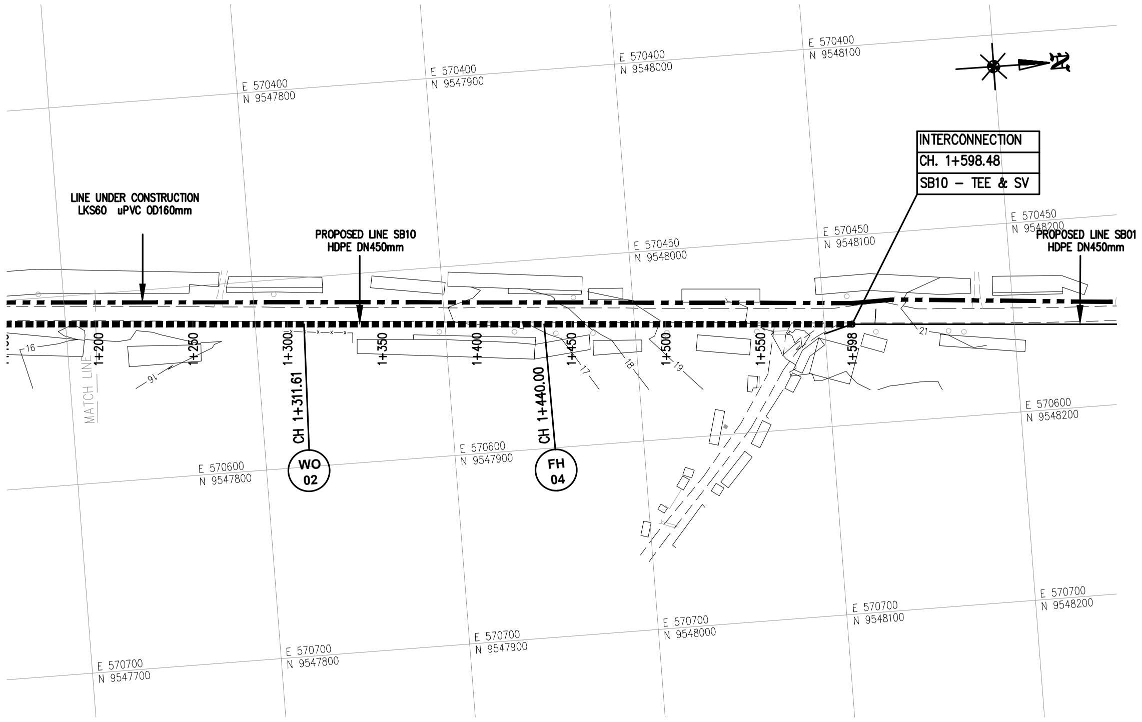
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB10
PLAN AND PROFILE(CH. 0+000–1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–008C0
C STATUS	DRAWING No. 6000002–W&S–SM–P–008 CO REV

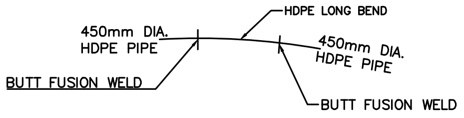


PLAN

SCALE HOR 1:2000

DETAIL

CH. 0+968.88
LINE SB10 - 11.25° H.BEND

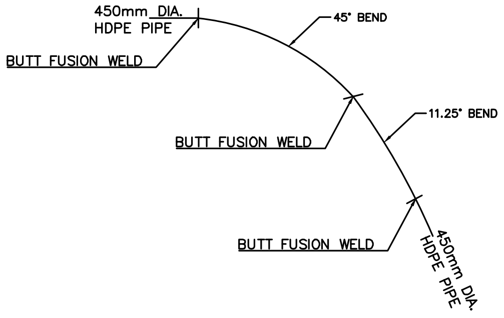


DESCRIPTION

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

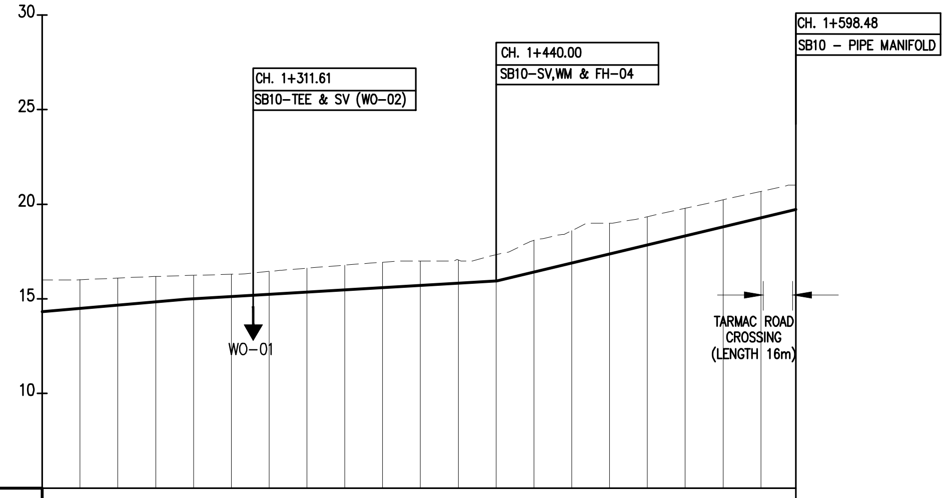
CH. 1+003.32
LINE SB10 - 45° & 11.25° H.BEND



DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED



DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE	DN 450 HDPE PIPE TO PN 10																					
GEOLOGICAL CONDITION	LOAM SOIL UNDERLAIN WITH CORAL ROCK AND MURRAM MIX																					
EXISTING GROUND LEVEL (m)	16.00	16.01	16.10	16.18	16.24	16.30	16.45	16.62	16.78	16.94	17.00	17.05	17.34	18.10	18.61	19.00	19.34	19.79	20.23	20.68		
INVERT LEVELS (m)	14.33	14.50	14.67	14.84	15.00	15.12	15.24	15.36	15.48	15.59	15.71	15.83	15.95	16.42	16.89	17.37	17.85	18.33	18.80	19.28	19.72	
CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+500	1+520	1+540	1+560	1+580	1+598	
DEPTH OF INVERT (m)	1.67	1.51	1.43	1.34	1.24	1.18	1.21	1.26	1.30	1.34	1.29	1.23	1.39	1.68	1.71	1.63	1.49	1.46	1.43	1.40		
SLOPE OF PIPE (%)	0.86%				0.59%								2.38%									
REFERENCE PEG No.																						

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:450
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

— — — —	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
- - - - -	FOOTPATH
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

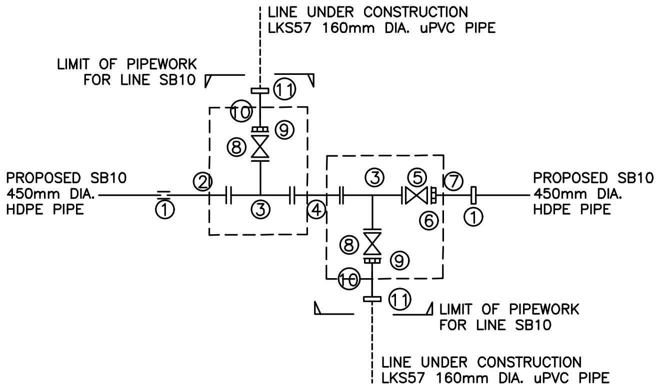
SOUTH MAINLAND – LINE SB10
PLAN AND PROFILE(CH. 0+000–1+598.48)
SHEET 2 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-009C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-009 / C0 REV

CHAMBER SIZE, 2No.
1800x1200

DETAIL

CH. 0+533.53
LINE SB10 - INTERCONNECTION



DESCRIPTION

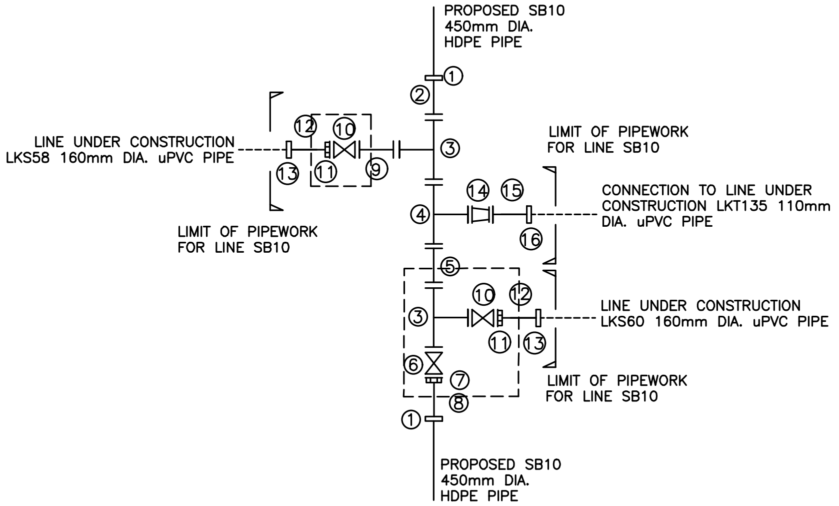
1 No. REQUIRED

① 2 Nos. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 400x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑤ 1 No. 40mm DIA. ALL FLANGED SLUICE VALVE
⑥ 1 No. 400mm DIA. FLANGE ADAPTOR
⑦ 1 No. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑧ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑨ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑩ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑪ 2 Nos. 160/150mm DIA. STEPPED COUPLING

CHAMBER SIZE, 2No.
1800x1200,1200x1200

DETAIL

CH. 1+003.32
SB10 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 450/400mm DIA. STEPPED COUPLING
② 1 No. 400mm FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 2 Nos. 400x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
⑤ 1 No. 400mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑥ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑦ 1 No. 400mm DIA. FLANGE ADAPTOR
⑧ 1 No. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 150mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑪ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑫ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑬ 2 Nos. 160/150mm DIA. STEPPED COUPLING
⑭ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑮ 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
⑯ 1 No. 110/100mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

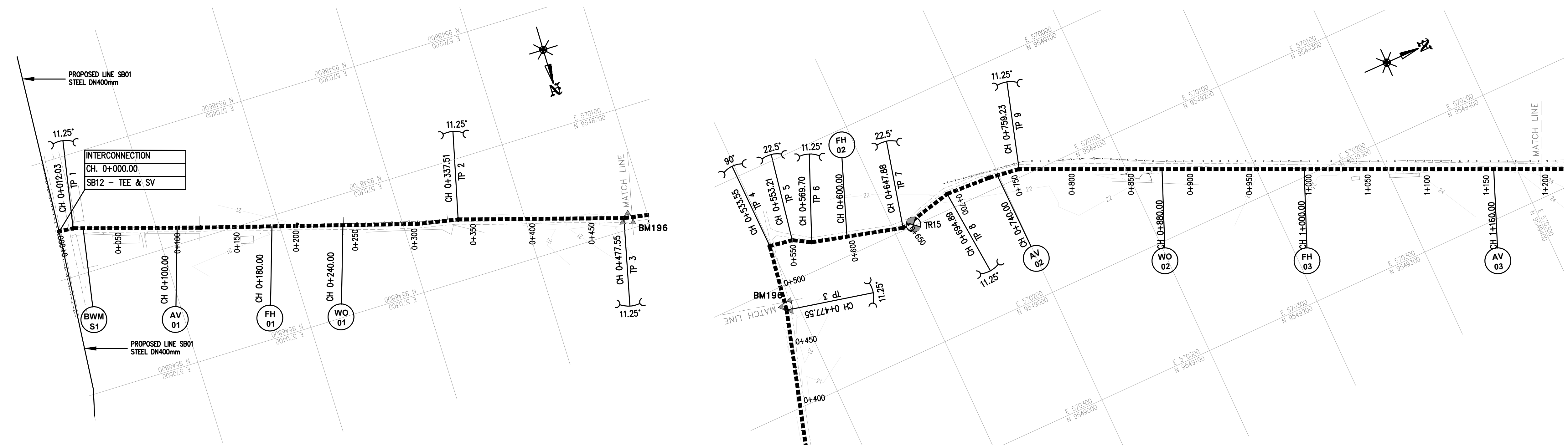
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB10
PIPE FITTING DETAILS
SHEET 3 OF 3

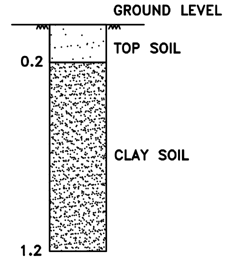
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-010C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-010 — CO REV

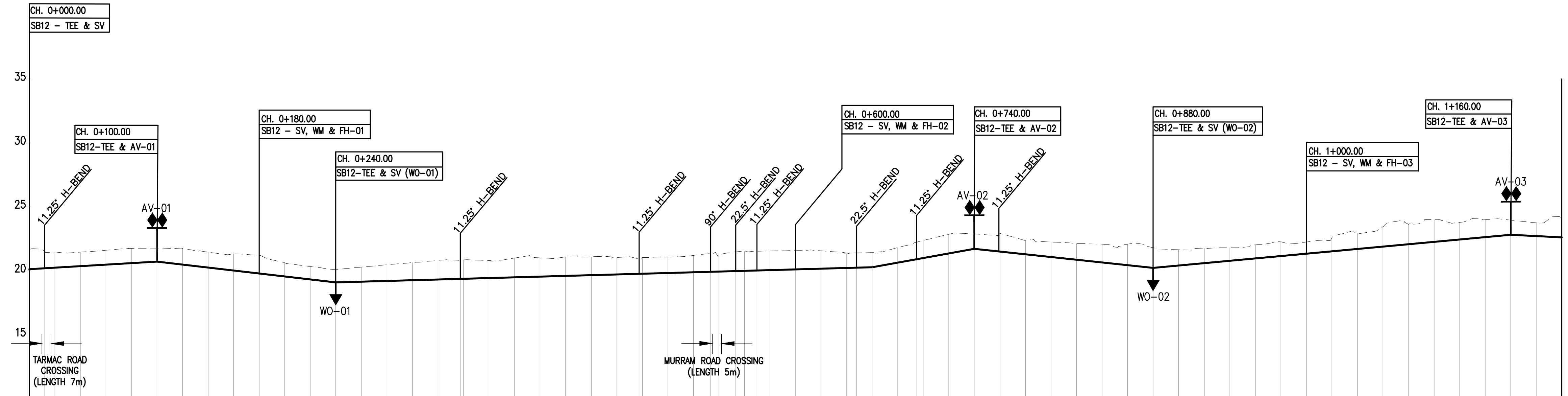


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR15 DETAILS





DATUM 10.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: CLAY SOIL

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (%)	REFERENCE PEG NO.
0+000.00	21.67	20.12	1.55	0.60%	
0+012.03	21.49	20.20	1.30		TP 1
0+020.00	21.46	20.24	1.22		
0+040.00	21.46	20.36	1.10		
0+060.00	21.61	20.48	1.13		
0+080.00	21.75	20.60	1.15		
0+100.00	21.72	20.72	1.00	−1.16%	
0+120.00	21.75	20.49	1.27		
0+140.00	21.46	20.26	1.20		
0+160.00	21.33	20.02	1.30		
0+180.00	21.21	19.79	1.42		
0+200.00	20.62	19.56	1.06		
0+220.00	20.34	19.33	1.01		
0+240.00	20.10	19.10	1.00	0.28%	
0+260.00	20.29	19.15	1.13		
0+280.00	20.47	19.21	1.26		
0+300.00	20.64	19.27	1.37		
0+320.00	20.81	19.32	1.49		
0+337.51	20.85	19.37	1.47		TP 2
0+340.00	20.86	19.38	1.48		
0+360.00	20.80	19.44	1.37		
0+380.00	21.00	19.49	1.50		
0+400.00	21.02	19.55	1.47		
0+420.00	21.08	19.61	1.48		
0+440.00	21.09	19.66	1.43		
0+460.00	21.04	19.72	1.32		
0+477.55	20.93	19.77	1.16		TP 3
0+480.00	21.04	19.77	1.26		
0+500.00	21.08	19.83	1.25		
0+520.00	21.20	19.89	1.31		
0+533.55	21.36	19.93	1.43		TP 4
0+540.00	21.12	19.94	1.18		
0+553.21	21.48	19.98	1.50		TP 5
0+560.00	21.52	20.00	1.52		
0+569.70	21.54	20.03	1.51		TP 6
0+580.00	21.55	20.06	1.49		
0+600.00	21.58	20.11	1.47		
0+620.00	21.56	20.17	1.39		
0+640.00	21.33	20.23	1.11		
0+647.88	21.40	20.25	1.15		TP 7
0+660.00	21.42	20.28	1.14	1.79%	
0+680.00	21.82	20.64	1.18		
0+694.89	22.25	20.91	1.34		TP 8
0+700.00	22.37	21.00	1.37		
0+720.00	22.86	21.35	1.50		
0+740.00	22.87	21.71	1.16	−1.06%	
0+759.23	22.79	21.51	1.28		TP 9
0+760.00	22.90	21.50	1.40		
0+780.00	22.39	21.29	1.10		
0+800.00	22.25	21.07	1.18		
0+820.00	22.13	20.86	1.27		
0+840.00	22.08	20.65	1.43		
0+860.00	22.08	20.43	1.64		
0+880.00	21.80	20.22	1.58	0.93%	
0+900.00	21.65	20.41	1.24		
0+920.00	21.75	20.59	1.16		
0+940.00	21.80	20.78	1.02		
0+960.00	22.03	20.96	1.06		
0+980.00	22.27	21.15	1.12		
1+000.00	22.25	21.33	0.91		
1+020.00	22.58	21.52	1.06		
1+040.00	22.93	21.71	1.22		
1+060.00	23.45	21.89	1.56		
1+080.00	23.63	22.08	1.55		
1+100.00	24.01	22.26	1.75		
1+120.00	23.79	22.45	1.34		
1+140.00	23.99	22.63	1.36		
1+160.00	23.96	22.82	1.14	−0.52%	
1+180.00	23.75	22.71	1.04		
1+200.00	24.17	22.61	1.56		

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM196 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM196	570,117.28	9,548,791.63	21.00

LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
	FOOTPATH
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
	ELECTRIC POST
	CULVERT
	GATE
	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

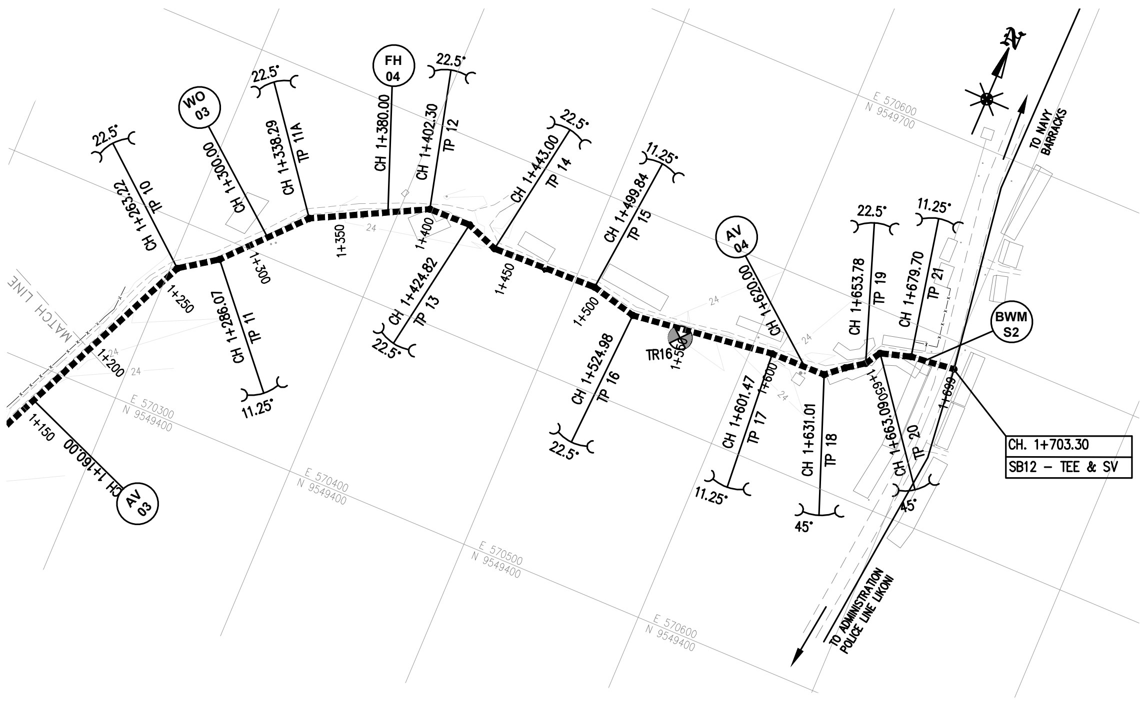
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

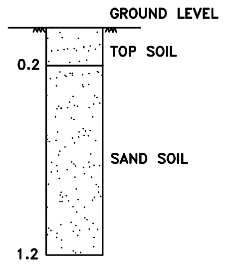
Drawing Title

SOUTH MAINLAND – LINE SB12
PLAN AND PROFILE(CH. 0+000–1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-011C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-011 | C0 REV

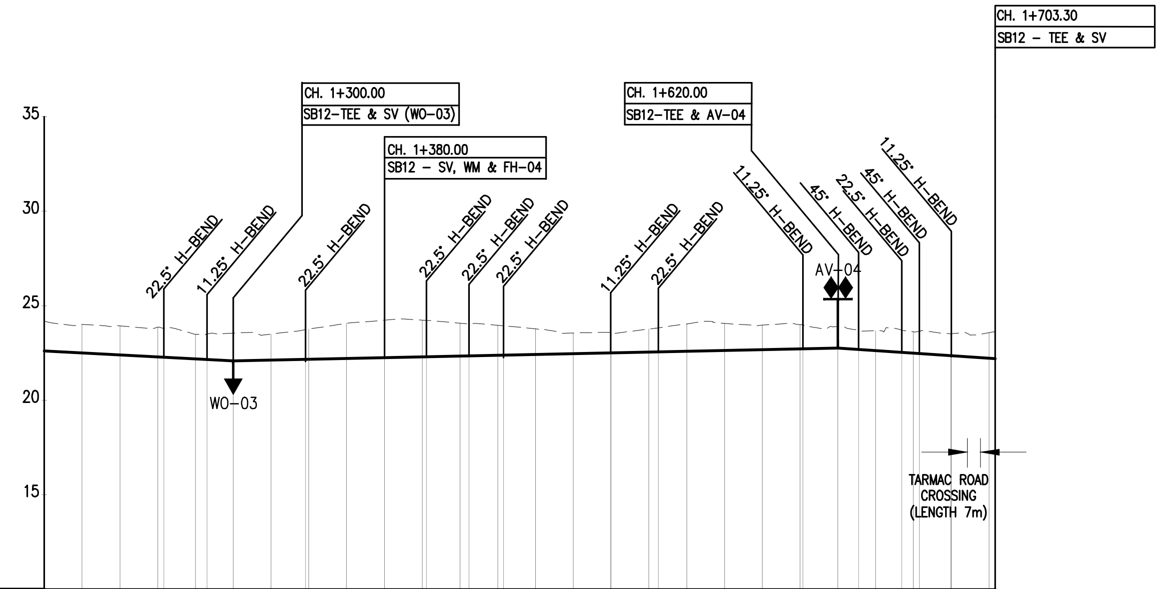


TRIAL HOLE TR16 DETAILS



PLAN

SCALE HOR 1:2000



DATUM 10.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 10									
GEOLOGICAL CONDITION	SAND SOIL									
EXISTING GROUND LEVEL (m)	24.17	24.00	23.93	23.86	23.79	23.49	23.50	23.54	23.50	23.73
INVERT LEVELS (m)	22.61	22.51	22.40	22.30	22.28	22.19	22.16	22.09	22.13	22.17
CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+260.00	1+263.22	1+280.00	1+286.07	1+300.00	1+320.00	1+338.29
DEPTH OF INVERT (m)	1.56	1.50	1.53	1.56	1.51	1.30	1.34	1.46	1.37	1.57
SLOPE OF PIPE (%)	−0.52%								0.21%	
REFERENCE PEG NO.					TP 10		TP 11			TP 11A

TYPE AND SIZE OF PIPE										
GEOLOGICAL CONDITION										
EXISTING GROUND LEVEL (m)	23.76	24.07	24.24	24.24	24.22	24.08	24.04	23.96	23.93	23.78
INVERT LEVELS (m)	22.17	22.21	22.25	22.29	22.30	22.34	22.35	22.38	22.38	22.42
CHAINAGE (m)	1+340.00	1+360.00	1+380.00	1+400.00	1+402.30	1+420.00	1+424.82	1+440.00	1+443.00	1+460.00
DEPTH OF INVERT (m)	1.59	1.86	1.98	1.94	1.92	1.74	1.70	1.58	1.55	1.36
SLOPE OF PIPE (%)										
REFERENCE PEG NO.					TP 12		TP 13		TP 14	

TYPE AND SIZE OF PIPE										
GEOLOGICAL CONDITION										
EXISTING GROUND LEVEL (m)	23.56	23.59	23.55	23.77	23.83	24.04	24.07	23.97	23.99	24.02
INVERT LEVELS (m)	22.46	22.50	22.50	22.54	22.55	22.58	22.63	22.67	22.71	22.71
CHAINAGE (m)	1+480.00	1+499.84	1+500.00	1+520.00	1+524.98	1+540.00	1+560.00	1+580.00	1+600.00	1+601.47
DEPTH OF INVERT (m)	1.10	1.09	1.04	1.22	1.28	1.46	1.44	1.30	1.28	1.30
SLOPE OF PIPE (%)										
REFERENCE PEG NO.		TP 15			TP 16					TP 17

TYPE AND SIZE OF PIPE										
GEOLOGICAL CONDITION										
EXISTING GROUND LEVEL (m)	23.90	23.67	23.67	23.71	23.61	23.61	23.50	23.51	23.57	23.59
INVERT LEVELS (m)	22.75	22.68	22.62	22.53	22.49	22.47	22.36	22.35	22.22	22.20
CHAINAGE (m)	1+620.00	1+631.01	1+640.00	1+653.78	1+660.00	1+663.09	1+679.70	1+680.00	1+700.00	1+703.30
DEPTH OF INVERT (m)	1.15	0.99	1.05	1.18	1.13	1.15	1.15	1.16	1.35	1.39
SLOPE OF PIPE (%)		−0.66%								
REFERENCE PEG NO.		TP 18		TP 19		TP 20	TP 21			

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

— — — —	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

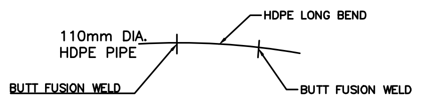
Drawing Title

SOUTH MAINLAND – LINE SB12
PLAN AND PROFILE(CH. 1+200–1+703.30)
SHEET 2 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-012C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-012	CO REV

DETAIL

CH. 0+012.03, 0+337.51, 0+477.55, 0+569.70, 0+694.89,
0+759.23, 1+286.07, 1+499.84, 1+601.47 & 1+679.70
LINE SB12 - 11.25° H.BEND



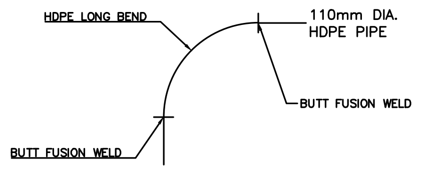
DESCRIPTION

10 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+533.55
LINE SB12 - 90° BEND



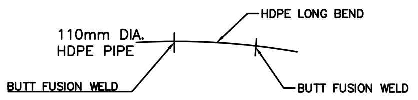
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+553.21, 0+647.88, 1+263.22, 1+338.29,
1+402.30, 1+424.82, 1+443.00, 1+524.98 & 1+653.78
LINE SB12 - 22.5° H.BEND



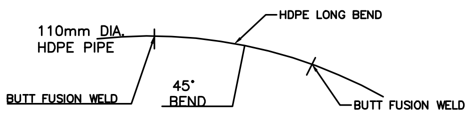
DESCRIPTION

9 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 1+631.01 & 1+663.09
LINE SB12 - 45° H.BEND



DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

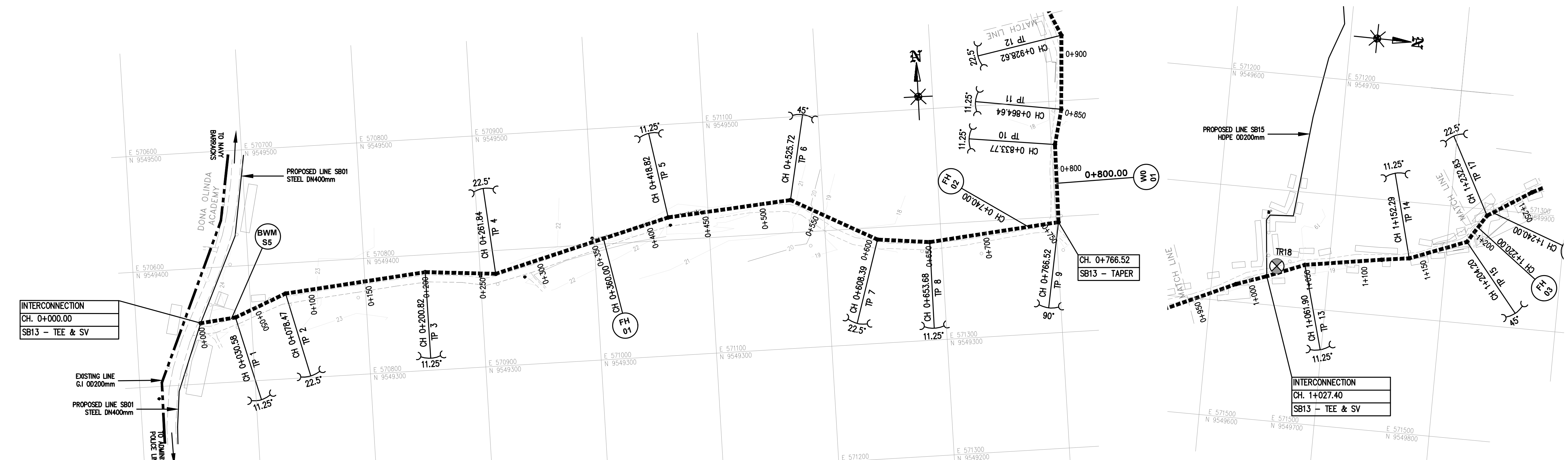
Supervising Consultant.

INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB12
PIPE FITTING DETAILS
SHEET 3 OF 3

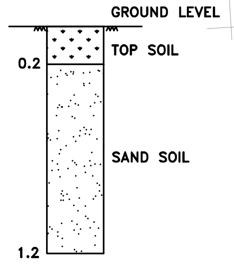
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-013C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-013 C0 REV

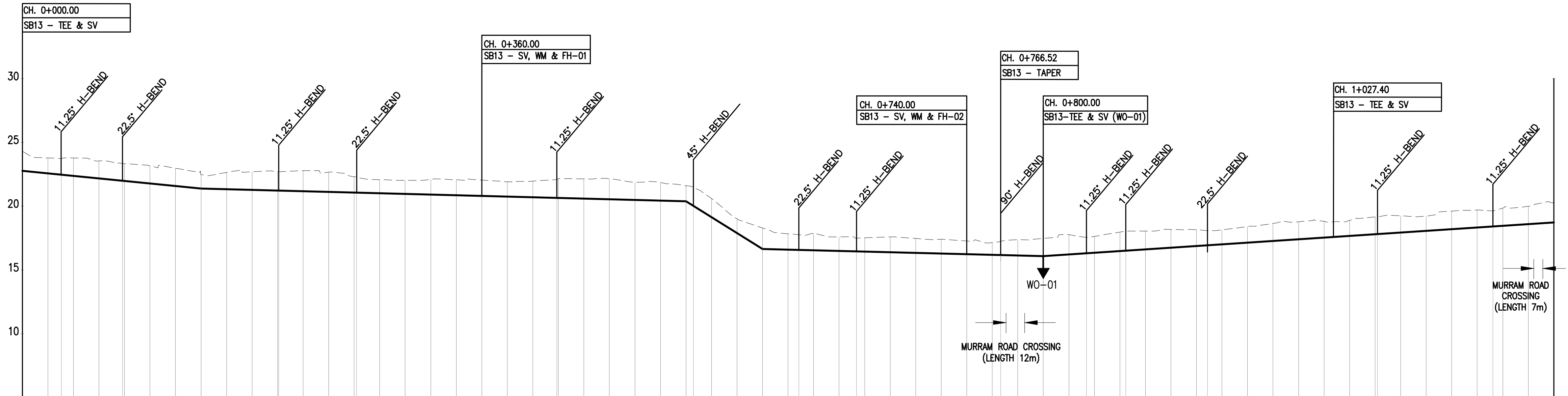


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR18 DETAILS





DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE	DN 200 HDPE PIPE TO PN 10																		
GEOLOGICAL CONDITION	SAND SOIL																		
EXISTING GROUND LEVEL (m)	24.30	23.78	23.73	23.78	23.54	23.35	23.34	23.16	22.97	22.48	22.64	22.69	22.71	22.70	22.78	22.67	22.30	22.30	22.07
INVERT LEVELS (m)	22.76	22.56	22.46	22.37	22.17	21.99	21.97	21.77	21.58	21.38	21.33	21.28	21.22	21.22	21.17	21.12	21.07	21.06	21.01
CHAINAGE (m)	0+000.00	0+020.00	0+030.58	0+040.00	0+060.00	0+078.47	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+200.82	0+220.00	0+240.00	0+260.00	0+261.84	0+280.00
DEPTH OF INVERT (m)	1.54	1.21	1.28	1.41	1.37	1.36	1.36	1.38	1.40	1.10	1.31	1.42	1.48	1.48	1.61	1.55	1.23	1.24	1.06
SLOPE OF PIPE (%)	-0.99%									-0.26%									
REFERENCE PEG NO.			TP 1			TP 2								TP 3				TP 4	

TYPE AND SIZE OF PIPE																			
GEOLOGICAL CONDITION																			
EXISTING GROUND LEVEL (m)	22.02	22.10	22.07	22.04	21.91	21.96	22.14	22.15	22.13	22.15	21.86	21.85	21.61	21.47	20.59	19.00	18.28	17.83	17.76
INVERT LEVELS (m)	20.96	20.91	20.86	20.80	20.75	20.70	20.65	20.65	20.59	20.54	20.49	20.44	20.38	20.03	19.13	17.88	16.63	16.58	16.56
CHAINAGE (m)	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+418.82	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+525.72	0+540.00	0+560.00	0+580.00	0+600.00	0+608.39
DEPTH OF INVERT (m)	1.06	1.19	1.21	1.24	1.16	1.26	1.49	1.50	1.54	1.61	1.38	1.41	1.22	1.44	1.46	1.12	1.65	1.25	1.20
SLOPE OF PIPE (%)													-6.25%				-0.25%		
REFERENCE PEG NO.							TP 5							TP 6					TP 7

TYPE AND SIZE OF PIPE										DN 160 HDPE PIPE TO PN 10									
GEOLOGICAL CONDITION										SAND SOIL									
EXISTING GROUND LEVEL (m)	17.87	17.59	17.49	17.51	17.58	17.46	17.40	17.26	17.14	17.25	17.36	17.46	17.76	17.55	17.63	17.96	18.04	18.04	18.17
INVERT LEVELS (m)	16.53	16.48	16.45	16.43	16.38	16.33	16.28	16.23	16.18	16.17	16.13	16.09	16.22	16.31	16.35	16.48	16.51	16.61	16.74
CHAINAGE (m)	0+620.00	0+640.00	0+653.68	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+766.52	0+780.00	0+800.00	0+820.00	0+833.77	0+840.00	0+860.00	0+864.64	0+880.00	0+900.00
DEPTH OF INVERT (m)	1.34	1.11	1.04	1.08	1.20	1.13	1.12	1.03	0.96	1.08	1.23	1.38	1.54	1.25	1.28	1.48	1.53	1.43	1.42
SLOPE OF PIPE (%)												0.66%							
REFERENCE PEG NO.			TP 8							TP 9				TP 10			TP 11		

TYPE AND SIZE OF PIPE																		
GEOLOGICAL CONDITION																		
EXISTING GROUND LEVEL (m)	18.14	18.08	18.14	18.40	18.64	18.77	18.81	18.88	19.15	19.15	19.24	19.20	19.61	19.69	19.62	19.85	19.98	20.27
INVERT LEVELS (m)	16.87	16.93	17.01	17.14	17.27	17.40	17.53	17.66	17.79	17.81	17.93	18.06	18.19	18.32	18.40	18.45	18.58	18.71
CHAINAGE (m)	0+920.00	0+928.62	0+940.00	0+960.00	0+980.00	1+000.00	1+020.00	1+040.00	1+060.00	1+061.90	1+080.00	1+100.00	1+120.00	1+140.00	1+152.29	1+160.00	1+180.00	1+200.00
DEPTH OF INVERT (m)	1.26	1.15	1.14	1.26	1.38	1.37	1.28	1.22	1.35	1.35	1.31	1.14	1.42	1.37	1.22	1.40	1.40	1.56
SLOPE OF PIPE (%)																		
REFERENCE PEG NO.		TP 12								TP 14					TP 15			

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- - - -	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

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CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

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Supervising Consultant.

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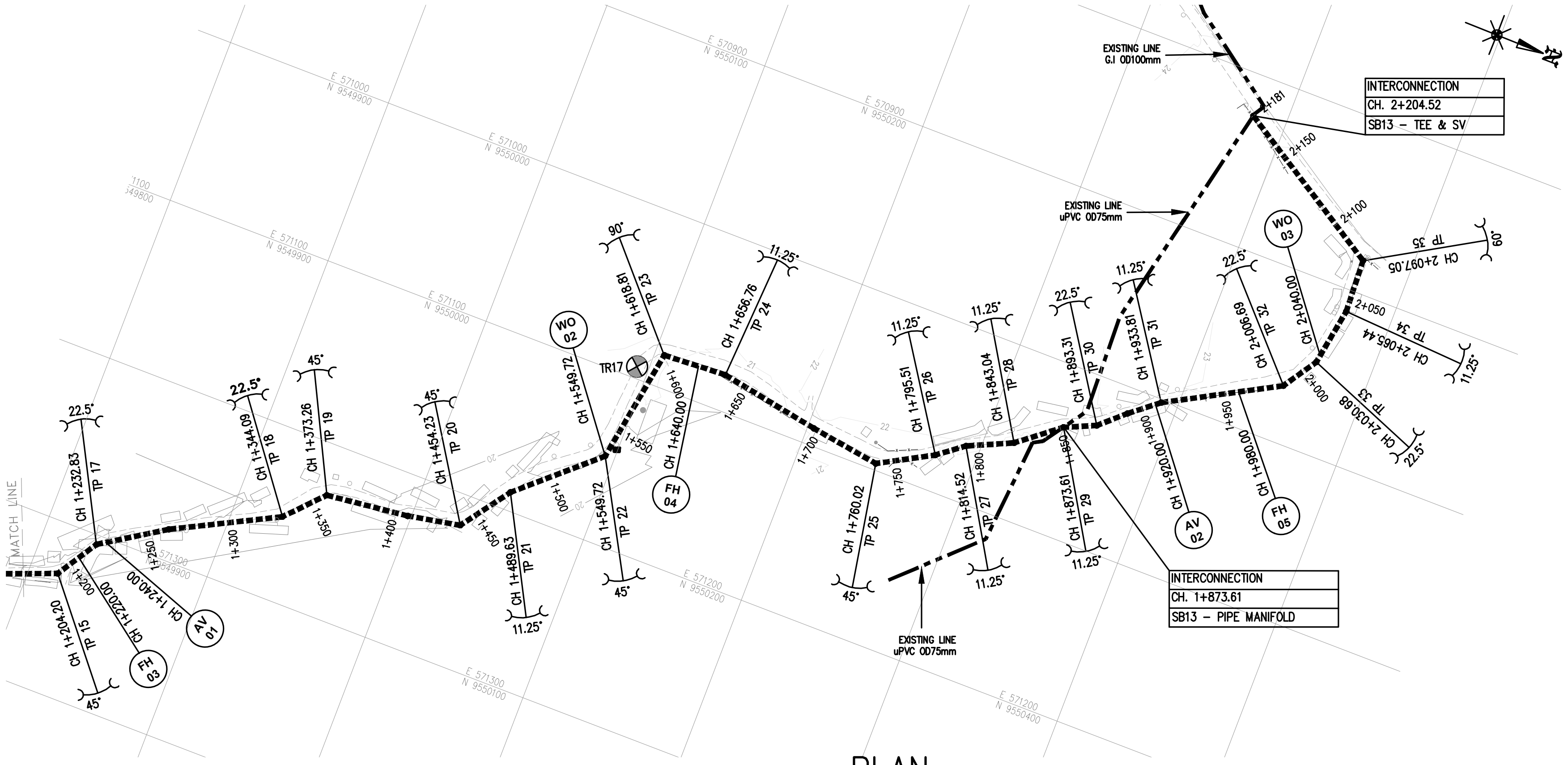
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB13
PLAN AND PROFILE(CH. 0+000–1+200)
SHEET 1 OF 4

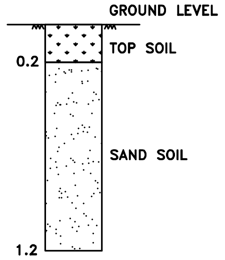
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-015C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-015 — C0 REV

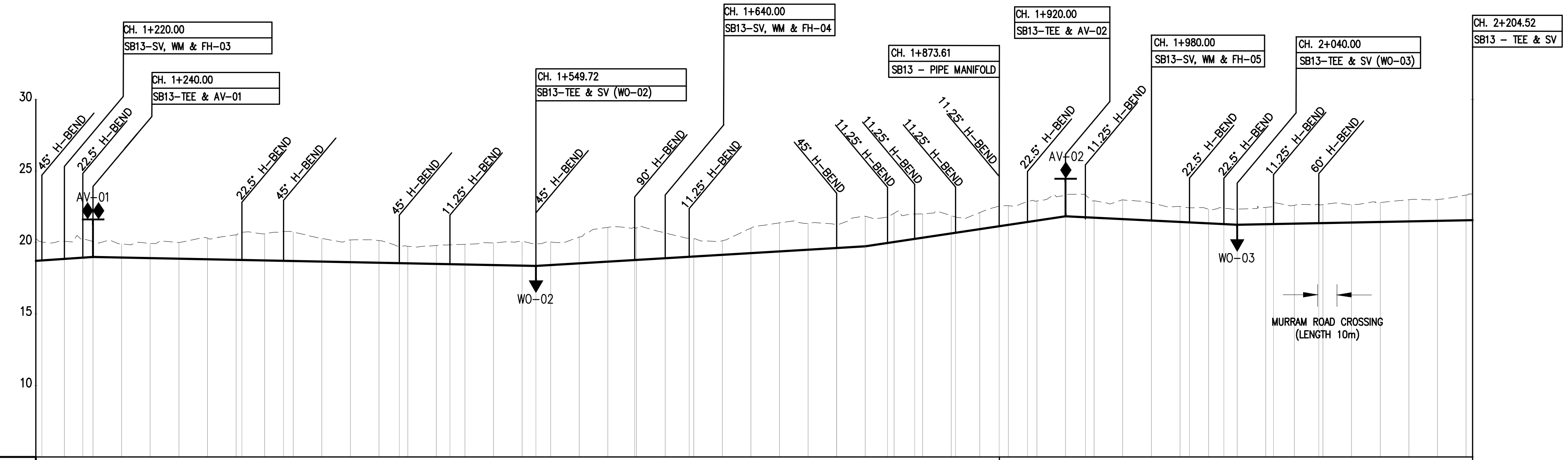


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR17 DETAILS





DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 10											
GEOLOGICAL CONDITION	SAND SOIL											
EXISTING GROUND LEVEL (m)	20.27	20.04	20.08	20.26	20.06	19.89	19.93	20.00	20.31	20.53	20.71	20.61
INVERT LEVELS (m)	18.71	18.74	18.85	18.93	18.98	18.94	18.90	18.86	18.82	18.78	18.77	18.74
CHAINAGE (m)	1+200.00	1+204.20	1+220.00	1+232.83	1+240.00	1+260.00	1+280.00	1+300.00	1+320.00	1+340.00	1+344.09	1+360.00
DEPTH OF INVERT (m)	1.56	1.30	1.24	1.33	1.08	0.95	1.03	1.14	1.49	1.75	1.94	1.87
SLOPE OF PIPE (%)	0.66%				-0.20%							
REFERENCE PEG NO.		TP 16		TP 17							TP 18	

TYPE AND SIZE OF PIPE												
GEOLOGICAL CONDITION												
EXISTING GROUND LEVEL (m)	20.76	20.72	20.28	20.18	20.13	19.73	19.72	19.79	19.82	19.87	19.97	20.05
INVERT LEVELS (m)	18.71	18.70	18.66	18.62	18.58	18.55	18.54	18.50	18.48	18.46	18.42	18.38
CHAINAGE (m)	1+373.26	1+380.00	1+400.00	1+420.00	1+440.00	1+454.23	1+460.00	1+480.00	1+489.63	1+500.00	1+520.00	1+540.00
DEPTH OF INVERT (m)	2.05	2.03	1.62	1.56	1.55	1.18	1.19	1.29	1.35	1.41	1.56	1.68
SLOPE OF PIPE (%)												
REFERENCE PEG NO.	TP 19					TP 20			TP 21			

TYPE AND SIZE OF PIPE												
GEOLOGICAL CONDITION												
EXISTING GROUND LEVEL (m)	19.88	20.03	20.37	21.05	21.00	21.03	20.67	20.28	20.25	20.12	20.99	21.38
INVERT LEVELS (m)	18.36	18.42	18.54	18.66	18.77	18.77	18.89	18.99	19.01	19.13	19.25	19.37
CHAINAGE (m)	1+549.72	1+560.00	1+580.00	1+600.00	1+618.81	1+620.00	1+640.00	1+656.76	1+660.00	1+680.00	1+700.00	1+720.00
DEPTH OF INVERT (m)	1.52	1.61	1.83	2.40	2.24	2.25	1.77	1.29	1.24	0.99	1.74	2.01
SLOPE OF PIPE (%)	0.59%											
REFERENCE PEG NO.	TP 22				TP 23			TP 24				

TYPE AND SIZE OF PIPE												
GEOLOGICAL CONDITION												
EXISTING GROUND LEVEL (m)	21.34	21.26	21.26	21.82	21.77	22.02	21.98	21.99	21.88	21.79	22.09	22.53
INVERT LEVELS (m)	19.48	19.60	19.60	19.72	19.95	20.02	20.24	20.32	20.62	20.67	20.92	21.13
CHAINAGE (m)	1+740.00	1+760.00	1+760.02	1+780.00	1+795.51	1+800.00	1+814.52	1+820.00	1+840.00	1+843.04	1+860.00	1+873.61
DEPTH OF INVERT (m)	1.85	1.66	1.66	2.10	1.82	2.00	1.74	1.67	1.26	1.12	1.17	1.41
SLOPE OF PIPE (%)				1.50%								
REFERENCE PEG NO.			TP 25		TP 26		TP 27			TP 28		TP 29

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 10											
GEOLOGICAL CONDITION	SAND SOIL											
EXISTING GROUND LEVEL (m)	22.57	22.86	22.90	23.31	23.32	22.91	22.97	22.76	22.51	22.42	22.32	22.39
INVERT LEVELS (m)	21.22	21.42	21.52	21.82	21.75	21.72	21.62	21.53	21.43	21.39	21.33	21.28
CHAINAGE (m)	1+880.00	1+893.31	1+900.00	1+920.00	1+933.81	1+940.00	1+960.00	1+980.00	2+000.00	2+006.69	2+020.00	2+030.68
DEPTH OF INVERT (m)	1.35	1.44	1.38	1.49	1.57	1.19	1.35	1.24	1.08	1.02	0.99	1.11
SLOPE OF PIPE (%)				-0.49%								
REFERENCE PEG NO.		TP 30			TP 31					TP 32		TP 33

TYPE AND SIZE OF PIPE												
GEOLOGICAL CONDITION												
EXISTING GROUND LEVEL (m)	22.33	22.45	22.66	22.60	22.62	22.66	22.65	22.80	22.98	23.00	23.31	23.38
INVERT LEVELS (m)	21.23	21.27	21.28	21.31	21.34	21.35	21.39	21.43	21.47	21.51	21.55	21.56
CHAINAGE (m)	2+040.00	2+060.00	2+065.44	2+080.00	2+097.05	2+100.00	2+120.00	2+140.00	2+160.00	2+180.00	2+200.00	2+204.52
DEPTH OF INVERT (m)	1.10	1.18	1.37	1.29	1.27	1.31	1.26	1.37	1.51	1.48	1.76	1.82
SLOPE OF PIPE (%)	0.20%											
REFERENCE PEG NO.			TP 34		TP 35							

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

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2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

═ ═ ═	ROAD (TARMAC)
═ ═ ═	ROAD / TRACK (EARTH / MURRAM)
–·–·–	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
■ ■ ■	PROPOSED WATER MAIN
▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

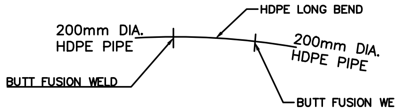
Drawing Title

SOUTH MAINLAND – LINE SB13
PLAN AND PROFILE(CH. 1+200–2+204.52)
SHEET 2 OF 4

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–016C0
C STATUS	DRAWING No. 6000002–W&S–SM–P–016 — CO REV

DETAIL

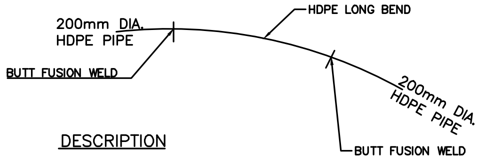
CH. 0+030.58, 0+200.82, 0+418.82 & 0+653.68
LINE SB13 - 11.25° H.BEND



DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

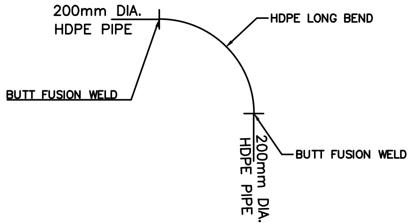
CH. 0+525.72
LINE SB13 - 45° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

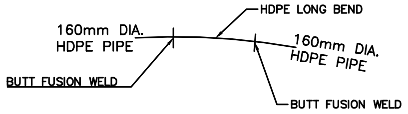
CH. 0+766.52
LINE SB13 - 90° BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

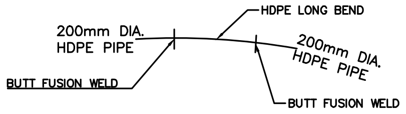
CH. 0+833.77, 0+864.64, 1+061.90, 1+152.29, 1+489.63, 1+656.76, 1+795.51, 1+814.52, 1+843.04 & 1+873.61
LINE SB13 - 11.25° H.BEND



DESCRIPTION
10 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

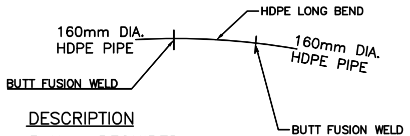
CH. 0+078.47, 0+261.84 & 0+608.39
LINE SB13 - 22.5° H.BEND



DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

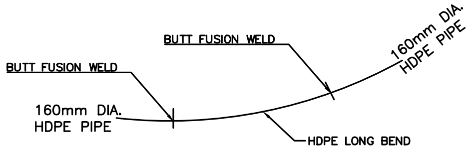
CH. 0+928.62, 1+232.83 & 1+344.09
LINE SB13 - 22.5° H.BEND



DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

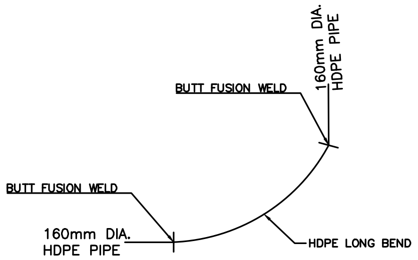
CH. 1+204.20, 1+373.26, 1+454.23, 1+549.72 & 1+760.02
LINE SB13 - 45° H.BEND



DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

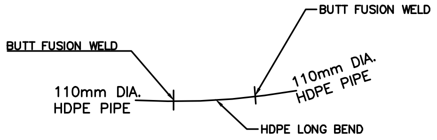
CH. 1+618.81
LINE SB13 - 90° BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

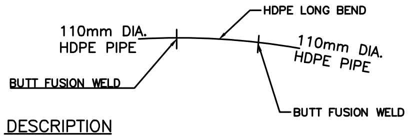
CH. 1+893.31, 2+006.69 & 2+030.68
LINE SB13 - 22.5° H.BEND



DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

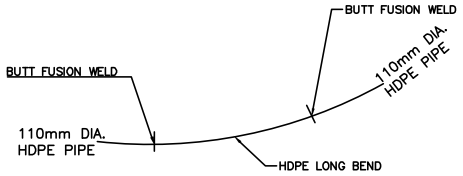
CH. 1+933.81 & 2+065.54
LINE SB13 - 11.25° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 2+097.05
LINE SB13 - 60° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

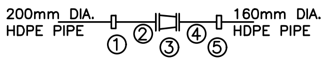
Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND – LINE SB13
PIPE FITTING DETAILS
SHEET 3 OF 4

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-017C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-017	C0 REV

DETAIL

CH. 0+766.52
LINE SB13 - TAPER



DESCRIPTION

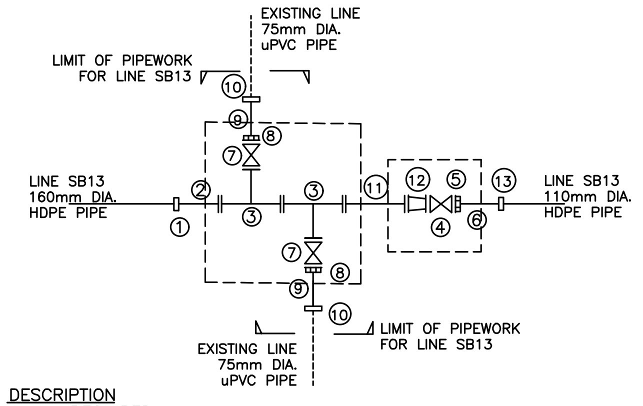
1 No. REQUIRED

① 1 No. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
③ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
④ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
⑤ 1 No. 160/150mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1200, 1200x1200

DETAIL

CH. 1+873.61
SB13 - INTERCONNECTION



DESCRIPTION

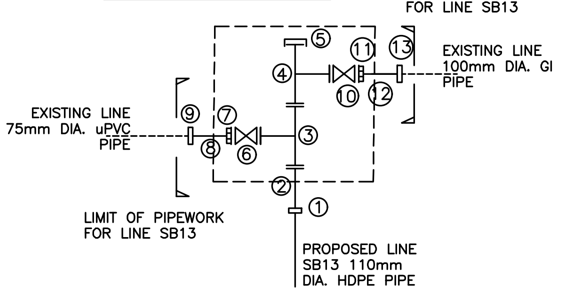
1 No. REQUIRED

① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 150x80mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 2 Nos. 80mm DIA. ALL FLANGED SLUICE VALVE
⑧ 2 Nos. 80mm DIA. FLANGE ADAPTOR
⑨ 2 Nos. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 2 Nos. 75/80mm DIA. STEPPED COUPLING
⑪ 1 No. 150mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑬ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1200

DETAIL

CH. 2+204.52
SB13 - INTERCONNECTION



DESCRIPTION

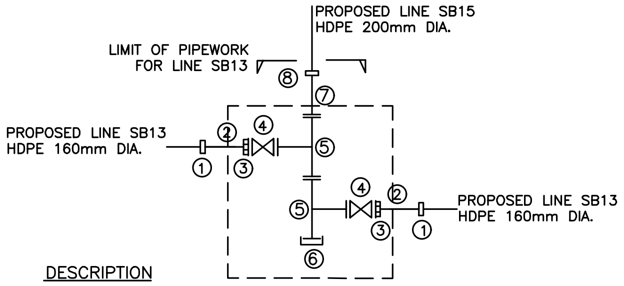
1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 100x80mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
⑤ 1 No. 100mm DIA. BLANK FLANGE
⑥ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑦ 1 No. 80mm DIA. FLANGE ADAPTOR
⑧ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 80/75mm STEPPED COUPLING
⑩ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑪ 1 No. 100mm DIA. FLANGE ADAPTOR
⑫ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑬ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1200

DETAIL

CH. 1+027.40
SB13 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 200x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 200mm DIA. BLANK FLANGE
⑦ 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑧ 1 No. 200/200mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

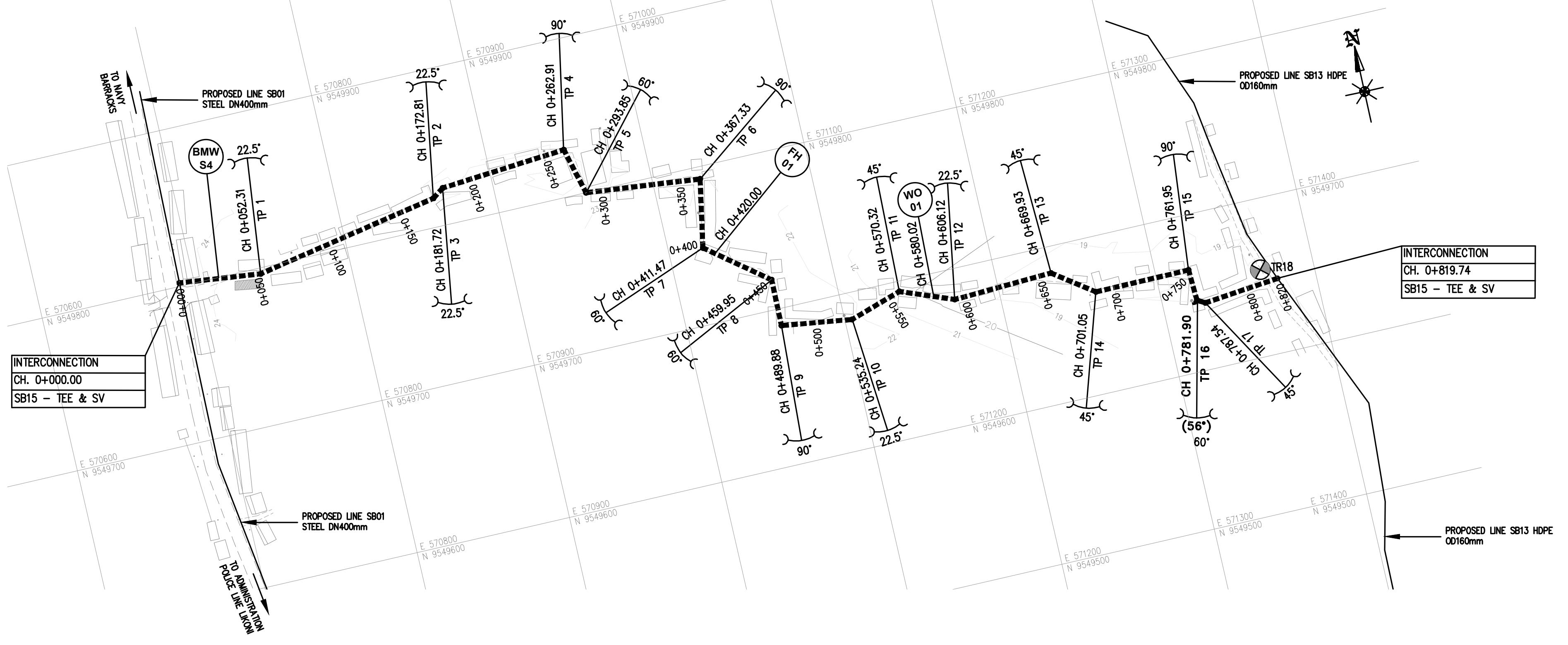
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB13
PIPE FITTING DETAILS
SHEET 4 OF 4

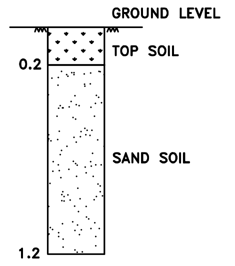
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-018C0
C STATUS	DRAWING No. **6000002-W&S-SM-P-018** C0 REV

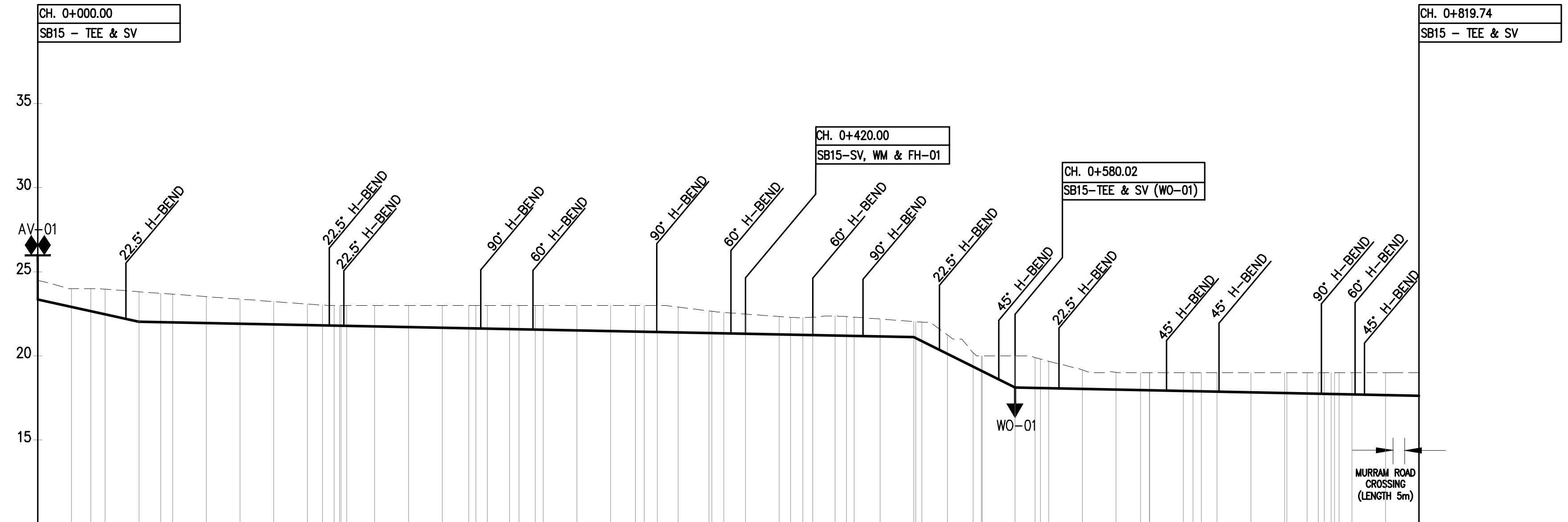


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR18 DETAILS





DATUM 10.00 (Masl)

TYPE AND SIZE OF PIPE	DN 200 HDPE PIPE TO PN 10													
GEOLOGICAL CONDITION	SAND SOIL													
EXISTING GROUND LEVEL (m)	24.49	24.00	23.97	23.81	23.67	23.52	23.37	23.23	23.08	23.00	23.00	23.00	23.00	23.00
INVERT LEVELS (m)	23.35	22.91	22.47	22.03	21.99	21.95	21.91	21.87	21.83	21.79	21.75	21.71	21.67	21.63
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260
DEPTH OF INVERT (m)	1.14	1.09	1.50	1.78	1.68	1.57	1.46	1.36	1.25	1.21	1.25	1.29	1.33	1.37
SLOPE OF PIPE (%)		−2.19%			−0.20%									
REFERENCE PEG No.				TP 1						TP 2 TP 3				TP 4

EXISTING GROUND LEVEL (m)	23.00	23.00	23.00	23.00	23.00	23.00	22.91	22.65	22.49	22.34	22.30	22.34	22.19	22.04
INVERT LEVELS (m)	21.59	21.55	21.51	21.47	21.43	21.39	21.35	21.31	21.27	21.23	21.19	21.15	21.11	20.11
CHAINAGES (M)	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540
DEPTH OF INVERT (m)	1.41	1.45	1.49	1.53	1.57	1.52	1.30	1.18	1.07	1.07	1.15	1.04	0.93	1.13
SLOPE OF PIPE (%)														−5.00%
REFERENCE PEG No.		TP 5				TP 6		TP 7		TP 8		TP 9		TP 10

EXISTING GROUND LEVEL (m)	20.00	20.00	19.68	19.17	19.02	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
INVERT LEVELS (m)	19.11	18.11	18.07	18.03	17.99	17.95	17.91	17.87	17.83	17.79	17.75	17.71	17.67	17.63
CHAINAGES (M)	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820
DEPTH OF INVERT (m)	0.89	1.89	1.61	1.13	1.03	1.05	1.09	1.13	1.17	1.21	1.25	1.29	1.33	1.37
SLOPE OF PIPE (%)			−0.20%											
REFERENCE PEG No.		TP 11	TP 12				TP 13	TP 14			TP 15	TP 16	TP 17	

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

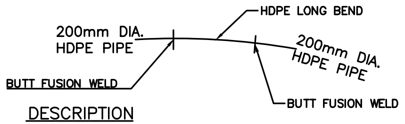
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB15
PLAN AND PROFILE(CH.0+000–0+819.74)
SHEET 1 OF 2

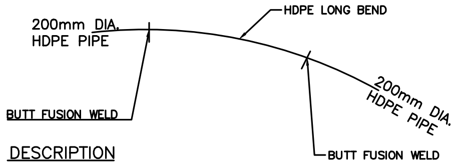
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–019C0
C STATUS	DRAWING No. 6000002–W&S–SM–P–019	C0 REV

DETAIL CH. 0+052.31, 0+172.81, 0+181.72, 0+535.24 & 0+606.12
LINE SB15 - 22.5° H.BEND



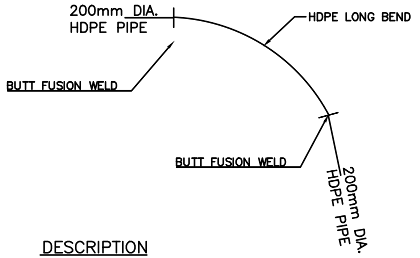
DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+570.32, 0+669.93, 0+701.05 & 0+787.54
LINE SB15 - 45° H.BEND



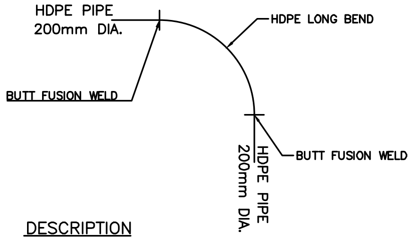
DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+293.85, 0+411.47, 0+459.95 & 0+781.90
LINE SB15 - 60° H.BEND



DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+262.91, 0+367.33, 0+489.88 & 0+761.95
LINE SB15 - 90° H.BEND



DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

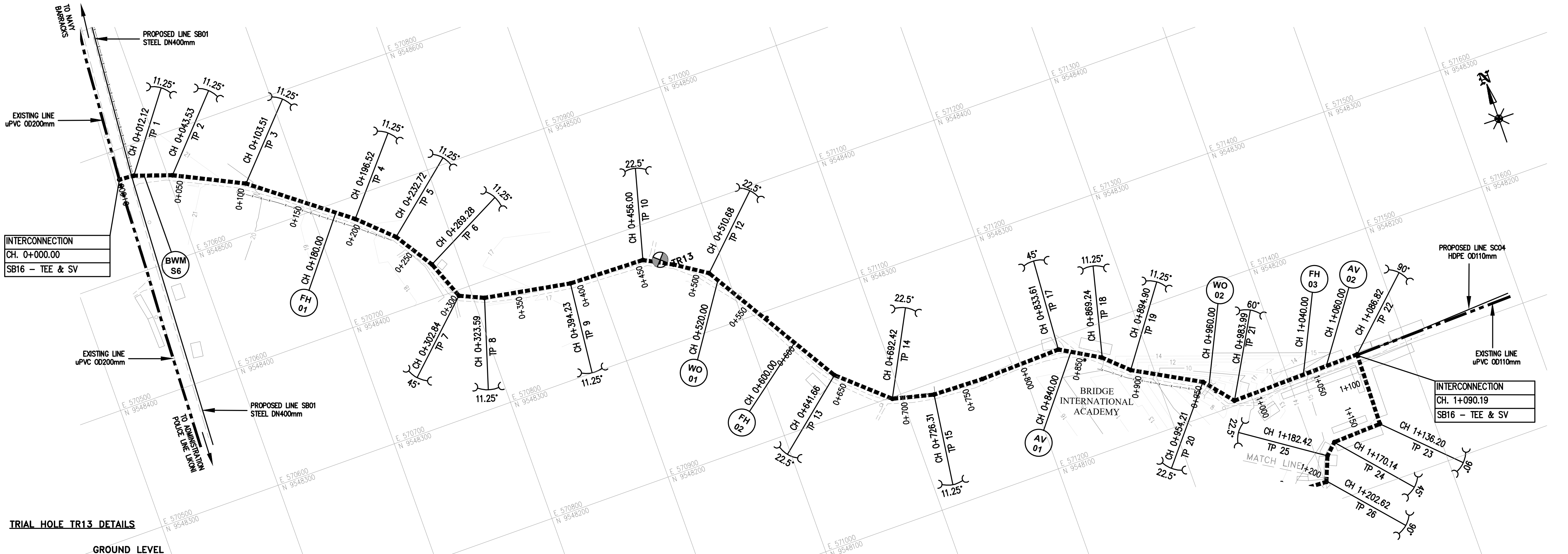
CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND – LINE SB15
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-020C0

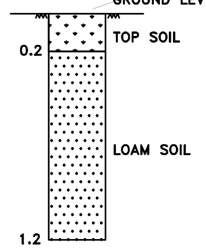
C STATUS | DRAWING No. 6000002-W&S-SM-P-020 | C0 REV

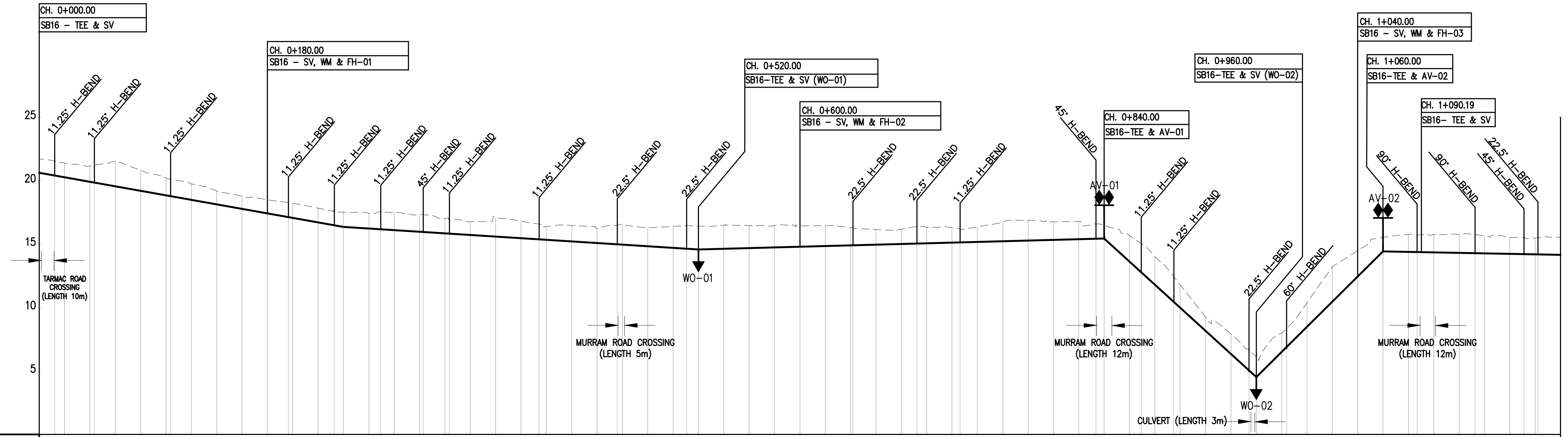


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR13 DETAILS





TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: LOAM SOIL

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	REFERENCE PEG NO.
0+000.00	21.73	20.63	1.10	
0+012.12	21.56	20.41	1.15	TP 1
0+020.00	21.39	20.27	1.12	
0+040.00	21.17	19.92	1.26	
0+043.53	21.23	19.85	1.37	TP 2
0+060.00	21.55	19.56	1.99	
0+080.00	20.82	19.21	1.61	
0+100.00	20.22	18.85	1.37	
0+103.51	20.11	18.79	1.33	TP 3
0+120.00	19.75	18.49	1.25	
0+140.00	19.19	18.14	1.05	
0+160.00	18.78	17.78	1.00	
0+180.00	18.50	17.43	1.08	
0+196.52	18.22	17.13	1.09	TP 4
0+200.00	18.20	17.07	1.13	
0+220.00	17.84	16.72	1.12	
0+232.72	17.57	16.49	1.08	TP 5
0+240.00	17.53	16.36	1.17	
0+260.00	17.44	16.24	1.20	
0+269.28	17.55	16.18	1.38	TP 6
0+280.00	17.50	16.11	1.39	
0+300.00	17.33	15.98	1.35	
0+302.84	17.35	15.96	1.38	TP 7
0+320.00	17.04	15.85	1.19	
0+323.59	16.95	15.83	1.12	TP 8
0+340.00	16.78	15.73	1.05	
0+360.00	17.12	15.60	1.52	
0+380.00	16.82	15.47	1.34	
0+394.23	16.59	15.38	1.21	TP 9
0+400.00	16.39	15.35	1.04	
0+420.00	16.48	15.22	1.25	
0+440.00	16.26	15.09	1.16	
0+456.00	16.50	14.99	1.50	TP 10
0+460.00	16.59	14.97	1.62	
0+480.00	16.32	14.84	1.48	
0+500.00	16.41	14.71	1.69	
0+510.68	16.48	14.65	1.83	TP 12
0+520.00	16.42	14.59	1.84	
0+540.00	16.49	14.64	1.85	
0+560.00	16.46	14.70	1.77	
0+580.00	16.46	14.75	1.71	
0+600.00	16.44	14.80	1.64	
0+620.00	16.47	14.86	1.61	
0+640.00	16.31	14.91	1.40	
0+641.66	16.29	14.92	1.37	TP 13
0+660.00	16.16	14.97	1.19	
0+680.00	16.17	15.02	1.15	
0+692.42	16.39	15.05	1.33	TP 14
0+700.00	16.34	15.07	1.26	
0+720.00	16.30	15.13	1.17	
0+726.31	16.21	15.14	1.07	TP 15
0+740.00	16.36	15.18	1.18	
0+760.00	16.73	15.24	1.49	
0+780.00	16.89	15.29	1.60	
0+800.00	16.76	15.34	1.41	
0+820.00	16.80	15.40	1.40	
0+833.61	16.60	15.43	1.17	TP 17
0+840.00	16.50	15.45	1.05	
0+860.00	15.69	13.63	2.06	
0+869.24	15.05	12.79	2.26	TP 18
0+880.00	14.04	11.81	2.23	
0+894.90	12.45	10.45	2.00	TP 19
0+900.00	11.80	9.99	1.82	
0+920.00	9.27	8.17	1.10	
0+940.00	7.93	6.35	1.58	
0+954.21	6.65	5.05	1.59	TP 20
0+960.00	6.22	4.53	1.70	
0+980.00	8.01	6.51	1.50	
0+983.99	8.36	6.91	1.46	TP 21
1+000.00	10.38	8.49	1.89	
1+020.00	13.23	10.47	2.75	
1+040.00	14.50	12.46	2.04	
1+060.00	15.54	14.44	1.10	
1+080.00	15.76	14.40	1.36	
1+086.82	15.75	14.38	1.37	TP 22
1+100.00	15.76	14.36	1.40	
1+120.00	15.77	14.32	1.45	
1+136.20	15.72	14.26	1.46	TP 23
1+140.00	15.67	14.28	1.39	
1+160.00	15.53	14.24	1.29	
1+170.14	15.61	14.18	1.43	TP 24
1+180.00	15.49	14.20	1.29	
1+182.40	15.57	14.16	1.42	TP 25
1+200.00	15.54	14.16	1.38	

SLOPE OF PIPE (%): −1.78% −0.63% 0.27% −9.12% 9.91% −0.20%

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
— 14 —	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
—	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
—·—·—	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

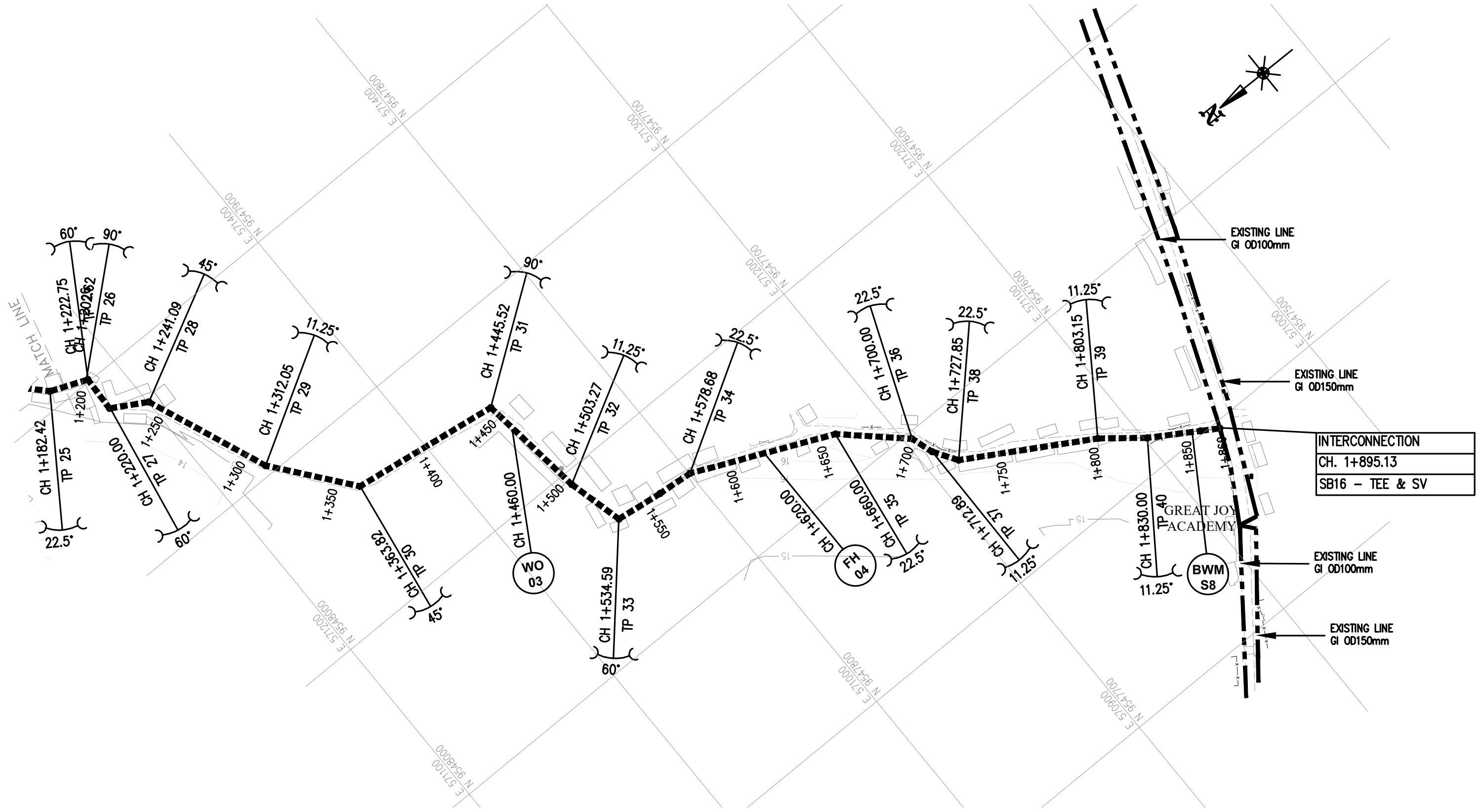
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND – LINE SB16
PLAN AND PROFILE(CH. 0+000–1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-021C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-021 C0 REV

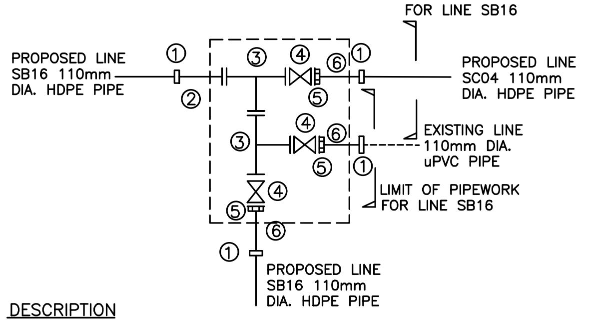


PLAN

SCALE HOR 1:2000

CHAMBER SIZE
2000x1200

DETAIL
CH. 1+090.19
LINE SB16 - INTERCONNECTION

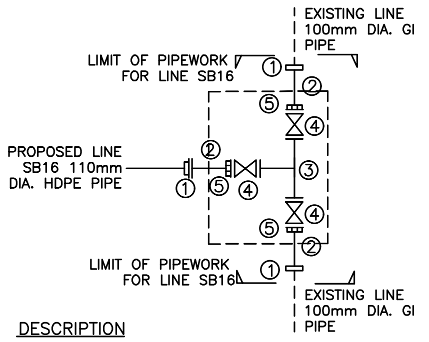


DESCRIPTION
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 Nos. 100mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

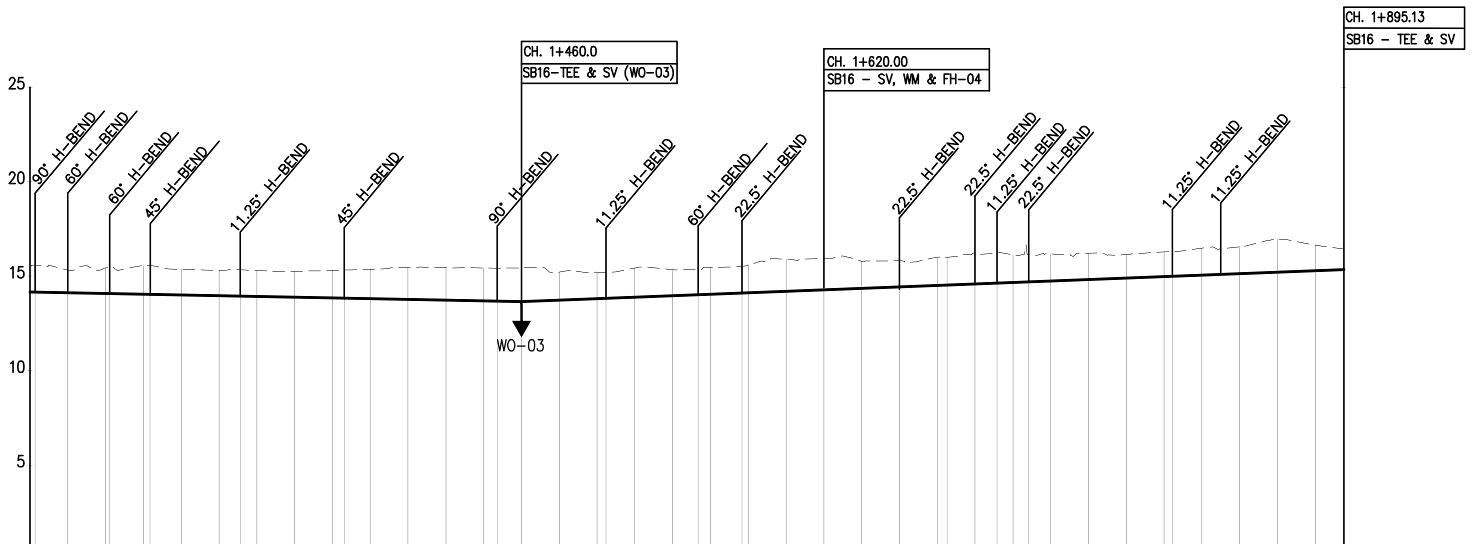
CHAMBER SIZE
1500x1200

DETAIL
CH. 1+895.13
LINE SB16 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 100mm DIA. FLANGE ADAPTOR



DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: LOAM SOIL

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)
1+200.00	15.54	14.16	1.38
1+202.62	15.30	14.11	1.19
1+220.00	15.32	14.12	1.20
1+240.00	15.43	14.08	1.35
1+241.09	15.45	14.08	1.37
1+260.00	15.55	14.04	1.51
1+263.45	15.58	14.03	1.55
1+280.00	15.35	14.00	1.35
1+300.00	15.31	13.96	1.35
1+312.05	15.23	13.89	1.34
1+320.00	15.29	13.92	1.37
1+340.00	15.25	13.88	1.37
1+360.00	15.30	13.84	1.46
1+363.82	15.37	13.79	1.58
1+380.00	15.35	13.80	1.56
1+400.00	15.46	13.76	1.70
1+420.00	15.44	13.72	1.72
1+440.00	15.43	13.68	1.75
1+445.52	15.45	13.67	1.78
1+460.00	15.43	13.64	1.79
1+480.00	15.21	13.72	1.49
1+500.00	15.21	13.80	1.41
1+503.27	15.46	13.90	1.56
1+520.00	15.43	13.87	1.56
1+540.00	15.34	13.95	1.39
1+534.59	15.46	14.03	1.43
1+560.00	15.46	14.03	1.43
1+578.68	15.84	14.20	1.64
1+580.00	15.59	14.11	1.49
1+600.00	15.89	14.18	1.71
1+620.00	15.94	14.26	1.67
1+640.00	15.78	14.34	1.44
1+660.00	15.81	14.42	1.39
1+680.00	16.00	14.50	1.51
1+685.26	15.99	14.52	1.47
1+700.00	16.20	14.57	1.62
1+712.89	16.29	14.68	1.61
1+720.00	16.12	14.65	1.46
1+727.85	16.19	14.73	1.46
1+740.00	16.18	14.73	1.45
1+760.00	16.20	14.81	1.40
1+780.00	16.15	14.89	1.26
1+800.00	16.28	14.96	1.32
1+803.15	16.42	15.08	1.34
1+820.00	16.47	15.04	1.43
1+840.00	16.55	15.12	1.43
1+860.00	16.93	15.20	1.74
1+880.00	16.64	15.28	1.36
1+895.13	16.43	15.33	1.10

SLOPE OF PIPE (%): -0.20% ; 0.39%

REFERENCE PEG NO.: TP 26, TP 27, TP 28, TP 29, TP 30, TP 31, TP 32, TP 33, TP 34, TP 35, TP 36, TP 37, TP 38, TP 39, TP 40

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

═ ═ ═	ROAD (TARMAC)
= = = =	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⌶	CULVERT
⋈	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬▬ ▪ ▪ ▬▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
✿ ✿	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

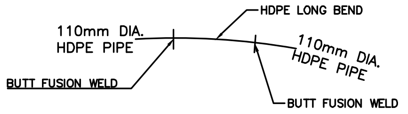
Drawing Title
SOUTH MAINLAND – LINE SB16
PLAN AND PROFILE(CH.1+200–1+895.13)
SHEET 2 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-022C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-022 CO REV

DETAIL

CH. 0+012.12, 0+043.53, 0+103.51, 0+196.52, 0+232.72, 0+269.28, 0+323.59, 0+394.23, 0+726.31, 0+869.24, 0+894.90, 1+334.66, 1+527.96, 1+738.99, 1+829.32 & 1+855.95

LINE SB16 - 11.25° H.BEND



DESCRIPTION

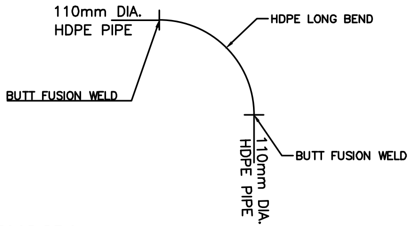
16 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 1+149.41 & 1+468.19

LINE SB16 - 90° BEND



DESCRIPTION

2 Nos. REQUIRED

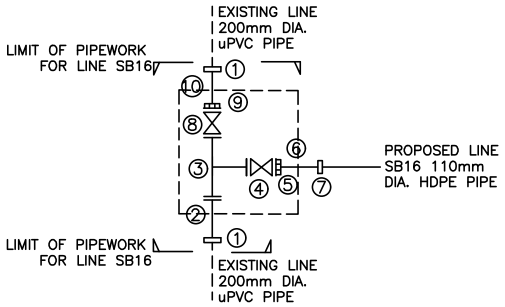
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1800x1200

DETAIL

CH. 0+000.00

LINE SB16 - INTERCONNECTION



DESCRIPTION

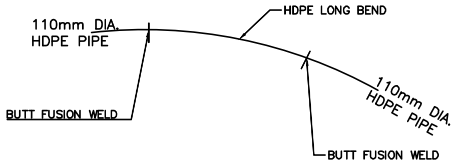
1 No. REQUIRED

① 2 Nos. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING
⑧ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑨ 1 No. 200mm DIA. FLANGE ADAPTOR
⑩ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

DETAIL

CH. 0+302.64, 0+833.61, 1+189.14, 1+263.45 & 1+386.45

LINE SB16 - 45° H.BEND



DESCRIPTION

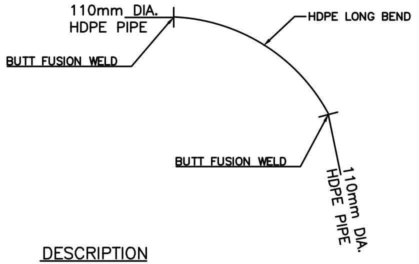
5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+983.99, 1+222.75, 1+242.13 & 1+559.27

LINE SB16 - 60° H.BEND



DESCRIPTION

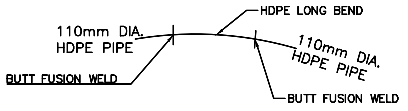
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+456.00, 0+510.68, 0+641.66, 0+692.42, 0+954.21, 1+201.53, 1+604.51, 1+685.26, 1+726.31 & 1+753.99

LINE SB16 - 22.5° H.BEND



DESCRIPTION

10 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

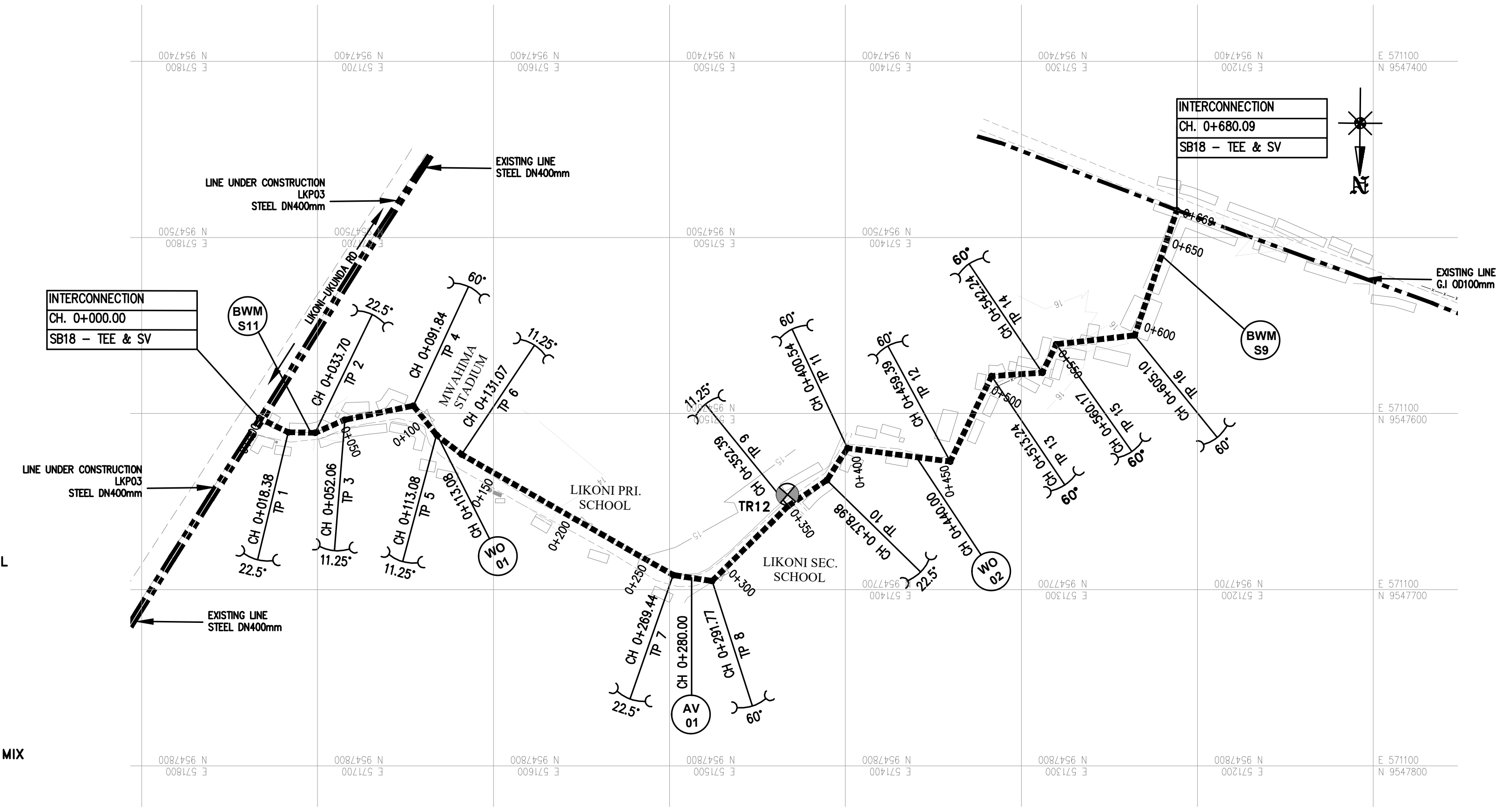
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB16
PIPE FITTING DETAILS
SHEET 3 OF 3

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-023C0

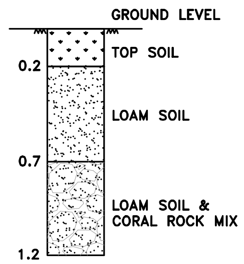
C STATUS | DRAWING No. 6000002-W&S-SM-P-023 | C0 REV

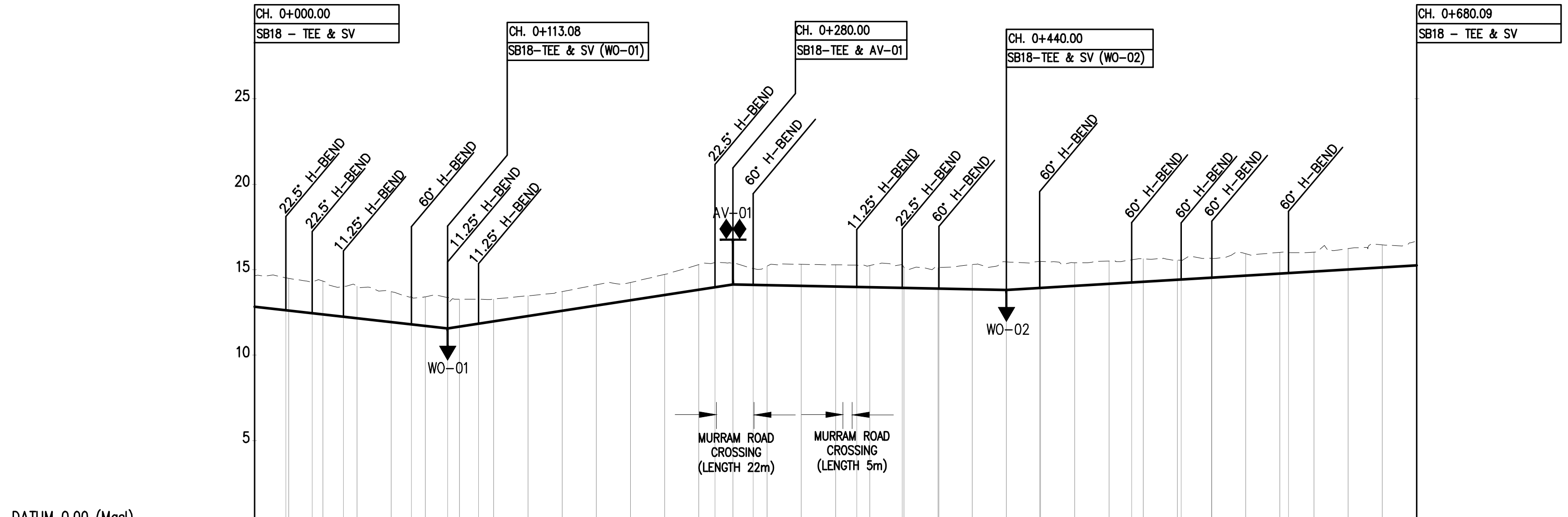


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR12 DETAILS





DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 10												
GEOLOGICAL CONDITION	LOAM SOIL UNDERLAIN WITH LOAM AND CORAL ROCK MIX												
EXISTING GROUND LEVEL (m)	14.65	14.51	14.49	14.28	14.34	14.02	14.04	13.71	13.44	13.41	13.37	13.27	13.27
INVERT LEVELS (m)	12.83	12.62	12.61	12.45	12.38	12.25	12.16	11.94	11.80	11.71	11.57	11.67	11.84
CHAINAGE (m)	0+000.00	0+018.38	0+020.00	0+033.70	0+040.00	0+052.06	0+060.00	0+080.00	0+091.84	0+100.00	0+113.08	0+120.00	0+131.07
DEPTH OF INVERT (m)	1.82	1.89	1.88	1.83	1.95	1.77	1.88	1.78	1.63	1.69	1.81	1.60	1.43
SLOPE OF PIPE (%)	–1.12%										1.54%		
REFERENCE PEG NO.		TP 1		TP 2		TP 3			TP 4		TP 5		TP 6

EXISTING GROUND LEVEL (m)	13.28	13.48	13.72	14.12	14.25	14.72	15.30	15.42	15.38	15.07	15.21	15.32	15.29
INVERT LEVELS (m)	11.98	12.29	12.60	12.91	13.22	13.53	13.83	13.98	14.14	14.12	14.10	14.06	14.02
CHAINAGE (m)	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+269.44	0+280.00	0+291.77	0+300.00	0+320.00	0+340.00
DEPTH OF INVERT (m)	1.30	1.19	1.12	1.21	1.04	1.19	1.47	1.44	1.24	0.95	1.11	1.26	1.27
SLOPE OF PIPE (%)									–0.20%				
REFERENCE PEG NO.								TP 7		TP 8			

EXISTING GROUND LEVEL (m)	15.27	15.25	15.30	15.15	15.12	15.11	15.30	15.46	15.50	15.49	15.41	15.51	15.58
INVERT LEVELS (m)	14.00	13.98	13.94	13.94	13.90	13.90	13.86	13.82	13.94	13.94	14.06	14.18	14.26
CHAINAGE (m)	0+352.39	0+360.00	0+378.98	0+380.00	0+400.00	0+400.54	0+420.00	0+440.00	0+459.39	0+460.00	0+480.00	0+500.00	0+513.24
DEPTH OF INVERT (m)	1.27	1.26	1.35	1.21	1.22	1.21	1.44	1.64	1.56	1.55	1.35	1.33	1.32
SLOPE OF PIPE (%)								0.60%					
REFERENCE PEG NO.	TP 9		TP 10			TP 11			TP 12				TP 13

EXISTING GROUND LEVEL (m)	15.65	15.56	15.55	15.67	15.67	15.93	16.01	16.00	16.04	16.23	16.46	16.66	16.66
INVERT LEVELS (m)	14.30	14.42	14.43	14.54	14.54	14.66	14.78	14.81	14.90	15.02	15.14	15.26	15.26
CHAINAGE (m)	0+520.00	0+540.00	0+542.24	0+560.00	0+560.17	0+580.00	0+600.00	0+605.10	0+620.00	0+640.00	0+660.00	0+680.00	0+680.09
DEPTH OF INVERT (m)	1.35	1.14	1.12	1.13	1.12	1.27	1.23	1.19	1.14	1.22	1.32	1.40	1.41
SLOPE OF PIPE (%)													
REFERENCE PEG NO.			TP 14		TP 15			TP 16					

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
– – – –	ROAD / TRACK (EARTH / MURRAM)
–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

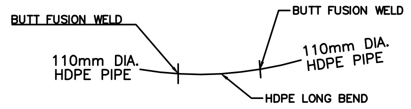
Drawing Title

SOUTH MAINLAND – LINE SB18
PLAN AND PROFILE(CH.0+000–0+680.09)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–024C0
C STATUS	DRAWING No. 6000002–W&S–SM–P–024 · C0 REV

DETAIL

CH. 0+018.38, 0+033.70, 0+269.44 & 0+378.98
LINE SB18 - 22.5° H.BEND



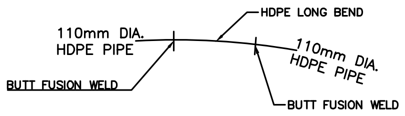
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+052.06, 0+113.08, 0+131.07 & 0+352.39
LINE SB18 - 11.25° H.BEND



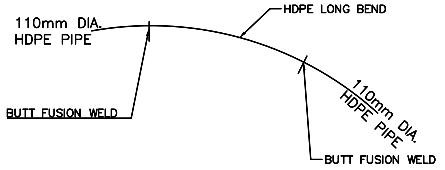
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+091.84, 0+291.77, 0+400.54, 0+605.10, 0+513.24,
0+542.24, 0+560.17 & 0+459.39
LINE SB18 - 60° H.BEND



DESCRIPTION

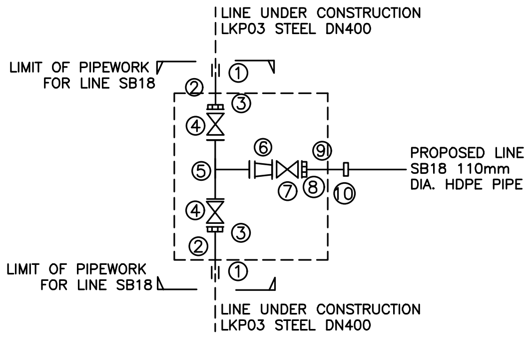
8 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1500x1500

DETAIL

CH. 0+000.00
LINE SB18 -INTERCONNECTION



DESCRIPTION

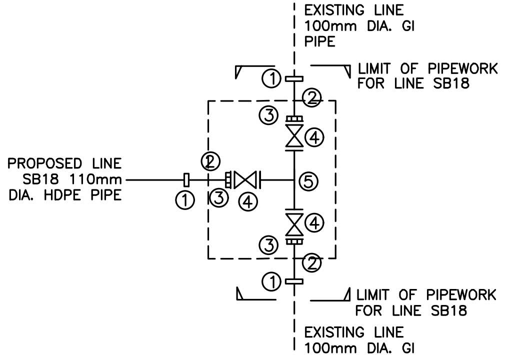
1 No. REQUIRED

① 2 Nos. 400mm DIA. STRAIGHT COUPLING
② 2 Nos. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 400mm DIA. FLANGE ADAPTOR
④ 2 Nos. 400mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+680.09
LINE SB18 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

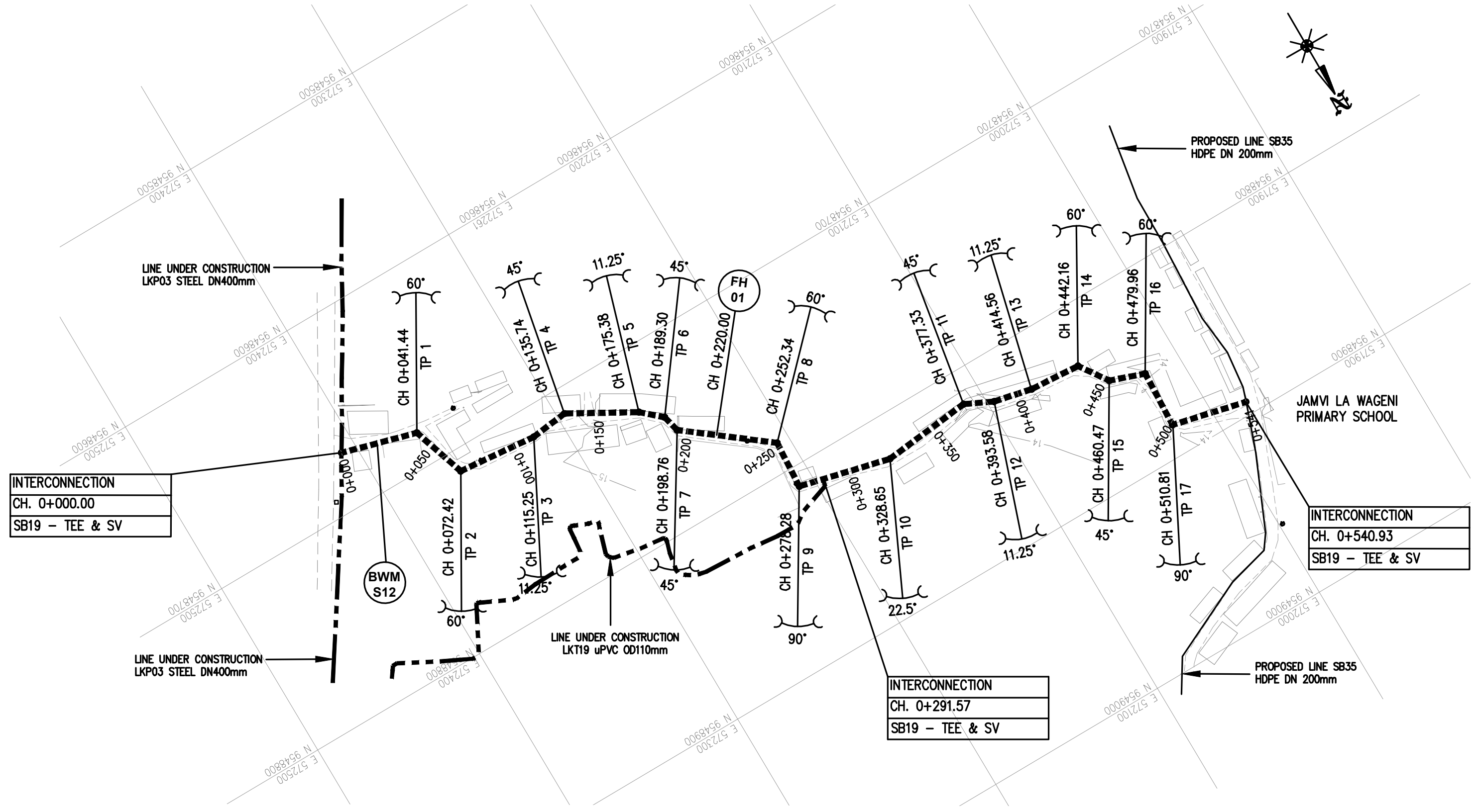
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB18
PIPE FITTING DETAILS
SHEET 2 OF 2

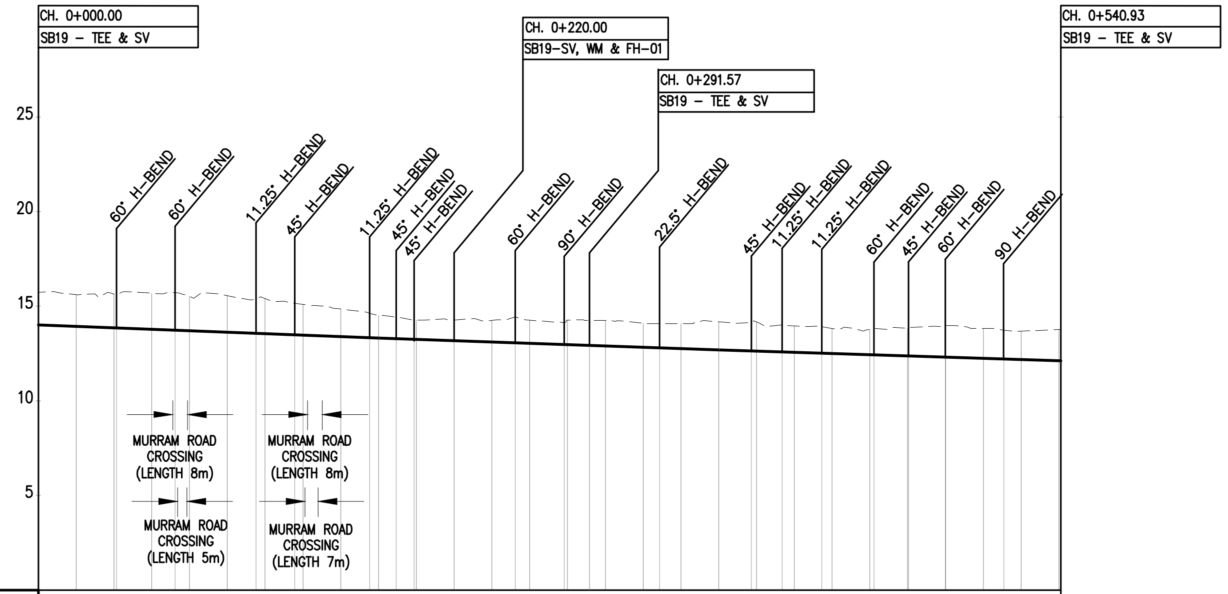
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-025C0

C STATUS | DRAWING No. **6000002-W&S-SM-P-025** | C0 REV



PLAN

SCALE HOR 1:2000



DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 10															
GEOLOGICAL CONDITION	SAND SOIL															
EXISTING GROUND LEVEL (m)	15.73	15.61	15.64	15.60	15.69	15.72	15.51	15.56	15.36	15.40	15.16	15.09	14.85	14.62	14.51	14.42
INVERT LEVELS (m)	14.01	13.93	13.85	13.85	13.78	13.73	13.70	13.62	13.56	13.54	13.48	13.47	13.39	13.33	13.31	13.28
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+041.44	0+060.00	0+072.42	0+080.00	0+100.00	0+115.25	0+120.00	0+135.74	0+140.00	0+160.00	0+175.38	0+180.00	0+189.30
DEPTH OF INVERT (m)	1.72	1.68	1.78	1.75	1.91	1.99	1.81	1.93	1.80	1.85	1.67	1.62	1.46	1.29	1.20	1.14
SLOPE OF PIPE (%)	-0.39%															-0.35%
REFERENCE PEG NO.				TP 1		TP 2			TP 3		TP 4			TP 5		TP 6

EXISTING GROUND LEVEL (m)	14.26	14.26	14.27	14.25	14.42	14.26	14.11	14.26	14.25	14.24	14.09	14.08	14.07	14.17	14.14	14.17
INVERT LEVELS (m)	13.25	13.24	13.17	13.10	13.06	13.03	12.97	12.96	12.92	12.90	12.83	12.80	12.76	12.69	12.63	12.62
CHAINAGE (m)	0+198.76	0+200.00	0+220.00	0+240.00	0+252.34	0+260.00	0+278.28	0+280.00	0+291.57	0+300.00	0+320.00	0+328.65	0+340.00	0+360.00	0+377.33	0+380.00
DEPTH OF INVERT (m)	1.01	1.02	1.10	1.14	1.36	1.23	1.14	1.30	1.33	1.35	1.27	1.29	1.32	1.49	1.51	1.54
SLOPE OF PIPE (%)														-0.32%		
REFERENCE PEG NO.	TP 7				TP 8		TP 9					TP 10			TP 11	

EXISTING GROUND LEVEL (m)	14.01	13.96	13.96	13.82	13.78	13.82	13.83	13.84	13.97	13.97	13.83	13.72	13.68	13.76	13.76
INVERT LEVELS (m)	12.58	12.56	12.51	12.50	12.43	12.43	12.37	12.37	12.31	12.31	12.24	12.21	12.18	12.12	12.11
CHAINAGE (m)	0+393.58	0+400.00	0+414.56	0+420.00	0+440.00	0+442.16	0+460.00	0+460.47	0+479.96	0+480.00	0+500.00	0+510.81	0+520.00	0+540.00	0+540.93
DEPTH OF INVERT (m)	1.43	1.40	1.45	1.32	1.34	1.40	1.46	1.47	1.66	1.66	1.58	1.51	1.49	1.65	1.65
SLOPE OF PIPE (%)															
REFERENCE PEG NO.	TP 12		TP 13			TP 14		TP 15	TP 16			TP 17			

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

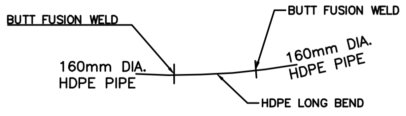
SOUTH MAINLAND – LINE SB19
PLAN AND PROFILE(CH.0+000–0+540.93)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-026C0

C STATUS	DRAWING No. 6000002-W&S-SM-P-026	C0 REV

DETAIL

CH. 0+115.25, 0+175.38, 0+393.58 & 0+414.56
LINE SB19 - 11.25°



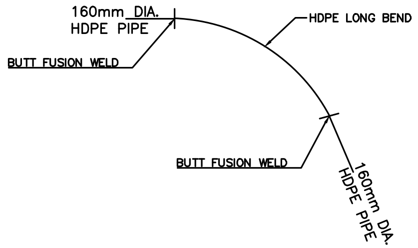
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+041.44, 0+072.42, 0+252.34, 0+442.16 & 0+479.96
LINE SB19 - 60° H.BEND



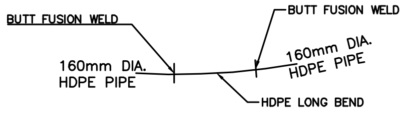
DESCRIPTION

5 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+328.65
LINE SB19 - 22.5° H.BEND



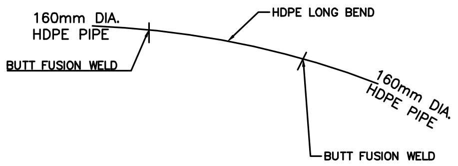
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+135.74, 0+189.30, 0+198.76, 0+377.33 & 0+460.47
LINE SB19 - 45° H.BEND



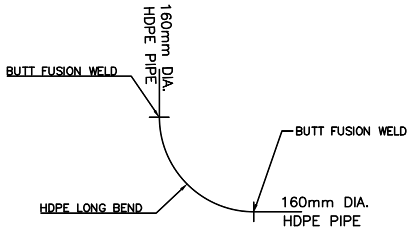
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+278.28 & 0+510.81
LINE SB19 - 90° BEND



DESCRIPTION

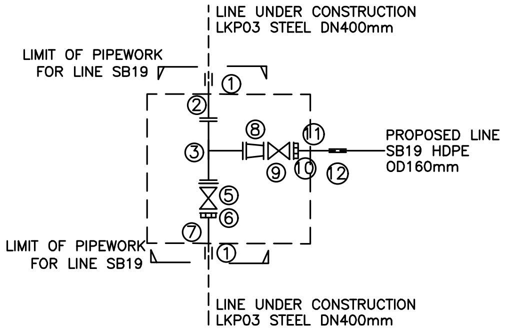
2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
2000x2000

DETAIL

CH. 0+000.00
LINE SB19 - INTERCONNECTION



DESCRIPTION

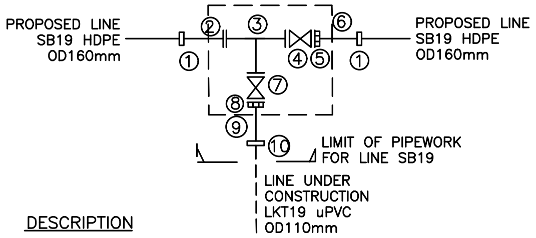
1 No. REQUIRED

① 2 Nos. 400mm DIA. STRAIGHT COUPLING
② 1 No. 400mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG A PUDDLE FLANGE
③ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
⑤ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑥ 1 No. 400mm DIA. FLANGE ADAPTOR
⑦ 1 No. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑧ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑨ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 150mm DIA. FLANGE ADAPTOR
⑪ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 160/150mm DIA. STEPPED COUPLING

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+291.57
LINE SB19 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160/150mm DIA. STEPPED COUPLING

② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE

④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 100/110mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

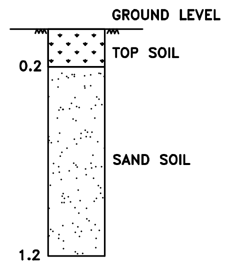
Drawing Title

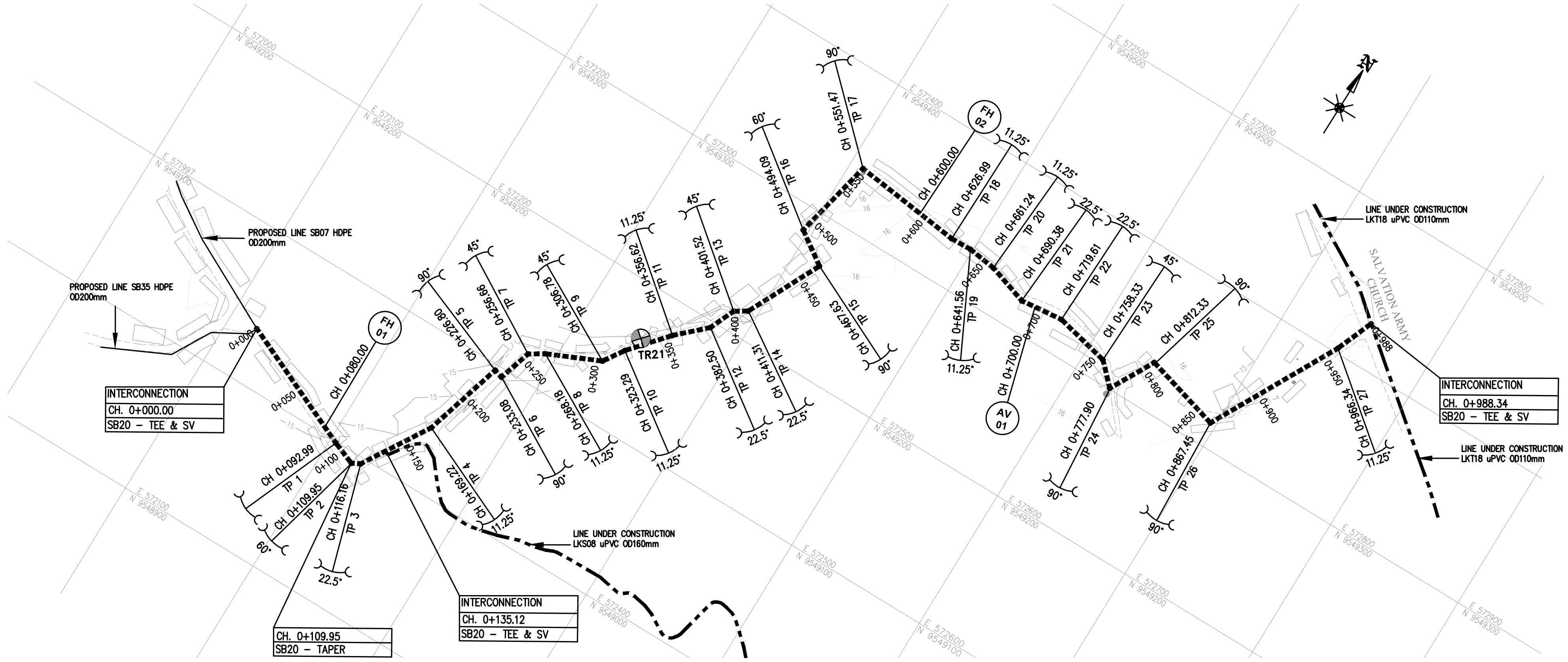
SOUTH MAINLAND – LINE SB19
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-027C0

C STATUS | DRAWING No. **6000002-W&S-SM-P-027** | CO REV

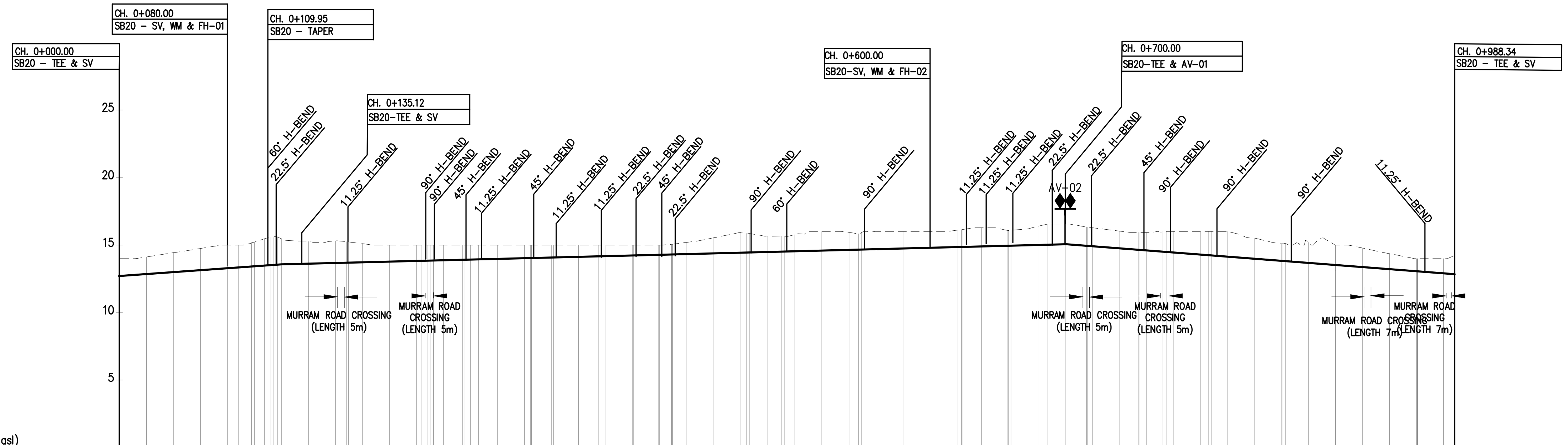
TRIAL HOLE TR21 DETAILS





PLAN

SCALE HOR 1:2000



DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE: DN 200 HDPE | DN 160 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: SAND SOIL

EXISTING GROUND LEVEL (m)	14.00	14.11	14.43	14.75	15.00	15.22	15.48	15.27	15.30	15.10	15.00	15.00	15.00	15.00	15.00	15.00	15.00
INVERT LEVELS (m)	12.70	12.84	12.99	13.14	13.28	13.43	13.58	13.63	13.68	13.73	13.78	13.82	13.87	13.92	13.97	14.02	14.07
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320
DEPTH OF INVERT (m)	1.30	1.27	1.44	1.61	1.72	1.79	1.90	1.64	1.63	1.37	1.22	1.18	1.13	1.08	1.03	0.98	0.93

EXISTING GROUND LEVEL (m)	15.00	15.00	15.00	15.00	15.20	15.54	15.94	15.66	15.78	16.00	15.94	16.00	16.00	16.00	16.09	16.28	16.09
INVERT LEVELS (m)	14.12	14.17	14.22	14.27	14.32	14.38	14.43	14.48	14.53	14.59	14.64	14.69	14.75	14.80	14.85	14.90	14.96
CHAINAGES (M)	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660
DEPTH OF INVERT (m)	0.88	0.83	0.78	0.73	0.88	1.17	1.51	1.18	1.24	1.41	1.30	1.31	1.25	1.20	1.24	1.38	1.13

EXISTING GROUND LEVEL (m)	16.40	16.55	16.28	16.03	15.93	16.00	16.00	16.00	15.51	15.09	15.19	15.00	14.78	14.36	14.00	14.00	14.23
INVERT LEVELS (m)	15.01	15.06	14.92	14.76	14.61	14.45	14.30	14.15	13.99	13.84	13.68	13.53	13.38	13.22	13.07	12.91	12.85
CHAINAGES (M)	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	0+988
DEPTH OF INVERT (m)	1.39	1.49	1.37	1.27	1.32	1.55	1.70	1.85	1.52	1.26	1.51	1.47	1.40	1.14	0.93	1.09	1.38

SLOPE OF PIPE (%): 0.73% | 0.25% | 0.26% | −0.77%

REFERENCE PEG No.: TP 1, TP 2, TP 3, TP 4, TP 5, TP 6, TP 7, TP 8, TP 9, TP 10, TP 11, TP 12, TP 13, TP 14, TP 15, TP 16, TP 17, TP 18, TP 19, TP 20, TP 21, TP 22, TP 23, TP 24, TP 25, TP 26, TP 27

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
— 14 —	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⌶	CULVERT
—	GATE
☐	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
———	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

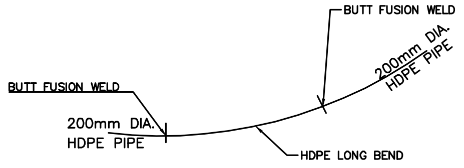
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB20
PLAN AND PROFILE(CH.0+000–0+988.34)
SHEET 1 OF 2

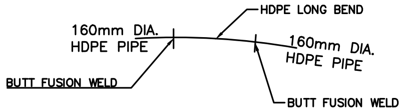
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-028C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-028
	CO REV

DETAIL CH. 0+109.95
LINE SB20 - 60° H.BEND



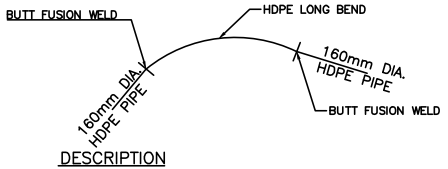
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+169.22, 0+268.18, 0+323.29, 0+356.62, 0+626.99, 0+641.56, 0+661.24 & 0+966.34
LINE SB20 - 11.25° H.BEND



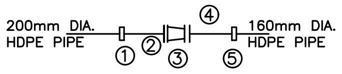
DESCRIPTION
8 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+494.09
LINE SB20 - 60° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

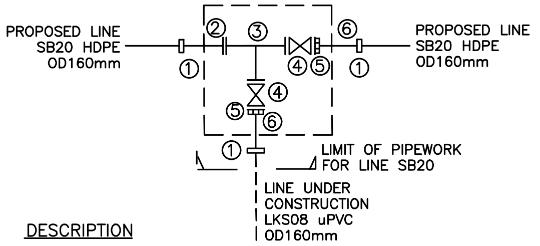
DETAIL CH. 0+109.95
LINE SB20 - TAPER



DESCRIPTION
1 No. REQUIRED
① 1 No. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
③ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
④ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
⑤ 1 No. 160/150mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1500

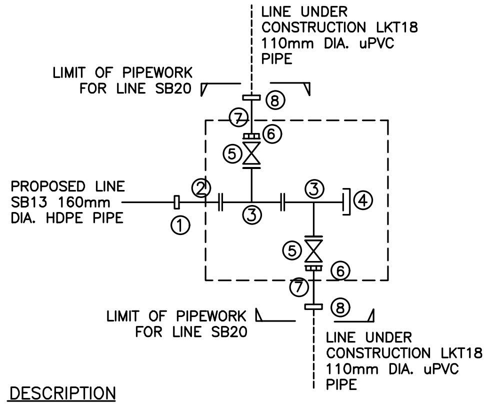
DETAIL CH. 0+135.12
LINE SB20 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 3 Nos. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

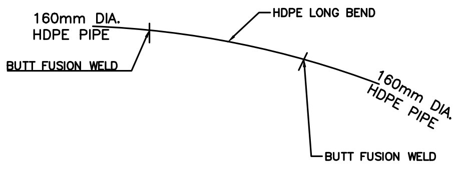
CHAMBER SIZE
1500x1500

DETAIL CH. 0+988.34
SB20 - INTERCONNECTION



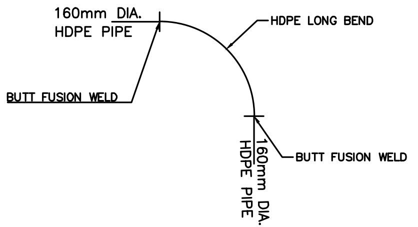
DESCRIPTION
1 No. REQUIRED
① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. BLANK FLANGE
⑤ 2 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑥ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑦ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑧ 2 Nos. 100/110mm DIA. STEPPED COUPLING

DETAIL CH. 0+256.66, 0+306.78, 0+401.52 & 0+758.33
LINE SB20 - 45° H.BEND



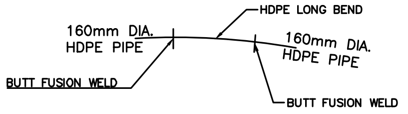
DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+226.80, 0+233.08, 0+467.63, 0+551.47, 0+777.90, 0+812.33 & 0+867.45
LINE SB20 - 90° H.BEND



DESCRIPTION
7 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+116.16, 0+382.50, 0+411.31, 0+690.38 & 0+719.61
LINE SB20 - 22.5° H.BEND



DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

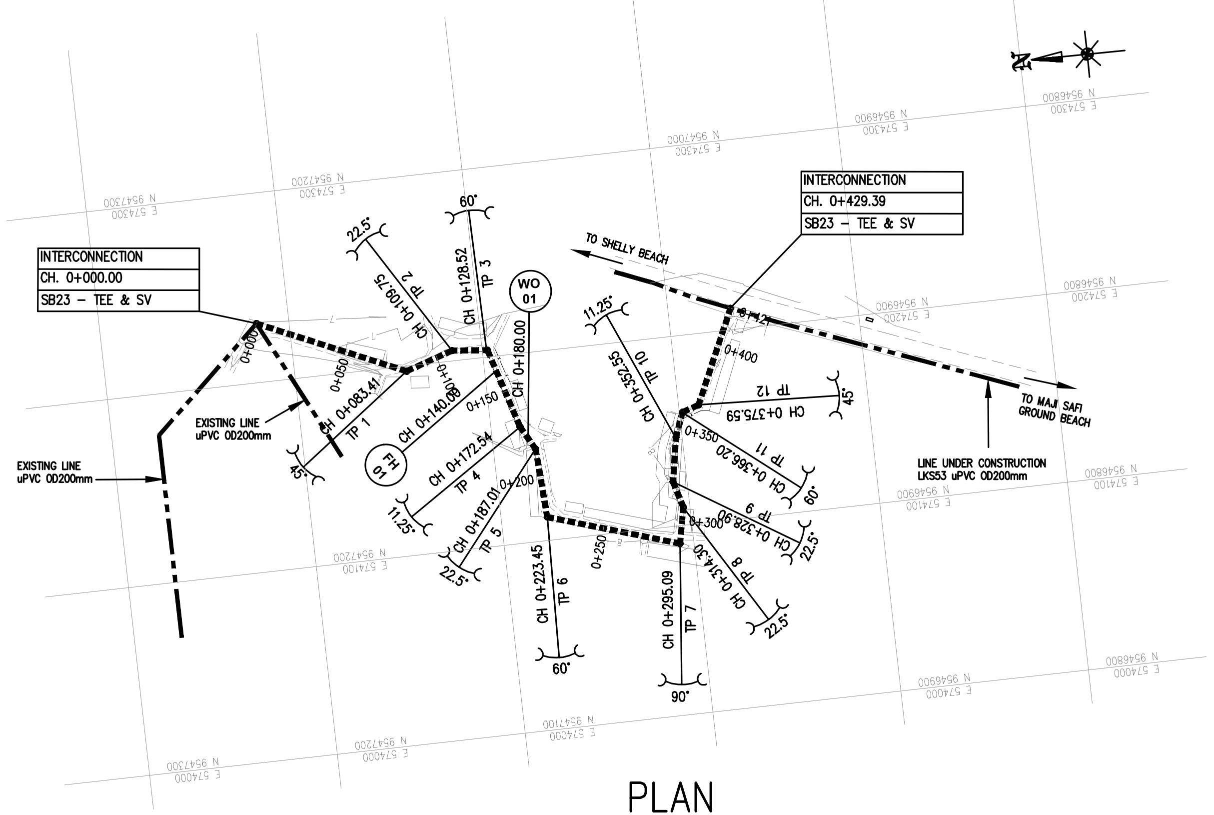
CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND – LINE SB20
PIPE FITTING DETAILS
SHEET 2 OF 2

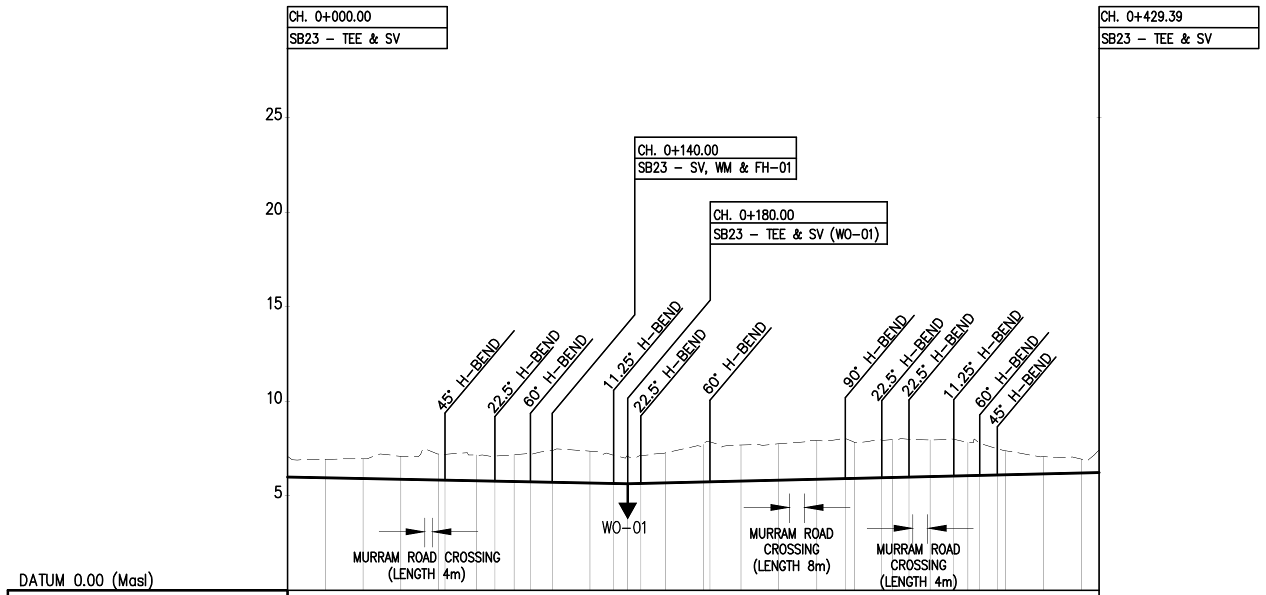
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-029C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-029 | C0 REV



PLAN

SCALE HOR 1:2000



TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 10											
GEOLOGICAL CONDITION	SAND SOIL											
EXISTING GROUND LEVEL (m)	7.10	6.93	6.96	7.09	7.20	7.19	7.15	7.09	7.17	7.17	7.41	7.36
INVERT LEVELS (m)	6.00	5.96	5.92	5.88	5.84	5.83	5.80	5.78	5.76	5.74	5.72	5.68
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+083.41	0+100.00	0+109.75	0+120.00	0+128.52	0+140.00	0+160.00
DEPTH OF INVERT (m)	1.10	0.97	1.04	1.22	1.37	1.36	1.36	1.32	1.41	1.43	1.69	1.68
SLOPE OF PIPE (%)	-0.20%											
REFERENCE PEG NO.						TP 1		TP 2		TP 3		

EXISTING GROUND LEVEL (m)	7.14	7.09	7.14	7.28	7.72	7.85	7.68	7.75	7.93	8.04	7.83	7.94
INVERT LEVELS (m)	5.65	5.64	5.65	5.68	5.73	5.74	5.78	5.82	5.87	5.90	5.92	5.95
CHAINAGE (m)	0+172.54	0+180.00	0+187.01	0+200.00	0+220.00	0+223.45	0+240.00	0+260.00	0+280.00	0+295.09	0+300.00	0+314.30
DEPTH OF INVERT (m)	1.49	1.46	1.49	1.59	2.00	2.12	1.91	1.93	2.06	2.13	1.91	1.99
SLOPE OF PIPE (%)			0.23%									
REFERENCE PEG NO.	TP 4		TP 5			TP 6				TP 7		TP 8

EXISTING GROUND LEVEL (m)	7.97	7.98	7.96	8.00	7.82	7.78	7.46	7.38	7.07	6.93	7.43
INVERT LEVELS (m)	5.96	5.98	6.01	6.04	6.06	6.07	6.09	6.10	6.15	6.20	6.22
CHAINAGE (m)	0+320.00	0+328.90	0+340.00	0+352.55	0+360.00	0+366.20	0+375.59	0+380.00	0+400.00	0+420.00	0+429.39
DEPTH OF INVERT (m)	2.00	2.00	1.95	1.96	1.76	1.71	1.37	1.28	0.92	0.74	1.21
SLOPE OF PIPE (%)											
REFERENCE PEG NO.		TP 9		TP 10		TP 11	TP 12				

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – – – –	ROAD (TARMAC)
- - - - - - -	ROAD / TRACK (EARTH / MURRAM)
–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⌶	CULVERT
⋈	GATE
□	BUILDINGS
■ ■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
⚲ ⚲	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

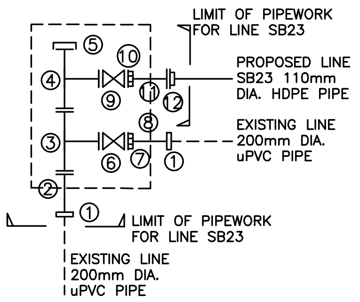
SOUTH MAINLAND – LINE SB23
PLAN AND PROFILE(CH.0+000–0+429.39)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-030C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-030 C0 REV

CHAMBER SIZE
1500x1500

DETAIL

CH. 0+000.00
LINE SB23 - INTERCONNECTION



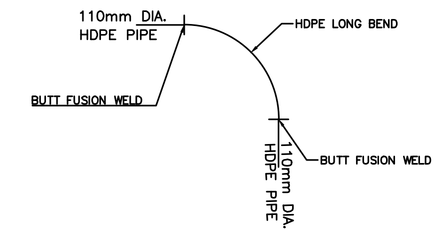
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 200mm DIA. STRAIGHT COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 200x200mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
⑤ 1 No. 200mm DIA. BLANK FLANGE
⑥ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑦ 1 No. 200mm DIA. FLANGE ADAPTOR
⑧ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 100mm DIA. FLANGE ADAPTOR
⑪ 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 110/100mm DIA. STEPPED COUPLING

DETAIL

CH. 0+295.09
LINE SB23 - 90° H.BEND



DESCRIPTION

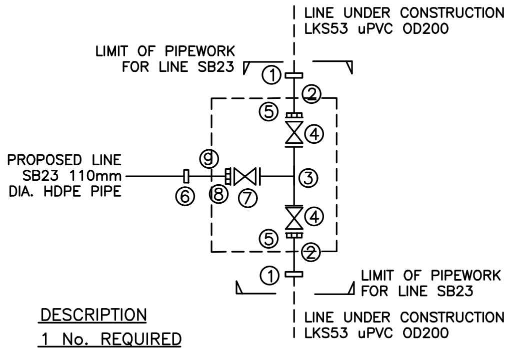
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1500x1500

DETAIL

CH. 0+429.39
LINE SB23 - INTERCONNECTION



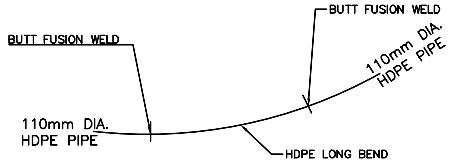
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 200mm DIA. STRAIGHT COUPLING
② 2 Nos. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 200mm DIA. FLANGE ADAPTOR
⑥ 1 No. 110/100mm DIA. STEPPED COUPLING
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

DETAIL

CH. 0+083.41 & 0+375.59
LINE SB23 - 45° H.BEND



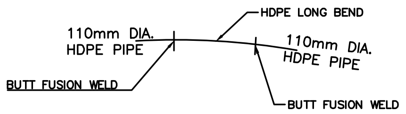
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+109.75, 0+187.01, 0+314.30 & 0+328.90
LINE SB23 - 22.5° H.BEND



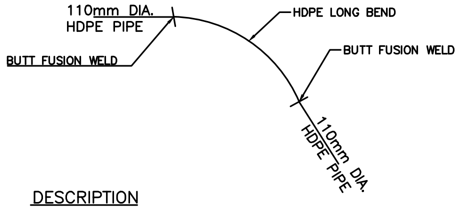
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+128.52, 0+223.45 & 0+366.20
LINE SB23 - 60° H.BEND



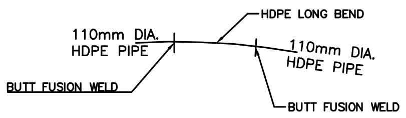
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+172.54 & 0+352.55
LINE SB23 - 11.25° H.BEND



DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌐ ¬	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

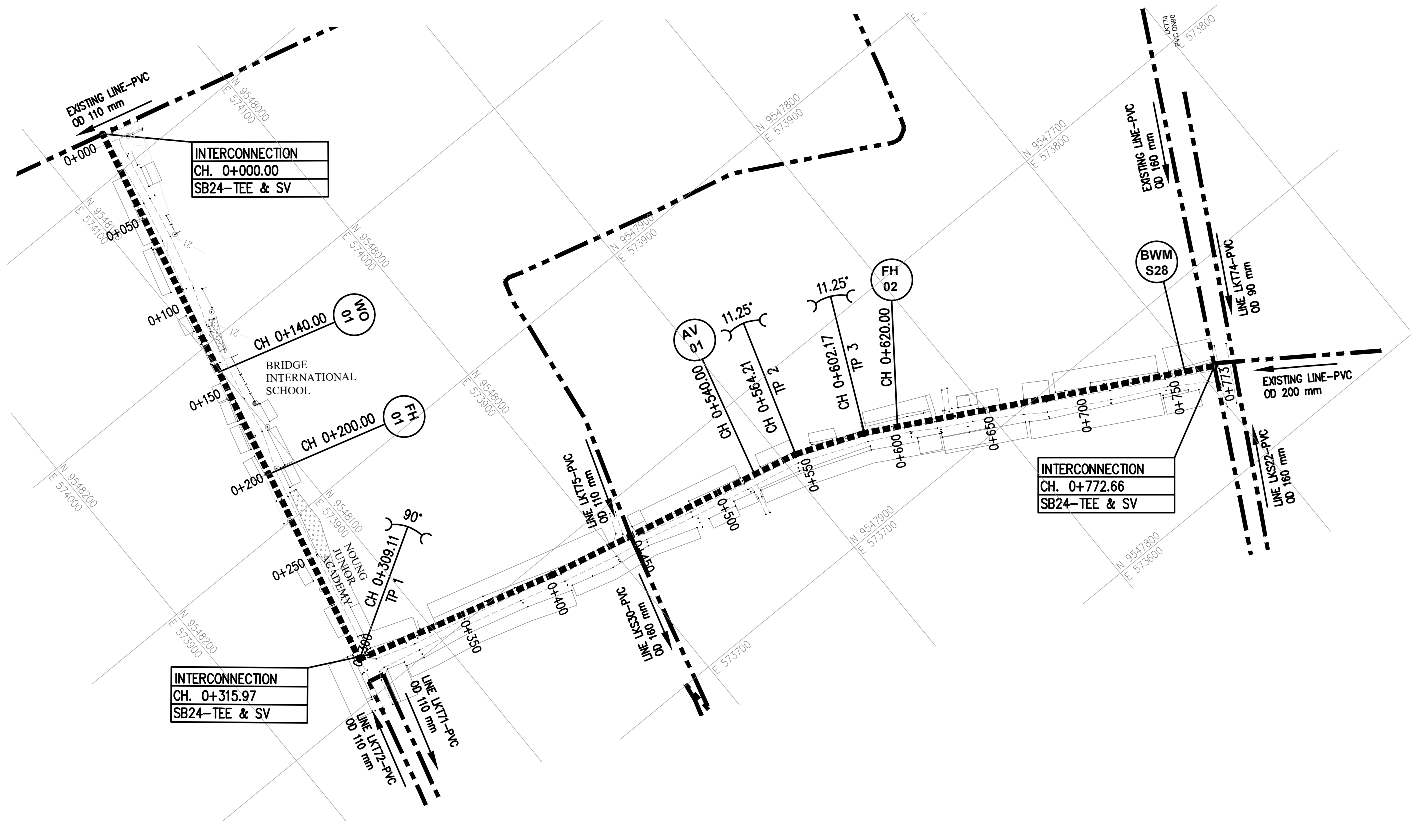
INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

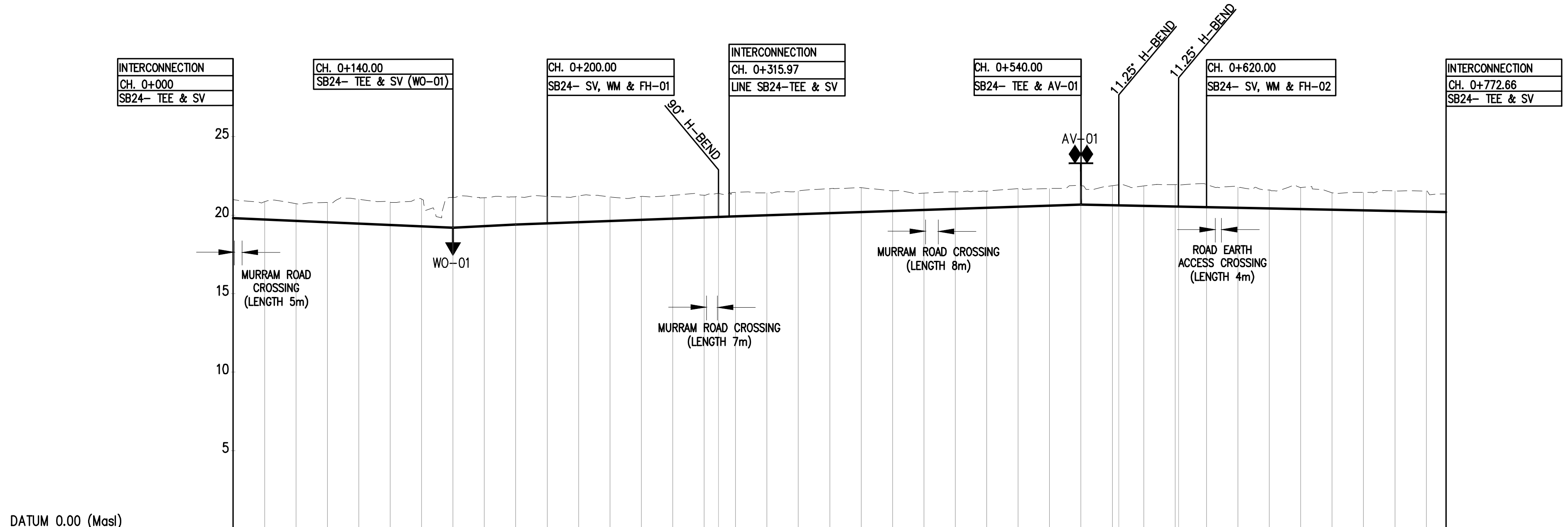
SOUTH MAINLAND – LINE SB23
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-031C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-031 · C0 REV



PLAN

SCALE HOR 1:2000



DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: HARD CORAL ROCK

EXISTING GROUND LEVEL (m)	21.03	20.85	20.72	20.81	21.01	20.82	21.02	21.12	21.10	21.17	21.20
INVERT LEVELS (m)	19.81	19.72	19.64	19.55	19.46	19.38	19.29	19.20	19.30	19.41	19.48
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00
DEPTH OF INVERT (m)	1.22	1.13	1.09	1.26	1.54	1.44	1.73	1.92	1.80	1.76	1.72
SLOPE OF PIPE (%)	-0.43%							0.50%		0.37%	
REFERENCE PEG NO.											

EXISTING GROUND LEVEL (m)	21.22	21.16	21.19	21.25	21.27	21.39	21.40	21.44	21.42	21.54	21.68
INVERT LEVELS (m)	19.55	19.63	19.70	19.78	19.85	19.89	19.91	19.93	19.99	20.06	20.13
CHAINAGE (m)	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+309.11	0+315.97	0+320.00	0+340.00	0+360.00	0+380.00
DEPTH OF INVERT (m)	1.66	1.53	1.48	1.48	1.42	1.50	1.49	1.52	1.42	1.47	1.55
SLOPE OF PIPE (%)							0.34%				
REFERENCE PEG NO.						TP 1					

EXISTING GROUND LEVEL (m)	21.74	21.55	21.40	21.48	21.53	21.69	21.69	21.87	21.87	21.97	21.85
INVERT LEVELS (m)	20.20	20.27	20.33	20.40	20.47	20.54	20.61	20.67	20.63	20.62	20.59
CHAINAGE (m)	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+564.21	0+580.00
DEPTH OF INVERT (m)	1.55	1.29	1.07	1.08	1.05	1.16	1.08	1.19	1.24	1.34	1.26
SLOPE OF PIPE (%)								-0.21%			
REFERENCE PEG NO.										TP 2	

EXISTING GROUND LEVEL (m)	21.94	22.00	21.95	21.78	21.60	21.76	21.42	21.45	21.54	21.53	21.32
INVERT LEVELS (m)	20.55	20.54	20.51	20.47	20.42	20.38	20.34	20.30	20.26	20.22	20.17
CHAINAGE (m)	0+600.00	0+602.17	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+772.66
DEPTH OF INVERT (m)	1.39	1.46	1.45	1.31	1.18	1.38	1.08	1.15	1.28	1.31	1.15
SLOPE OF PIPE (%)											
REFERENCE PEG NO.		TP 3									

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▬ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

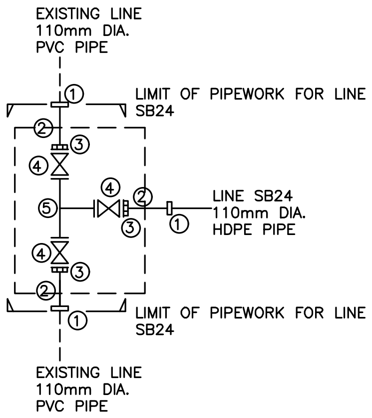
SOUTH MAINLAND – LINE SB24
PLAN AND PROFILE(CH.0+000–0+772.66)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-032C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-032 | C0 REV

CHAMBER SIZE
1200x1200

DETAIL
CH. 0+000.00
LINE SB24 - INTERCONNECTION



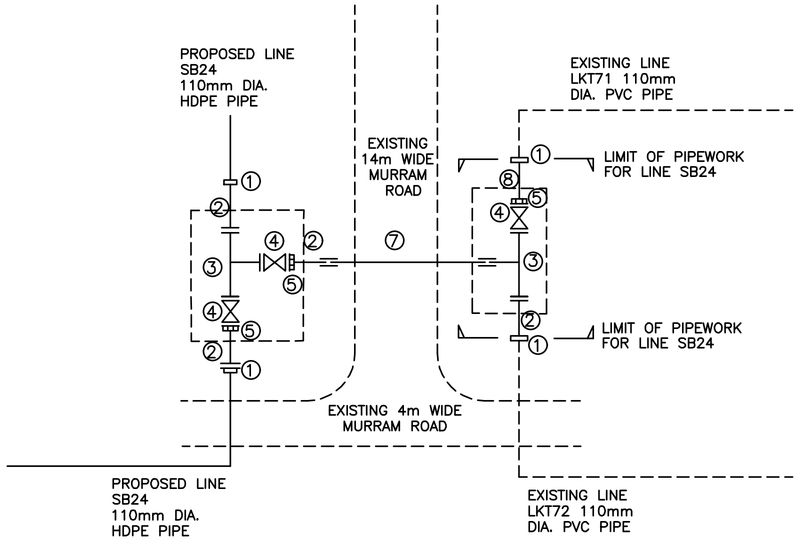
DESCRIPTION

1 No. REQUIRED

① 3 No. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

CHAMBER SIZE, 2No.
1500x1200, 1200x1200

DETAIL
CH. 0+315.97
SB24 - INTERCONNECTION



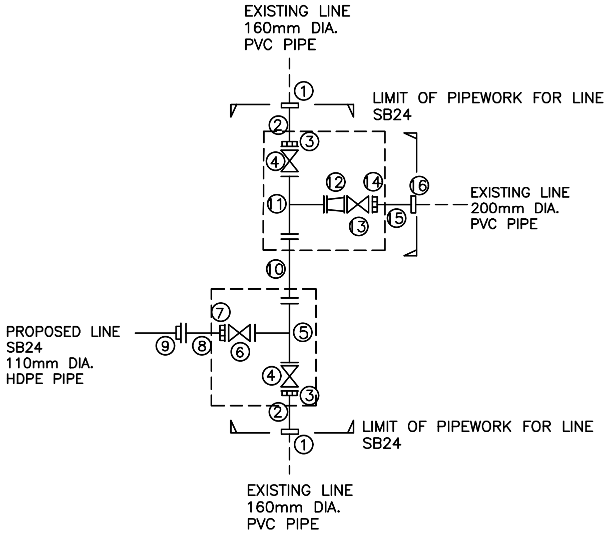
DESCRIPTION

1 No. REQUIRED

① 4 Nos. 110/100mm DIA. STEPPED COUPLING
② 4 Nos. 100mm DIA. ALL FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 3 Nos. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110mm DIA. HDPE PIPE INSIDE ASTEEL ROAD CROSSING SLEEVE 14m LONG (CUT TO SUIT ON SITE)
⑧ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
1500x1500,1500x1500

DETAIL
CH. 0+790.76
LINE SB24 - INTERCONNECTION

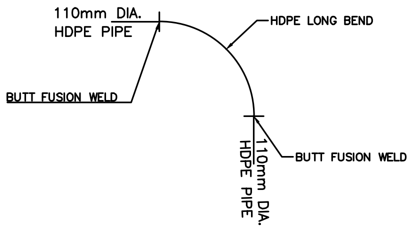


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑦ 1 No. 100mm DIA. FLANGE ADAPTOR
⑧ 1 No. 100mm DIA.PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 110/100mm DIA. STEPPED COUPLING
⑩ 1 No. 150mm DIA. ALL FLANGED STEEL PIPES 2m LONG WITH A PUDDLE FLANGE
⑪ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
⑫ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑬ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑭ 1 No. 200mm DIA. FLANGE ADAPTOR
⑮ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑯ 1 No. 200mm DIA. STRAIGHT COUPLING

DETAIL
CH. 0+309.11
LINE SB24 - 90° H.BEND

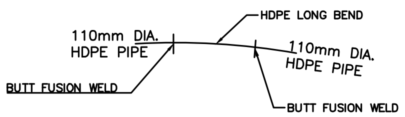


DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL
CH. 0+564.21 & 0+602.17
LINE SB24 - 11.25° H.BEND



DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

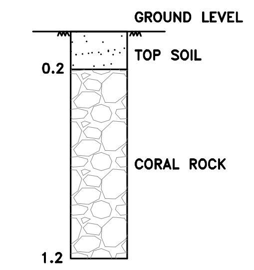
CONTRACT No.:CWWDA/AFD/W2/2022

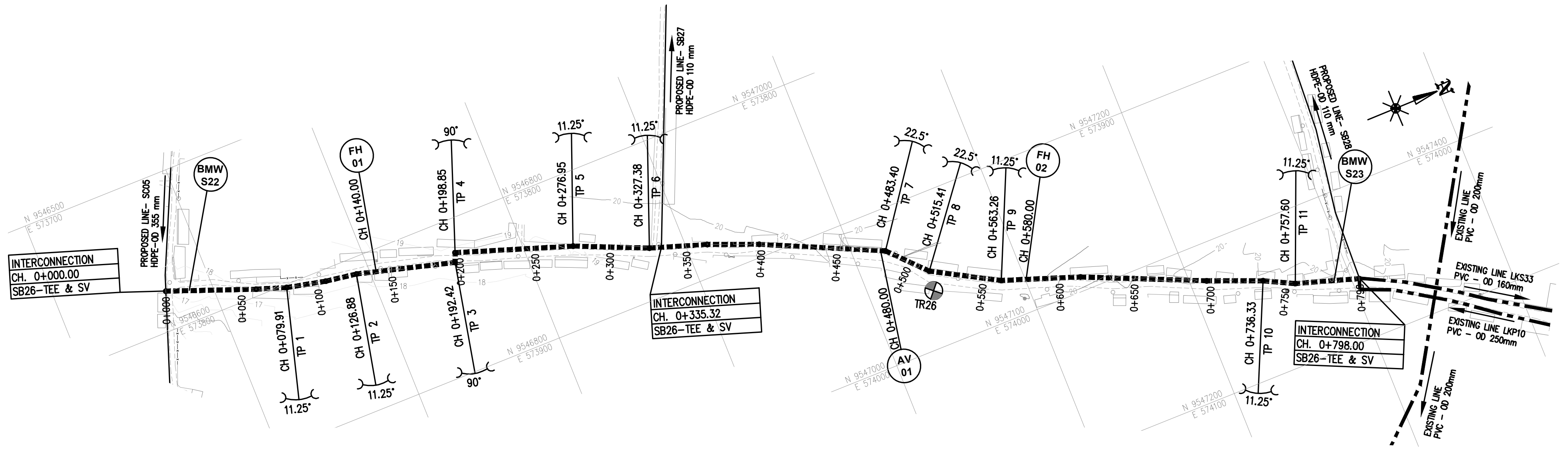
Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND – LINE SB24
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-033C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-033 · C0 REV

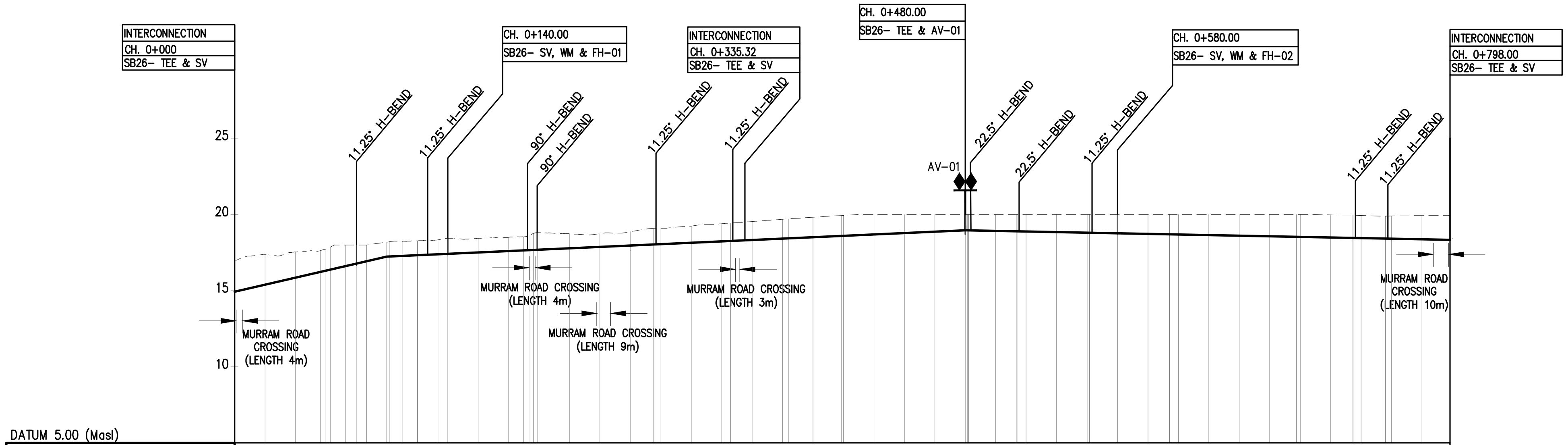
TRIAL HOLE TR26 DETAILS





PLAN

SCALE HOR 1:2000



DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE — DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION — CORAL ROCK

EXISTING GROUND LEVEL (m)	17.00	17.36	17.54	17.72	18.00	18.18	18.27	18.43	18.43	18.50	18.80	18.73	18.74	18.87	19.10	19.23	19.39	19.53	19.68	19.81	19.94
INVERT LEVELS (m)	14.92	15.38	15.84	16.30	16.76	17.22	17.31	17.41	17.50	17.59	17.68	17.77	17.86	17.96	18.05	18.14	18.23	18.32	18.41	18.51	18.60
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400
DEPTH OF INVERT (m)	2.08	1.98	1.70	1.42	1.24	0.96	0.95	1.02	0.94	0.91	1.12	0.96	0.87	0.92	1.05	1.09	1.16	1.21	1.27	1.31	1.34

EXISTING GROUND LEVEL (m)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.97	19.93	19.90	19.93	19.94
INVERT LEVELS (m)	18.69	18.78	18.87	18.96	18.92	18.88	18.84	18.80	18.76	18.72	18.68	18.64	18.60	18.56	18.52	18.48	18.44	18.40	18.36	18.33
CHAINAGES (M)	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+798
DEPTH OF INVERT (m)	1.31	1.22	1.13	1.04	1.08	1.12	1.16	1.20	1.24	1.28	1.32	1.36	1.40	1.44	1.48	1.49	1.49	1.49	1.56	1.62

SLOPE OF PIPE (%) 2.30% 0.46% −0.20%

REFERENCE PEG No. TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 7 TP 8 TP 9 TP 10 TP 11

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

ROAD (TARMAC)
ROAD / TRACK (EARTH / MURRAM)
FENCE / HEDGE
CONTOURS, lm INTERVAL
ELECTRIC POST
CULVERT
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV SLUICE VALVE
FH FIRE HYDRANT
WO-01 WASHOUT VALVE & No.
AV-01 COMBINATION AIR VALVE & No.
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

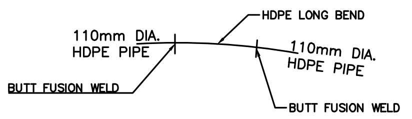
SOUTH MAINLAND – LINE SB26
PLAN AND PROFILE(CH.0+000–0+798.00)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-034C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-034 | C0 REV

DETAIL

CH. 0+079.91, 0+126.88, 0+276.95, 0+327.38,
0+563.26, 0+736.33 & 0+757.60
LINE SB26 - 11.25° H.BEND



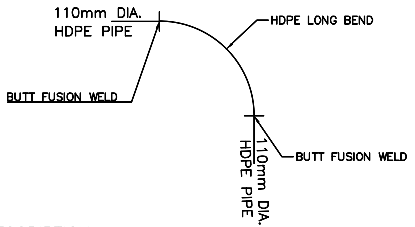
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+192.42 & 0+198.85
LINE SB26 - 90° H.BEND



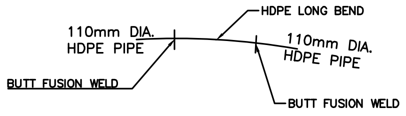
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+483.40 & 0+515.41
LINE SB26 - 22.5° H.BEND



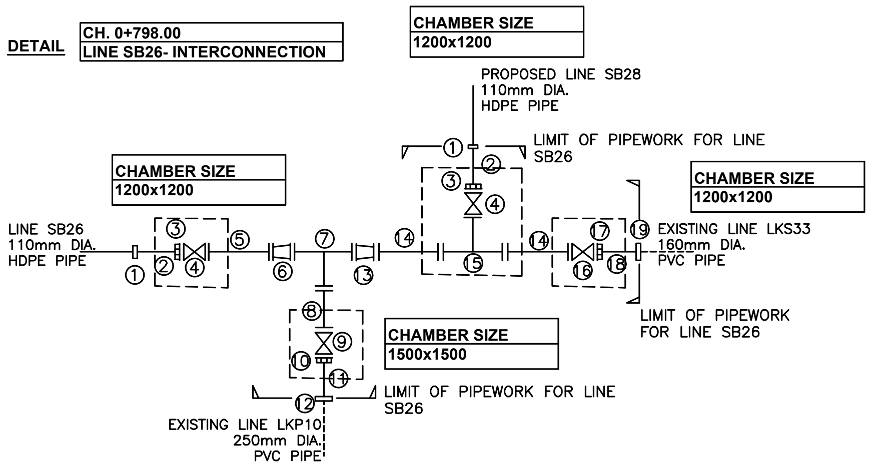
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+798.00
LINE SB26- INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 110/100mm DIA. STEPPED COUPLING
② 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 100mm DIA. FLANGE ADAPTOR
④ 2 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑥ 1 No. 250x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 250x250mm DIA. ALL FLANGED STEEL TEE
⑧ 1 No. 250mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 250mm DIA. FLANGE ADAPTOR
⑪ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 250/250mm DIA. STEPPED COUPLING
⑬ 1 No. 250x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑭ 2 Nos. 150mm DIA. ALL FLANGED STEEL PIPES 2m LONG WITH A PUDDLE FLANGE
⑮ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
⑯ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑰ 1 No. 150mm DIA. FLANGE ADAPTOR
⑱ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑲ 1 No. 150/160mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

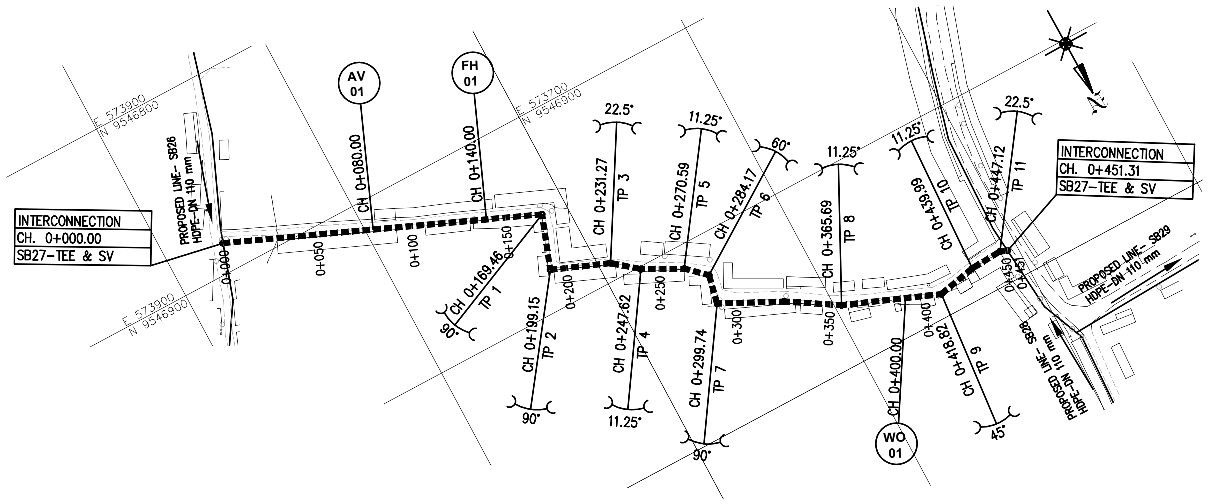
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB26
PIPE FITTING DETAILS
SHEET 2 OF 2

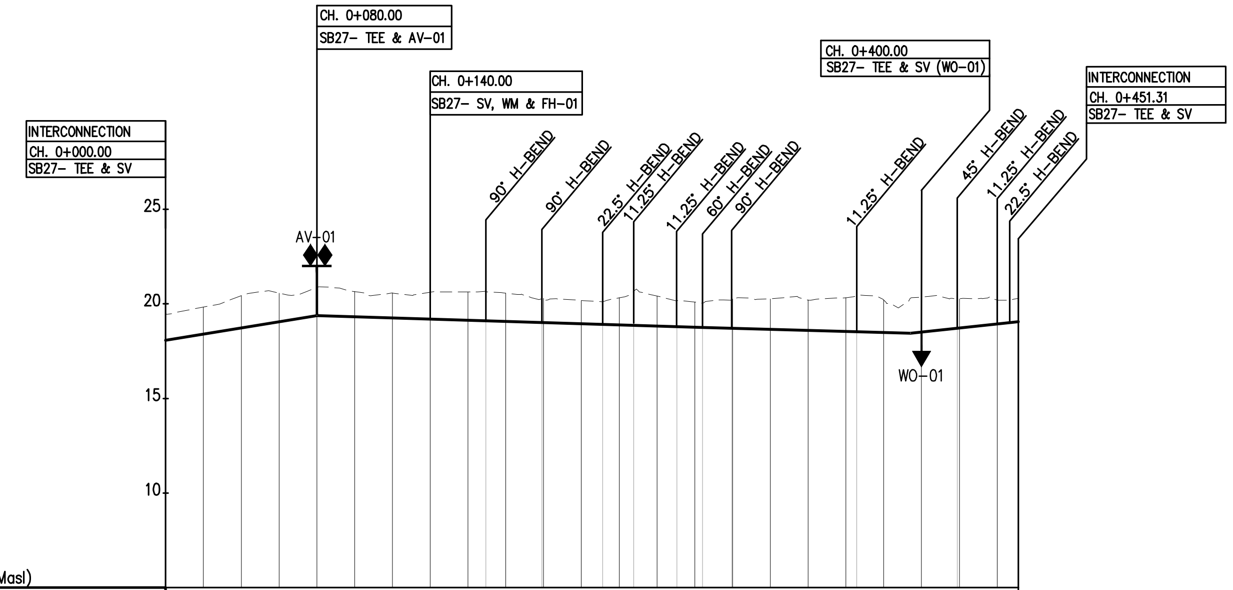
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-035C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-035 | C0 REV



PLAN

SCALE HOR 1:2000



DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: SAND SOIL UNDERLAIN WITH CORAL

EXISTING GROUND LEVEL (m)	19.46	19.83	20.44	20.57	20.87	20.65	20.57	20.61	20.63	20.65	20.57	20.26
INVERT LEVELS (m)	18.07	18.40	18.72	19.05	19.37	19.31	19.25	19.19	19.13	19.10	19.07	19.01
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+169.46	0+180.00	0+199.15
DEPTH OF INVERT (m)	1.39	1.43	1.71	1.52	1.49	1.33	1.32	1.42	1.50	1.55	1.50	1.26
SLOPE OF PIPE (%)		1.63%						-0.31%				
REFERENCE PEG NO.										TP 1		TP 2

EXISTING GROUND LEVEL (m)	20.30	20.18	20.11	20.32	20.67	20.41	20.17	20.09	20.03	20.24	20.25
INVERT LEVELS (m)	19.01	18.94	18.91	18.88	18.86	18.82	18.79	18.76	18.75	18.70	18.70
CHAINAGE (m)	0+200.00	0+220.00	0+231.27	0+240.00	0+247.62	0+260.00	0+270.59	0+280.00	0+284.17	0+299.74	0+300.00
DEPTH OF INVERT (m)	1.29	1.24	1.20	1.44	1.81	1.59	1.38	1.33	1.29	1.54	1.55
SLOPE OF PIPE (%)										-0.26%	
REFERENCE PEG NO.			TP 3		TP 4		TP 5		TP 6	TP 7	

EXISTING GROUND LEVEL (m)	20.26	20.20	20.32	20.41	20.20	20.30	20.36	20.25	20.26	20.20	20.38
INVERT LEVELS (m)	18.65	18.60	18.55	18.53	18.49	18.46	18.52	18.72	18.73	18.94	19.12
CHAINAGE (m)	0+320.00	0+340.00	0+360.00	0+365.69	0+380.00	0+394.11	0+400.00	0+418.82	0+420.00	0+439.99	0+451.31
DEPTH OF INVERT (m)	1.61	1.60	1.78	1.88	1.71	1.84	1.85	1.53	1.53	1.26	1.26
SLOPE OF PIPE (%)									1.05%		
REFERENCE PEG NO.				TP 8				TP 9		TP 10	TP 11

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

ROAD (TARMAC)
ROAD / TRACK (EARTH / MURRAM)
FENCE / HEDGE
14 CONTOURS, Im INTERVAL
ELECTRIC POST
CULVERT
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV SLUICE VALVE
FH FIRE HYDRANT
SV-01 SECTIONAL VALVE & No.
WO-01 WASHOUT VALVE & No.
AV-01 COMBINATION AIR VALVE & No.
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

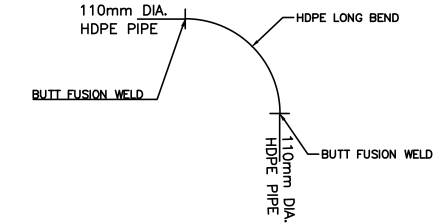
Drawing Title

SOUTH MAINLAND – LINE SB27
PLAN AND PROFILE(CH.0+000–0+451.31)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-036C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-036 C0 REV

DETAIL

CH. 0+169.46, 0+199.15 & 0+299.74
LINE SB27 - 90° H.BEND



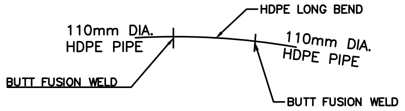
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+231.27 & 0+457.12
LINE SB27 - 22.5° H.BEND



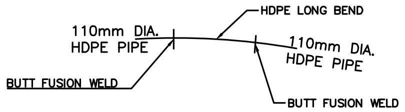
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+247.62, 0+270.59, 0+365.69 & 0+439.99
LINE SB27 - 11.25° H.BEND



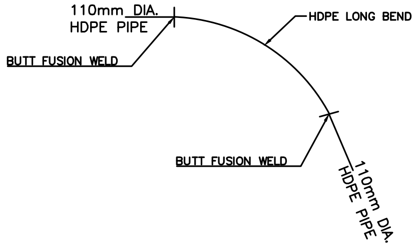
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+284.17
LINE SB27 - 60° H.BEND



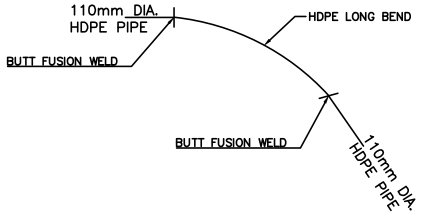
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+418.82
LINE SB27 - 45° H.BEND



DESCRIPTION

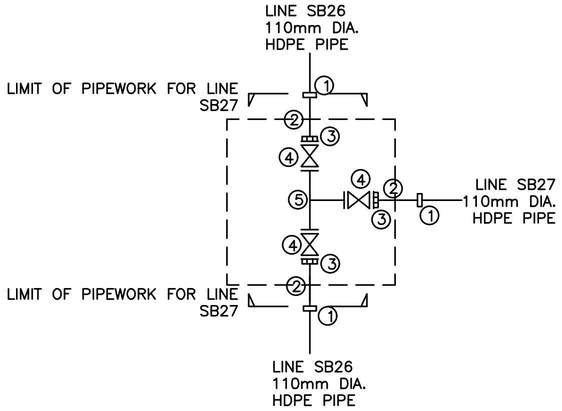
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+000.00
LINE SB27 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS	SIGN	DATE	APPROVED
		BY		
		CHECKED		
		BY		
		CHECKED		
		BY		
		CHECKED		
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22
		CHECKED		

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

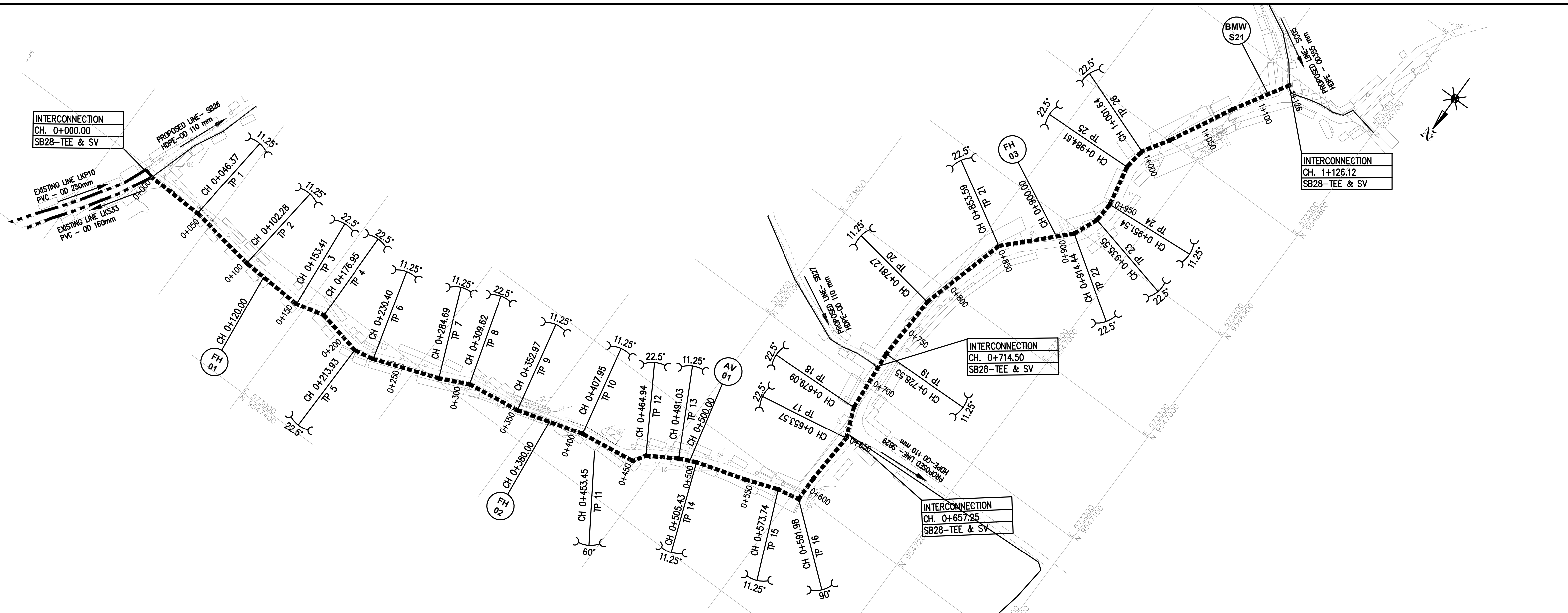
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB27
PIPE FITTING DETAILS
SHEET 2 OF 2

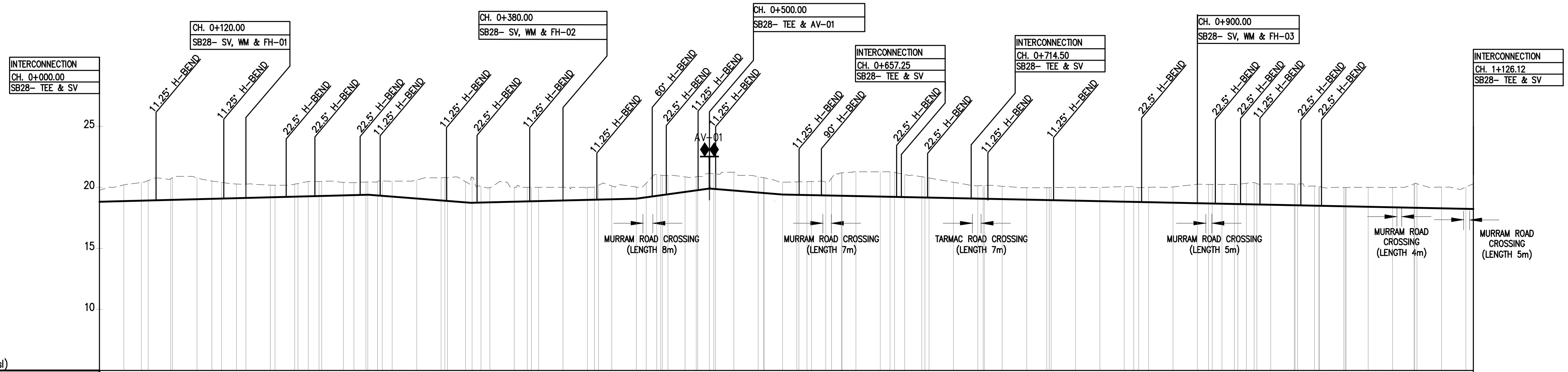
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-037C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-037 | C0 REV



PLAN

SCALE HOR 1:2000



DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: CORAL ROCK

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280
EXISTING GROUND LEVEL (m)	19.76	20.20	20.56	20.80	20.78	20.41	20.26	20.18	20.26	20.48	20.41	20.44	20.50	20.61	20.79
INVERT LEVELS (m)	18.83	18.88	18.93	18.98	19.03	19.09	19.14	19.19	19.24	19.30	19.35	19.40	19.25	19.09	18.93
DEPTH OF INVERT (m)	0.94	1.32	1.63	1.82	1.75	1.32	1.12	0.99	1.02	1.19	1.06	1.04	1.25	1.52	1.86

CHAINAGES (M)	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580
EXISTING GROUND LEVEL (m)	20.47	19.98	20.00	20.00	20.00	20.00	20.12	20.02	21.00	20.86	21.13	21.24	20.88	20.43	20.47
INVERT LEVELS (m)	18.77	18.77	18.82	18.88	18.93	18.98	19.03	19.08	19.35	19.63	19.91	19.74	19.57	19.41	19.37
DEPTH OF INVERT (m)	1.70	1.21	1.18	1.12	1.07	1.02	1.09	0.94	1.65	1.23	1.22	1.50	1.30	1.02	1.10

CHAINAGES (M)	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880
EXISTING GROUND LEVEL (m)	20.76	21.28	21.27	21.05	20.77	20.42	20.13	20.10	19.97	19.98	20.00	19.99	20.06	20.00	20.04
INVERT LEVELS (m)	19.32	19.28	19.24	19.20	19.16	19.12	19.07	19.03	18.99	18.95	18.91	18.87	18.82	18.78	18.74
DEPTH OF INVERT (m)	1.43	2.00	2.03	1.85	1.61	1.30	1.06	1.06	0.98	1.03	1.09	1.13	1.24	1.22	1.30

CHAINAGES (M)	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+126
EXISTING GROUND LEVEL (m)	20.25	20.25	20.33	20.27	20.27	20.06	19.99	20.01	20.00	20.29	20.02	20.03	20.30
INVERT LEVELS (m)	18.70	18.66	18.62	18.58	18.53	18.49	18.45	18.41	18.37	18.33	18.28	18.24	18.23
DEPTH OF INVERT (m)	1.55	1.59	1.72	1.70	1.73	1.57	1.54	1.60	1.63	1.97	1.73	1.79	2.07

SLOPE OF PIPE (%): 0.26% −0.80% 0.25% 1.38% −0.83% −0.21%

REFERENCE PEG No.: TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 7 TP 8 TP 9 TP 10 TP 11 TP 12 TP 13 TP 14 TP 15 TP 16 TP 17 TP 18 TP 19 TP 20 TP 21 TP 22 TP 23 TP 24 TP 25 TP 26

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

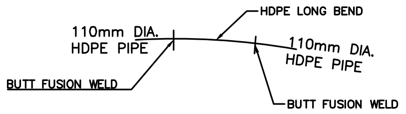
Drawing Title

SOUTH MAINLAND – LINE SB28
PLAN AND PROFILE(CH.0+000–1+126.12)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-038C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-038	CO REV

DETAIL

CH. 0+046.37, 0+102.28, 0+230.40, 0+284.69,
0+352.97, 0+407.95, 0+491.03, 0+505.43,
0+573.74, 0+728.55, 0+781.27 & 0+951.54
LINE SB28 - 11.25° H.BEND



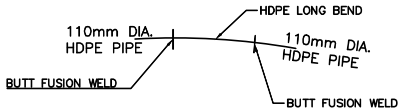
DESCRIPTION

12 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+153.41, 0+176.95, 0+213.93, 0+309.62,
0+464.94, 0+653.57, 0+679.09, 0+853.59,
0+914.44, 0+935.55, 0+984.61 & 1+001.64
LINE SB28 - 22.5° H.BEND



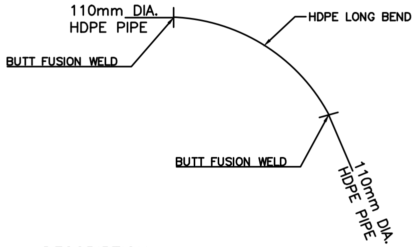
DESCRIPTION

12 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+453.45
LINE SB28 - 60° H.BEND



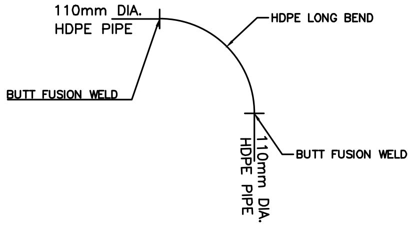
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+591.98
LINE SB28 - 90° H.BEND



DESCRIPTION

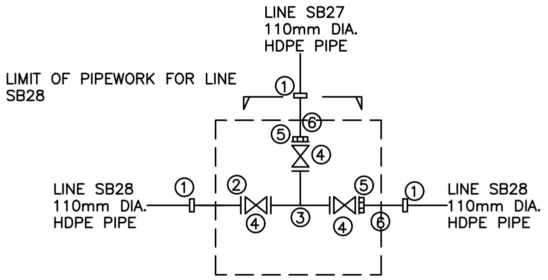
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+714.50
LINE SB28 - INTERCONNECTION



DESCRIPTION

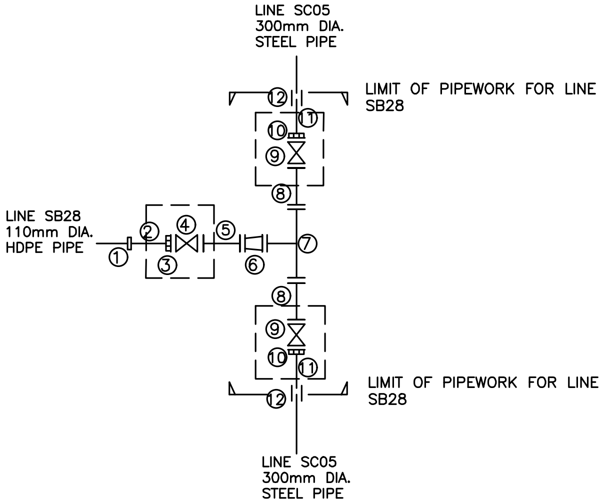
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 Nos. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE

CHAMBER SIZE 3No.
1200x1200

DETAIL

CH. 1+130.11
LINE SB28- INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. ALL FLANGED STEEL PIPE 2.0m LONG WITH PUDDLE FLANGE
⑥ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 300x150mm DIA. ALL FLANGED STEEL TEE
⑧ 2 Nos. 300mm DIA. ALL FLANGED STEEL PIPE 2.0m LONG WITH PUDDLE FLANGE
⑨ 2 Nos. 300mm DIA. ALL FLANGED SLUICE VALVE
⑩ 2 Nos. 300mm DIA. FLANGE ADAPTOR
⑪ 2 Nos. 300mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑫ 2 Nos. 300mm DIA. STRAIGHT COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

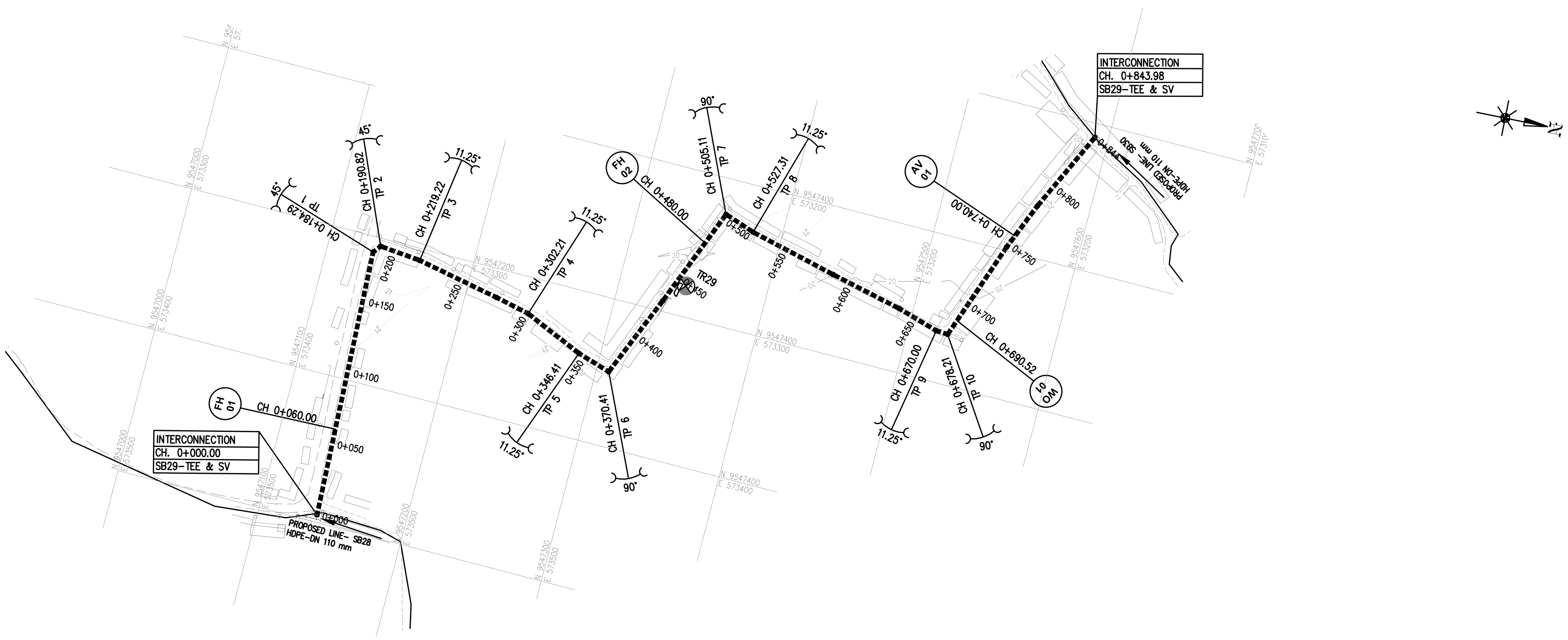
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB28
PIPE FITTING DETAILS
SHEET 2 OF 2

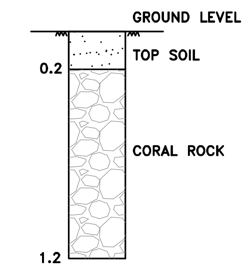
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-039CO
C STATUS	DRAWING No. 6000002-W&S-SM-P-039 CO REV

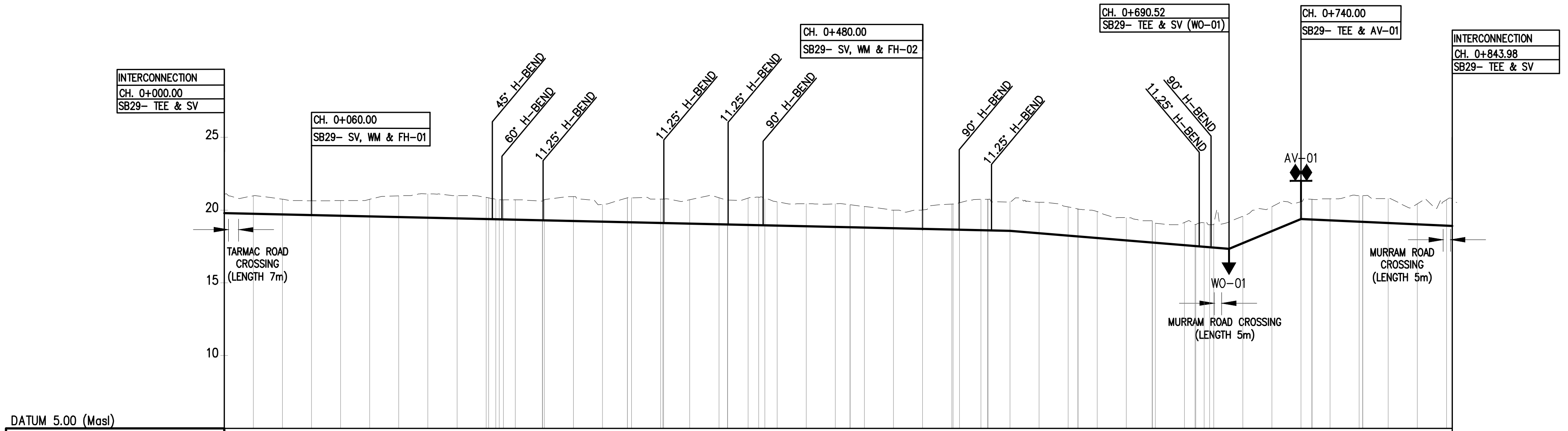


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR29 DETAILS





DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 10										
GEOLOGICAL CONDITION	CORAL ROCK										
EXISTING GROUND LEVEL (m)	21.08	20.98	20.75	20.64	20.66	20.74	20.98	21.11	21.00	20.87	20.70
INVERT LEVELS (m)	19.80	19.75	19.71	19.66	19.62	19.57	19.53	19.48	19.44	19.39	19.35
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200
DEPTH OF INVERT (m)	1.29	1.23	1.04	0.98	1.04	1.16	1.46	1.63	1.56	1.48	1.36
SLOPE OF PIPE (%)											
REFERENCE PEG No.											TP 1 TP 2

EXISTING GROUND LEVEL (m)	20.71	20.92	20.38	20.85	20.75	20.71	20.85	20.83	20.57	20.43	20.43
INVERT LEVELS (m)	19.30	19.26	19.21	19.17	19.12	19.08	19.03	18.99	18.94	18.90	18.85
CHAINAGES (M)	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420
DEPTH OF INVERT (m)	1.41	1.66	1.17	1.68	1.63	1.63	1.82	1.84	1.63	1.53	1.58
SLOPE OF PIPE (%)				−0.23%							
REFERENCE PEG No.	TP 3					TP 4		TP 5	TP 6		

EXISTING GROUND LEVEL (m)	20.25	20.00	20.01	20.41	20.74	20.58	20.53	20.22	19.90	19.48	19.09
INVERT LEVELS (m)	18.81	18.76	18.72	18.67	18.63	18.58	18.42	18.25	18.09	17.92	17.76
CHAINAGES (M)	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640
DEPTH OF INVERT (m)	1.44	1.24	1.29	1.74	2.11	2.00	2.12	1.96	1.82	1.56	1.34
SLOPE OF PIPE (%)										−0.83%	
REFERENCE PEG No.					TP 7	TP 8					

EXISTING GROUND LEVEL (m)	19.15	19.00	19.58	20.23	20.57	20.78	21.00	20.80	20.43	20.71	20.79
INVERT LEVELS (m)	17.59	17.43	17.73	18.56	19.38	19.29	19.20	19.11	19.02	18.93	18.91
CHAINAGES (M)	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+844
DEPTH OF INVERT (m)	1.56	1.57	1.85	1.68	1.19	1.48	1.80	1.68	1.41	1.78	1.88
SLOPE OF PIPE (%)				4.13%			−0.45%				
REFERENCE PEG No.		TP 9 TP 10									

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

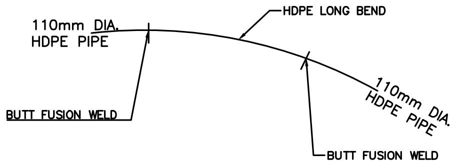
Drawing Title

SOUTH MAINLAND – LINE SB29
PLAN AND PROFILE(CH.0+000–0+843.98)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-040C0

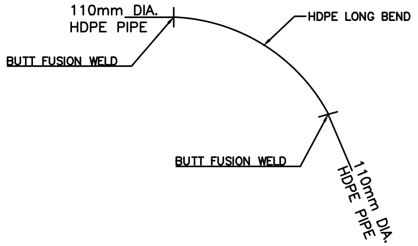
C STATUS | DRAWING No. 6000002-W&S-SM-P-040 | C0 REV

DETAIL CH. 0+184.29
LINE SB29 - 45° H.BEND



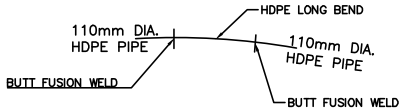
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+190.82
LINE SB29 - 60° H.BEND



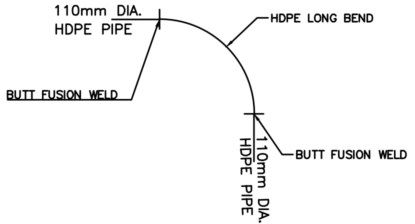
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+219.22, 0+302.21, 0+346.41, 0+527.31 & 0+670.00
LINE SB29 - 11.25° H.BEND



DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

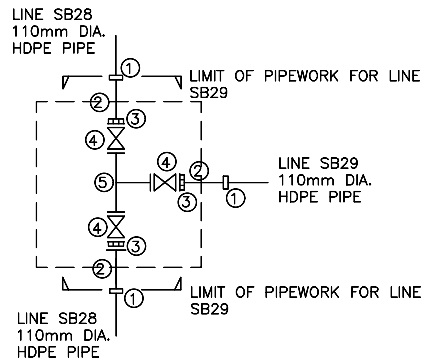
DETAIL CH. 0+370.41, 0+505.11 & 0+678.21
LINE SB29 - 90° H.BEND



DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL CH. 0+000.00
LINE SB29 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

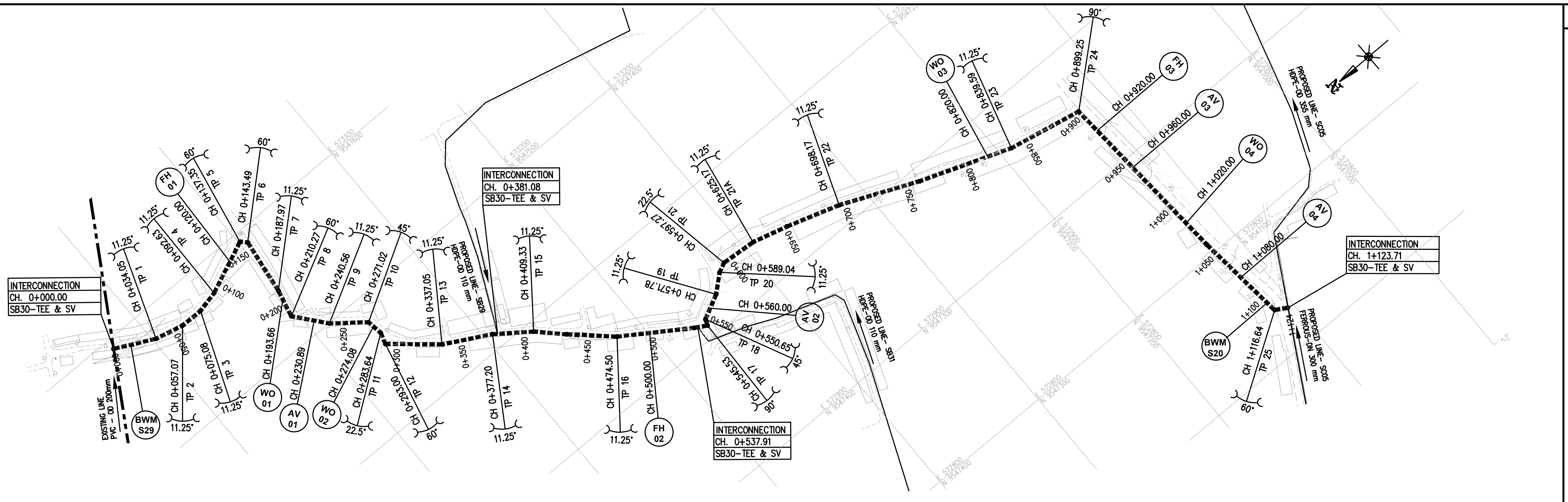
CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND – LINE SB29
PIPE FITTING DETAILS
SHEET 2 OF 2

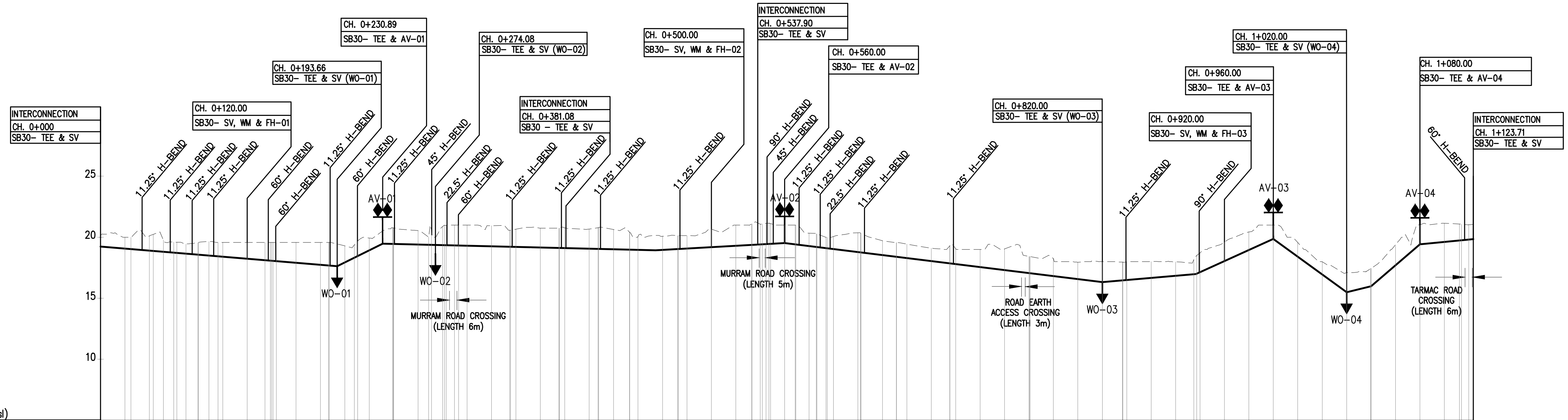
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-041C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-041 | C0 REV



PLAN

SCALE HOR 1:2000



DATUM 5.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: CORAL ROCK

EXISTING GROUND LEVEL (m)	20.14	20.00	20.11	19.60	19.56	19.57	19.57	19.57	19.57	19.57	19.29	19.93	20.76	20.53	20.86
INVERT LEVELS (m)	19.23	19.07	18.90	18.73	18.57	18.40	18.24	18.07	17.91	17.74	17.94	18.93	19.44	19.40	19.35
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280
DEPTH OF INVERT (m)	0.91	0.93	1.21	0.87	0.99	1.17	1.33	1.50	1.66	1.83	1.34	1.00	1.31	1.14	1.52
SLOPE OF PIPE (%)	-0.83%										4.93%		-0.24%		

EXISTING GROUND LEVEL (m)	21.00	20.94	20.66	20.74	20.77	20.67	20.63	20.07	20.07	20.12	20.66	21.00	21.06	21.00	20.33
INVERT LEVELS (m)	19.30	19.25	19.21	19.16	19.11	19.06	19.01	18.97	18.97	19.08	19.19	19.30	19.41	19.53	19.28
CHAINAGES (M)	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580
DEPTH OF INVERT (m)	1.70	1.69	1.45	1.59	1.66	1.61	1.61	1.10	1.11	1.05	1.47	1.70	1.65	1.47	1.05
SLOPE OF PIPE (%)									0.56%					-1.23%	

EXISTING GROUND LEVEL (m)	20.06	20.36	19.72	19.43	19.10	19.06	19.00	19.04	18.43	18.25	17.94	18.00	17.98	18.00	17.98
INVERT LEVELS (m)	19.03	18.79	18.54	18.29	18.05	17.80	17.55	17.31	17.06	16.81	16.57	16.32	16.49	16.66	16.83
CHAINAGES (M)	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880
DEPTH OF INVERT (m)	1.03	1.57	1.18	1.14	1.05	1.26	1.45	1.74	1.37	1.44	1.38	1.68	1.49	1.34	1.15
SLOPE OF PIPE (%)												0.85%			

EXISTING GROUND LEVEL (m)	18.72	19.60	20.43	21.00	19.57	17.99	17.10	17.45	19.38	21.01	21.14	21.02	21.05
INVERT LEVELS (m)	17.13	18.04	18.95	19.86	18.40	16.95	15.49	15.98	17.70	19.41	19.61	19.81	19.85
CHAINAGES (M)	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+124
DEPTH OF INVERT (m)	1.59	1.56	1.48	1.14	1.17	1.05	1.61	1.48	1.68	1.60	1.53	1.21	1.21
SLOPE OF PIPE (%)	4.56%			-7.27%			2.42%	8.59%		0.99%			

REFERENCE PEG No.: TP 1, TP 2, TP 3, TP 4, TP 5, TP 6, TP 7, TP 8, TP 9, TP 10, TP 11, TP 12, TP 13, TP 14, TP 15, TP 16, TP 17, TP 18, TP 19, TP 20, TP 21, TP 21A, TP 22, TP 23, TP 24, TP 25

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

═══	ROAD (TARMAC)
- - -	ROAD / TRACK (EARTH / MURRAM)
-·-·-	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬·▬·▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

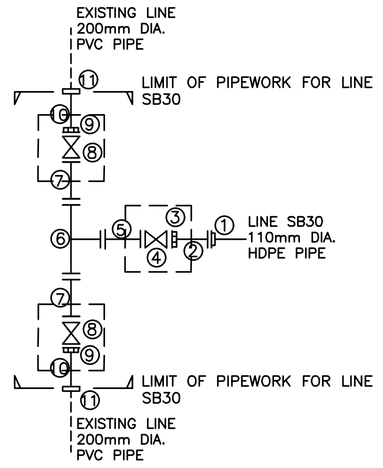
SOUTH MAINLAND – LINE SB30
PLAN AND PROFILE(CH.0+000–1+124.00)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-042C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-042 · C0 REV

CHAMBER SIZE 3No.
1200x1200

DETAIL

CH. 0+000.00
LINE SB30- INTERCONNECTION



DESCRIPTION

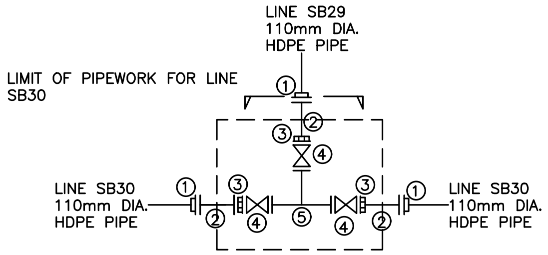
1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑥ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
⑦ 2 Nos. 200mm DIA. ALL FLANGED STEEL PIPE 2000mm LONG
⑧ 2 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑨ 2 Nos. 200mm DIA. FLANGE ADAPTOR
⑩ 2 Nos. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑪ 2 Nos. 200/200mm DIA. STEPPED COUPLING

CHAMBER SIZE
1800x1200

DETAIL

CH. 0+381.08
LINE SB30 - INTERCONNECTION



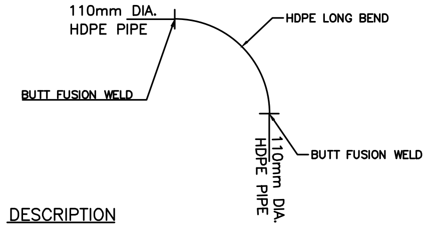
DESCRIPTION

1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

DETAIL

CH. 0+899.25
LINE SB30 - 90° H.BEND



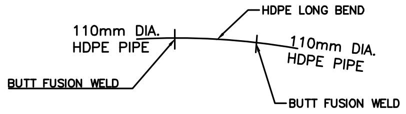
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+034.05, 0+057.07, 0+075.08, 0+092.63, 0+187.97,
0+240.56, 0+337.05, 0+377.20, 0+409.33, 0+474.50,
0+571.78, 0+589.04, 0+625.17, 0+698.17 & 0+839.59
LINE SB30 - 11.25° H.BEND



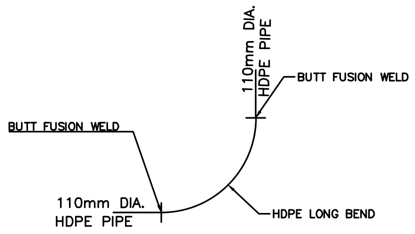
DESCRIPTION

15 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+545.53
LINE SB30 - 90° H.BEND



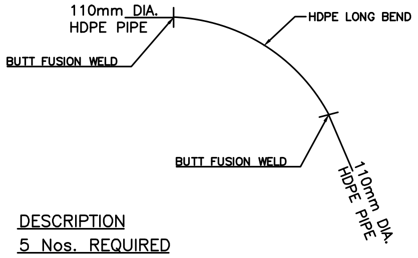
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+137.35, 0+143.49, 0+210.27, 0+293.00
& 1+116.64
LINE SB30 - 60° H.BEND



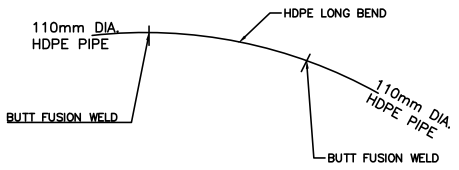
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+271.02 & 0+550.65
LINE SB30 - 45° H.BEND



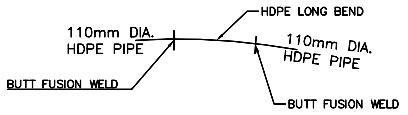
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+283.64 & 0+597.27
LINE SB30 - 22.5° H.BEND



DESCRIPTION

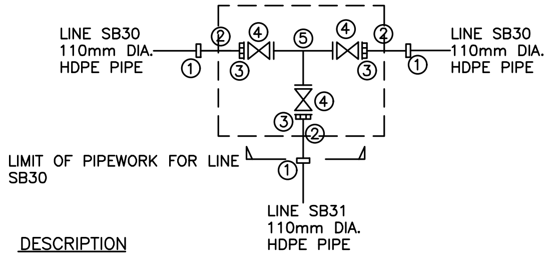
2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+537.90
LINE SB30 - INTERCONNECTION



DESCRIPTION

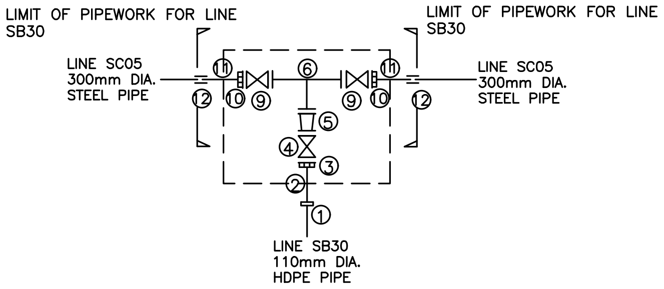
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

CHAMBER SIZE
1500x1200

DETAIL

CH. 1+127.16
LINE SB30- INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1200mm LONG
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑥ 1 No. 300x150mm DIA. ALL FLANGED STEEL TEE
⑧ 2 Nos. 300mm DIA. ALL FLANGED STEEL PIPE 2000mm LONG
⑨ 2 Nos. 300mm DIA. ALL FLANGED SLUICE VALVE
⑩ 2 Nos. 300mm DIA. FLANGE ADAPTOR
⑪ 2 Nos. 300mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑫ 2 Nos. 300mm DIA. STRAIGHT COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

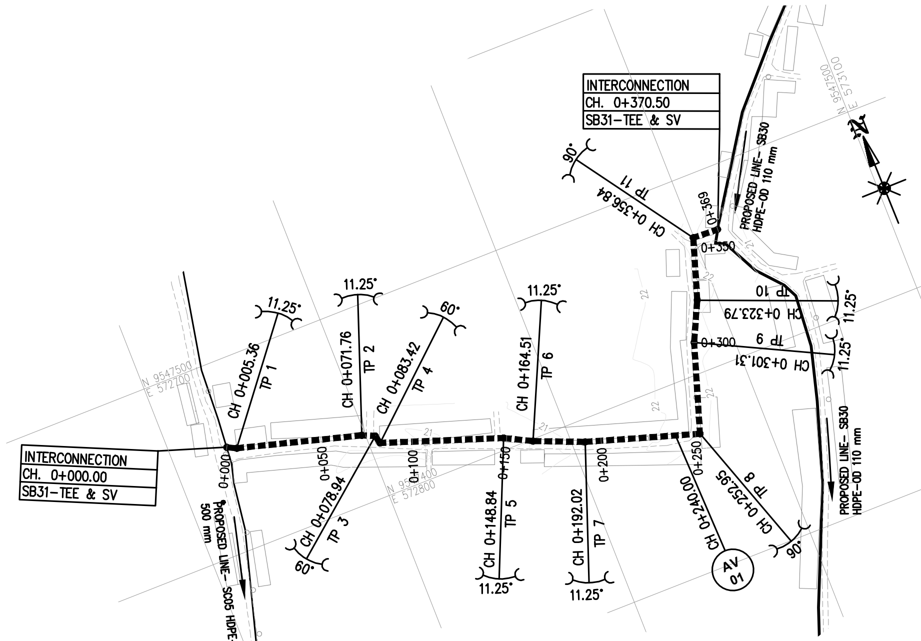
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB30
PIPE FITTING DETAILS
SHEET 2 OF 2

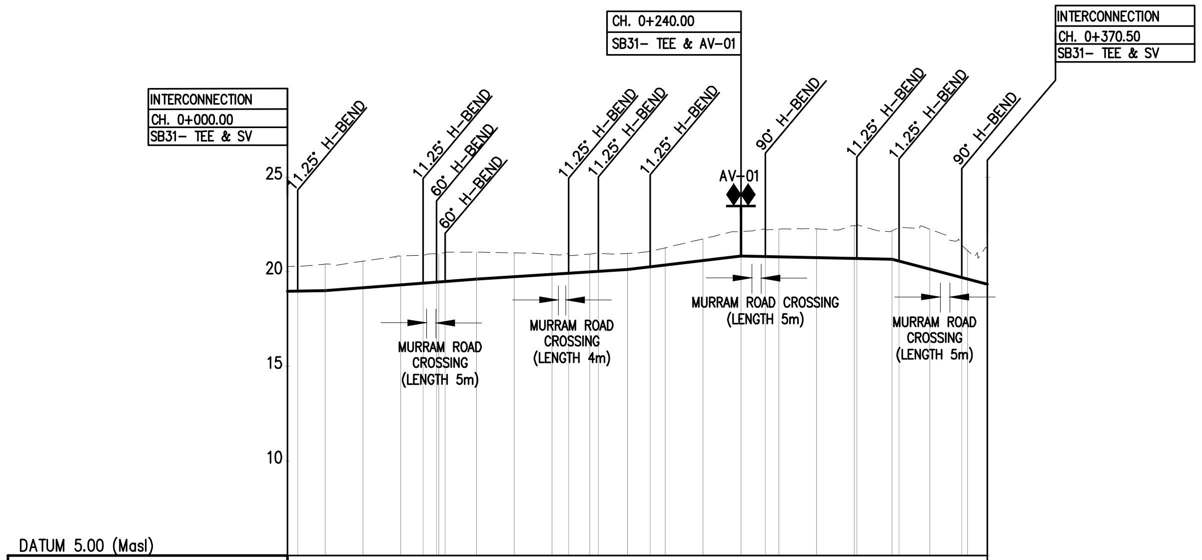
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-043C0

C STATUS | DRAWING No. 6000002-W&S-SM-P-043 | C0 REV



PLAN

SCALE HOR 1:2000



TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: RED LOAM SOIL UNDERLAIN WITH CORAL ROCK

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	REFERENCE PEG NO.
0+000.00	20.27	18.97	1.30	
0+005.36	20.28	18.98	1.30	TP 1
0+020.00	20.40	19.01	1.40	
0+040.00	20.56	19.16	1.40	
0+060.00	20.84	19.31	1.53	
0+071.76	20.88	19.40	1.48	TP 2
0+078.94	20.94	19.45	1.49	TP 3
0+083.42	21.02	19.49	1.54	TP 4
0+100.00	21.03	19.61	1.42	
0+120.00	20.99	19.63	1.36	
0+140.00	20.91	19.64	1.27	
0+148.84	20.90	19.65	1.25	TP 5
0+160.00	20.93	19.66	1.28	
0+164.51	20.97	19.66	1.31	TP 6
0+180.00	20.97	19.67	1.30	
0+192.02	21.08	19.90	1.17	TP 7
0+200.00	21.27	20.06	1.21	
0+220.00	21.74	20.45	1.29	
0+240.00	22.13	20.84	1.29	
0+252.95	22.22	20.81	1.41	TP 8
0+260.00	22.25	20.79	1.46	
0+280.00	22.27	20.75	1.52	
0+300.00	22.44	20.70	1.74	
0+301.31	22.44	20.70	1.75	TP 9
0+320.00	22.16	20.66	1.51	
0+323.79	22.34	20.56	1.79	TP 10
0+340.00	22.25	20.13	2.12	
0+356.84	21.41	19.69	1.72	TP 11
0+360.00	21.12	19.61	1.51	
0+370.50	21.21	19.33	1.88	

SLOPE OF PIPE (%): 0.21% | 0.76% | 0.65% | 0.62% | −0.23% | −2.62%

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
14	CONTOURS, lm INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

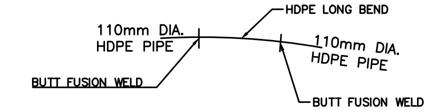
Drawing Title

SOUTH MAINLAND – LINE SB31
PLAN AND PROFILE(CH.0+000–0+370.50)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-044C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-044 C0 REV

DETAIL

CH. 0+005.36, 0+071.76, 0+148.84, 0+164.51, 0+192.02,
0+301.31 & 0+323.79
LINE SB31 - 11.25° H.BEND



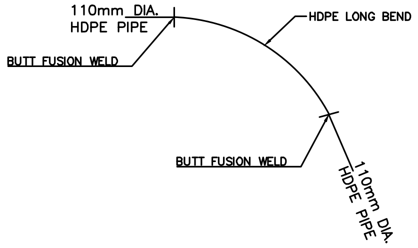
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+078.94 & 0+083.42
LINE SB31 - 60° H.BEND



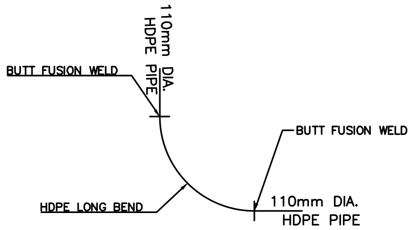
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+252.95
LINE SB31 - 90° H.BEND



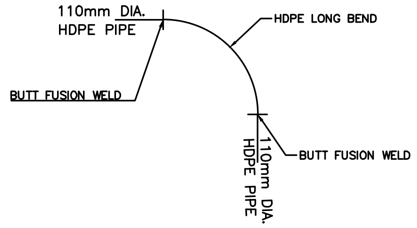
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+356.84
LINE SB31 - 90° H.BEND



DESCRIPTION

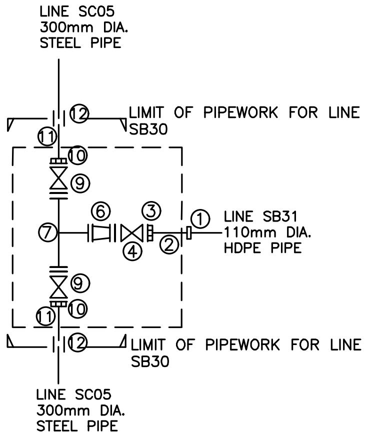
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE 3No.
1500x1200

DETAIL

CH. 0+000.00
LINE SB31- INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑥ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 300x150mm DIA. ALL FLANGED STEEL TEE
⑨ 2 Nos. 300mm DIA. ALL FLANGED SLUICE VALVE
⑩ 2 Nos. 300mm DIA. FLANGE ADAPTOR
⑪ 2 Nos. 300mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 2 Nos. 300mm DIA. STRAIGHT COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌝⌞⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

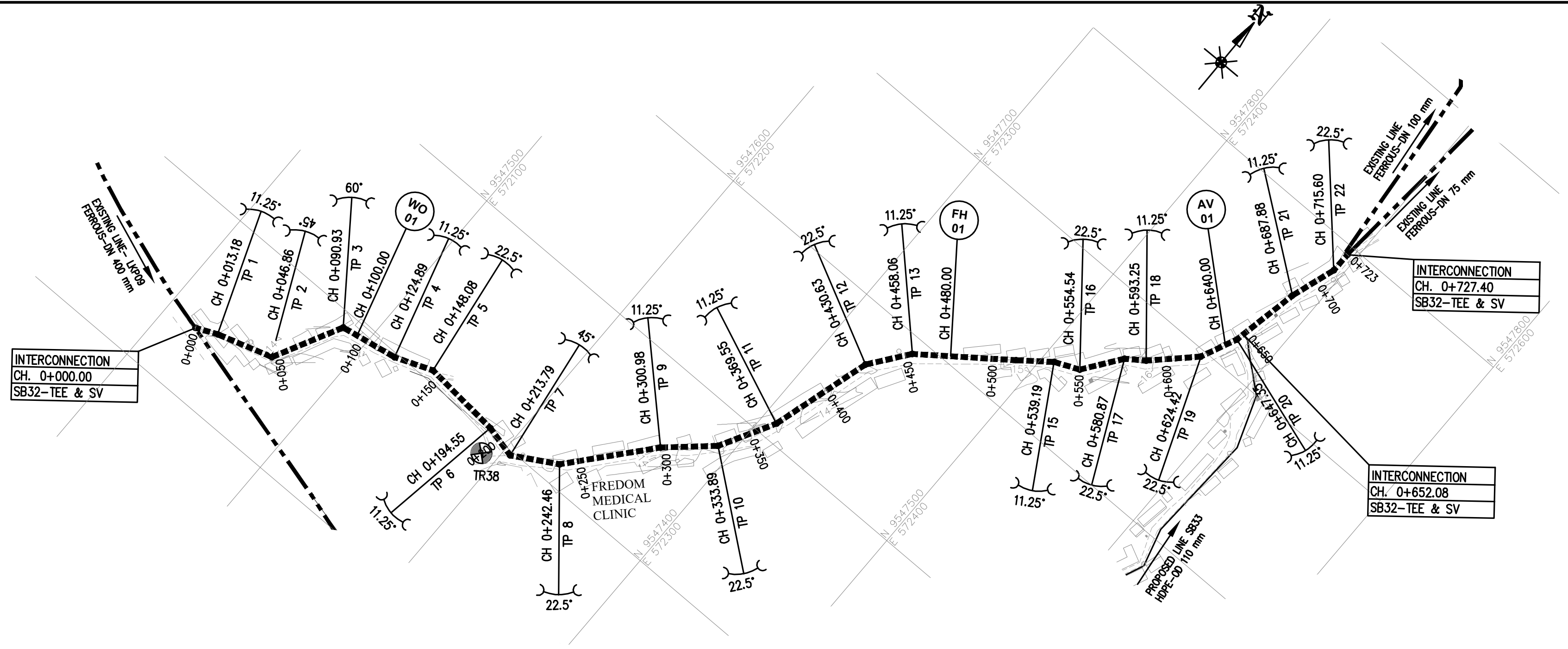
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB31
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-045C0

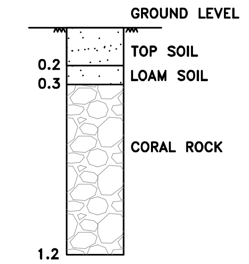
C STATUS | DRAWING No. 6000002-W&S-SM-P-045 | C0 REV

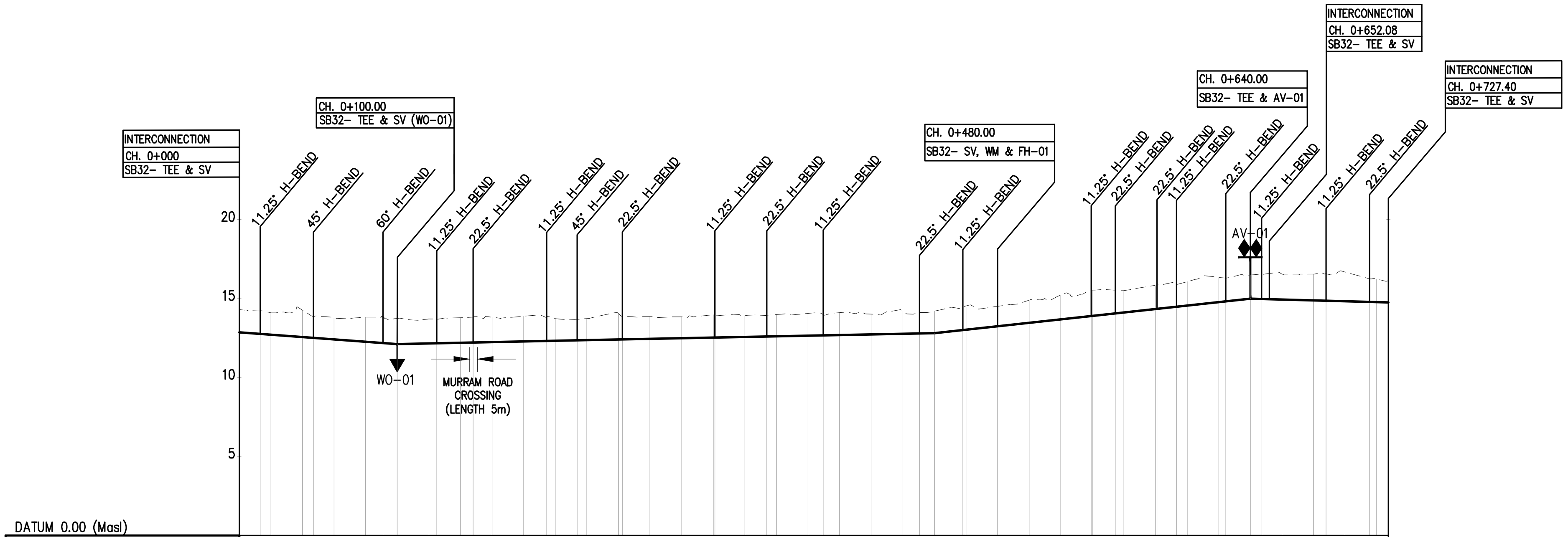


PLAN

SCALE HOR 1:2000

TRIAL HOLE TR38 DETAILS





TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: LOAM SOIL UNDERLAIN WITH CORAL ROCK

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	REFERENCE PEG NO.
0+000.00	14.32	12.87	1.45	
0+013.18	14.21	12.77	1.44	TP 1
0+020.00	14.10	12.72	1.38	
0+040.00	14.26	12.57	1.69	
0+046.86	13.86	12.52	1.34	TP 2
0+060.00	13.76	12.42	1.34	
0+080.00	13.82	12.27	1.55	
0+090.93	13.87	12.19	1.67	TP 3
0+100.00	13.75	12.12	1.62	
0+120.00	13.72	12.17	1.55	
0+124.89	13.69	12.18	1.51	TP 4
0+140.00	13.79	12.21	1.58	
0+148.08	13.83	12.22	1.60	TP 5
0+160.00	13.83	12.25	1.58	
0+180.00	13.88	12.29	1.59	
0+194.55	13.85	12.32	1.53	TP 6
0+200.00	13.74	12.33	1.40	
0+213.79	13.69	12.36	1.32	TP 7
0+220.00	13.73	12.38	1.35	
0+240.00	14.04	12.42	1.62	
0+242.46	13.88	12.42	1.46	TP 8
0+260.00	13.86	12.46	1.41	
0+280.00	13.85	12.50	1.35	
0+300.00	13.98	12.54	1.44	
0+300.98	13.95	12.54	1.41	TP 9
0+320.00	13.94	12.58	1.36	
0+333.89	13.95	12.61	1.35	TP 10
0+340.00	13.98	12.62	1.36	
0+360.00	14.06	12.66	1.40	
0+369.55	13.99	12.68	1.31	TP 11
0+380.00	14.12	12.70	1.42	
0+400.00	14.02	12.74	1.28	
0+420.00	14.21	12.78	1.43	
0+430.63	14.11	12.80	1.31	TP 12
0+440.00	14.21	12.82	1.39	
0+458.06	14.49	13.01	1.47	TP 13
0+460.00	14.53	13.04	1.50	
0+480.00	14.51	13.25	1.26	
0+500.00	14.90	13.47	1.43	
0+520.00	15.24	13.69	1.55	
0+539.19	15.54	13.90	1.64	TP 15
0+540.00	15.54	13.91	1.64	
0+554.54	15.52	14.06	1.46	TP 16
0+560.00	15.50	14.12	1.38	
0+580.00	15.81	14.34	1.47	
0+580.87	15.91	14.35	1.56	TP 17
0+593.25	15.87	14.48	1.38	TP 18
0+600.00	16.07	14.56	1.51	
0+620.00	16.34	14.78	1.57	
0+624.42	16.29	14.82	1.47	TP 19
0+640.00	16.50	14.99	1.50	
0+647.35	16.54	14.97	1.57	TP 20
0+652.08	16.59	14.96	1.63	
0+660.00	16.56	14.94	1.63	
0+680.00	16.56	14.88	1.68	
0+687.88	16.56	14.86	1.70	TP 21
0+700.00	16.68	14.83	1.85	
0+715.60	16.26	14.78	1.47	TP 22
0+720.00	16.24	14.77	1.46	
0+727.40	16.13	14.75	1.38	

SLOPE OF PIPE (%): −0.75% | 0.21% | 0.20% | 1.09% | −0.28% | −0.28%

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
—·—·—	FENCE / HEDGE
— 14 —	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⊏⊐	CULVERT
⊢⊣	GATE
☐	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
—·—·—	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
———	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO____________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

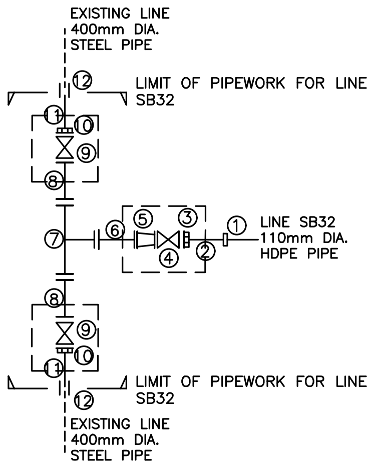
SOUTH MAINLAND – LINE SB32
PLAN AND PROFILE(CH.0+000–0+727.40)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-046C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-046	C0 REV

CHAMBER SIZE (3 Nos.)
1200x1200

DETAIL

CH. 0+000.00
LINE SB32- INTERCONNECTION



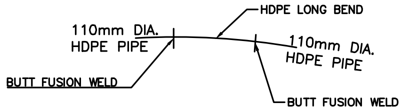
DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑥ 1 No. 200mm DIA. ALL FLANGED STEEL PIPE 2.0m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
⑧ 2 Nos. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH A PUDDLE FLANGE
⑨ 2 Nos. 400mm DIA. ALL FLANGED SLUICE VALVE
⑩ 2 Nos. 400mm DIA. FLANGE ADAPTOR
⑪ 2 Nos. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 2 Nos. 400mm DIA. STRAIGHT COUPLING

DETAIL

CH. 0+013.18, 0+124.89, 0+194.55, 0+300.98, 0+369.55,
0+458.06, 0+539.19, 0+593.25, 0+647.35 & 0+687.88
LINE SB32 - 11.25° H.BEND



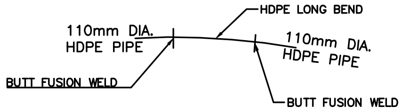
DESCRIPTION

10 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+148.08, 0+242.46, 0+333.89, 0+430.63,
0+554.54, 0+580.87, 0+624.42 & 0.715.60
LINE SB32 - 22.5° H.BEND



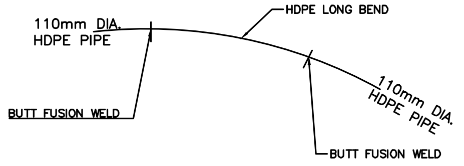
DESCRIPTION

8 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+046.86 & 0+213.79
LINE SB32 - 45° H.BEND



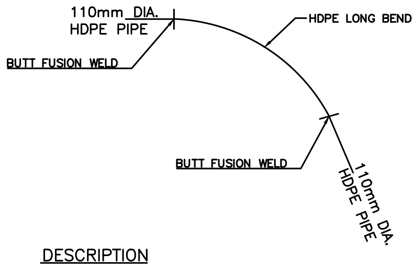
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+090.93
LINE SB32 - 60° H.BEND



DESCRIPTION

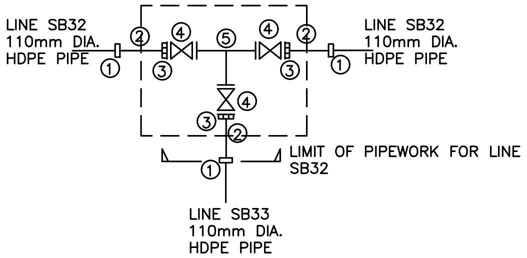
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+652.08
LINE SB32 - INTERCONNECTION



DESCRIPTION

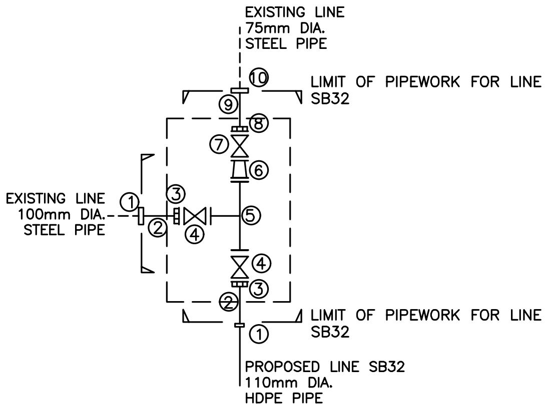
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+727.40
LINE SB32- INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 2 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 100mm DIA. FLANGE ADAPTOR
④ 2 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 100x80mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 80mm DIA. FLANGE ADAPTOR
⑨ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 80/75mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS	SIGN	DATE	APPROVED
		BY		
		CHECKED		
		BY		
		CHECKED		
		BY		
		CHECKED		
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22
		CHECKED		

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

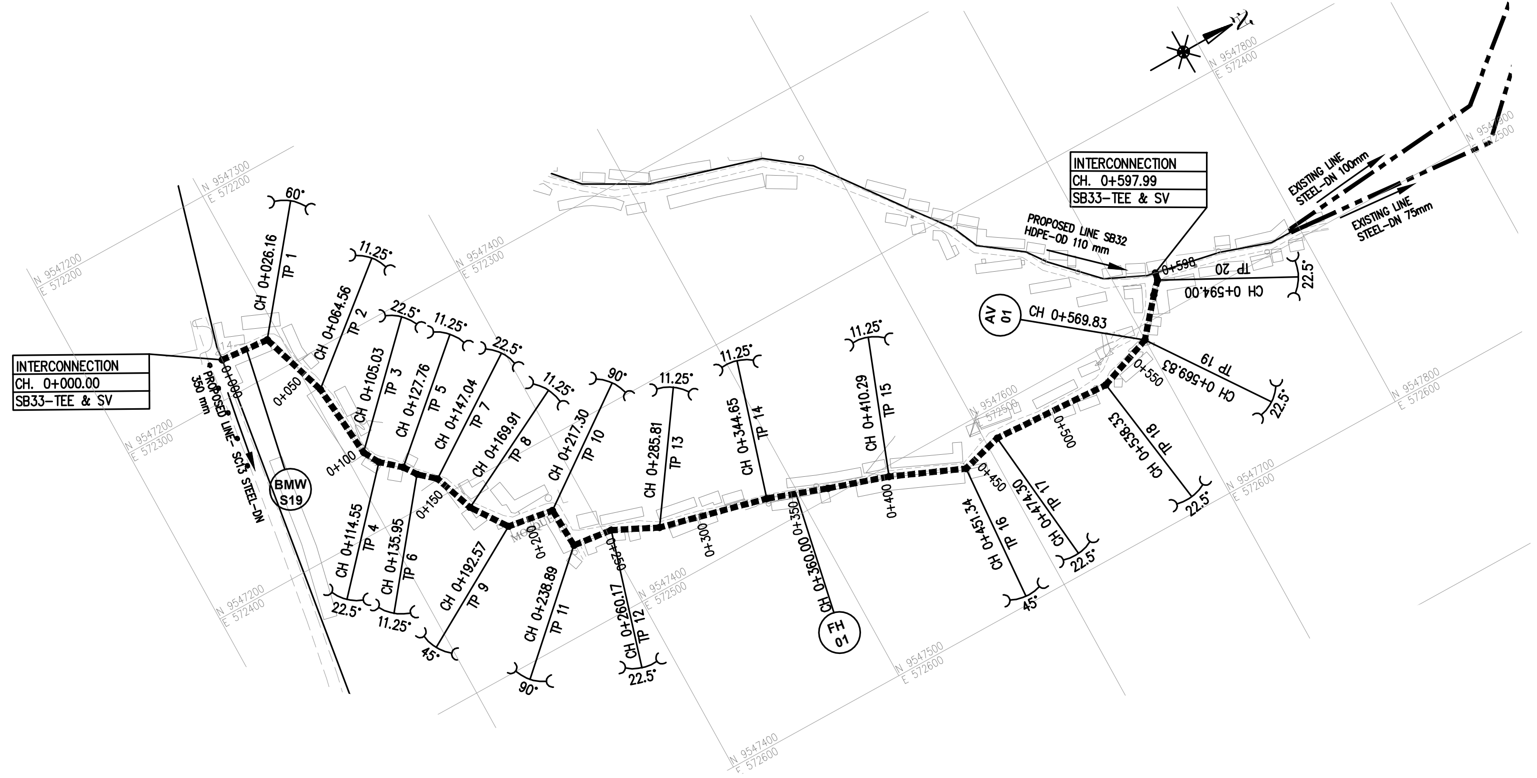
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

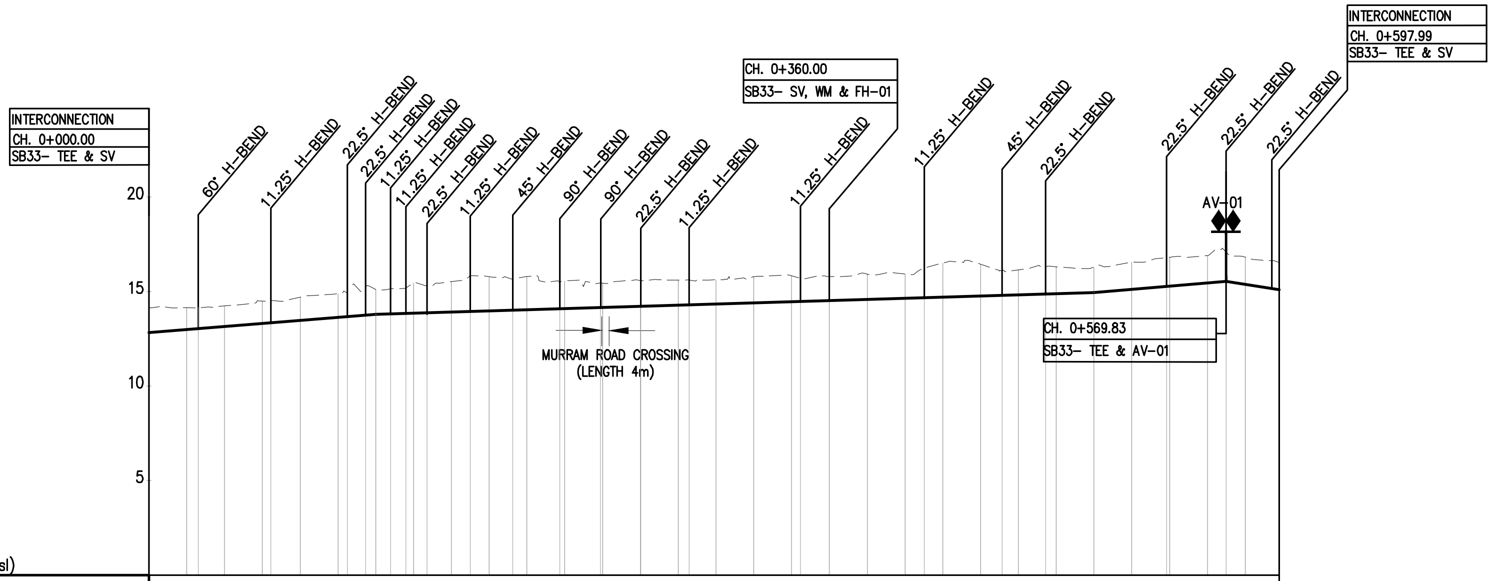
SOUTH MAINLAND – LINE SB32
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-047C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-047
C0 REV	



PLAN

SCALE HOR 1:2000



DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 10

GEOLOGICAL CONDITION: LOAM SOIL UNDERLAIN WITH CORAL ROCK

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (%)	REFERENCE PEG NO.
0+000.00	14.15	12.82	1.33	0.80%	
0+020.00	14.14	12.98	1.15		
0+026.16	14.15	13.03	1.12		TP 1
0+040.00	14.23	13.14	1.09		
0+060.00	14.49	13.30	1.19		
0+064.56	14.51	13.34	1.18		TP 2
0+080.00	14.69	13.46	1.23		
0+100.00	14.88	13.62	1.26		
0+105.03	14.91	13.66	1.24		TP 3
0+114.55	15.23	13.74	1.49		TP 4
0+120.00	15.11	13.78	1.33	0.30%	
0+127.76	15.14	13.81	1.33		TP 5
0+135.95	15.19	13.83	1.35		TP 6
0+140.00	15.45	13.84	1.61		
0+147.04	15.28	13.87	1.42		TP 7
0+160.00	15.52	13.90	1.61		
0+169.91	15.84	13.93	1.90		TP 8
0+180.00	15.78	13.97	1.81		
0+192.57	15.64	14.00	1.64		TP 9
0+200.00	15.79	14.03	1.77		
0+217.30	15.47	14.08	1.39		TP 10
0+220.00	15.56	14.09	1.47		
0+238.89	15.44	14.14	1.30		TP 11
0+240.00	15.43	14.15	1.29		
0+260.17	15.57	14.21	1.37		TP 12
0+280.00	15.61	14.27	1.34		
0+285.81	15.61	14.29	1.32		TP 13
0+300.00	15.61	14.33	1.28		
0+320.00	15.78	14.39	1.39		
0+340.00	15.83	14.45	1.38		
0+344.65	15.70	14.47	1.23		TP 14
0+360.00	15.78	14.51	1.27		
0+380.00	15.91	14.57	1.34		
0+400.00	15.92	14.63	1.29		
0+410.29	16.25	14.66	1.59		TP 15
0+420.00	16.50	14.69	1.81		
0+440.00	16.43	14.75	1.68		
0+451.34	16.11	14.79	1.32		TP 16
0+460.00	16.14	14.82	1.32		
0+474.30	16.28	14.86	1.42		TP 17
0+480.00	16.31	14.88	1.43		
0+500.00	16.28	14.94	1.34	0.85%	
0+520.00	16.56	15.11	1.45		
0+538.33	16.78	15.26	1.52		TP 18
0+540.00	16.81	15.28	1.53		
0+560.00	16.89	15.45	1.45		
0+569.83	17.08	15.53	1.55	−1.57%	TP 19
0+580.00	16.81	15.37	1.44		
0+597.99	16.49	15.02	1.47		TP 20

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - - -	ROAD / TRACK (EARTH / MURRAM)
–x–x–x–	FENCE / HEDGE
— 14 —	CONTOURS, lm INTERVAL
○	ELECTRIC POST
⌶	CULVERT
⋈	GATE
☐	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ · · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
⚘ ⚘	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
—	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

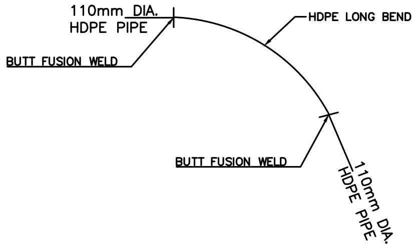
Drawing Title

SOUTH MAINLAND – LINE SB33
PLAN AND PROFILE(CH.0+000–0+597.99)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–SM–P–048C0
C STATUS	DRAWING No. 6000002–W&S–SM–P–048 · C0 REV

DETAIL

CH. 0+026.16
LINE SB33 - 60° H.BEND



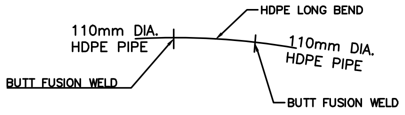
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+064.56, 0+127.76, 0+135.95, 0+169.91, 0+285.81, 0+344.65 & 0+410.29
LINE SB33 - 11.25° H.BEND



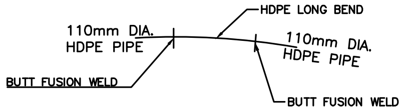
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+105.03, 0+114.55, 0+147.04, 0+260.17, 0+474.30, 0+538.33, 0+569.83 & 0+602.18
LINE SB33 - 22.5° H.BEND



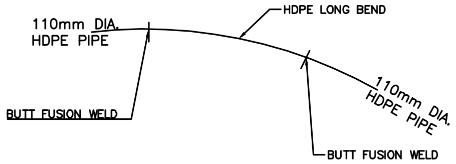
DESCRIPTION

8 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+192.57 & 0+451.34
LINE SB33 - 45° H.BEND



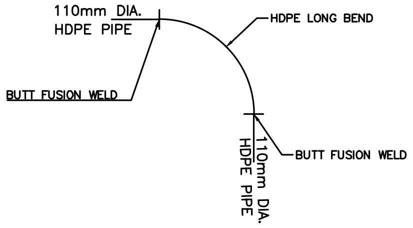
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+217.30 & 0+238.89
LINE SB33 - 90° H.BEND



DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

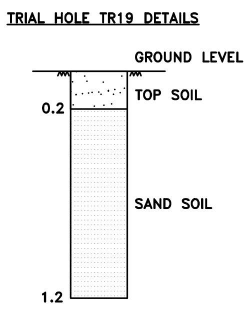
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

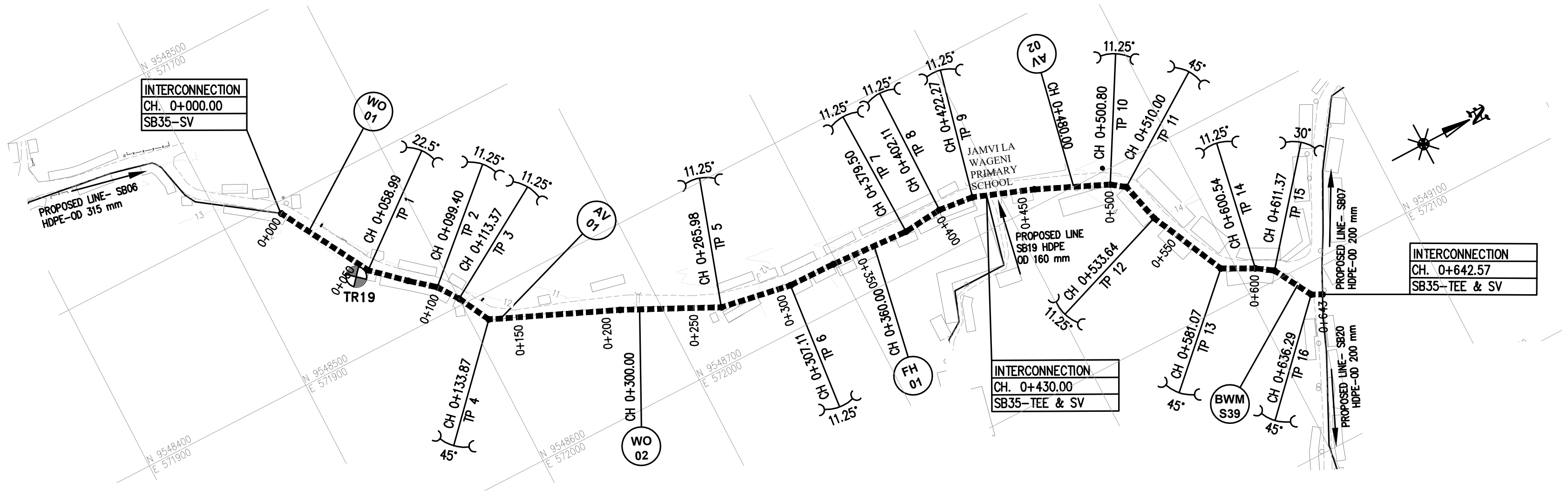
Drawing Title

SOUTH MAINLAND – LINE SB33
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-049C0

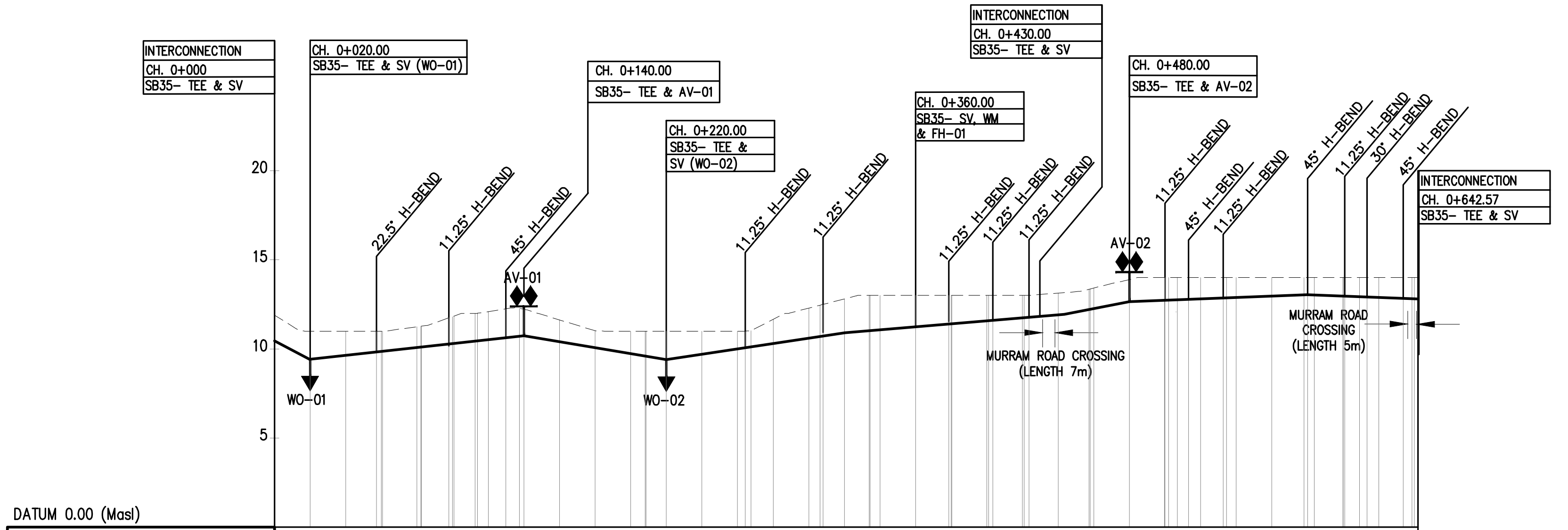
C STATUS | DRAWING No. 6000002-W&S-SM-P-049 | C0 REV





PLAN

SCALE HOR 1:2000



TYPE AND SIZE OF PIPE	DN 200 HDPE PIPE TO PN 10
GEOLOGICAL CONDITION	SAND SOIL

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320
EXISTING GROUND LEVEL (m)	11.90	11.00	11.00	11.00	11.25	11.81	12.10	12.23	11.63	11.02	11.00	11.00	11.00	11.00	11.66	12.29	12.81
INVERT LEVELS (m)	10.46	9.43	9.65	9.86	10.08	10.30	10.52	10.73	10.40	10.06	9.73	9.39	9.70	10.00	10.30	10.61	10.91
DEPTH OF INVERT (m)	1.44	1.57	1.35	1.14	1.17	1.51	1.58	1.50	1.23	0.95	1.27	1.61	1.30	1.00	1.35	1.68	1.90
SLOPE OF PIPE (%)	-5.22%	1.09%						-1.68%				1.52%					0.83%
REFERENCE PEG No.				TP 1		TP 2	TP 3	TP 4						TP 5		TP 6	

CHAINAGES (M)	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+642
EXISTING GROUND LEVEL (m)	13.00	13.00	13.00	13.00	13.00	13.13	13.42	13.89	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
INVERT LEVELS (m)	11.08	11.24	11.41	11.58	11.74	11.91	12.26	12.65	12.73	12.81	12.89	12.97	13.05	12.97	12.89	12.81	12.80
DEPTH OF INVERT (m)	1.92	1.76	1.59	1.42	1.26	1.22	1.16	1.24	1.27	1.19	1.11	1.03	0.95	1.03	1.11	1.19	1.20
SLOPE OF PIPE (%)						1.95%			0.40%				-0.40%				
REFERENCE PEG No.			TP 7	TP 8	TP 9				TP 10	TP 11	TP 12		TP 13	TP 14	TP 15	TP 16	

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - - -	ROAD (TARMAC)
- - - - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⌶	CULVERT
⋈	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

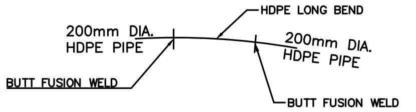
Drawing Title

SOUTH MAINLAND – LINE SB35
PLAN AND PROFILE(CH.0+000–0+642.57)
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-050C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-050 C0 REV

DETAIL

CH. 0+017.96, 0+025.03, 0+687.08, 0+074.82 & 0+133.78
LINE SB35 - 22.5° H.BEND



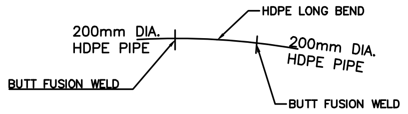
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+174.22, 0+188.20, 0+341.12, 0+382.29,
0+454.66, 0+477.28, 0+497.48, 0+576.02,
0+609.12 & 0+676.14
LINE SB35 - 11.25° H.BEND



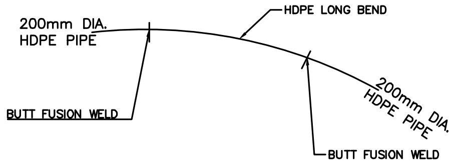
DESCRIPTION

10 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+208.71, 0+585.38, 0+656.56 & 0+712.07
LINE SB35 - 45° H.BEND



DESCRIPTION

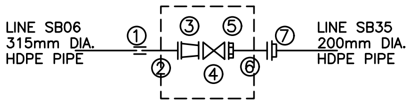
4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+000.00
LINE SB35 - INTERCONNECTION



DESCRIPTION

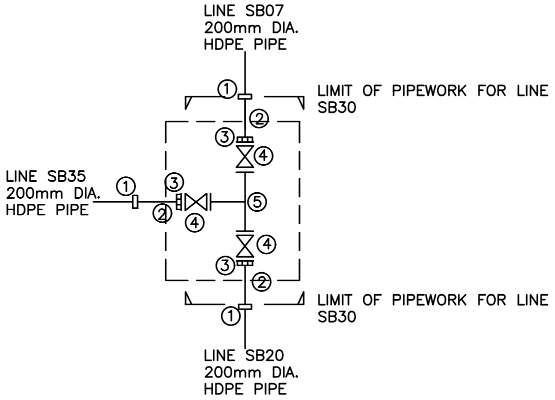
1 No. REQUIRED

① 1 No. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x200mm DIA. ALL FLANGED CONCENTRIC TAPER
④ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 200mm DIA. FLANGE ADAPTER
⑥ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 200/200mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1500

DETAIL

CH. 0+718.50
LINE SB35 - INTERCONNECTION



DESCRIPTION

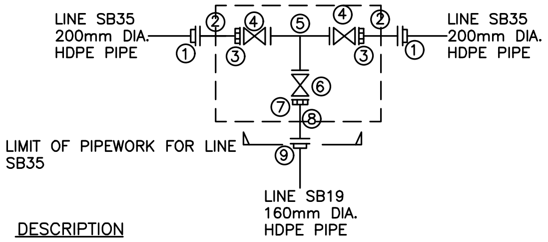
1 No. REQUIRED

① 3 Nos. 200/200mm DIA. STEPPED COUPLING
② 3 Nos. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 200mm DIA. FLANGE ADAPTOR
④ 3 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 200x200mm DIA. ALL FLANGED STEEL TEE

CHAMBER SIZE
1500x1500

DETAIL

CH. 0+506.12
LINE SB35 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 200/200mm DIA. STEPPED COUPLING
② 2 Nos. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 2 Nos. 200mm DIA. FLANGE ADAPTOR
④ 2 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 200x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑦ 1 No. 150mm DIA. FLANGE ADAPTOR
⑧ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 160/150mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO____________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

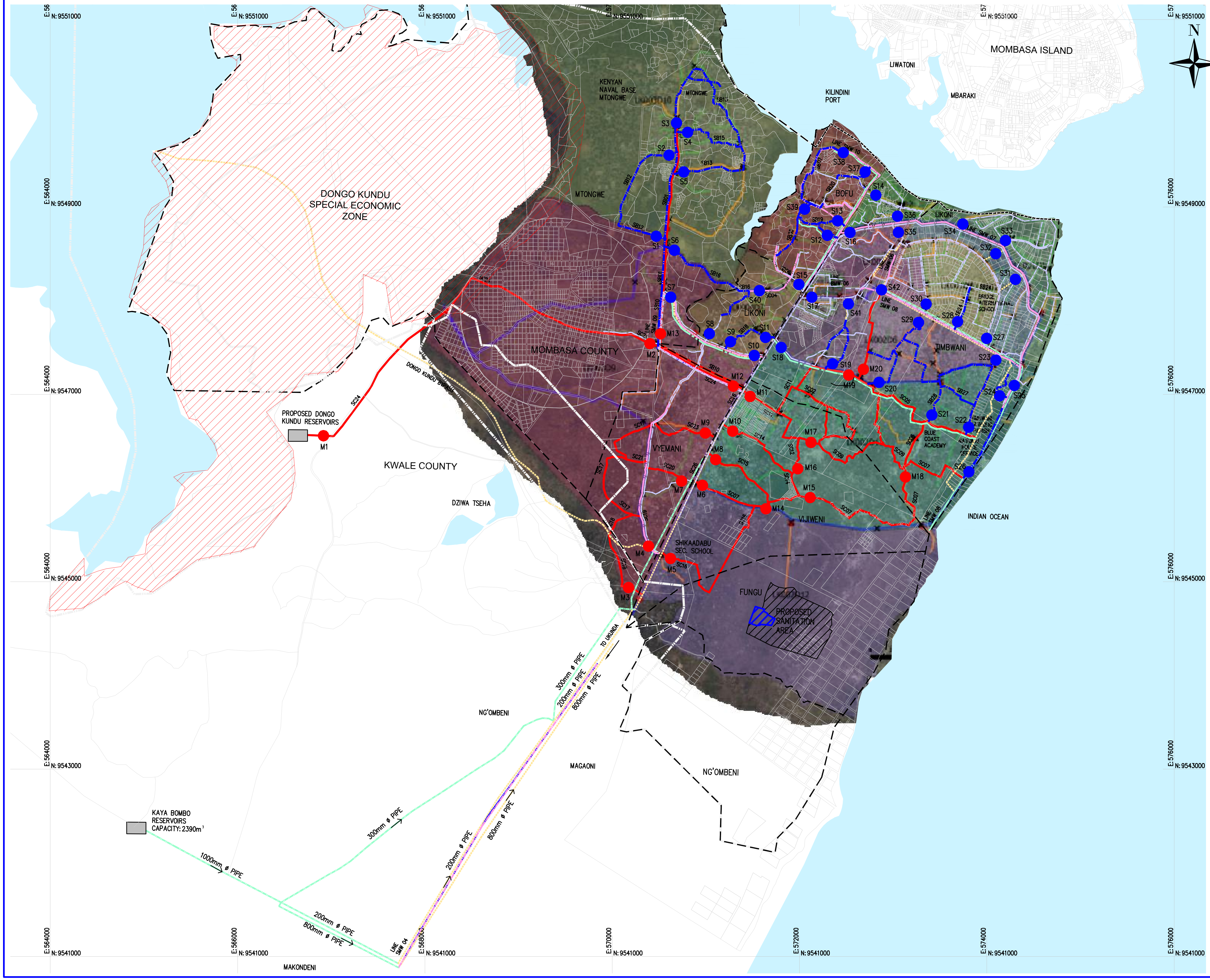
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND – LINE SB35
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-SM-P-051C0
C STATUS	DRAWING No. 6000002-W&S-SM-P-051 · C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

🟥	PROPOSED 2030 WATER PIPELINES
▬	PROPOSED 2020 WATER PIPELINES
┅	EXISTING WATER LINES
– – –	SUB-LOCATION BOUNDARIES
┅	WORKS UNDER IMPLEMENTATION BY MOWASCO
▬	MOWASCO PROJECT – WSDP
▬	MOWASCO PROJECT – KWSCRP
▬	WASSIP
▨	DONGO KUNDU SPECIAL ECONOMIC ZONE
▨	50Ha PROPOSED WWTP LAND
▨	3.5Ha PROPOSED FAECAL SLUDGE MANAGEMENT FACILITY
● M1	MEDIUM-TERM BULK METERS
● S1	SHORT-TERM BULK METERS

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	NOV,21	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND
BULK WATER METERS – DMAs
GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-004AC0
C STATUS	DRAWING No. 6000002-W&S-C-G-004A C0 REV

BULK WATER METERS IN SOUTH MAINLAND

BWM Type	BWM Size	BWM Ref	Pipe	Pipe Dia	Pipe Material	No.
BULK WATER METERS IN SOUTH MAINLAND LOT 2A						
Mechanical	75	S18a	Existing Pipe towards Mrima Hospital	75	Steel	1
		S40b	Exist Pipe near Likoni Quakers	75	Steel	1
	100	S1	SB12	110	HDPE	1
		S2	SB12	110	HDPE	1
		S6	SB16	110	HDPE	1
		S8	SB16	110	HDPE	1
		S9	SB18	110	HDPE	1
		S10a	Existing pipe opposite springheal restoration church	100	Steel	1
		S11	SB18	110	HDPE	1
		S13	Existing Pipe near Linet Beauty Cosmetics - Bofu	110	HDPE	1
		S15b	Existing Pipe near Nuru Shop Likoni	110	HDPE	
		S18c	SB32	110	HDPE	1
		S19	SB33	110	HDPE	1
		S20	SB30	110	HDPE	1
		S21	SB28	110	HDPE	1
		S21	SB23	110	HDPE	1
		S22	SB26	110	HDPE	1
		S23a	SB26	110	HDPE	1
		S27a	Existing Pipe near Bismilahi Shop	110	HDPE	1
		S27b	"	110	HDPE	1
		S28	SB24	110	HDPE	1
		S29	SB30	110	HDPE	1
		S32	"	100	Steel	1
		S35	"	110	PVC	1
		S40a	SB04	110	HDPE	1
		S41	Exist Pipe near Mrima Sec Sch.	100	Steel	1
	150	S7a	Existing pipe near Skun King Branding - Mtongwe	150	Steel	1
		S10b	"	150	Steel	1
		S10c	"	160	PVC	1
		S12	SB19	160	HDPE	1
		S33	Existing Pipe Masjid Khadija	160	PVC	1
		S34	Existing Pipe Off Timbwani Rd	160	PVC	1
		S37	SB20	160	HDPE	1
	200	S3a	Existing DN200	200	PVC	1
		S4	SB15	200	HDPE	1
		S5	SB13	200	HDPE	1
		S7b	"	200	PVC	1
		S14	Existing Pipe near BodaBoda Sacco - Bofu	200	PVC	1
		S16a	Existing Pipe towards Likoni SC Hospital	200	Steel	1
		S17	Existing Pipe adjacent to OilCom Petrol Stn	200	Steel	1
		S30	Existing pipe next to Silver Ration Store	200	HDPE	1
		S31	Existing Pipe Off Timbwani Rd	200	HDPE	1
		S38	Exist Pipe near Immac. Heart of Mary	160	HDPE	1
		S39	SB35	160	HDPE	1
		S42	Exist Pipe near Fellowship Baptist	200	Steel	1
Electromagnetic	250	S7c	"	250	PVC	1
		S15a	Existing Pipe near Masjid Ahle Kur Falcan Likoni	250	Steel	1
		S16b	"	315	PVC	1
		S16c	"	250	PVC	1
		S23b	Existing LKP10	250	Steel	1
		S25	SB04	315	HDPE	1
		S26	SB04	315	HDPE	1
		S36	"	250	Steel	1
	400	S3b	SB01	400	Steel	1
		S18b	"	400	Steel	1
					Total Lot 2A	**54**

BULK WATER METERS IN SOUTH MAINLAND LOT 2B

Mechanical	75	M12d		75	Steel	1
	100	M3	SC18	110	HDPE	1
		M4	Existing Pipe LKT139	110	HDPE	1
		M5	SC16	110	HDPE	1
		M7	Existing Pipe	90	PVC	1
		M8	SC15	110	HDPE	1
		M9	Existing Pipe opposite ACK St Phillips Academy	110	HDPE	1
		M10	SC14	110	HDPE	1
		M11	SC12	110	HDPE	1
		M16	SC12	110	HDPE	1
		M17	SC02	110	HDPE	1
	150	M12b	Existing Pipe opposite supersport launge	160	PVC	1
		M13b	Existing Pipe near Mtongwe Youth Polytechnic	160	PVC	1
	200	M6	SC07	200	HDPE	1
		M12c		200	Steel	1
		M13c	"	200	Steel	1
		M14	SC07	200	HDPE	1
		M15	SC07	200	HDPE	1
		M18	SC07	200	HDPE	1
Electromagnetic	300	M20	SC05	355	HDPE	1
	350	M19	SC13	350	Steel	1
	400	M12a	SB10	400	Steel	1
		M13a	SB10	400	Steel	1
	700	M2	Pipeline from Dongo Kundu Tank	700	Steel	1
	800	M1	Proposed Dongo Kundu Tank Outlet	800	Steel	1
					Total Lot 2B	**25**
					Total South Mainland	**79**

NOTES

LEGEND

M1 – MEDIUM–TERM BULK METERS
S1 – SHORT–TERM BULK METERS

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

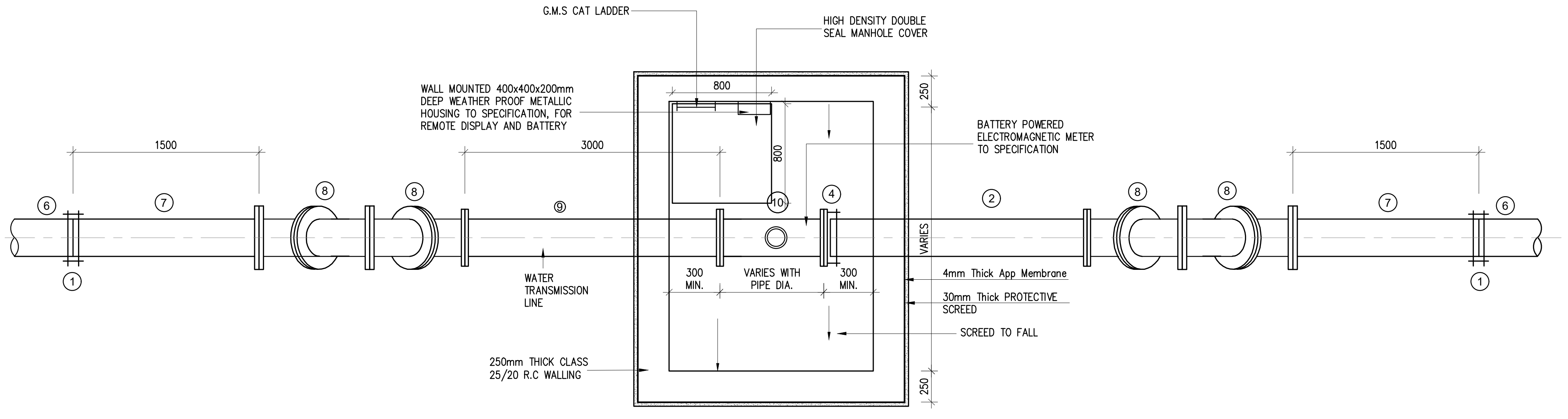
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
SOUTH MAINLAND
BULK WATER METERS DIAMETERS
SCHEDULE

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-004BC0
C STATUS	DRAWING No.6000002-W&S-C-G-004B C0 REV

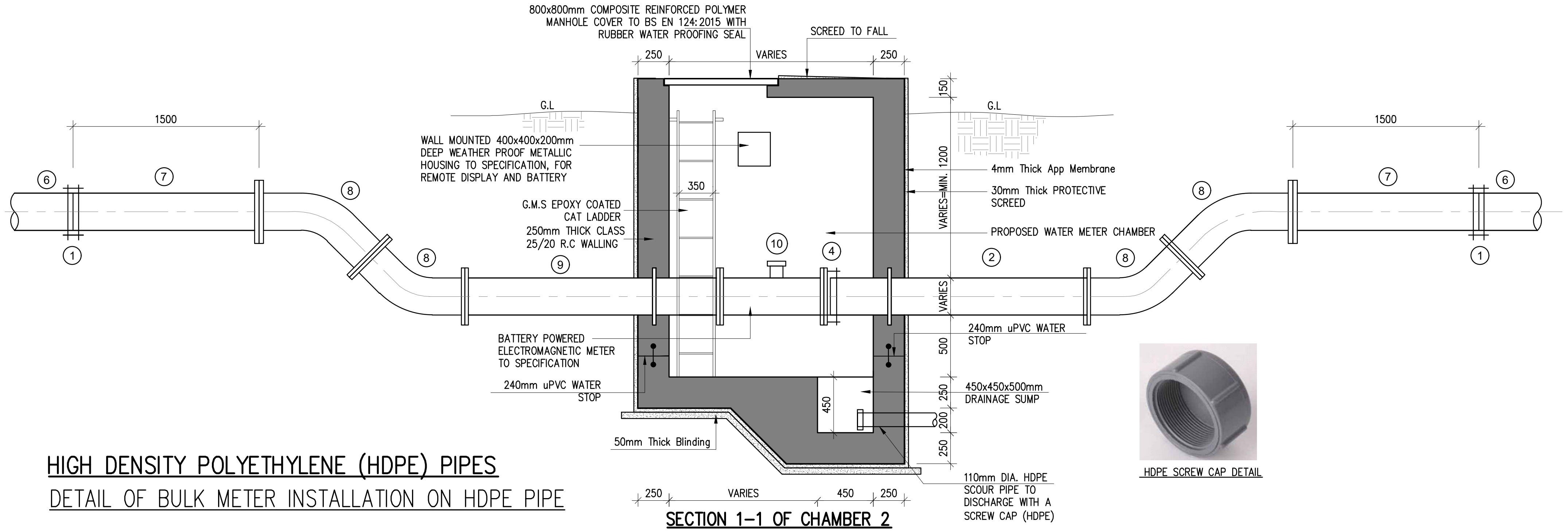


EXTERNAL CONCRETE SURFACE TO BE TANKED SHALL BE COATED WITH A BITUMINOUS PAINT/MEMBRANE,3mm MINIMUM THICKNESS

CONCRETE TO BE MIXED WITH SIKAL WATERPROOFING ADMIXTURE OR EQUALLY APPROVED

PLAN OF CHAMBER 2

SCALE 1:25



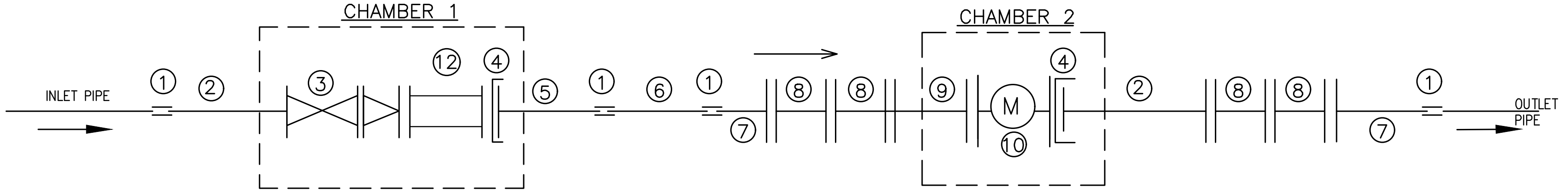
HDPE SCREW CAP DETAIL

HIGH DENSITY POLYETHYLENE (HDPE) PIPES

DETAIL OF BULK METER INSTALLATION ON HDPE PIPE

SECTION 1-1 OF CHAMBER 2

SCALE 1:25



ITEM No.	DESCRIPTION	DIA.	Nr.
1.	COUPLING	D	4
2.	SINGLE FLANGED PIPE WITH PUDDLE FLANGE	D	2
3.	SLUICE VALVE PN10	D	1
4.	FLANGE ADAPTOR	D	2
5.	PLAIN ENDED PIPE WITH PUDDLE FLANGE	D	1
6.	HDPE/STEEL CONNECTOR PIPE (LENGTH 10xD)	D	1
7.	SINGLE FLANGED PIPE PIECE 1.2m LONG	D	2
8.	45° BEND ALL FLANGED	D	4
9.	1.2m LONG DOUBLE FLANGED PIPE PIECE WITH PUDDLE FLANGE	D	1
10.	ALL FLANGED SMART ENABLED WATER METER	D	1

ITEM No.	DESCRIPTION	DIA.	Nr.
11.	NON-RETURN VALVE,PN10	D	1
12.	Y STRAINER,PN10	D	1

STANDARD ELECTROMAGNETIC METER CHAMBER DIMENSIONS SCHEDULE

MAIN PIPE DIA. ø (mm)	CHAMBER 1 DIMENSIONS (mm)	CHAMBER 2 DIMENSIONS (mm)
ø800	4200 x 1800	1800 x 1800
ø700	4200 x 1800	1800 x 1800
ø600	3600 x 1800	1800 x 1800
ø500	3000 x 1500	1500 x 1500
ø450	2600 x 1500	1500 x 1500
ø400	2600 x 1500	1500 x 1500
ø350	2000 x 1200	1500 x 1500
ø300	2000 x 1200	1500 x 1500
ø250	1500 x 1200	1200 x 1200
ø200≤ø200	1200 x 1200	1200 x 1200

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
2. ALL PIPES AND FITTING DIAMETERS ARE NOMINAL DIAMETER
3. CONTRACTOR TO CONFIRM IN LIAISON WITH THE ENGINEER THE ACTUAL LOCATIONS AND SIZES OF EXISTING/NEW PIPES ON WHICH THE METERS ARE TO BE INSTALLED PRIOR TO PROCUREMENT OF THE METERS AND ASSOCIATED FITTINGS

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
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		BY			
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Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

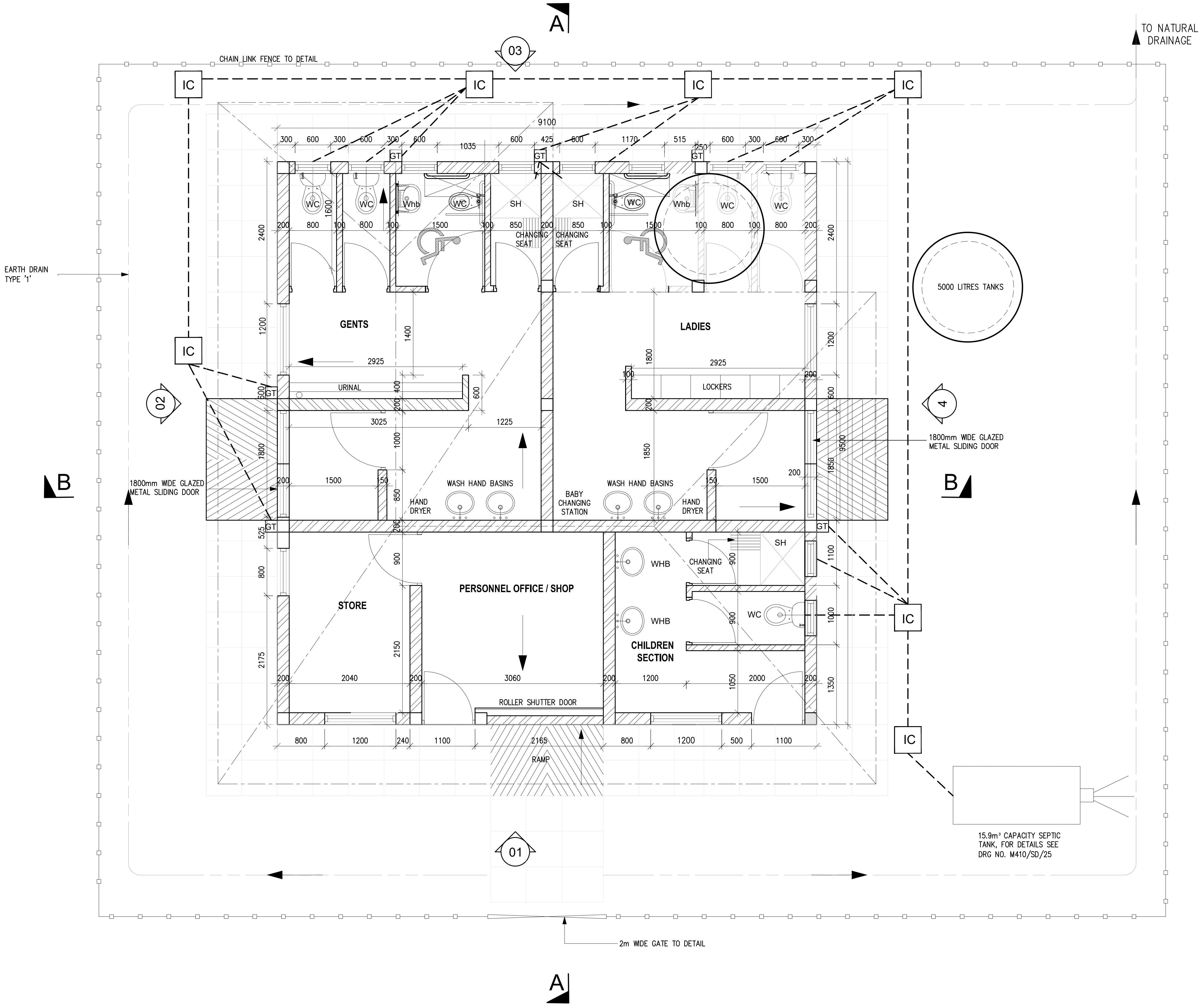
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

STANDARD DRAWING
ELECTRO MAGNETIC METERS CHAMBER
PLAN, ELEVATION AND PIPE FITTING DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-004C0
C STATUS	DRAWING No.6000002-W&S-C-G-004C C0 REV



PLAN

SCALE 1:50

NOTES

1. ALL DIMENSIONS IN MM. UNLESS OTHERWISE STATED.

LEGEND

IC	Inspection Chamber
– – – –	Sewer Line
GT	Gulley Trap
– - –	Surface Water Drainage
–□–□–	Chain Link Fence
⊞	Precast Concrete Paving Slab
⋈	Gate

ABBREVIATIONS

WC – WATER CLOSET (TOILET)
SH – SHOWER
Whb – WASH HAND BASIN

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

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		BY			
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C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
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CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

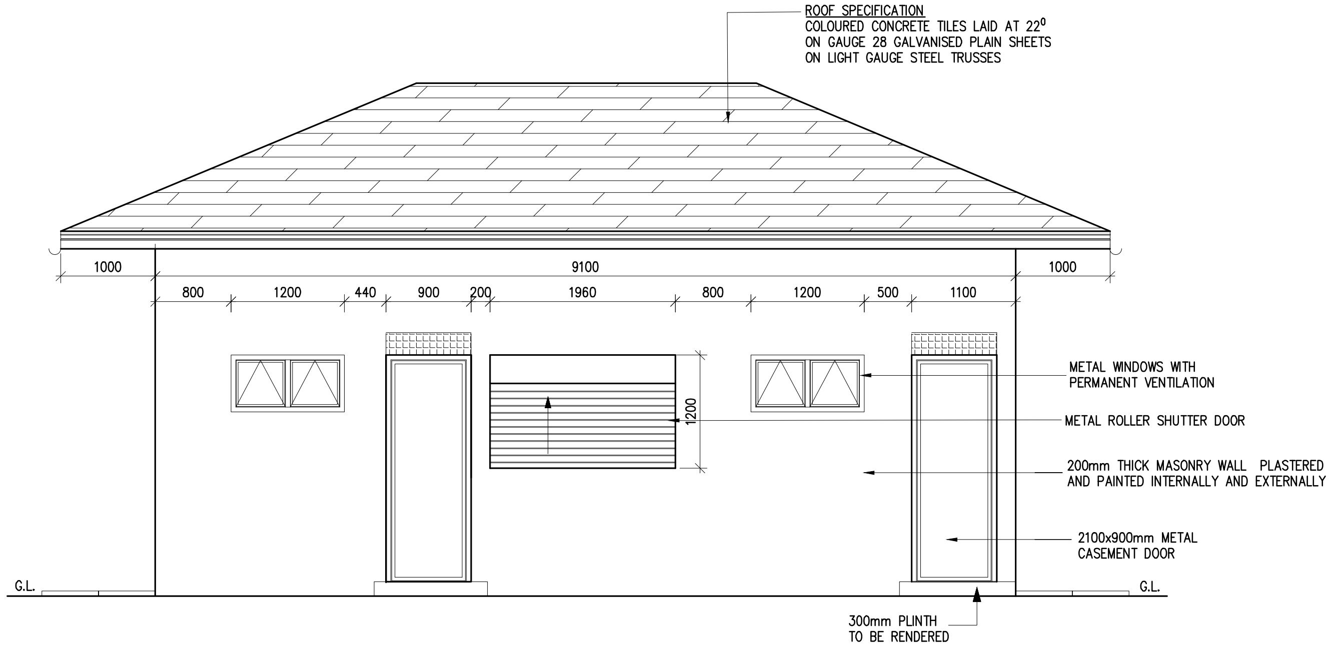
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

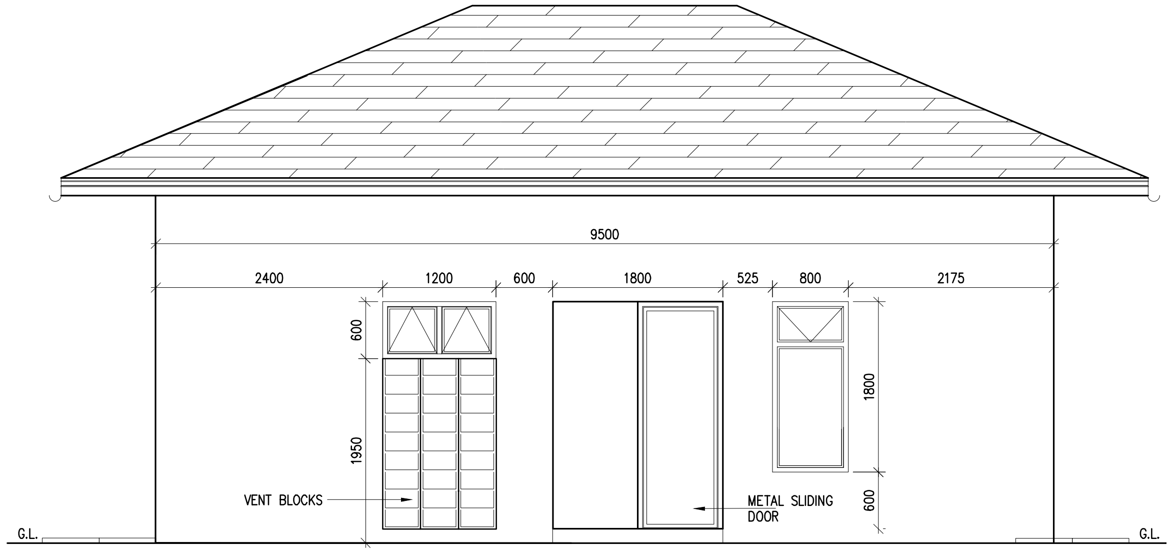
PROPOSED ABLUTION BLOCK
SITE LAYOUT PLAN

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-060C0
C STATUS	DRAWING No. 6000002-W&S-C-G-060 C0 REV



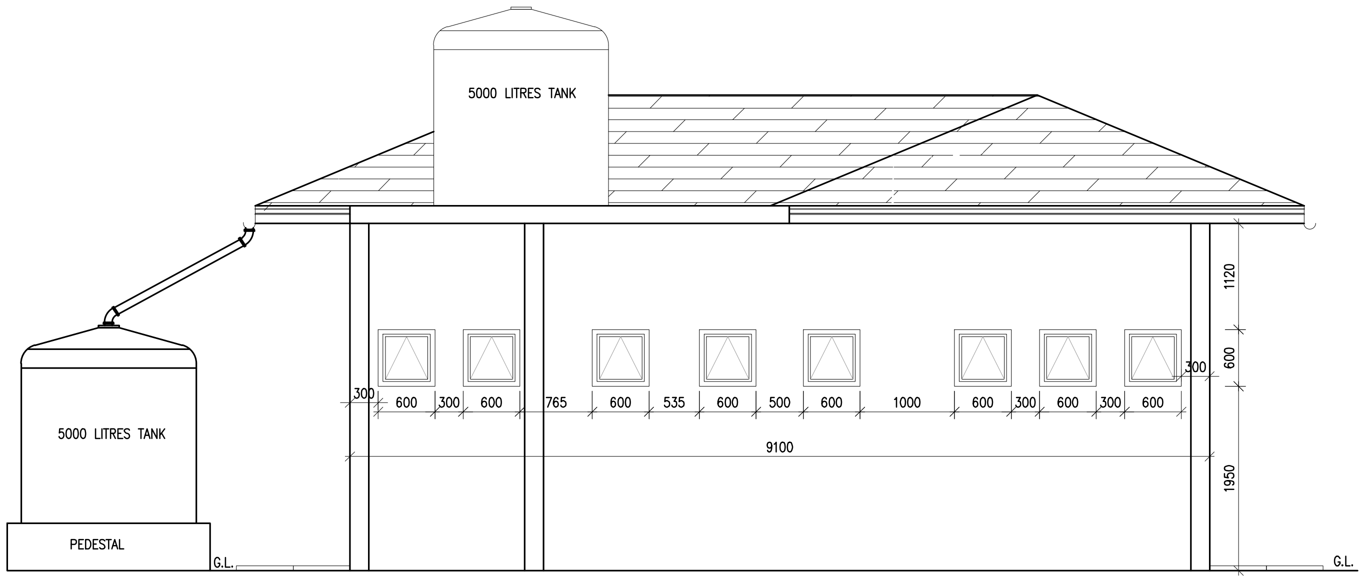
ELEVATION 1

SCALE 1:50



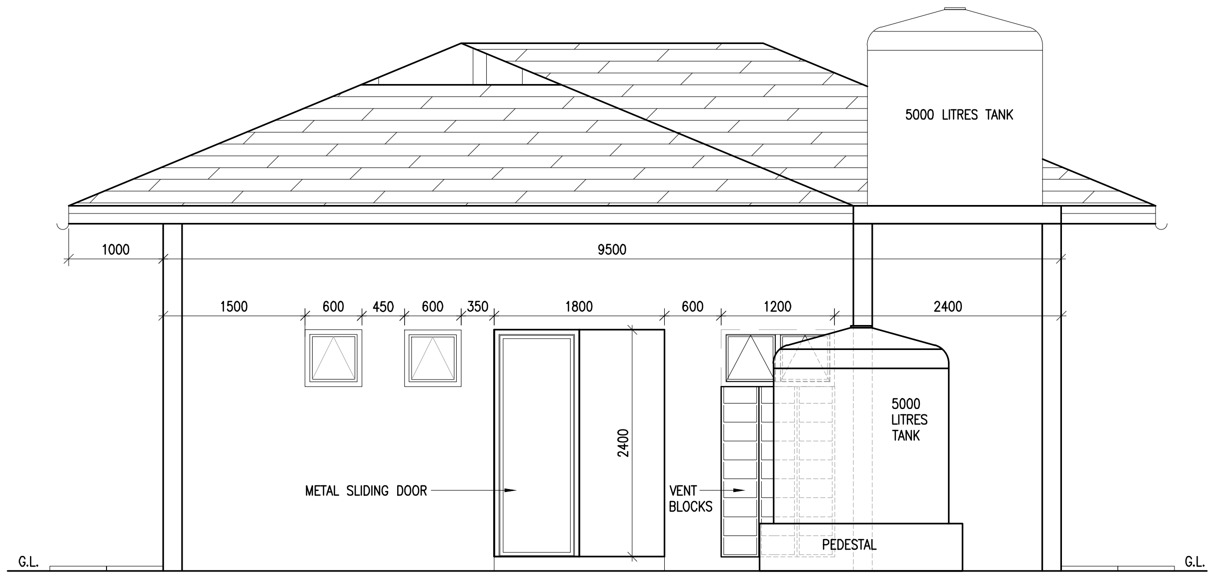
ELEVATION 2

SCALE 1:50



ELEVATION 3

SCALE 1:50



ELEVATION 4

SCALE 1:50

NOTES

1. ALL DIMENSIONS IN MM. UNLESS OTHERWISE STATED.

LEGEND

IC	Inspection Chamber
-------	Sewer Line
GT	Gulley Trap
········	Surface Water Drainage
—o—o—	Chain Link Fence
⊞	Precast Concrete Paving Slab
⋈	Gate

ABBREVIATIONS

WC – Water Closet (Toilet)
SH – Shower
Whb – WASH HAND BASIN

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
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		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
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Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

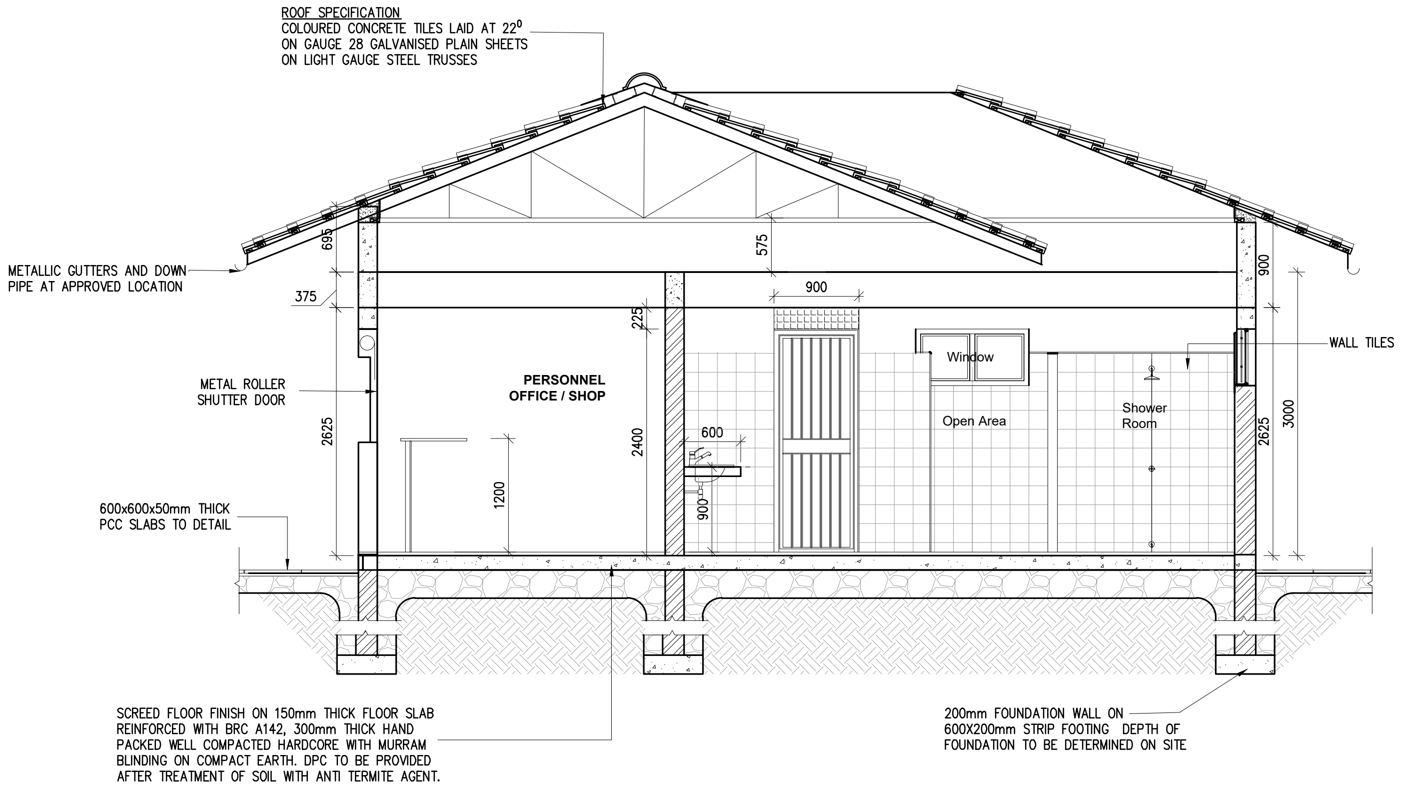
CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

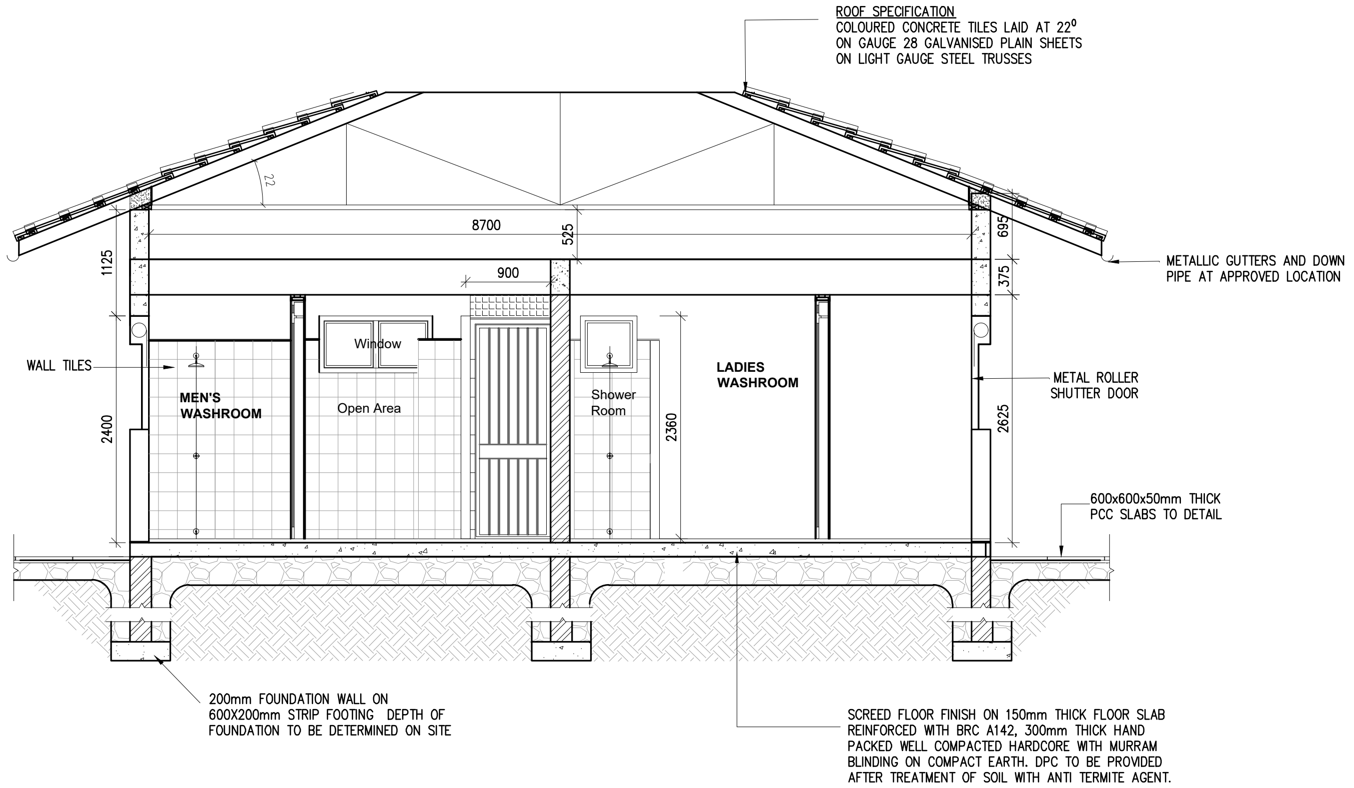
PROPOSED ABLUTION BLOCK
ELEVATIONS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-D-061C0
C STATUS	DRAWING No. 6000002-W&S-C-D-061 C0 REV



SECTION A–A

SCALE 1:50



SECTION B–B

SCALE 1:50

NOTES

1. ALL DIMENSIONS IN MM. UNLESS OTHERWISE STATED.

LEGEND

IC	Inspection Chamber
– – – – – –	Sewer Line
GT	Gulley Trap
········	Surface Water Drainage
–o–o–	Chain Link Fence
⊞	Precast Concrete Paving Slab
⋈	Gate

ABBREVIATIONS

WC – Water Closet (Toilet)
SH – Shower
Whb – WASH HAND BASIN

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
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		CHECKED			
		BY			
		CHECKED			
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Project Implementing Agency:

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COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

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PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

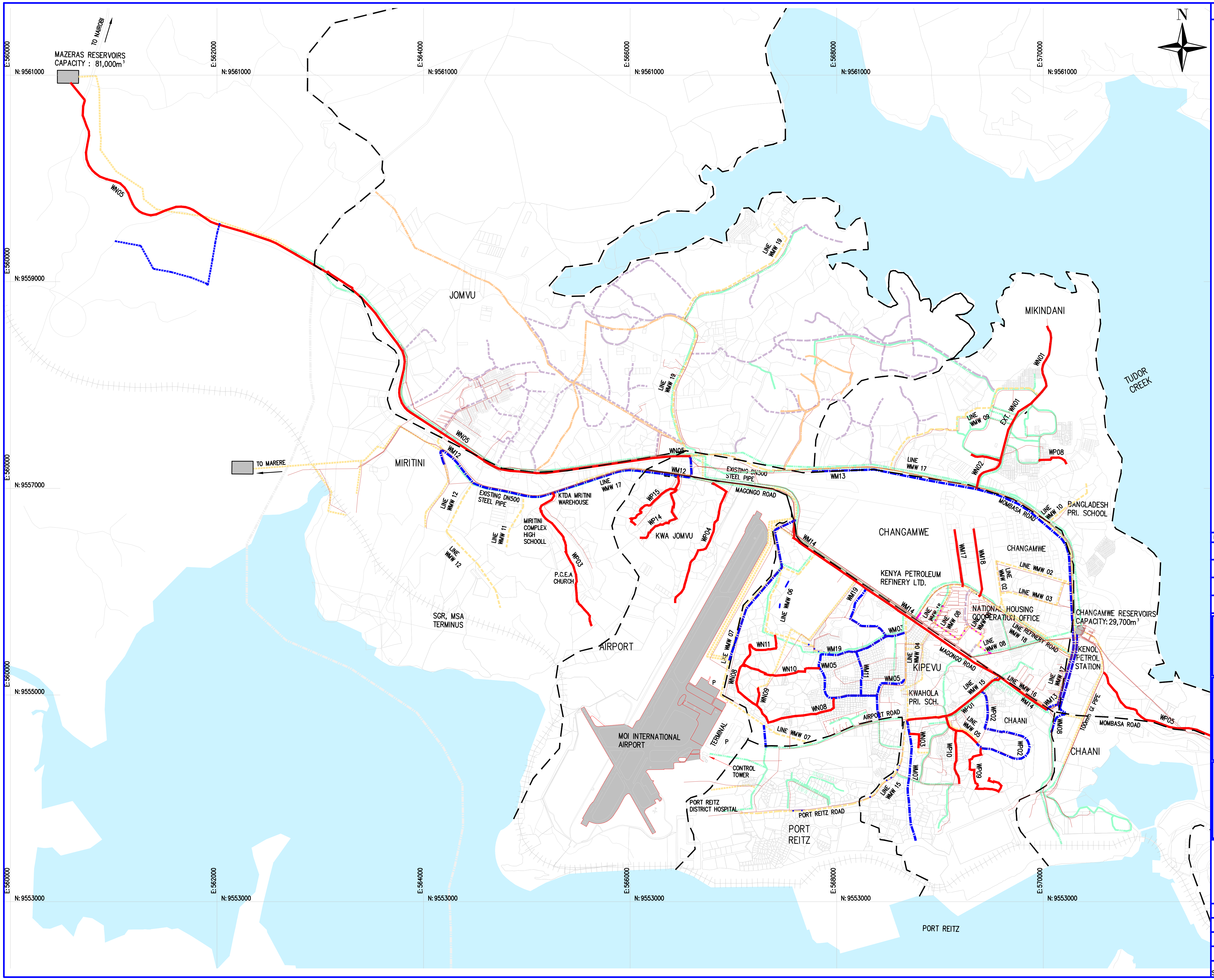
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

PROPOSED ABLUTION BLOCK
SECTIONS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–CD–062C0
C STATUS	DRAWING No. 6000002–W&S–C–D–062 CO REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

━ PROPOSED 2030 WATER PIPELINES
━ PROPOSED 2020 WATER PIPELINES
┅ EXISTING WATER LINES
╌ SUB-LOCATION BOUNDARIES
┅ WORKS UNDER IMPLEMENTATION BY MOWASCO
┅ MOWASCO PROJECT – WSDP
┅ MOWASCO PROJECT – KWSCRP
┅ WASSIP
┼┼┼ RAILWAY TRACK

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
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		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
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Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

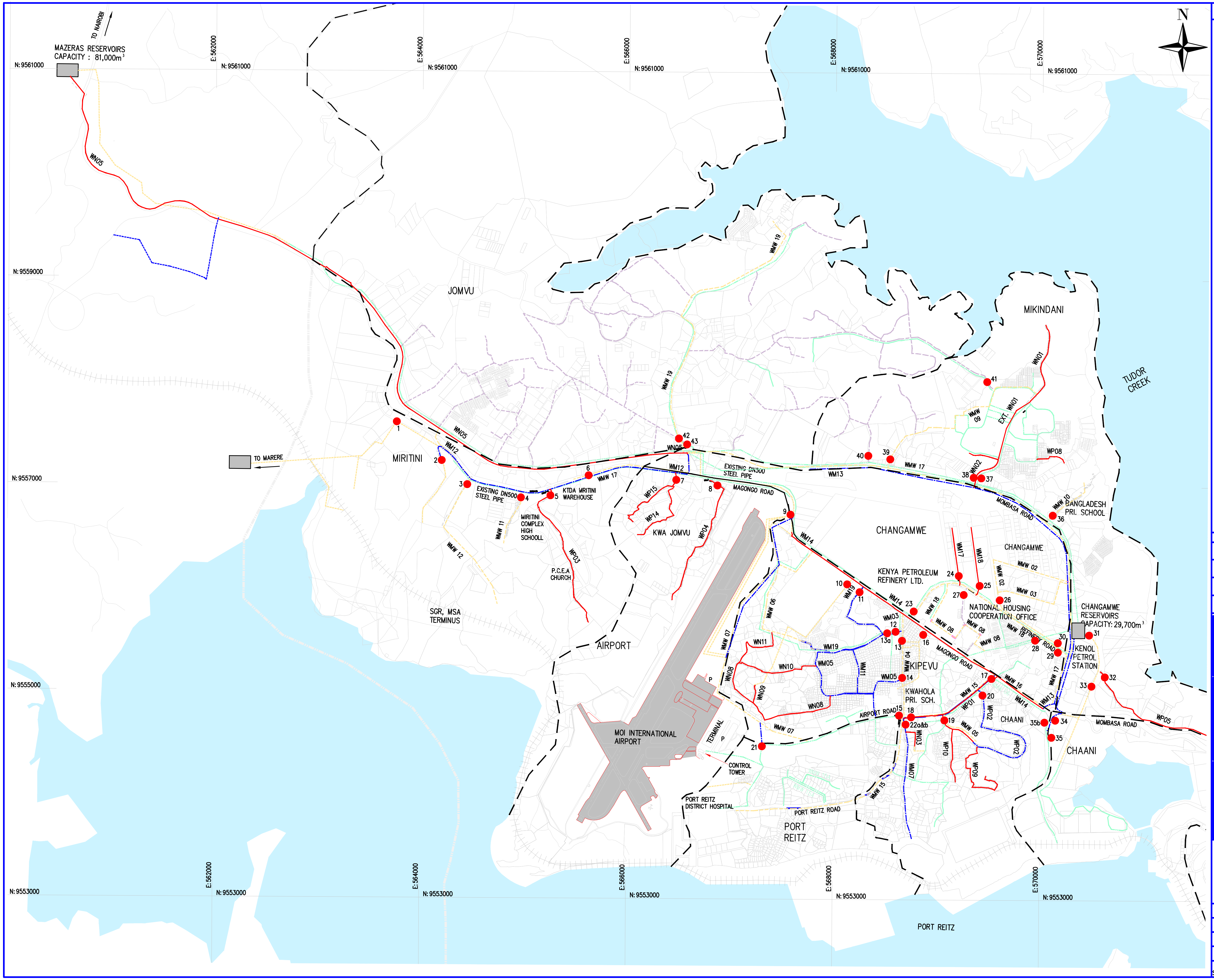
INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

MOMBASA WATER DISTRIBUTION PIPELINES – WEST MAINLAND GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-001C0
C STATUS	DRAWING No. 6000002-W&S-C-G-001	C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

🟥	PROPOSED 2030 WATER PIPELINES
▬ · ▬	PROPOSED 2020 WATER PIPELINES
┅┅	EXISTING WATER LINES
— — —	SUB-LOCATION BOUNDARIES
┅┅	WORKS UNDER IMPLEMENTATION BY MOWASCO
▬ · ▬	MOWASCO PROJECT – WSDP
▬ ‖ ▬	MOWASCO PROJECT – KWSCRP
▬ · ▬	WASSIP
┼┼┼┼	RAILWAY TRACK
●	BULK WATER METER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

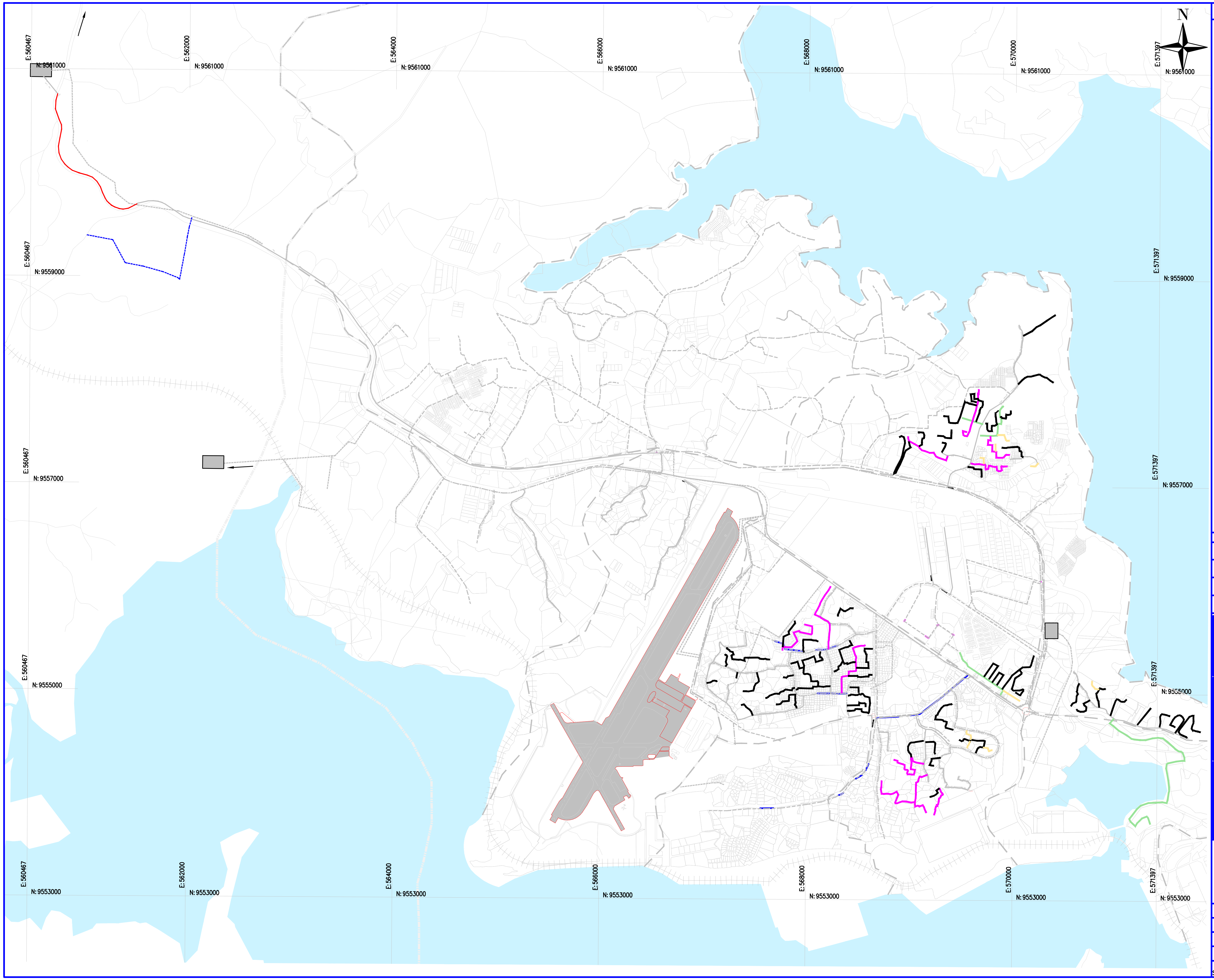
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND
BULK WATER METERS
GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-002C0
C STATUS	DRAWING No. 6000002-W&S-C-G-002	CO REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

🟩	PROPOSED 90mm HDPE PIPE
▬	PROPOSED 50mm HDPE PIPE
🟪	PROPOSED 75mm HDPE PIPE
🟨	PROPOSED 32mm HDPE PIPE

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

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COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
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CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
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CONTRACT No.:CWWDA/AFD/W2/2022

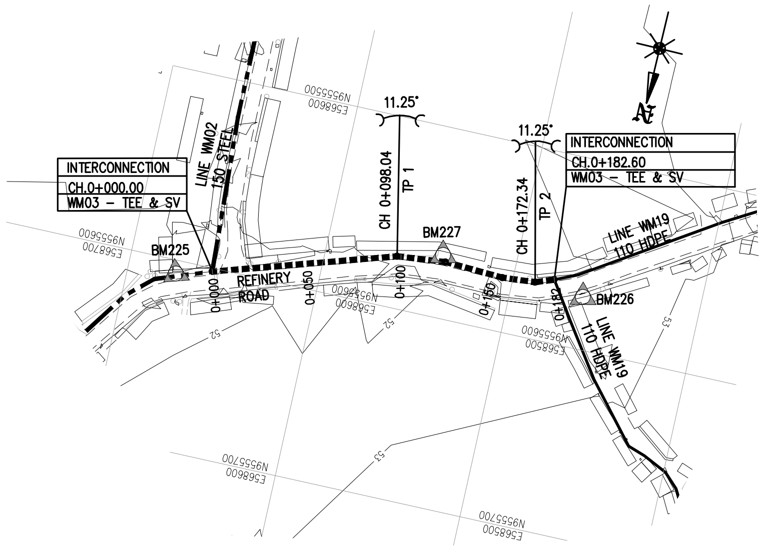
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

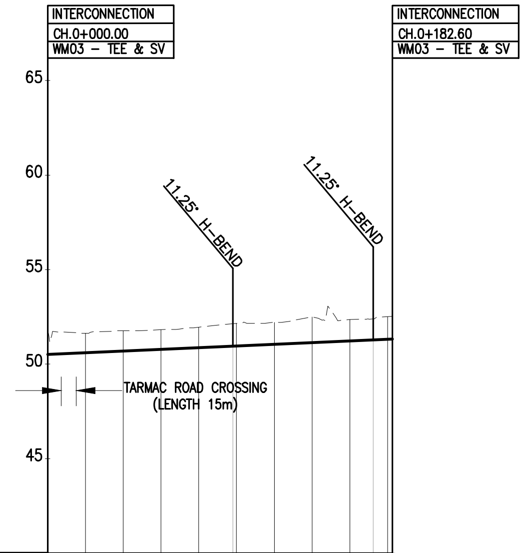
WEST MAINLAND
TERTIARY LINES
GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-005C0
C STATUS	DRAWING No. 6000002-W&S-C-G-005
C0 REV	



PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5													
GEOLOGICAL CONDITION	SAND SOILS													
EXISTING GROUND LEVEL (m)	51.72	51.63	51.76	51.82	51.95	52.14	52.15	52.21	52.49	52.37	52.39	52.51	52.53
INVERT LEVELS (m)	50.52	50.61	50.70	50.78	50.87	50.95	50.96	51.05	51.14	51.23	51.28	51.32	51.33
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+098.04	0+100.00	0+120.00	0+140.00	0+160.00	0+172.34	0+180.00	0+182.60
DEPTH OF INVERT (m)	1.20	1.02	1.07	1.04	1.07	1.19	1.19	1.16	1.36	1.14	1.11	1.20	1.20
SLOPE OF PIPE (%)	0.40%												
REFERENCE PEG NO.						TP 1					TP 2		

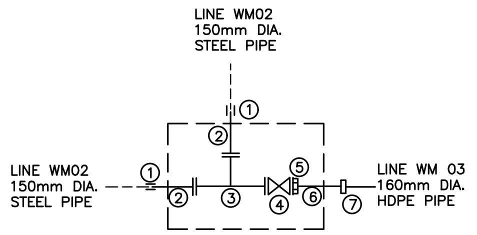
LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+000.00
LINE WM03 - INTERCONNECTION



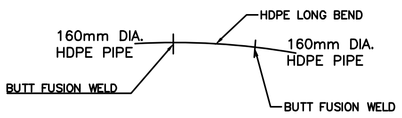
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 150mm DIA. COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑦ 1 No. 160/150mm DIA. STEPPED COUPLING

DETAIL

CH. 0+098.04 & 0+172.34
LINE WM03 - 11.25° H.BEND



DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUMS BM225, BM226 & BM 227 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM225	568,462.16	9,555,572.41	52.91
BM226	568,674.39	9,555,607.25	51.74
BM227	568,538.55	9,555,566.68	52.42

LEGEND:

- - - - - -	ROAD (TARMAC)
- - - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
-·-·-·-·-	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
—·—·—	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
⌜⌟	PROPOSED CONCRETE CHAMBER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

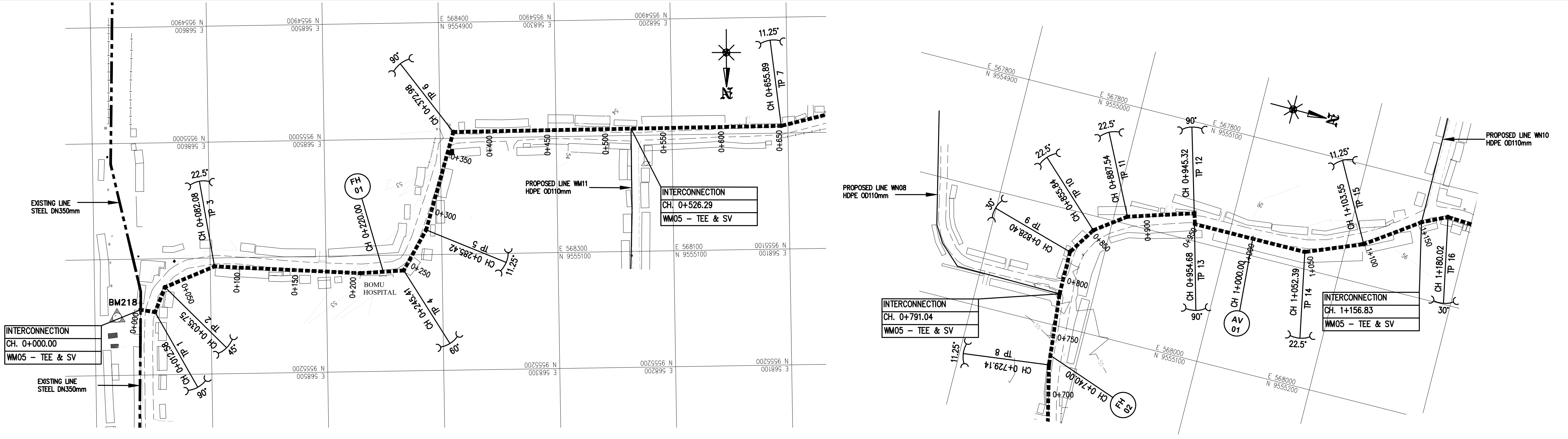
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

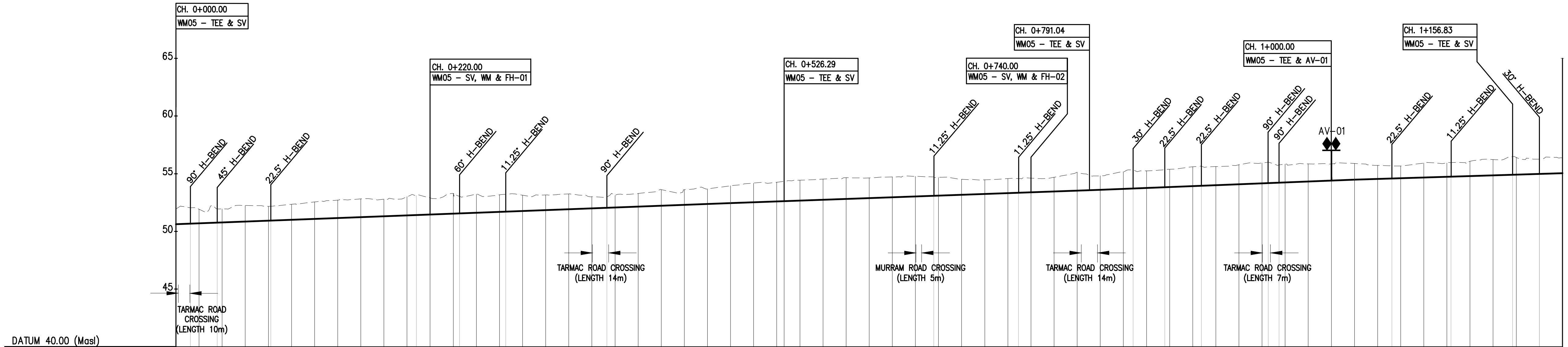
WEST MAINLAND – LINE WM03
PLAN AND PROFILE
(CH. 0+000 – CH. 0+182.60)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File:W&S-WM-P-004-C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-004 C0 REV



PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 315 HDPE PIPE TO PN 12.5
GEOLOGICAL CONDITION	MURRAM AND SAND SOIL MIXTURE

EXISTING GROUND LEVEL (m)	51.95	52.04	51.92	51.94	51.94	52.25	52.17	52.19	52.34	52.55	52.71	52.81	52.79	53.00	53.12	52.90	53.29	53.05	53.23	53.17
INVERT LEVELS (m)	50.62	50.67	50.70	50.76	50.78	50.85	50.93	50.94	51.01	51.08	51.16	51.24	51.31	51.39	51.42	51.47	51.54	51.56	51.62	51.69
CHAINAGE (m)	0+000.00	0+012.58	0+020.00	0+035.75	0+040.00	0+060.00	0+080.00	0+082.08	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+208.10	0+220.00	0+240.00	0+245.41	0+260.00	0+280.00
DEPTH OF INVERT (m)	1.33	1.37	1.22	1.18	1.17	1.40	1.24	1.25	1.34	1.47	1.55	1.57	1.48	1.61	1.70	1.44	1.74	1.49	1.61	1.48
SLOPE OF PIPE (%)	0.38%																			
REFERENCE PEG NO.		TP 1		TP 2				TP 3										TP 4		

EXISTING GROUND LEVEL (m)	53.22	53.14	53.15	53.25	53.00	52.97	53.12	53.28	53.62	53.61	53.68	53.96	54.19	54.26	54.34	54.44	54.53	54.65	54.64	54.72
INVERT LEVELS (m)	51.72	51.77	51.85	51.92	52.00	52.05	52.08	52.15	52.23	52.31	52.38	52.46	52.53	52.60	52.62	52.67	52.74	52.81	52.89	52.96
CHAINAGE (m)	0+285.42	0+300.00	0+320.00	0+340.00	0+360.00	0+372.98	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+526.29	0+540.00	0+560.00	0+580.00	0+600.00	0+620.00
DEPTH OF INVERT (m)	1.50	1.37	1.30	1.32	1.00	0.92	1.04	1.13	1.39	1.30	1.30	1.50	1.65	1.65	1.72	1.76	1.78	1.84	1.75	1.76
SLOPE OF PIPE (%)												0.36%								
REFERENCE PEG NO.	TP 5					TP 6														

EXISTING GROUND LEVEL (m)	54.77	54.70	54.68	54.51	54.47	54.58	54.58	54.62	54.69	55.11	54.82	55.18	55.31	55.24	55.37	55.38	55.60	55.66	55.62	55.77
INVERT LEVELS (m)	53.03	53.08	53.10	53.17	53.24	53.31	53.35	53.38	53.46	53.53	53.60	53.67	53.70	53.75	53.81	53.83	53.91	53.94	53.99	54.07
CHAINAGE (m)	0+640.00	0+655.89	0+660.00	0+680.00	0+700.00	0+720.00	0+729.14	0+740.00	0+760.00	0+780.00	0+800.00	0+820.00	0+828.40	0+840.00	0+855.84	0+860.00	0+880.00	0+887.54	0+900.00	0+920.00
DEPTH OF INVERT (m)	1.75	1.61	1.58	1.34	1.23	1.26	1.23	1.23	1.24	1.59	1.22	1.51	1.61	1.50	1.56	1.56	1.69	1.72	1.63	1.70
SLOPE OF PIPE (%)											0.40%									
REFERENCE PEG NO.		TP 7					TP 8						TP 9		TP 10			TP 11		

EXISTING GROUND LEVEL (m)	55.93	56.01	55.78	55.83	55.85	55.84	55.88	55.72	55.68	55.68	55.92	55.93	55.96	56.07	56.22	56.49	56.41	56.26	56.26	56.38
INVERT LEVELS (m)	54.15	54.17	54.21	54.23	54.32	54.40	54.48	54.54	54.58	54.60	54.66	54.73	54.74	54.79	54.85	54.90	54.91	54.97	54.97	55.03
CHAINAGE (m)	0+940.00	0+945.32	0+954.68	0+960.00	0+980.00	1+000.00	1+020.00	1+040.00	1+052.39	1+060.00	1+080.00	1+100.00	1+103.55	1+120.00	1+140.00	1+156.83	1+160.00	1+180.00	1+180.02	1+200.00
DEPTH OF INVERT (m)	1.77	1.84	1.56	1.60	1.53	1.44	1.41	1.18	1.10	1.07	1.26	1.20	1.23	1.28	1.38	1.59	1.50	1.28	1.28	1.34
SLOPE OF PIPE (%)							0.31%													
REFERENCE PEG NO.		TP 12	TP 13						TP 14				TP 15						TP 16	

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM218	568,680.94	9,555,150.11	51.66

LEGEND:

– – – – – – –	ROAD (TARMAC)
- - - - - - - - -	ROAD (MURRAM/EARTH/CABRO)
–x–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
○	WATER TANK
	GATE
□	BUILDINGS
■ ■ ■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

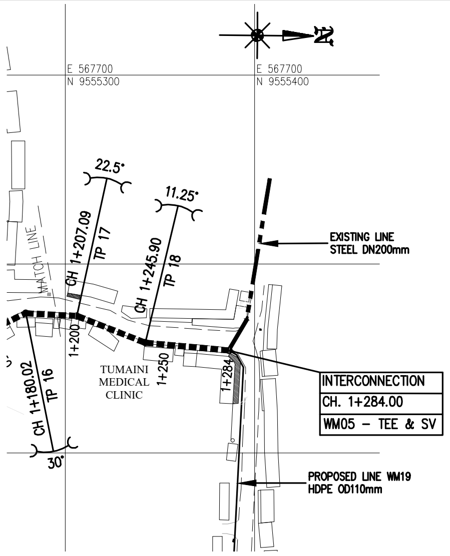
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WM05
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

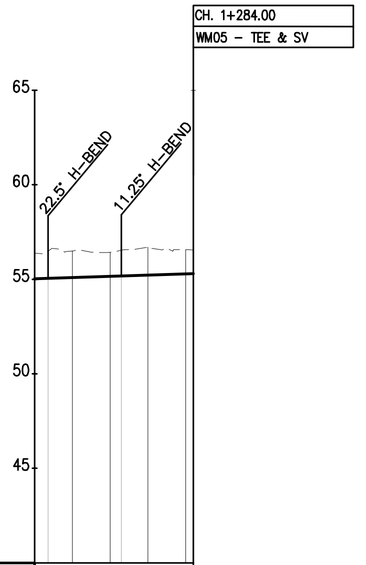
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-005CO

C STATUS | DRAWING No. 6000002-W&S-WM-P-005 | CO REV



PLAN

SCALE 1:2000



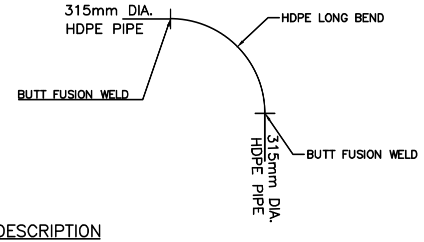
DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 315 HDPE PIPE TO PN 12.5							
GEOLOGICAL CONDITION	MURRAM AND SAND SOIL MIXTURE							
EXISTING GROUND LEVEL (m)	56.38	56.48	56.50	56.43	56.56	56.70	56.57	56.51
INVERT LEVELS (m)	55.03	55.06	55.10	55.16	55.18	55.22	55.28	55.31
CHAINAGE (m)	1+200.00	1+207.09	1+220.00	1+240.00	1+245.90	1+260.00	1+280.00	1+284.00
DEPTH OF INVERT (m)	1.34	1.42	1.40	1.27	1.38	1.48	1.29	1.20
SLOPE OF PIPE (%)	0.31%							
REFERENCE PEG NO.		TP 17			TP 18			

LONGITUDINAL PROFILE

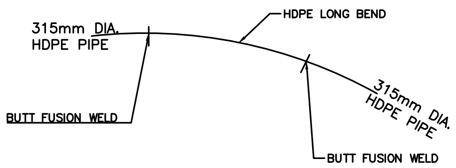
SCALE H 1:2000, V 1:200

DETAIL CH. 0+012.58
LINE WM05 - 90° H.BEND



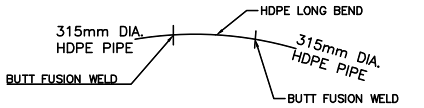
DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+035.75
LINE WM05 - 45° H.BEND



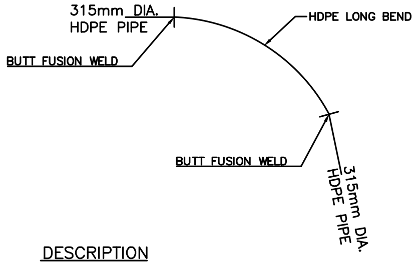
DESCRIPTION
1 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+082.08, 0+855.84, 0+887.54, 1+052.39 & 1+207.09
LINE WM05 - 22.5° H.BEND



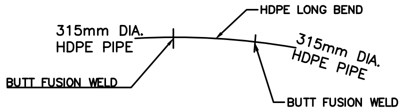
DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+245.41
LINE WM05 - 60° H.BEND



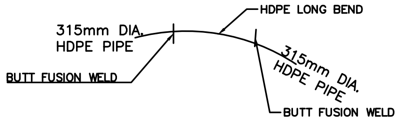
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+285.42, 0+655.89, 1+103.55 & 1+245.90
LINE WM05 - 11.25° H.BEND



DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+828.40 & 1+180.02
LINE WM05 - 30° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

– – – – – – –	ROAD (TARMAC)
- - - - - - - -	ROAD (MURRAM/EARTH/CABRO)
—x—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
○	WATER TANK
⋈	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

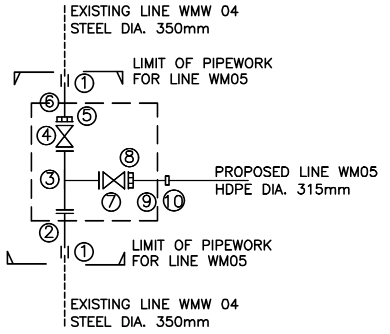
Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WM05
PLAN AND PROFILE
(CH. 1+200 – CH. 1+284.00)
SHEET 2 OF 3

Designed by FNO		Drawn by LAO	
Checked by		Approved by	
Scale AS SHOWN (A1)		Date NOVEMBER, 2021	
Job No.	6000002	ACAD File: W&S-WM-P-006C0	
C STATUS	DRAWING No. 6000002-W&S-WM-P-006		CO REV

CHAMBER SIZE
1800x1800

DETAIL CH. 0+000.00
LINE WM05 - INTERCONNECTION

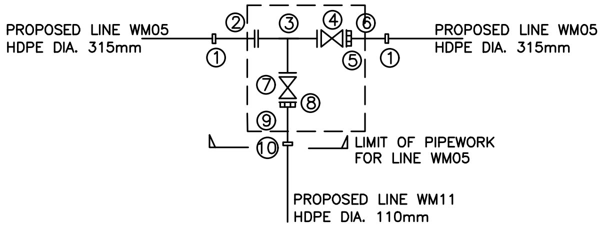


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 350mm DIA. STRAIGHT COUPLING
② 1 No. 350mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 350x250mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 350mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 350mm DIA. FLANGE ADAPTOR
⑥ 1 No. 350mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 315/250mm DIA. STEPPED COUPLING

CHAMBER SIZE
1800x1800

DETAIL CH. 0+526.29
LINE WM05 - INTERCONNECTION

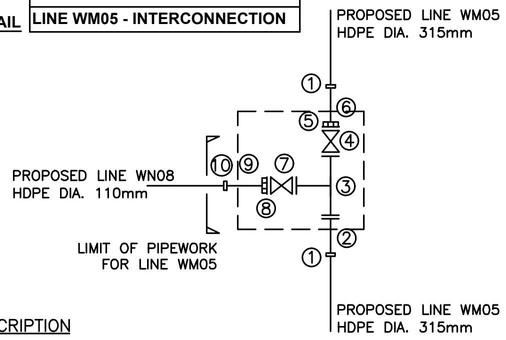


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250mm DIA. FLANGE ADAPTOR
⑥ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG
⑩ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1800x1800

DETAIL CH. 0+791.04
LINE WM05 - INTERCONNECTION

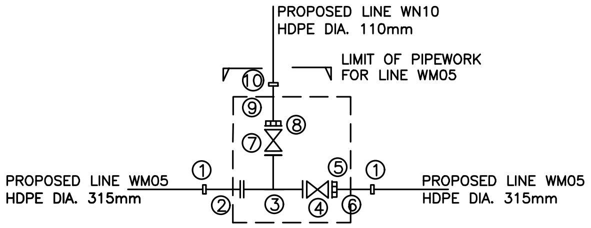


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250mm DIA. FLANGE ADAPTOR
⑥ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1800x1800

DETAIL CH. 1+156.83
LINE WM05 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 2 Nos. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250mm DIA. FLANGE ADAPTOR
⑥ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑩ 1 No. 110/100mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝ ⌞ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

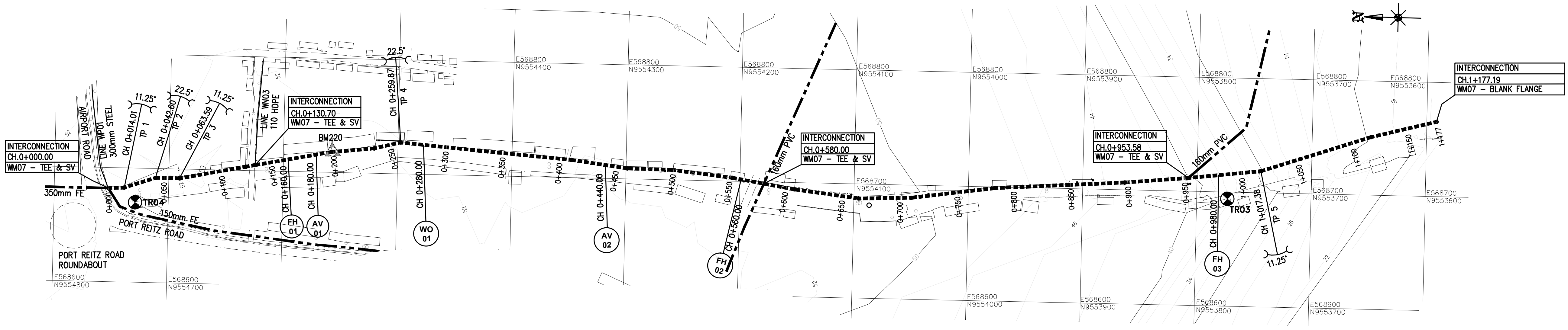
CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WM05
PIPE FITTING DETAILS
SHEET 3 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-007C0

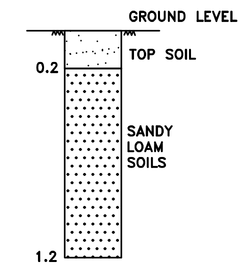
C STATUS	DRAWING No. 6000002-W&S-WM-P-007	C0 REV



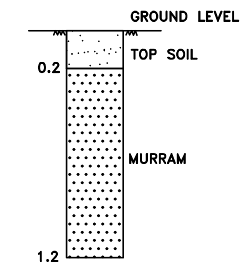
PLAN

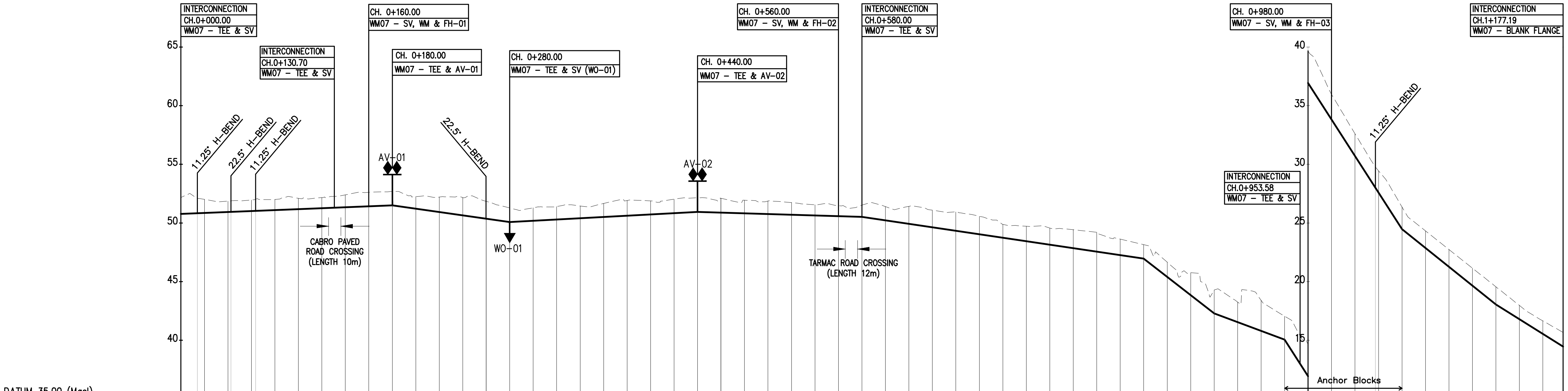
SCALE 1:2000

TRIAL HOLE TR04 DETAILS



TRIAL HOLE TR03 DETAILS





DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE	DN 200 HDPE PIPE TO PN 12.5																	
GEOLOGICAL CONDITION	SANDY LOAM SOILS																	
EXISTING GROUND LEVEL (m)	52.17	52.12	52.00	51.86	51.88	51.96	52.02	52.00	52.10	52.17	52.40	52.61	52.69	52.26	52.21	52.16	51.84	51.84
INVERT LEVELS (m)	50.77	50.83	50.85	50.93	50.94	51.01	51.03	51.09	51.17	51.25	51.33	51.41	51.49	51.21	50.93	50.64	50.36	50.36
CHAINAGE (m)	0+000.00	0+014.01	0+020.00	0+040.00	0+042.60	0+060.00	0+063.59	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+259.87	0+260.00
DEPTH OF INVERT (m)	1.40	1.29	1.15	0.93	0.94	0.95	1.00	0.91	0.93	0.92	1.07	1.20	1.20	1.05	1.28	1.52	1.48	1.48
SLOPE OF PIPE (%)	0.40%												–1.41%					
REFERENCE PEG NO.		TP 1			TP 2		TP 3										TP 4	

TYPE AND SIZE OF PIPE																	
GEOLOGICAL CONDITION																	
EXISTING GROUND LEVEL (m)	51.28	51.29	51.40	51.45	51.66	51.91	51.89	52.03	52.14	52.11	52.10	51.94	51.88	51.73	51.54	51.47	51.51
INVERT LEVELS (m)	50.08	50.19	50.29	50.40	50.51	50.62	50.73	50.83	50.94	50.88	50.88	50.82	50.76	50.70	50.63	50.57	50.51
CHAINAGE (m)	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+459.70	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00
DEPTH OF INVERT (m)	1.20	1.11	1.10	1.04	1.15	1.30	1.16	1.20	1.20	1.23	1.22	1.12	1.12	1.04	0.91	0.90	1.00
SLOPE OF PIPE (%)	0.54%								–0.31%								
REFERENCE PEG NO.																	

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5																	
GEOLOGICAL CONDITION	MURRAM																	
EXISTING GROUND LEVEL (m)	51.40	51.41	51.09	50.94	50.57	49.88	49.72	49.56	49.43	49.21	48.62	48.15	46.66	45.77	44.28	43.25	43.40	42.05
INVERT LEVELS (m)	50.21	49.92	49.62	49.33	49.03	48.73	48.44	48.14	47.84	47.55	47.25	46.95	45.40	43.84	42.28	41.54	40.80	40.05
CHAINAGE (m)	0+600.00	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00	0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00	0+940.00
DEPTH OF INVERT (m)	1.18	1.49	1.46	1.61	1.54	1.15	1.28	1.42	1.58	1.67	1.37	1.20	1.26	1.93	2.00	1.71	2.60	2.00
SLOPE OF PIPE (%)	–1.48%											–7.79%			–3.71%			–15.60%
REFERENCE PEG NO.																		

TYPE AND SIZE OF PIPE													
GEOLOGICAL CONDITION													
EXISTING GROUND LEVEL (m)	39.67	35.96	32.59	29.76	29.45	26.36	24.32	22.73	21.14	19.55	17.96	16.65	15.66
INVERT LEVELS (m)	36.94	33.82	30.70	27.99	27.58	24.46	22.86	21.26	19.66	18.05	16.80	15.54	14.46
CHAINAGE (m)	0+960.00	0+980.00	1+000.00	1+017.38	1+020.00	1+040.00	1+060.00	1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+177.19
DEPTH OF INVERT (m)	2.73	2.14	1.89	1.77	1.87	1.90	1.46	1.47	1.49	1.50	1.17	1.11	1.20
SLOPE OF PIPE (%)						–8.01%				–6.29%			
REFERENCE PEG NO.				TP 5									

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM220 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM220	568,718.58	9,554557.54	52.37

LEGEND:

– – – – – – –	ROAD (TARMAC)
- - - - - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

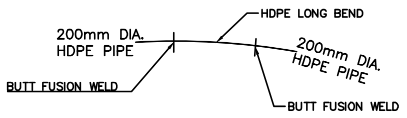
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WM07
PLAN AND PROFILE
(CH. 0+000 – CH. 1+177.19)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-008C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-008
C0 REV	

DETAIL | **CH. 0+014.01, 0+063.59, 0+236.13, 0+459.70 & 0+499.49**
LINE WM07 - 11.25° H.BEND

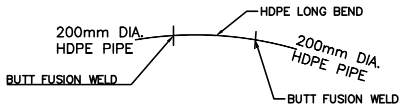


DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL | **CH. 0+042.60 & 0+259.87**
LINE WM07 - 22.5° H.BEND

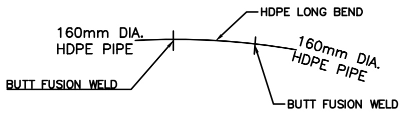


DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL | **CH. 0+664.25, 0+710.32 & 1+017.38**
LINE WM07 - 11.25° H.BEND



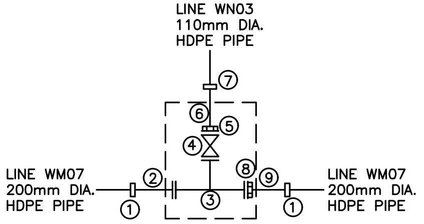
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL | **CH. 0+130.70**
LINE WM07 - INTERCONNECTION



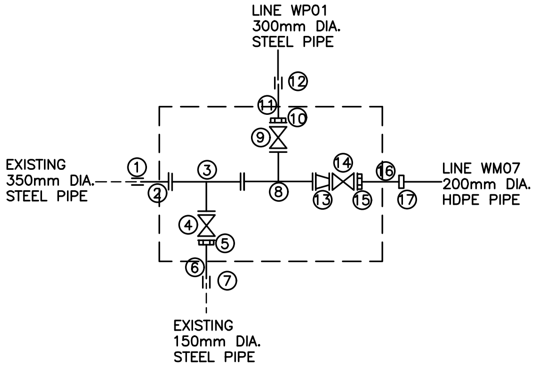
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 200/200mm DIA. STEPPED COUPLING
② 2 Nos. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING
⑧ 1 No. 200mm DIA. FLANGE ADAPTOR
⑨ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
2100x2100

DETAIL | **CH. 0+000.00**
LINE WM07 - INTERCONNECTION



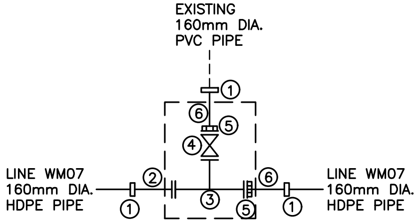
DESCRIPTION

1 No. REQUIRED

① 1 No. 350mm DIA. STRAIGHT COUPLING
② 1 No. 350mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 350x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 150mm DIA. STRAIGHT COUPLING
⑧ 1 No. 350x300mm DIA. ALL FLANGED STEEL TEE
⑨ 1 No. 300mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 300mm DIA. FLANGE ADAPTOR
⑪ 1 No. 300mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 300mm DIA. STRAIGHT COUPLING
⑬ 1 No. 350x200mm DIA. ALL FLANGED CONCENTRIC TAPER
⑭ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑮ 1 No. 200mm DIA. FLANGE ADAPTOR
⑯ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑰ 1 No. 200/200mm DIA. STEPPED COUPLING

CHAMBER SIZE
1200x1200

DETAIL | **CH. 0+953.58**
LINE WM07 - INTERCONNECTION



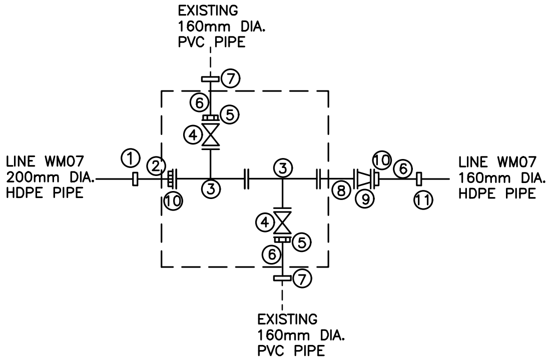
DESCRIPTION

1 No. REQUIRED

① 3 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
1800x1800

DETAIL | **CH. 0+580.00**
LINE WM07 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDLE FLANGE
③ 2 Nos. 200x150mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑥ 3 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 2 Nos. 160/150mm DIA. STEPPED COUPLING
⑧ 1 No. 200mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑨ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑩ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑪ 1 No. 160/150mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS	SIGN	DATE	APPROVED
		BY		
		CHECKED		
		BY		
		CHECKED		
		BY		
		CHECKED		
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22
		CHECKED		

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

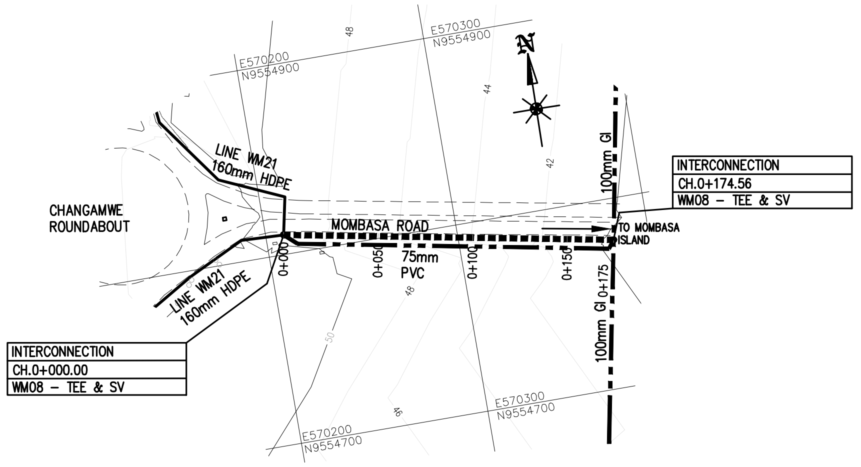
CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WM07
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-009C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-009 C0 REV

AWAITING FINAL SURVEY



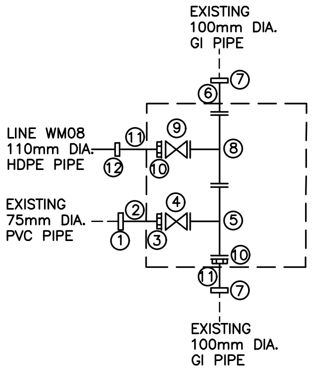
PLAN

SCALE 1:2000

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+174.56
LINE WM08 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 75/80mm DIA. STEPPED COUPLING

② 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

③ 1 No. 80mm DIA. FLANGE ADAPTOR

④ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE

⑤ 1 No. 100x80mm DIA. ALL FLANGED STEEL TEE

⑥ 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

⑦ 2 No. 100/100mm DIA. STEPPED COUPLING

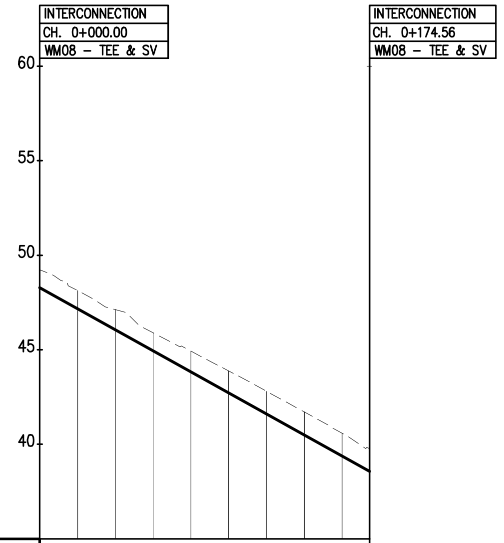
⑧ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE

⑨ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE

⑩ 2 Nos. 100mm DIA. FLANGE ADAPTOR

⑪ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

⑫ 1 No. 110/100mm DIA. STEPPED COUPLING



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5									
GEOLOGICAL CONDITION	MURRAM									
EXISTING GROUND LEVEL (m)	49.24	48.13	47.13	45.90	44.93	43.88	42.80	41.72	40.59	39.76
INVERT LEVELS (m)	48.28	47.17	46.05	44.94	43.83	42.71	41.60	40.48	39.37	38.56
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+174.56
DEPTH OF INVERT (m)	0.96	0.96	1.07	0.96	1.10	1.17	1.21	1.23	1.22	1.20
SLOPE OF PIPE (%)	–5.57%									
REFERENCE PEG NO.										

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - - -	ROAD (TARMAC)
- - - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
⌜ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

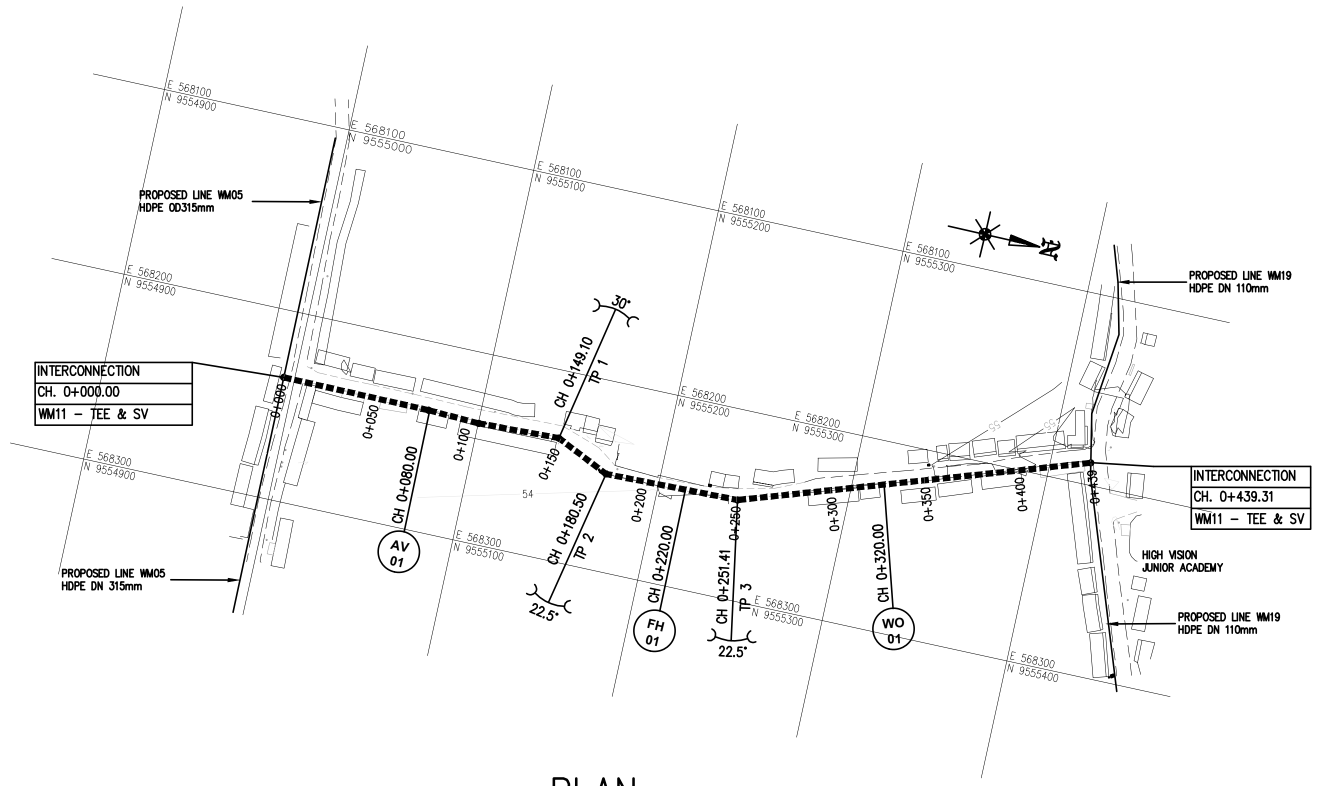
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WM08
PLAN, PROFILE & FITTING DETAILS
(CH. 0+000 – CH. 0+174.56)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-010C0

C STATUS	DRAWING No. 6000002-W&S-WM-P-010	C0 REV

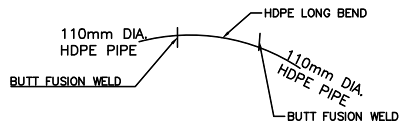


PLAN

SCALE 1:2000

DETAIL

CH. 0+149.10
LINE WM11 - 30° H.BEND



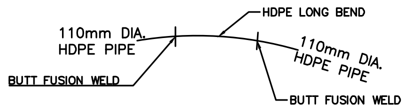
DESCRIPTION

1 Nos. REQUIRED

HDPE LONG BEND - BUTT FUSION WELDED

DETAIL

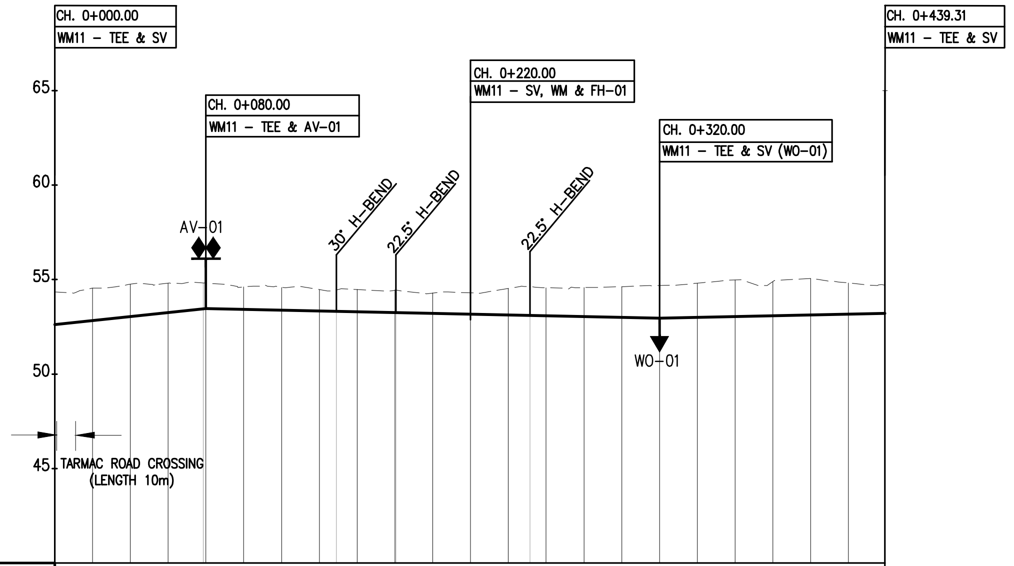
CH. 0+180.50 & 0+251.41
LINE WM11 - 22.5° H.BEND



DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND - BUTT FUSION WELDED



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5													
GEOLOGICAL CONDITION	SANDY LOAM SOILS													
EXISTING GROUND LEVEL (m)	54.34	54.54	54.75	54.81	54.82	54.81	54.61	54.59	54.47	54.45	54.47	54.45	54.44	54.29
INVERT LEVELS (m)	52.62	52.83	53.05	53.26	53.45	53.47	53.42	53.38	53.34	53.32	53.30	53.25	53.25	53.21
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+078.65	0+080.00	0+100.00	0+120.00	0+140.00	0+149.10	0+160.00	0+180.00	0+180.50	0+200.00
DEPTH OF INVERT (m)	1.72	1.71	1.71	1.55	1.37	1.35	1.19	1.21	1.13	1.13	1.18	1.19	1.19	1.08
SLOPE OF PIPE (%)	1.06%					−0.21%								
REFERENCE PEG NO.										TP 1			TP 2	

TYPE AND SIZE OF PIPE													
GEOLOGICAL CONDITION													
EXISTING GROUND LEVEL (m)	54.30	54.53	54.62	54.56	54.58	54.62	54.69	54.81	54.98	54.89	55.05	54.82	54.69
INVERT LEVELS (m)	53.17	53.13	53.10	53.08	53.04	53.00	52.95	53.00	53.04	53.08	53.12	53.16	53.20
CHAINAGE (m)	0+220.00	0+240.00	0+251.41	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+439.31
DEPTH OF INVERT (m)	1.13	1.41	1.52	1.48	1.54	1.63	1.74	1.81	1.94	1.81	1.93	1.65	1.49
SLOPE OF PIPE (%)								0.21%					
REFERENCE PEG NO.			TP 3										

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

= = = =	ROAD (TARMAC)
- - - -	ROAD (MURRAM/EARTH/CABRO)
-·-·-·-	FENCE / HEDGE
—— 14 ——	CONTOURS, lm INTERVAL
○	ELECTRIC POST
○	WATER TANK
—	GATE
☐	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
∘ ∘	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

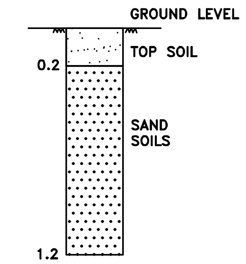
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

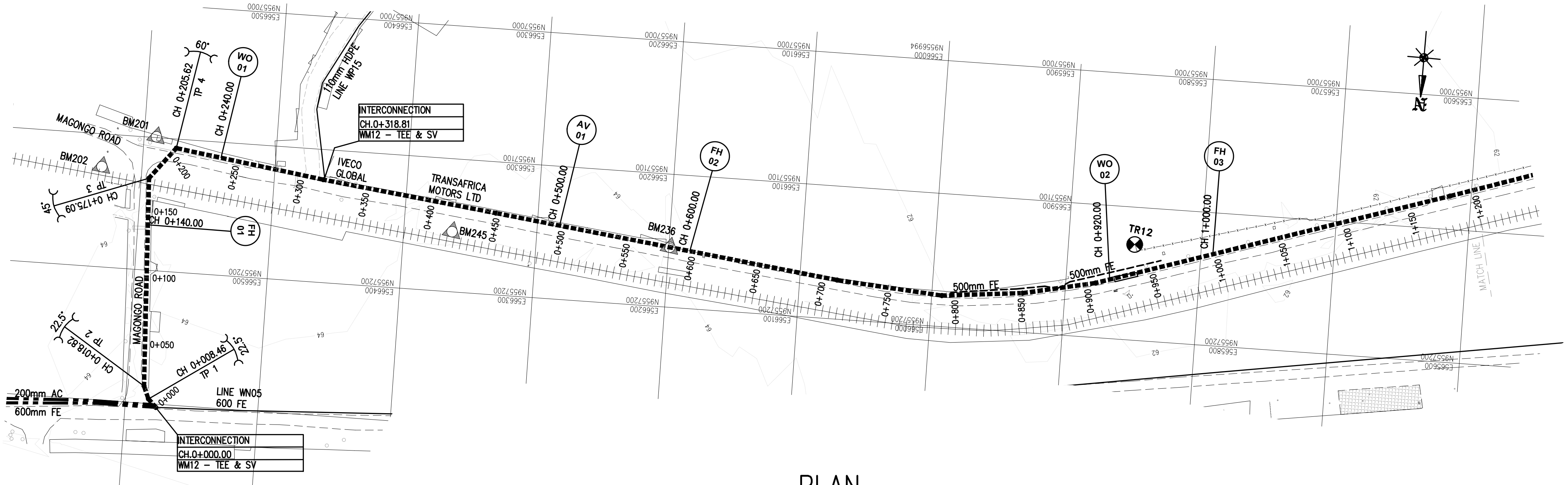
Drawing Title

WEST MAINLAND - LINE WM11
PLAN, PROFILE & FITTING DETAILS
(CH.0+000 - CH.0+439.31)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-011C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-011	CO REV

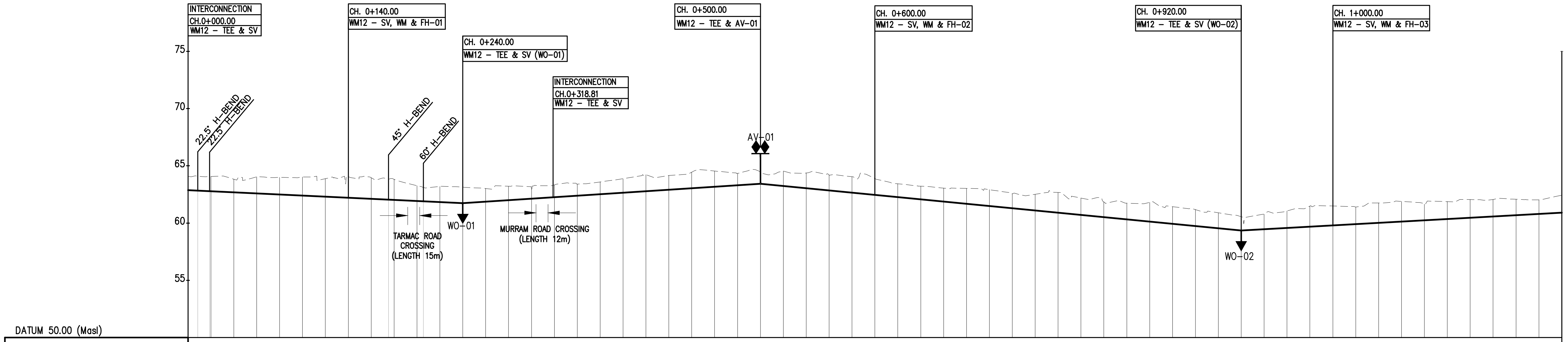
TRIAL HOLE TR12 DETAILS





PLAN

SCALE 1:2000



TYPE AND SIZE OF PIPE	DN 200 HDPE PIPE TO PN 12.5										
GEOLOGICAL CONDITION	SAND SOILS										
EXISTING GROUND LEVEL (m)	64.08	64.08	64.07	64.07	63.83	64.04	63.98	64.02	63.88	64.06	63.96
INVERT LEVELS (m)	62.88	62.84	62.79	62.78	62.69	62.59	62.50	62.40	62.31	62.22	62.12
CHAINAGE (m)	0+000.00	0+008.46	0+018.82	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00
DEPTH OF INVERT (m)	1.20	1.25	1.28	1.29	1.14	1.45	1.49	1.62	1.57	1.85	1.84
SLOPE OF PIPE (%)	-0.47%										
REFERENCE PEG NO.		TP 1	TP 2								

EXISTING GROUND LEVEL (m)	63.83	63.82	63.27	63.10	63.19	63.14	63.02	63.22	62.97	63.33	63.41
INVERT LEVELS (m)	62.05	62.03	61.93	61.90	61.84	61.74	61.87	62.00	62.13	62.26	62.39
CHAINAGE (m)	0+175.09	0+180.00	0+200.00	0+205.62	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00
DEPTH OF INVERT (m)	1.78	1.79	1.34	1.19	1.36	1.40	1.15	1.21	0.83	1.07	1.01
SLOPE OF PIPE (%)							0.65%				
REFERENCE PEG NO.	TP 3			TP 4							

EXISTING GROUND LEVEL (m)	63.60	63.88	64.22	64.15	64.45	64.55	64.33	64.44	64.54	64.38	64.19
INVERT LEVELS (m)	62.52	62.65	62.78	62.92	63.05	63.18	63.31	63.44	63.24	63.05	62.85
CHAINAGE (m)	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00
DEPTH OF INVERT (m)	1.07	1.23	1.44	1.24	1.40	1.37	1.03	1.00	1.30	1.33	1.34
SLOPE OF PIPE (%)									-0.97%		
REFERENCE PEG NO.											

EXISTING GROUND LEVEL (m)	64.05	63.89	63.43	63.22	63.05	63.03	62.92	62.56	62.51	62.67	62.19
INVERT LEVELS (m)	62.66	62.46	62.27	62.08	61.88	61.69	61.49	61.30	61.10	60.91	60.71
CHAINAGE (m)	0+580.00	0+600.00	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00
DEPTH OF INVERT (m)	1.39	1.43	1.16	1.15	1.17	1.34	1.42	1.26	1.41	1.77	1.48
SLOPE OF PIPE (%)											
REFERENCE PEG NO.											

EXISTING GROUND LEVEL (m)	61.84	61.74	61.80	61.43	61.18	60.89	60.55	60.78	61.06	61.48	61.49
INVERT LEVELS (m)	60.52	60.33	60.13	59.94	59.74	59.55	59.35	59.46	59.57	59.68	59.80
CHAINAGE (m)	0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00	0+940.00	0+960.00	0+980.00	1+000.00
DEPTH OF INVERT (m)	1.32	1.41	1.67	1.50	1.44	1.35	1.20	1.32	1.49	1.80	1.69
SLOPE OF PIPE (%)											
REFERENCE PEG NO.											

EXISTING GROUND LEVEL (m)	61.40	61.76	61.89	61.65	61.87	62.05	62.06	62.08	62.02	62.43
INVERT LEVELS (m)	59.91	60.02	60.13	60.24	60.35	60.46	60.57	60.68	60.79	60.90
CHAINAGE (m)	1+020.00	1+040.00	1+060.00	1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+180.00	1+200.00
DEPTH OF INVERT (m)	1.49	1.74	1.76	1.41	1.52	1.59	1.49	1.40	1.23	1.53
SLOPE OF PIPE (%)	0.55%									
REFERENCE PEG NO.										

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM201, BM202, BM206, BM236 & BM245 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM201	566,590.66	9,557,099.84	63.30
BM202	566,630.17	9,557,125.10	63.89
BM236	566,198.47	9,557,154.72	64.21
BM245	566,363.046	9,557,155.57	65.00

LEGEND:

ROAD (TARMAC)
ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
RAILWAY LINE
FENCE / HEDGE
CONTOURS, Im INTERVAL
ELECTRIC POST
CULVERT
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL
SV SLUICE VALVE
FH FIRE HYDRANT
WO-01 WASHOUT VALVE & No.
AV-01 COMBINATION AIR VALVE & No.
BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

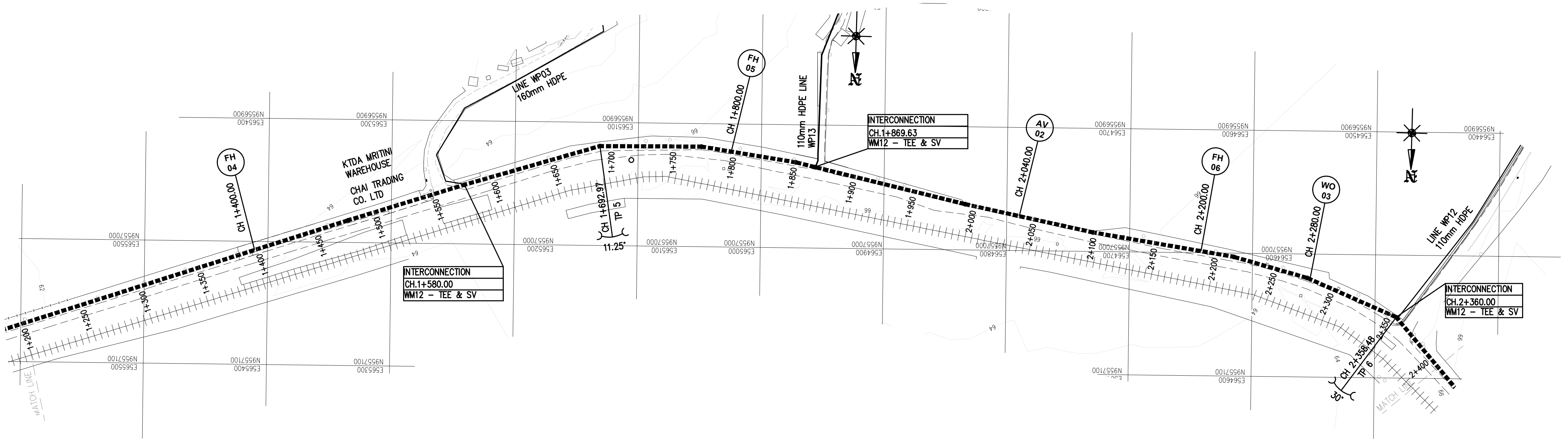
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

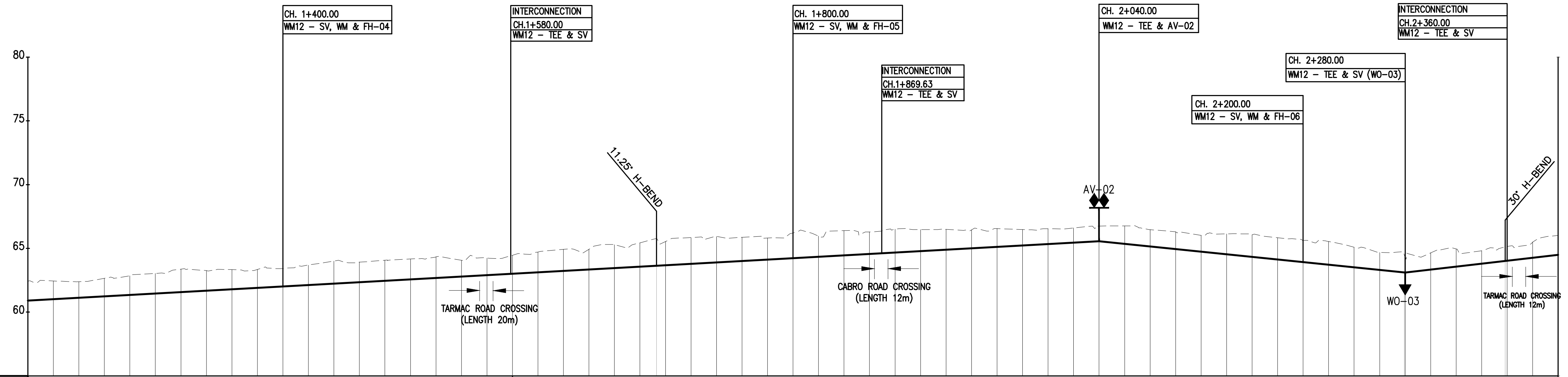
WEST MAINLAND – LINE WM12
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 5

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-012CO
C STATUS	DRAWING No. 6000002-W&S-WM-P-012 — CO REV



PLAN

SCALE 1:2000



DATUM 55.00 (Masl)

TYPE AND SIZE OF PIPE	DN 200 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	GREY MURRAM WITH STONE PARTICLES															
EXISTING GROUND LEVEL (m)	62.43	62.44	62.38	62.65	62.85	63.04	63.37	63.25	63.33	63.35	63.40	63.69	64.01	63.92	64.06	64.16
INVERT LEVELS (m)	60.90	61.01	61.12	61.23	61.34	61.46	61.57	61.68	61.79	61.90	62.01	62.12	62.23	62.34	62.45	62.56
CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+260.00	1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00	1+400.00	1+420.00	1+440.00	1+460.00	1+480.00	1+500.00
DEPTH OF INVERT (m)	1.53	1.43	1.26	1.42	1.50	1.58	1.80	1.57	1.54	1.45	1.39	1.57	1.78	1.58	1.61	1.60
SLOPE OF PIPE (%)	0.55%															
REFERENCE PEG NO.																

TYPE AND SIZE OF PIPE					DN 160 HDPE PIPE TO PN 12.5											
GEOLOGICAL CONDITION					GREY MURRAM WITH STONE PARTICLES											
EXISTING GROUND LEVEL (m)	64.32	64.06	64.24	64.46	64.72	64.93	64.93	65.29	65.43	65.78	65.53	65.85	65.93	65.86	65.80	66.20
INVERT LEVELS (m)	62.67	62.78	62.89	63.00	63.12	63.23	63.34	63.45	63.56	63.63	63.67	63.78	63.89	64.00	64.11	64.22
CHAINAGE (m)	1+520.00	1+540.00	1+560.00	1+580.00	1+600.00	1+620.00	1+640.00	1+660.00	1+680.00	1+692.97	1+700.00	1+720.00	1+740.00	1+760.00	1+780.00	1+800.00
DEPTH OF INVERT (m)	1.65	1.27	1.35	1.45	1.60	1.70	1.59	1.84	1.88	2.15	1.87	2.07	2.04	1.86	1.69	1.98
SLOPE OF PIPE (%)																
REFERENCE PEG NO.										TP 5						

TYPE AND SIZE OF PIPE																
GEOLOGICAL CONDITION																
EXISTING GROUND LEVEL (m)	65.96	66.39	66.29	66.51	66.48	66.48	66.45	66.55	66.48	66.54	66.60	66.75	66.76	66.47	66.30	66.02
INVERT LEVELS (m)	64.33	64.44	64.55	64.67	64.78	64.89	65.00	65.11	65.22	65.33	65.44	65.55	65.35	65.14	64.94	64.74
CHAINAGE (m)	1+820.00	1+840.00	1+860.00	1+880.00	1+900.00	1+920.00	1+940.00	1+960.00	1+980.00	2+000.00	2+020.00	2+040.00	2+060.00	2+080.00	2+100.00	2+120.00
DEPTH OF INVERT (m)	1.63	1.95	1.74	1.84	1.70	1.60	1.46	1.44	1.26	1.21	1.16	1.20	1.42	1.32	1.36	1.28
SLOPE OF PIPE (%)												-1.02%				
REFERENCE PEG NO.																

TYPE AND SIZE OF PIPE																
GEOLOGICAL CONDITION																
EXISTING GROUND LEVEL (m)	66.14	66.06	65.82	65.63	65.54	65.08	64.68	64.47	64.32	64.64	64.95	64.81	65.09	65.14	65.49	66.01
INVERT LEVELS (m)	64.53	64.33	64.13	63.92	63.72	63.52	63.31	63.12	63.11	63.34	63.57	63.80	64.01	64.03	64.26	64.49
CHAINAGE (m)	2+140.00	2+160.00	2+180.00	2+200.00	2+220.00	2+240.00	2+260.00	2+279.35	2+280.00	2+300.00	2+320.00	2+340.00	2+358.48	2+360.00	2+380.00	2+400.00
DEPTH OF INVERT (m)	1.60	1.73	1.70	1.71	1.82	1.57	1.36	1.36	1.21	1.30	1.38	1.01	1.08	1.11	1.23	1.52
SLOPE OF PIPE (%)									1.15%							
REFERENCE PEG NO.													TP 6			

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
┼┼┼┼┼┼	RAILWAY LINE
- · - · -	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
━ · ━ · ━	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

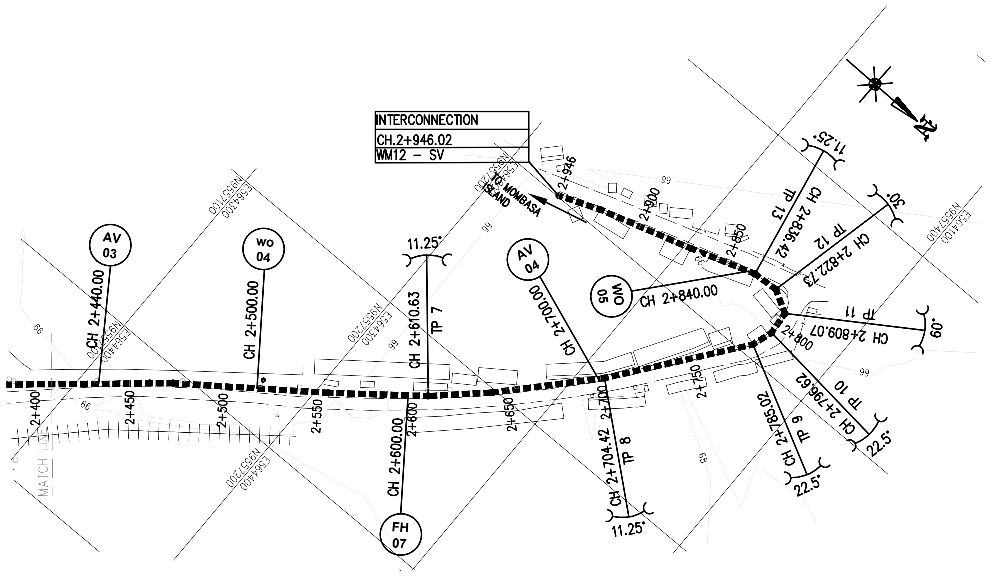
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

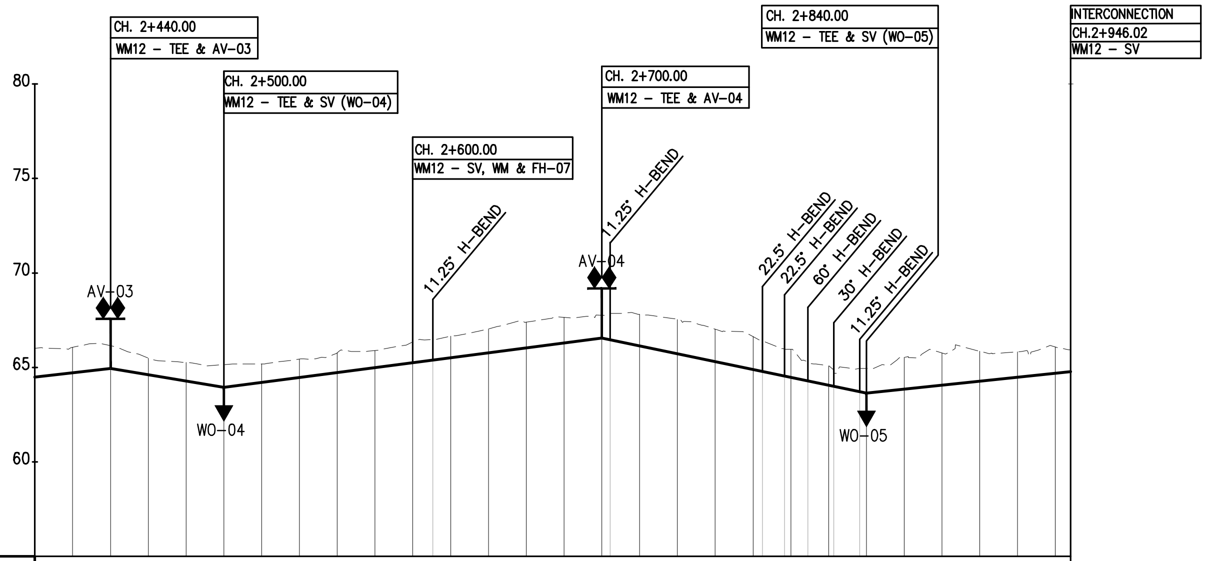
WEST MAINLAND – LINE WM12
PLAN AND PROFILE
(CH. 1+200 – CH. 2+400)
SHEET 2 OF 5

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-013C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-013 — C0 REV



PLAN

SCALE HOR 1:2000



DATUM 55.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5																	
GEOLOGICAL CONDITION	GREY MURRAM WITH STONE PARTICLES																	
EXISTING GROUND LEVEL (m)	66.01	66.06	66.15	65.50	65.26	65.15	65.18	65.44	65.78	65.89	66.36	66.48	66.66	67.04	67.40	67.65	67.76	67.86
INVERT LEVELS (m)	64.49	64.72	64.95	64.62	64.28	63.95	64.21	64.47	64.73	64.99	65.25	65.39	65.52	65.78	66.04	66.30	66.56	66.47
CHAINAGE (m)	2+400.00	2+420.00	2+440.00	2+460.00	2+480.00	2+500.00	2+520.00	2+540.00	2+560.00	2+580.00	2+600.00	2+610.63	2+620.00	2+640.00	2+660.00	2+680.00	2+700.00	2+704.42
DEPTH OF INVERT (m)	1.52	1.34	1.20	0.88	0.98	1.20	0.98	0.97	1.05	0.90	1.11	1.08	1.14	1.26	1.36	1.35	1.20	1.39
SLOPE OF PIPE (%)	1.15%		-1.68%			1.31%											-2.08%	
REFERENCE PEG NO.												TP 7						TP 8

TYPE AND SIZE OF PIPE																	
GEOLOGICAL CONDITION																	
EXISTING GROUND LEVEL (m)	67.80	67.55	67.03	66.64	66.40	65.96	65.30	65.09	64.74	64.94	64.95	65.54	65.76	65.86	65.83	66.08	65.98
INVERT LEVELS (m)	66.15	65.73	65.31	64.90	64.79	64.55	64.29	64.06	64.01	63.72	63.65	63.86	64.07	64.27	64.48	64.69	64.78
CHAINAGE (m)	2+720.00	2+740.00	2+760.00	2+780.00	2+785.02	2+796.62	2+809.07	2+820.00	2+822.73	2+836.42	2+840.00	2+860.00	2+880.00	2+900.00	2+920.00	2+940.00	2+946.02
DEPTH OF INVERT (m)	1.66	1.82	1.71	1.75	1.61	1.41	1.00	1.02	0.73	1.22	1.30	1.68	1.70	1.58	1.34	1.39	1.20
SLOPE OF PIPE (%)											1.04%						
REFERENCE PEG NO.					TP 9	TP 10	TP 11		TP 12	TP 13							

LONGITUDINAL PROFILE

SCALE HOR 1:2000 VERT 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (TARMAC)
	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
	RAILWAY LINE
	FENCE / HEDGE
14	CONTOURS, 1m INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
∘ ∘	TREES
●	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

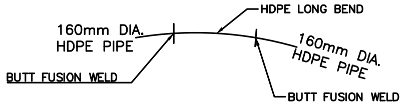
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WM12
PLAN AND PROFILE
(CH. 2+400 – CH. 2+946.02)
SHEET 3 OF 5

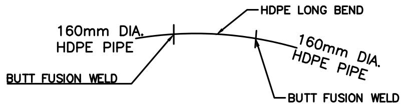
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-014C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-014 CO REV

DETAIL CH. 0+008.46 & 0+018.82
LINE WM12 - 22.5° H.BEND



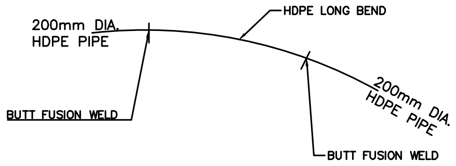
DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 2+785.02 & 2+796.62
LINE WM12 - 22.5° H.BEND



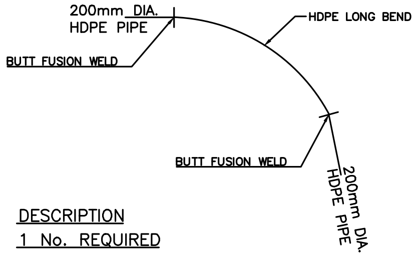
DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+175.09
LINE WM12 - 45° H.BEND



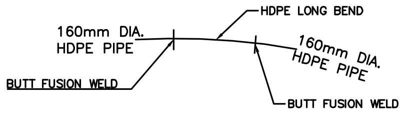
DESCRIPTION
1 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+205.62
LINE WM12 - 60° H.BEND



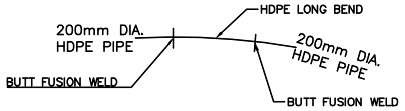
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 1+692.97, 1+775.43, 2+217.39,
2+279.35, 2+610.63, 2+704.42
& 2+836.42
LINE WM12 - 11.25° H.BEND



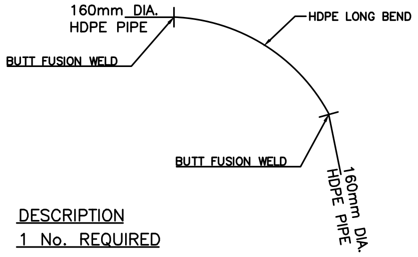
DESCRIPTION
7 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+792.76, 0+853.43 & 0+908.95,
LINE WM12 - 11.25° H.BEND



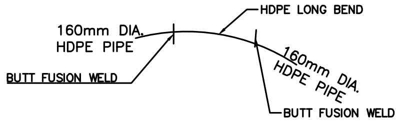
DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 2+809.07
LINE WM12 - 60° H.BEND



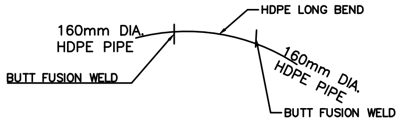
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 2+822.73
LINE WM12 - 30° H.BEND



DESCRIPTION
1 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

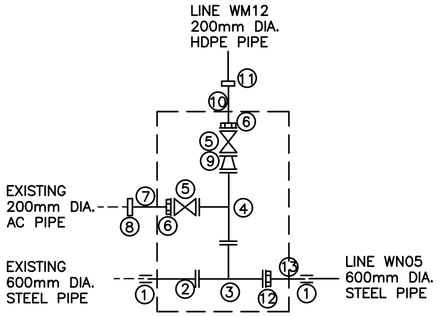
DETAIL CH. 2+358.48
LINE WM12 - 30° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
3400x1800

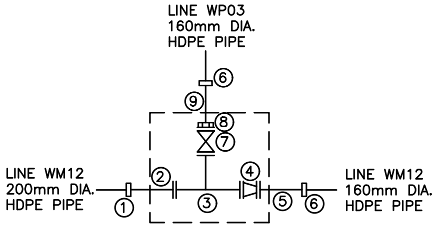
DETAIL CH. 0+000.00
LINE WM12 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 2 Nos. 600mm DIA. STRAIGHT COUPLING
② 1 No. 600mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH PUDLLE FLANGE
③ 1 No. 600x400mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 400x200mm DIA. ALL FLANGED STEEL TEE
⑤ 2 Nos. 200mm DIA. ALL FLANGED SLUICE VALVE
⑥ 2 Nos. 200mm DIA. FLANGE ADAPTOR
⑦ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH PUDDLE FLANGE
⑧ 1 No. 200/200mm DIA. STEPPED COUPLING
⑨ 1 No. 400x200mm DIA. ALL FLANGED CONCENTRIC TAPER
⑩ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑪ 1 No. 200/200mm DIA. STEPPED COUPLING
⑫ 1 No. 600mm DIA. FLANGE ADAPTOR
⑬ 1 No. 600mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
1500x1200

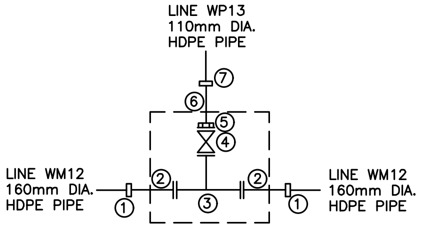
DETAIL CH. 1+580.00
LINE WM12 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 1 No. 200/200mm DIA. STEPPED COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH PUDDLE FLANGE
③ 1 No. 200x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑤ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑥ 2 Nos. 160/150mm DIA. STEPPED COUPLING
⑦ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 150mm DIA. FLANGE ADAPTOR
⑨ 1 No. 150mm DIA. PLAIN ENDED PIPE 1.2M LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
1200x1200

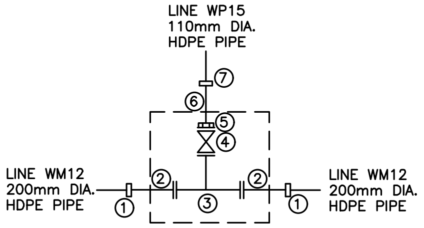
DETAIL CH. 1+869.63
LINE WM12 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1500x1200

DETAIL CH. 0+318.81
LINE WM12 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 2 Nos. 200/200mm DIA. STEPPED COUPLING
② 2 Nos. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
③ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

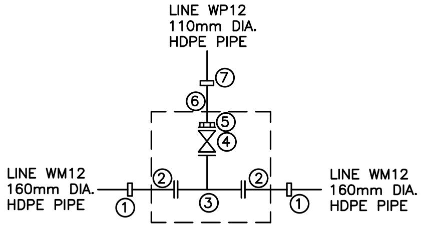
Drawing Title
WEST MAINLAND – LINE WM12
PIPE FITTING DETAILS
SHEET 4 OF 5

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-015C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-015 C0 REV

CHAMBER SIZE
1200x1200

DETAIL

CH. 2+360.00
LINE WM12 - INTERCONNECTION



DESCRIPTION

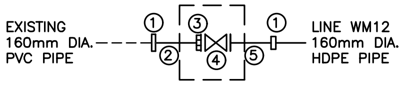
1 No. REQUIRED

① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING

CHAMBER SIZE
1200x1200

DETAIL

CH. 2+948.12
LINE WM12 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 150mm DIA. FLANGE ADAPTOR
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

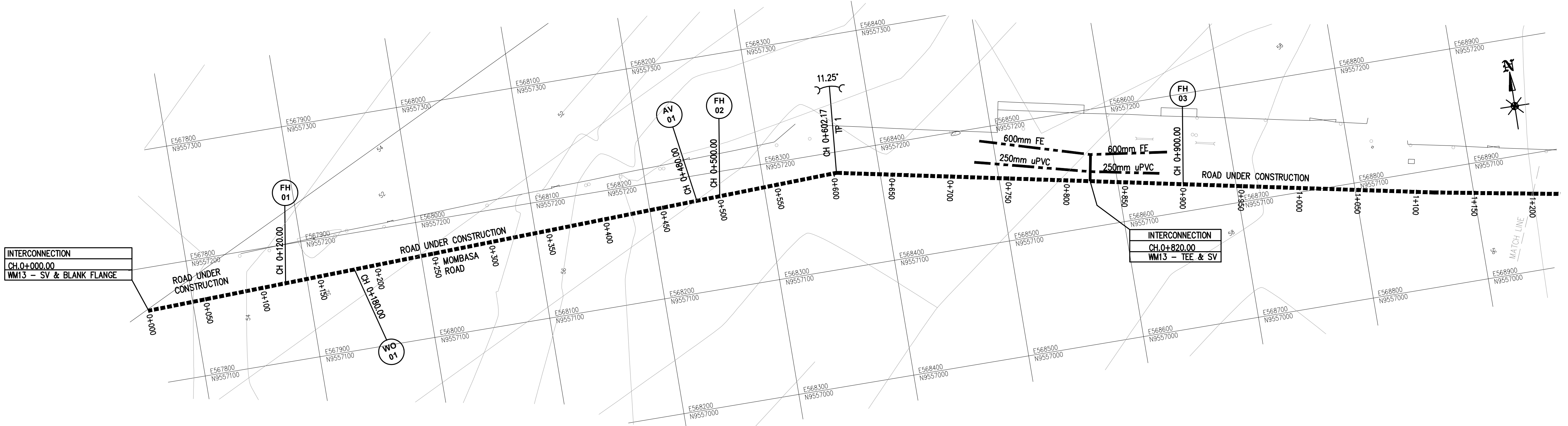
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WM12
PIPE FITTING DETAILS
SHEET 5 OF 5

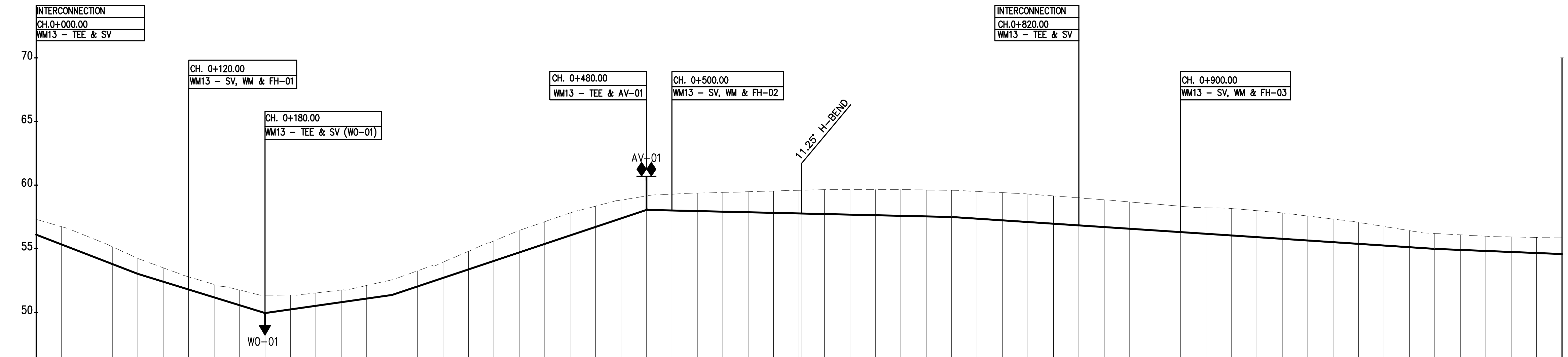
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-016C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-016 CO REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	MURRAM															
EXISTING GROUND LEVEL (m)	57.31	56.73	55.99	55.16	54.24	53.50	52.79	52.18	51.75	51.35	51.36	51.52	51.75	52.11	52.56	53.26
INVERT LEVELS (m)	56.11	55.34	54.57	53.80	53.03	52.41	51.80	51.18	50.56	49.95	50.23	50.51	50.79	51.07	51.36	52.03
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00
DEPTH OF INVERT (m)	1.20	1.39	1.42	1.36	1.21	1.09	1.00	1.00	1.19	1.40	1.13	1.01	0.96	1.04	1.20	1.24
SLOPE OF PIPE (%)	–3.85%					–3.08%					1.41%					3.35%
REFERENCE PEG NO.																

EXISTING GROUND LEVEL (m)	53.94	54.80	55.62	56.44	57.12	57.82	58.35	58.83	59.15	59.29	59.37	59.43	59.48	59.54	59.60	59.60
INVERT LEVELS (m)	52.70	53.36	54.03	54.70	55.37	56.04	56.71	57.38	58.05	58.00	57.96	57.91	57.86	57.81	57.77	57.76
CHAINAGE (m)	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+600.00	0+602.17
DEPTH OF INVERT (m)	1.24	1.43	1.58	1.74	1.75	1.78	1.64	1.45	1.10	1.29	1.42	1.52	1.62	1.72	1.83	1.84
SLOPE OF PIPE (%)									–0.23%							
REFERENCE PEG NO.																TP 1

EXISTING GROUND LEVEL (m)	59.64	59.65	59.65	59.65	59.62	59.59	59.51	59.40	59.30	59.15	59.00	58.85	58.68	58.51	58.34	58.22
INVERT LEVELS (m)	57.72	57.67	57.63	57.58	57.53	57.49	57.36	57.22	57.09	56.96	56.83	56.70	56.57	56.44	56.31	56.18
CHAINAGE (m)	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00	0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00
DEPTH OF INVERT (m)	1.92	1.97	2.02	2.07	2.08	2.10	2.15	2.18	2.21	2.19	2.17	2.15	2.11	2.07	2.04	2.05
SLOPE OF PIPE (%)						–0.66%										
REFERENCE PEG NO.																

EXISTING GROUND LEVEL (m)	58.16	57.99	57.81	57.57	57.33	57.07	56.74	56.42	56.20	56.09	55.98	55.92	55.89	55.85
INVERT LEVELS (m)	56.04	55.91	55.78	55.65	55.52	55.39	55.26	55.13	55.00	54.91	54.83	54.75	54.67	54.59
CHAINAGE (m)	0+940.00	0+960.00	0+980.00	1+000.00	1+020.00	1+040.00	1+060.00	1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+180.00	1+200.00
DEPTH OF INVERT (m)	2.12	2.08	2.03	1.92	1.81	1.68	1.49	1.29	1.20	1.18	1.15	1.17	1.22	1.26
SLOPE OF PIPE (%)									–0.41%					
REFERENCE PEG NO.														

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
—— 14 ——	CONTOURS, 1m INTERVAL
○	ELECTRIC POST
)(	CULVERT
—	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

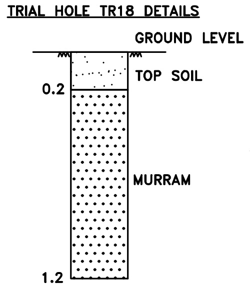
Drawing Title

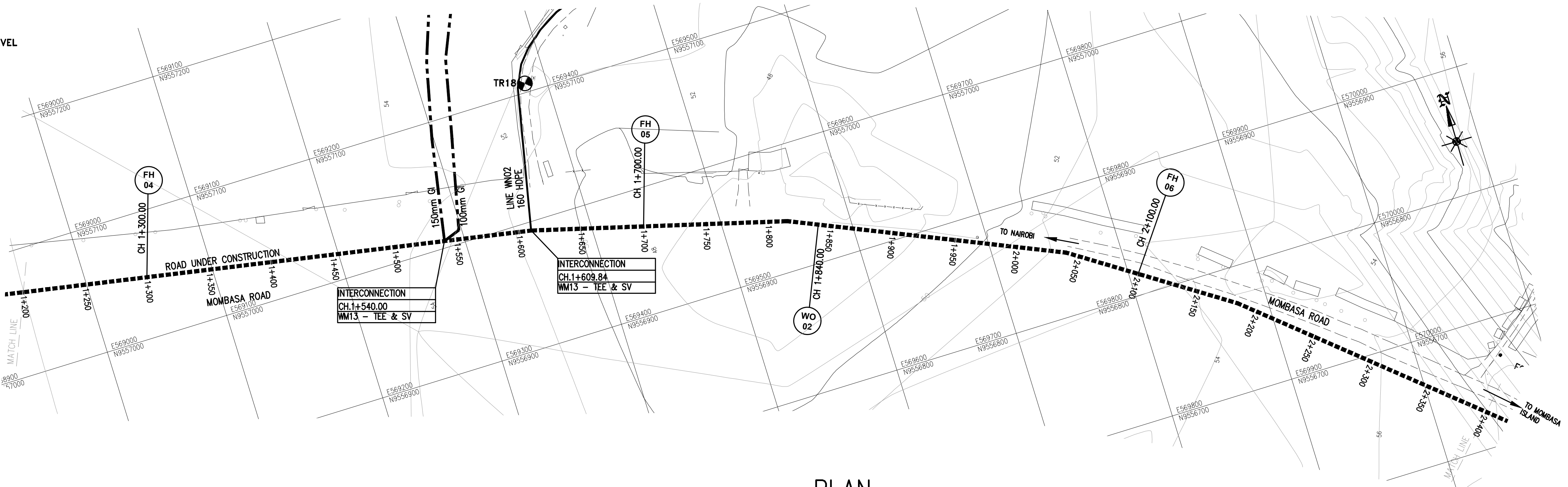
WEST MAINLAND – LINE WM13
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 5

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-017C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-017 C0 REV

AWAITING FINAL SURVEY

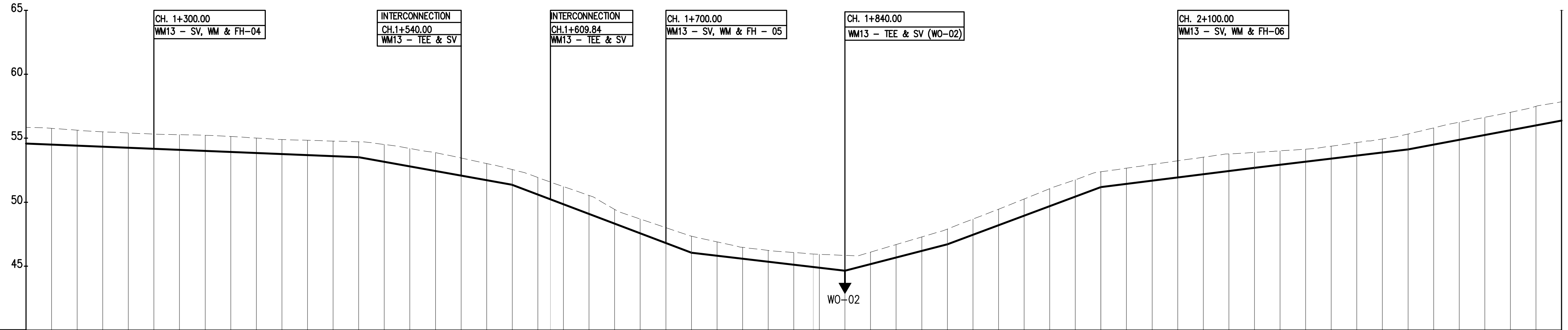
TRIAL HOLE TR18 DETAILS





PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	MURRAM															
EXISTING GROUND LEVEL (m)	55.85	55.78	55.62	55.51	55.41	55.32	55.28	55.23	55.14	55.01	54.90	54.84	54.78	54.72	54.51	54.20
INVERT LEVELS (m)	54.59	54.50	54.42	54.34	54.26	54.18	54.10	54.01	53.93	53.85	53.77	53.69	53.60	53.52	53.16	52.80
CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+260.00	1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00	1+400.00	1+420.00	1+440.00	1+460.00	1+480.00	1+500.00
DEPTH OF INVERT (m)	1.26	1.27	1.20	1.16	1.15	1.14	1.18	1.22	1.21	1.16	1.13	1.15	1.18	1.20	1.35	1.40
SLOPE OF PIPE (%)	−0.41%														−1.81%	
REFERENCE PEG NO.																

EXISTING GROUND LEVEL (m)	53.88	53.45	53.03	52.56	52.55	51.93	51.57	51.22	50.53	49.43	48.69	48.01	47.34	46.90	46.47	46.23
INVERT LEVELS (m)	52.44	52.08	51.72	51.36	51.35	50.59	50.22	49.83	49.08	48.32	47.56	46.80	46.04	45.81	45.58	45.34
CHAINAGE (m)	1+520.00	1+540.00	1+560.00	1+579.74	1+580.00	1+600.00	1+609.84	1+620.00	1+640.00	1+660.00	1+680.00	1+700.00	1+720.00	1+740.00	1+760.00	1+780.00
DEPTH OF INVERT (m)	1.44	1.37	1.31	1.20	1.20	1.34	1.35	1.39	1.45	1.11	1.13	1.21	1.30	1.09	0.90	0.89
SLOPE OF PIPE (%)					−3.79%								−1.67%			
REFERENCE PEG NO.																

EXISTING GROUND LEVEL (m)	46.07	45.93	45.84	46.10	46.69	47.28	47.90	48.68	49.45	50.25	51.05	51.75	52.38	52.66	52.95	53.23
INVERT LEVELS (m)	45.11	44.88	44.64	45.16	45.67	46.19	46.70	47.45	48.20	48.94	49.69	50.44	51.18	51.43	51.68	51.94
CHAINAGE (m)	1+800.00	1+820.00	1+840.00	1+860.00	1+880.00	1+900.00	1+920.00	1+940.00	1+960.00	1+980.00	2+000.00	2+020.00	2+040.00	2+060.00	2+080.00	2+100.00
DEPTH OF INVERT (m)	0.96	1.06	1.20	0.94	1.02	1.09	1.20	1.23	1.26	1.31	1.36	1.31	1.20	1.22	1.26	1.30
SLOPE OF PIPE (%)			2.58%				3.73%						1.25%			
REFERENCE PEG NO.																

EXISTING GROUND LEVEL (m)	53.52	53.78	53.89	54.01	54.15	54.38	54.67	54.94	55.33	55.81	56.25	56.63	57.03	57.49	57.85
INVERT LEVELS (m)	52.19	52.44	52.69	52.93	53.17	53.41	53.65	53.89	54.13	54.50	54.88	55.25	55.63	56.00	56.37
CHAINAGE (m)	2+120.00	2+140.00	2+160.00	2+180.00	2+200.00	2+220.00	2+240.00	2+260.00	2+280.00	2+300.00	2+320.00	2+340.00	2+360.00	2+380.00	2+400.00
DEPTH OF INVERT (m)	1.33	1.34	1.20	1.08	0.98	0.97	1.02	1.05	1.20	1.30	1.37	1.38	1.40	1.49	1.47
SLOPE OF PIPE (%)			1.20%						1.87%						
REFERENCE PEG NO.															

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

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4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▬ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

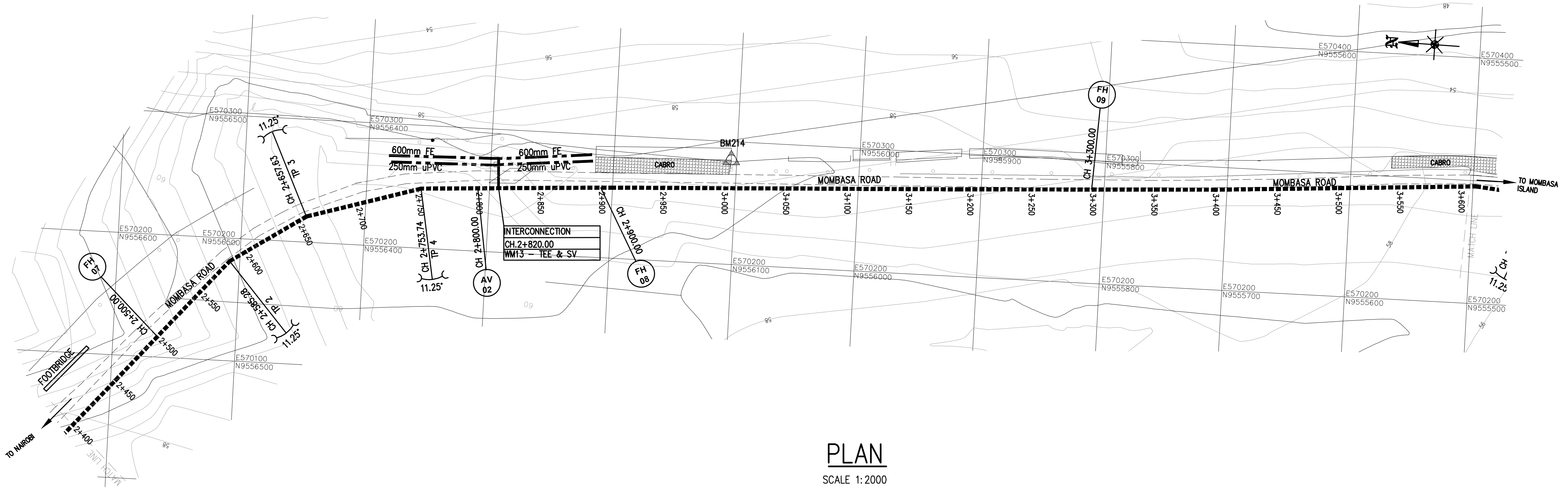
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WM13
PLAN AND PROFILE
(CH. 1+200 – CH. 2+400)
SHEET 2 OF 5

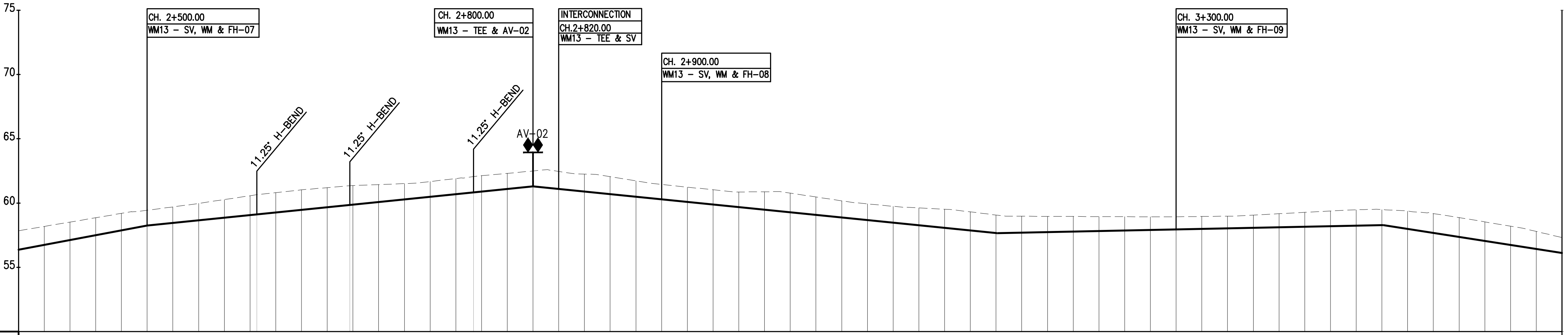
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-018C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-018 — CO REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 50.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5													
GEOLOGICAL CONDITION	MURRAM													
EXISTING GROUND LEVEL (m)	57.85	58.18	58.52	58.86	59.19	59.44	59.70	59.97	60.27	60.57	60.65	60.81	61.02	61.20
INVERT LEVELS (m)	56.37	56.75	57.12	57.50	57.87	58.24	58.45	58.65	58.86	59.06	59.11	59.26	59.47	59.67
CHAINAGE (m)	2+400.00	2+420.00	2+440.00	2+460.00	2+480.00	2+500.00	2+520.00	2+540.00	2+560.00	2+580.00	2+585.28	2+600.00	2+620.00	2+640.00
DEPTH OF INVERT (m)	1.47	1.44	1.40	1.36	1.32	1.20	1.25	1.32	1.41	1.51	1.53	1.54	1.56	1.52
SLOPE OF PIPE (%)	1.87%					1.02%								
REFERENCE PEG NO.											TP 2			

TYPE AND SIZE OF PIPE														
GEOLOGICAL CONDITION														
EXISTING GROUND LEVEL (m)	61.35	61.36	61.44	61.51	61.67	61.90	62.07	62.12	62.31	62.50	62.46	62.25	62.05	61.73
INVERT LEVELS (m)	59.85	59.88	60.08	60.28	60.49	60.69	60.83	60.90	61.10	61.30	61.10	60.90	60.70	60.50
CHAINAGE (m)	2+657.63	2+660.00	2+680.00	2+700.00	2+720.00	2+740.00	2+753.74	2+760.00	2+780.00	2+800.00	2+820.00	2+840.00	2+860.00	2+880.00
DEPTH OF INVERT (m)	1.50	1.48	1.36	1.23	1.18	1.21	1.23	1.23	1.21	1.19	1.35	1.35	1.35	1.23
SLOPE OF PIPE (%)										−1.01%				
REFERENCE PEG NO.	TP 3						TP 4							

TYPE AND SIZE OF PIPE														
GEOLOGICAL CONDITION														
EXISTING GROUND LEVEL (m)	61.45	61.24	61.03	60.86	60.88	60.77	60.47	60.17	59.94	59.75	59.62	59.52	59.31	59.07
INVERT LEVELS (m)	60.29	60.09	59.89	59.69	59.49	59.28	59.08	58.88	58.68	58.48	58.27	58.07	57.87	57.67
CHAINAGE (m)	2+900.00	2+920.00	2+940.00	2+960.00	2+980.00	3+000.00	3+020.00	3+040.00	3+060.00	3+080.00	3+100.00	3+120.00	3+140.00	3+160.00
DEPTH OF INVERT (m)	1.16	1.14	1.14	1.17	1.39	1.49	1.39	1.29	1.26	1.27	1.35	1.45	1.44	1.40
SLOPE OF PIPE (%)														
REFERENCE PEG NO.														

TYPE AND SIZE OF PIPE														
GEOLOGICAL CONDITION														
EXISTING GROUND LEVEL (m)	59.06	58.97	58.96	58.96	58.95	58.94	58.93	58.93	58.96	58.98	59.06	59.17	59.27	59.38
INVERT LEVELS (m)	57.66	57.70	57.74	57.78	57.82	57.86	57.91	57.95	57.99	58.03	58.07	58.12	58.16	58.20
CHAINAGE (m)	3+161.00	3+180.00	3+200.00	3+220.00	3+240.00	3+260.00	3+280.00	3+300.00	3+320.00	3+340.00	3+360.00	3+380.00	3+400.00	3+420.00
DEPTH OF INVERT (m)	1.40	1.28	1.22	1.17	1.12	1.07	1.02	0.98	0.97	0.95	0.99	1.06	1.12	1.18
SLOPE OF PIPE (%)	0.21%													
REFERENCE PEG NO.														

TYPE AND SIZE OF PIPE										
GEOLOGICAL CONDITION										
EXISTING GROUND LEVEL (m)	59.48	59.49	59.48	59.37	59.18	58.87	58.54	58.20	57.79	57.31
INVERT LEVELS (m)	58.24	58.28	58.28	57.99	57.68	57.37	57.06	56.75	56.44	56.12
CHAINAGE (m)	3+440.00	3+460.00	3+461.00	3+480.00	3+500.00	3+520.00	3+540.00	3+560.00	3+580.00	3+600.00
DEPTH OF INVERT (m)	1.24	1.21	1.20	1.38	1.50	1.50	1.48	1.45	1.36	1.19
SLOPE OF PIPE (%)			−1.55%							
REFERENCE PEG NO.										

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

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2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM214 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM214	570,285.10	9,556,104.43	59.73

LEGEND:

— — — —	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
△	BENCHMARK (CONCRETE WITH PIN IRON)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
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P.O. BOX 90417 - 80100
MOMBASA, KENYA

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CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
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Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

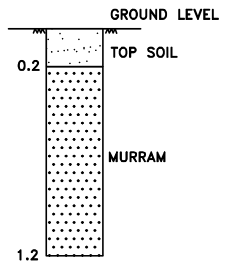
Drawing Title

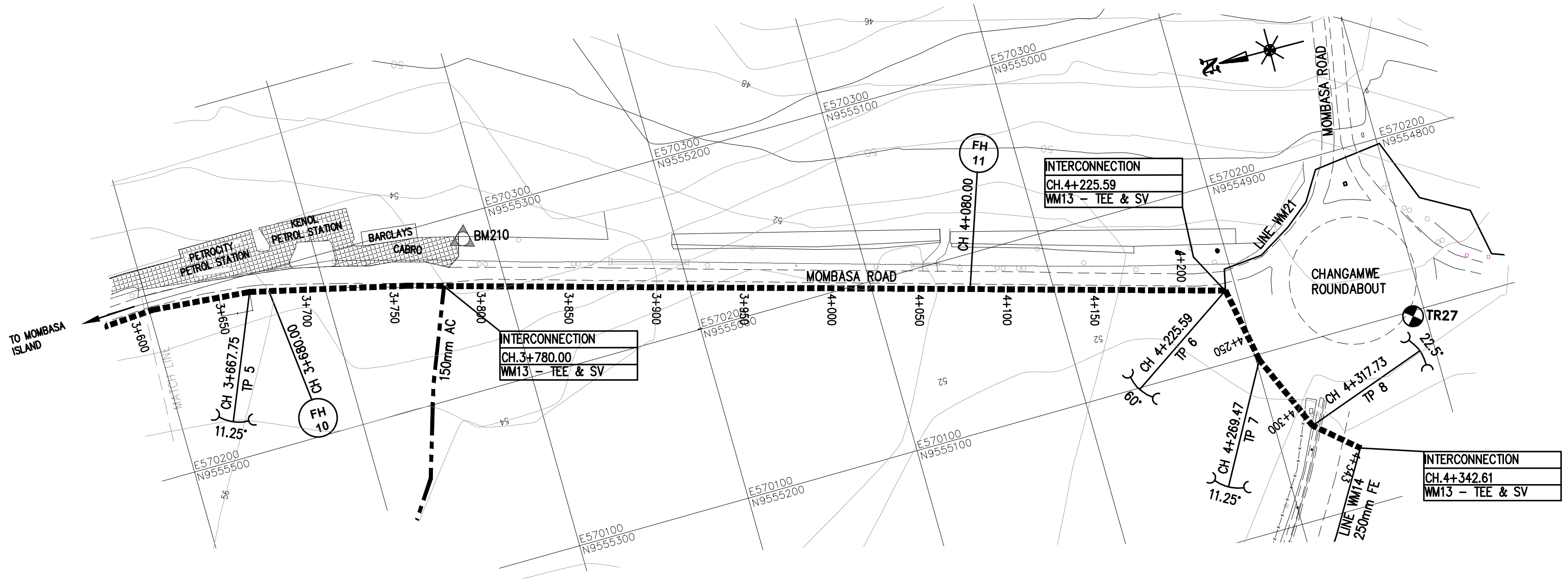
WEST MAINLAND – LINE WM13
PLAN AND PROFILE
(CH. 2+400 – CH. 3+600)
SHEET 3 OF 5

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-019C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-019 — C0 REV

AWAITING FINAL SURVEY

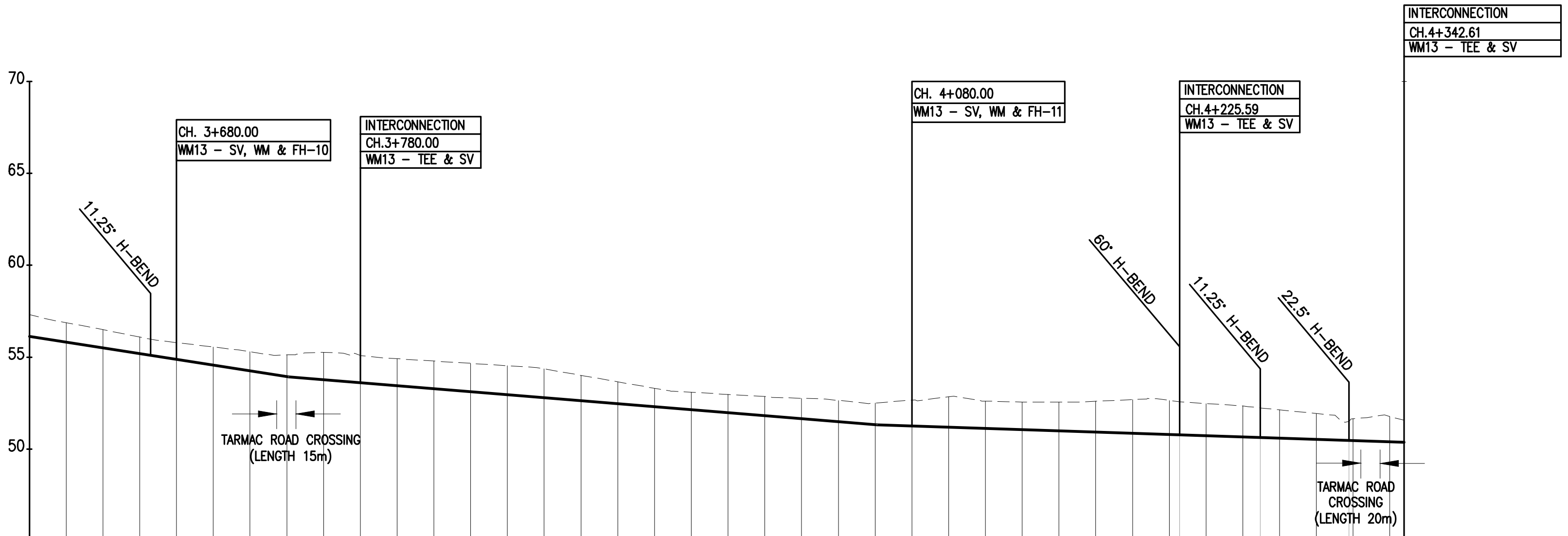
TRIAL HOLE TR27 DETAILS





PLAN

SCALE 1:2000



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5														
GEOLOGICAL CONDITION	MURRAM														
EXISTING GROUND LEVEL (m)	57.31	56.87	56.50	56.10	55.79	55.55	55.30	55.13	55.26	55.10	54.91	54.79	54.66	54.54	54.37
INVERT LEVELS (m)	56.12	55.81	55.50	55.19	54.88	54.57	54.26	53.95	53.78	53.61	53.45	53.29	53.12	52.96	52.80
CHAINAGE (m)	3+600.00	3+620.00	3+640.00	3+660.00	3+680.00	3+700.00	3+720.00	3+740.00	3+760.00	3+780.00	3+800.00	3+820.00	3+840.00	3+860.00	3+880.00
DEPTH OF INVERT (m)	1.19	1.06	1.00	0.91	0.91	0.98	1.04	1.19	1.49	1.49	1.46	1.50	1.54	1.58	1.57
SLOPE OF PIPE (%)	-1.55%							-0.82%							
REFERENCE PEG NO.				TP 5											

TYPE AND SIZE OF PIPE														
GEOLOGICAL CONDITION														
EXISTING GROUND LEVEL (m)	54.01	53.66	53.31	53.09	52.98	52.86	52.77	52.65	52.51	52.51	52.66	52.85	52.61	52.56
INVERT LEVELS (m)	52.63	52.47	52.30	52.14	51.98	51.81	51.65	51.49	51.32	51.31	51.25	51.19	51.12	51.05
CHAINAGE (m)	3+900.00	3+920.00	3+940.00	3+960.00	3+980.00	4+000.00	4+020.00	4+040.00	4+060.00	4+061.00	4+080.00	4+100.00	4+120.00	4+140.00
DEPTH OF INVERT (m)	1.38	1.19	1.01	0.95	1.00	1.05	1.12	1.16	1.18	1.20	1.41	1.66	1.49	1.51
SLOPE OF PIPE (%)										-0.33%				
REFERENCE PEG NO.														

TYPE AND SIZE OF PIPE														
GEOLOGICAL CONDITION														
EXISTING GROUND LEVEL (m)	52.56	52.60	52.70	52.65	52.57	52.48	52.35	52.24	52.14	51.94	51.51	51.65	51.78	51.73
INVERT LEVELS (m)	50.99	50.92	50.86	50.79	50.77	50.72	50.66	50.63	50.59	50.53	50.47	50.46	50.39	50.53
CHAINAGE (m)	4+160.00	4+180.00	4+200.00	4+220.00	4+225.59	4+240.00	4+260.00	4+269.47	4+280.00	4+300.00	4+317.73	4+320.00	4+340.00	4+342.61
DEPTH OF INVERT (m)	1.57	1.68	1.84	1.86	1.80	1.76	1.69	1.61	1.54	1.41	1.04	1.19	1.39	1.20
SLOPE OF PIPE (%)														
REFERENCE PEG NO.					TP 6			TP 7			TP 8			

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM210 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM210	570,287.78	9,555,318.08	55.67

LEGEND:

	ROAD (TARMAC)
	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—x—	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
▢	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
△	BENCHMARK (Concrete with Iron Pin)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

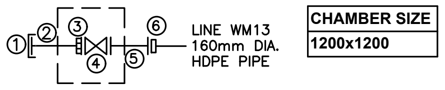
Drawing Title

WEST MAINLAND – LINE WM13
PLAN AND PROFILE
(CH. 3+600 – CH. 4+342.61)
SHEET 4 OF 5

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-020C0

C STATUS | DRAWING No. **6000002-W&S-WM-P-020** | C0 REV

DETAIL CH. 0+000.00
LINE WM13 - INTERCONNECTION

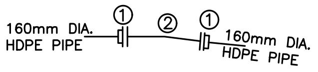


DESCRIPTION

1 No. REQUIRED

① 1 No. 150mm DIA. BLANK FLANGE
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
③ 1 No. 150mm DIA. FLANGE ADAPTOR
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG
⑥ 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 0+602.17, 1+815.23, 2+039.98, 2+183.27,
2+585.28, 2+657.63, 2+753.74, 3+612.67,
3+668.97 & 4+269.47
LINE WM13 - 11.25° H.BEND

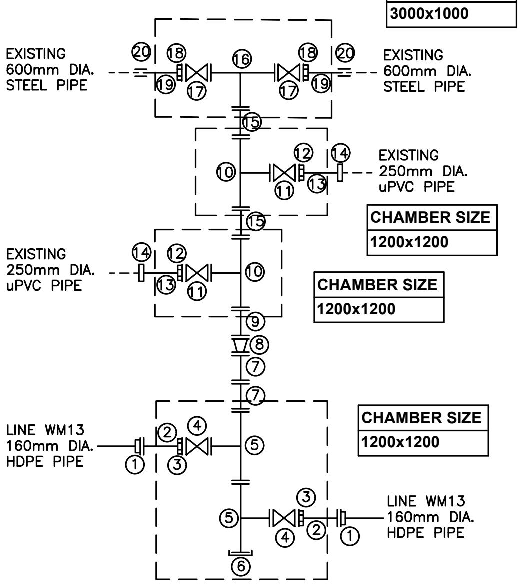


DESCRIPTION

10 Nos. REQUIRED

① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 150mm DIA. ALL FLANGED STEEL 11.25° BEND

DETAIL CH. 0+820.00
LINE WM13 - INTERCONNECTION

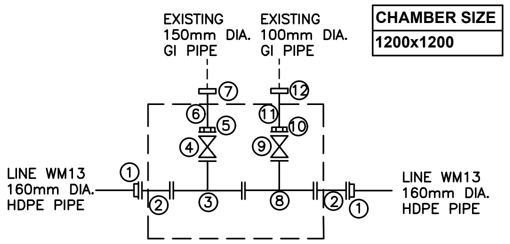


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1200mm LONG
③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 150x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 150mm DIA. BLANK FLANGE
⑦ 2 Nos. 150mm DIA. ALL FLANGED STEEL PIPE 6m LONG
⑧ 1 No. 400x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑨ 1 No. 400mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG
⑩ 2 Nos. 400x250mm DIA. ALL FLANGED STEEL TEE
⑪ 2 Nos. 250mm DIA. ALL FLANGED SLUICE VALVE
⑫ 2 Nos. 250mm DIA. FLANGE ADAPTOR
⑬ 2 Nos. 250mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑭ 2 Nos. 250mm DIA. COUPLING
⑮ 2 Nos. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG
⑯ 1 No. 600x400mm DIA. ALL FLANGED STEEL TEE
⑰ 2 Nos. 600mm DIA. ALL FLANGED SLUICE VALVE
⑱ 2 Nos. 600mm DIA. FLANGE ADAPTOR
⑲ 2 Nos. 600mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑳ 2 Nos. 600mm DIA. STRAIGHT COUPLING

DETAIL CH. 1+540.00
LINE WM13 - INTERCONNECTION

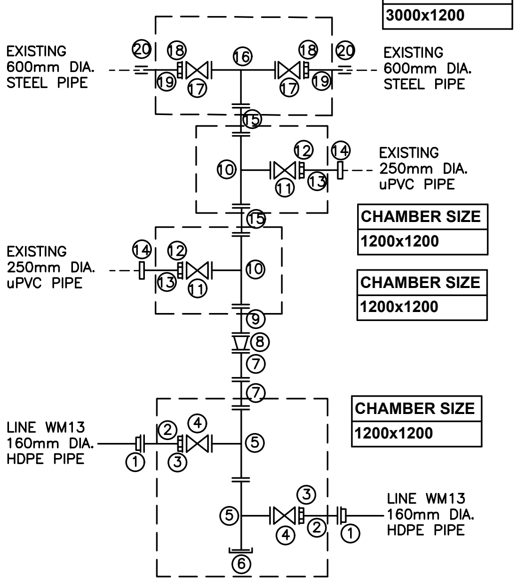


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 150mm DIA. ALL FLANGED STEEL PIPE 1200mm LONG
③ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑦ 1 No. 150mm DIA. COUPLING
⑧ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
⑨ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 100mm DIA. FLANGE ADAPTOR
⑪ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑫ 1 No. 100mm DIA. COUPLING

DETAIL CH. 2+820.00
LINE WM13 - INTERCONNECTION

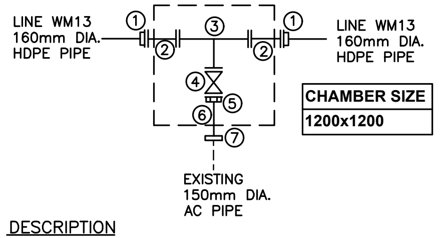


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1200mm LONG
③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 150x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 150mm DIA. BLANK FLANGE
⑦ 2 Nos. 150mm DIA. ALL FLANGED STEEL PIPE 6m LONG
⑧ 1 No. 400x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑨ 1 No. 400mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG
⑩ 2 Nos. 400x250mm DIA. ALL FLANGED STEEL TEE
⑪ 2 Nos. 250mm DIA. ALL FLANGED SLUICE VALVE
⑫ 2 Nos. 250mm DIA. FLANGE ADAPTOR
⑬ 2 Nos. 250mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑭ 2 Nos. 250mm DIA. COUPLING
⑮ 2 Nos. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG
⑯ 1 No. 600x400mm DIA. ALL FLANGED STEEL TEE
⑰ 2 Nos. 600mm DIA. ALL FLANGED SLUICE VALVE
⑱ 2 Nos. 600mm DIA. FLANGE ADAPTOR
⑲ 2 Nos. 600mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑳ 2 Nos. 600mm DIA. STRAIGHT COUPLING

DETAIL CH. 3+780.00
LINE WM13 - INTERCONNECTION

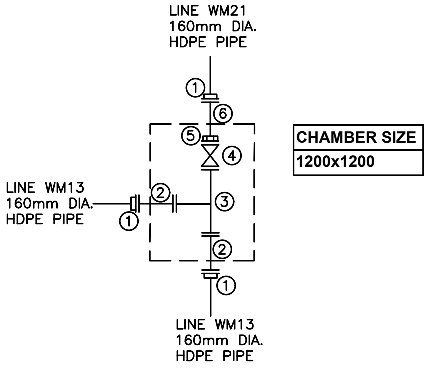


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 150mm DIA. ALL FLANGED STEEL PIPE 1200mm LONG
③ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1200mm LONG
⑦ 1 No. 150mm DIA. COUPLING

DETAIL CH. 4+225.59
LINE WM13 - INTERCONNECTION

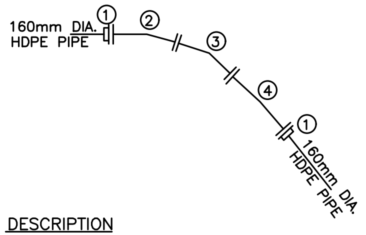


DESCRIPTION

1 No. REQUIRED

① 3 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 150mm DIA. ALL FLANGED STEEL PIPE 1200mm LONG
③ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1200mm LONG

DETAIL CH. 4+225.59
LINE WM13 - 30°, 22.5° & 11.25° H.BEND

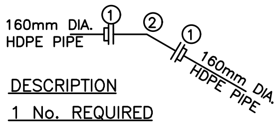


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 150mm DIA. 30° ALL FLANGED STEEL BEND
③ 1 No. 150mm DIA. 22.5° ALL FLANGED STEEL BEND
④ 1 No. 150mm DIA. 11.25° ALL FLANGED STEEL BEND

DETAIL CH. 4+317.73
LINE WM13 - 22.5° H.BEND



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 150mm DIA. 22.5° ALL FLANGED STEEL BEND

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

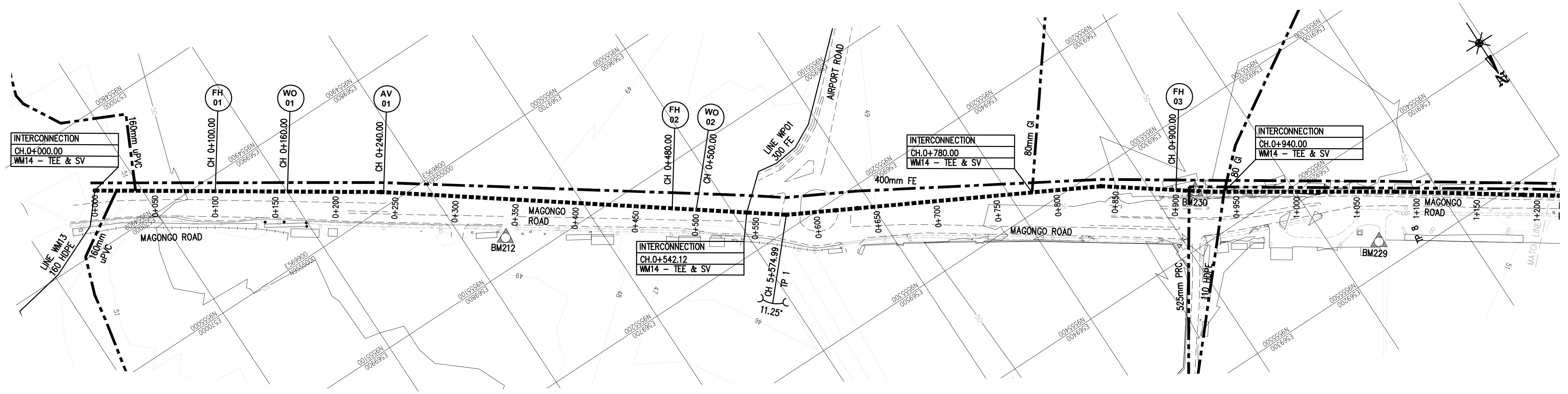
CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WM13
PIPE FITTING DETAILS
SHEET 5 OF 5

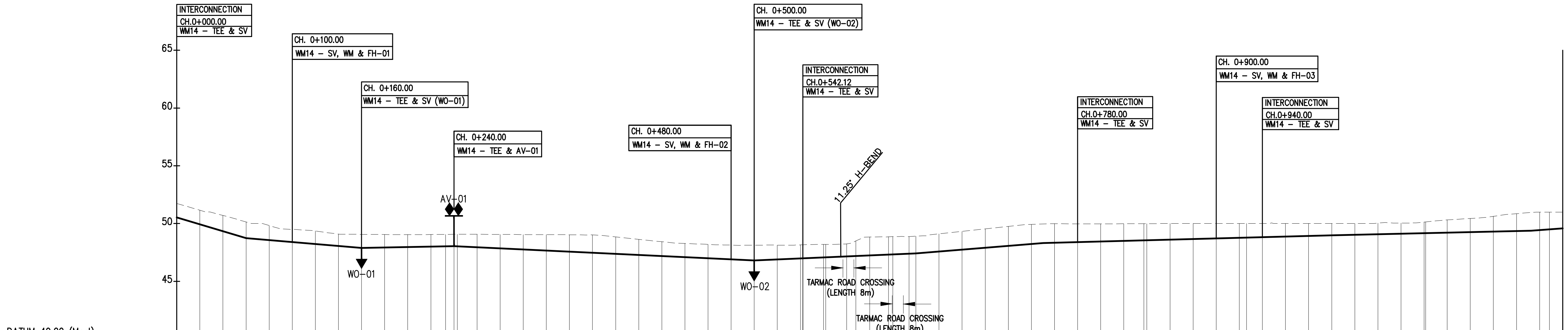
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-021C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-021 C0 REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE: DN 315mm HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: SAND SOILS

EXISTING GROUND LEVEL (m)	51.73	51.16	50.71	50.14	49.83	49.50	49.36	49.09	49.07	49.05	49.04	49.05	49.07	49.07	49.06
INVERT LEVELS (m)	50.53	49.93	49.34	48.74	48.57	48.40	48.22	48.05	47.88	47.92	47.96	48.00	48.04	47.95	47.85
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280
DEPTH OF INVERT (m)	1.20	1.22	1.37	1.41	1.26	1.10	1.13	1.04	1.18	1.13	1.08	1.05	1.03	1.13	1.21

EXISTING GROUND LEVEL (m)	49.05	49.04	49.03	49.02	48.84	48.63	48.43	48.28	48.20	48.13	48.13	48.13	48.16	48.20	48.24
INVERT LEVELS (m)	47.75	47.66	47.56	47.47	47.37	47.28	47.18	47.09	46.99	46.90	46.80	46.89	46.98	47.07	47.15
CHAINAGES (M)	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580
DEPTH OF INVERT (m)	1.29	1.38	1.47	1.55	1.47	1.35	1.24	1.20	1.21	1.24	1.33	1.24	1.18	1.13	1.09

EXISTING GROUND LEVEL (m)	48.83	48.87	48.91	49.11	49.32	49.54	49.75	49.93	49.98	49.98	49.98	49.98	49.99	50.00	50.01
INVERT LEVELS (m)	47.24	47.33	47.42	47.58	47.74	47.90	48.06	48.23	48.34	48.39	48.44	48.50	48.55	48.61	48.66
CHAINAGES (M)	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880
DEPTH OF INVERT (m)	1.59	1.54	1.50	1.53	1.58	1.63	1.69	1.70	1.65	1.59	1.53	1.49	1.44	1.40	1.35

EXISTING GROUND LEVEL (m)	50.01	50.00	50.00	50.00	50.01	50.00	50.01	50.04	50.04	50.13	50.31	50.44	50.63	50.86	50.99	50.99
INVERT LEVELS (m)	48.71	48.77	48.82	48.87	48.93	48.98	49.03	49.08	49.12	49.17	49.21	49.26	49.31	49.35	49.43	49.58
CHAINAGES (M)	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
DEPTH OF INVERT (m)	1.30	1.23	1.18	1.13	1.09	1.02	0.98	0.96	0.91	0.96	1.10	1.18	1.32	1.51	1.56	1.41

SLOPE OF PIPE (%): -2.99% | -0.85% | 0.20% | -0.48% | 0.44% | 0.81% | 0.27% | 0.23% | 0.74%

REFERENCE PEG No.: TP 1

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM212, BM229 & BM230 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM212	569,769.25	9, 555,076.52	48.72
BM229	569164.71	9,555,477.59	50.90
BM230	569,269.06	9,555,358.55	50.11

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
-x-x-x-	FENCE / HEDGE
— 14 —	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▬ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
—	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

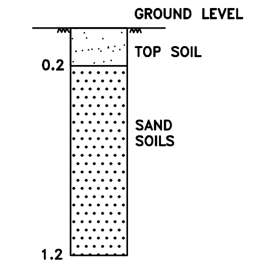
Drawing Title

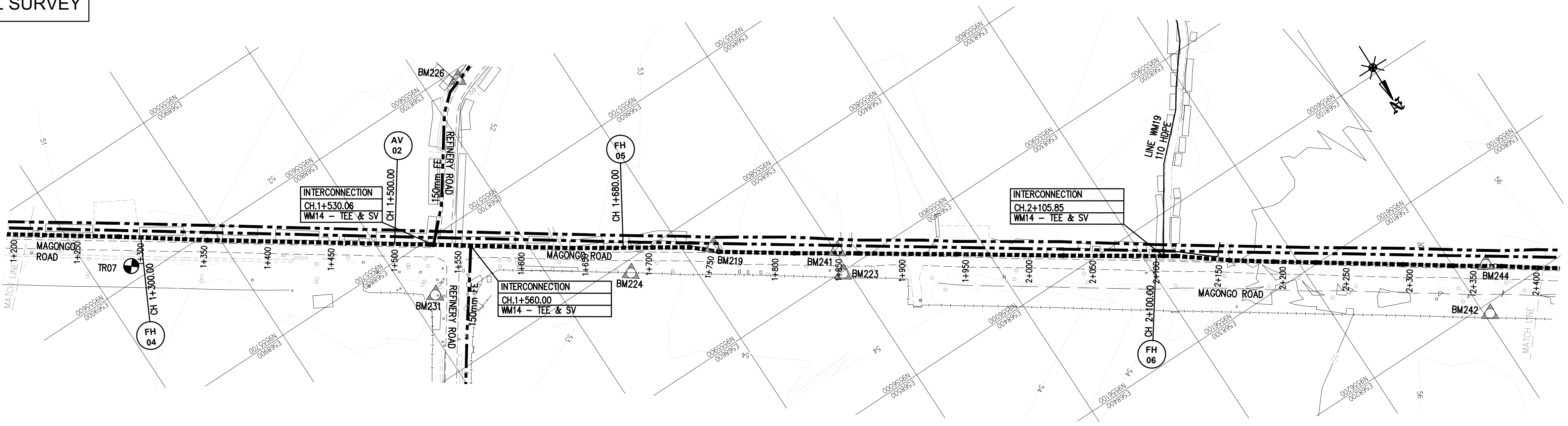
WEST MAINLAND – LINE WM14
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 4

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-022C0
C STATUS DRAWING No. 6000002-W&S-WM-P-022	C0 REV

AWAITING FINAL SURVEY

TRIAL HOLE TR07 DETAILS

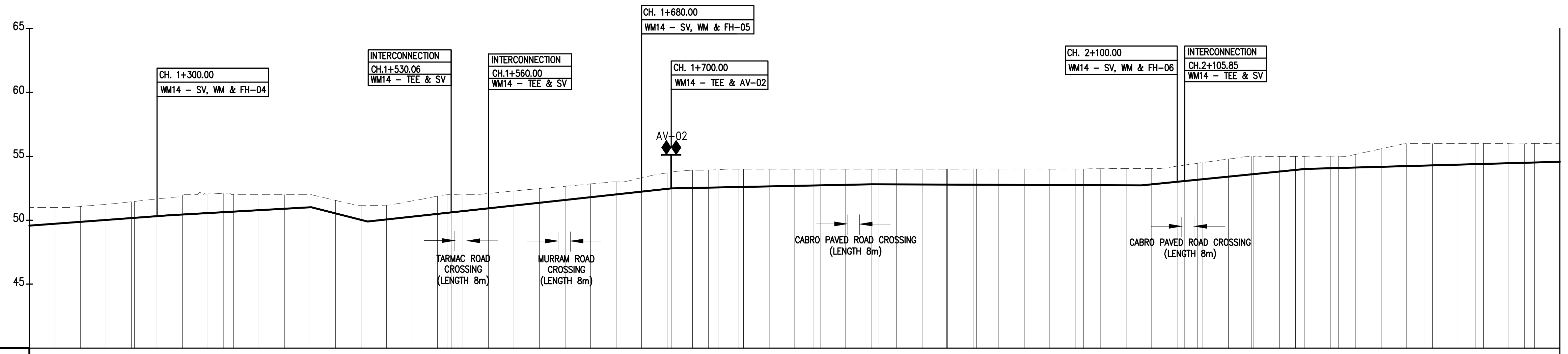




PLAN

SCALE 1:2000

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM219	568,578.93	9, 555,827.69	53.67
BM223	568,505.68	9, 555,901.82	54.23
BM224	568,643.20	9, 555,809.03	53.60
BM226	568,674.39	9, 555,607.25	51.74
BM231	568,781.97	9, 555,739.27	52.02
BM241	568,498.90	9, 555,884.20	54.51
BM242	568,095.90	9, 556,207.62	55.64
BM244	568,077.48	9, 556,174.14	55.96



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 315 HDPE PIPE TO PN 12.5																				
GEOLOGICAL CONDITION	SAND SOILS																				
EXISTING GROUND LEVEL (m)	50.99	51.00	51.07	51.24	51.44	51.65	51.93	52.05	52.02	52.00	52.00	52.00	51.55	51.17	51.18	51.50	51.88	51.99	52.09	52.29	52.48
INVERT LEVELS (m)	49.58	49.73	49.88	50.02	50.17	50.32	50.45	50.56	50.67	50.79	50.90	51.02	50.53	50.02	50.06	50.28	50.49	50.71	50.93	51.15	51.37
CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+500	1+520	1+540	1+560	1+580	1+600
DEPTH OF INVERT (m)	1.41	1.27	1.20	1.22	1.28	1.34	1.48	1.49	1.34	1.21	1.10	0.98	1.02	1.15	1.12	1.23	1.39	1.28	1.16	1.14	1.11
SLOPE OF PIPE (%)	0.74%					0.57%						−2.55%		1.09%							
REFERENCE PEG No.																					

EXISTING GROUND LEVEL (m)	52.65	52.84	53.00	53.32	53.70	53.91	53.95	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00
INVERT LEVELS (m)	51.58	51.80	52.02	52.24	52.46	52.53	52.57	52.61	52.65	52.69	52.73	52.77	52.81	52.80	52.80	52.79	52.78	52.77	52.77	52.76
CHAINAGES (M)	1+620	1+640	1+660	1+680	1+700	1+720	1+740	1+760	1+780	1+800	1+820	1+840	1+860	1+880	1+900	1+920	1+940	1+960	1+980	2+000
DEPTH OF INVERT (m)	1.07	1.03	0.98	1.08	1.24	1.38	1.38	1.39	1.35	1.31	1.27	1.23	1.19	1.20	1.21	1.22	1.22	1.23	1.24	1.24
SLOPE OF PIPE (%)					0.20%								−0.04%							
REFERENCE PEG No.																				

EXISTING GROUND LEVEL (m)	54.01	54.03	54.04	54.04	54.23	54.51	54.78	54.97	55.00	55.00	55.00	55.15	55.59	55.99	56.00	56.00	56.00	55.99	55.99	56.01
INVERT LEVELS (m)	52.75	52.74	52.74	52.81	53.01	53.21	53.41	53.61	53.80	54.00	54.06	54.12	54.18	54.23	54.29	54.34	54.40	54.46	54.51	54.57
CHAINAGES (M)	2+020	2+040	2+060	2+080	2+100	2+120	2+140	2+160	2+180	2+200	2+220	2+240	2+260	2+280	2+300	2+320	2+340	2+360	2+380	2+400
DEPTH OF INVERT (m)	1.26	1.29	1.30	1.23	1.22	1.30	1.38	1.37	1.20	1.00	0.94	1.03	1.42	1.76	1.71	1.66	1.60	1.53	1.48	1.44
SLOPE OF PIPE (%)				0.99%						0.28%										
REFERENCE PEG No.																				

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM219, BM223, BM224, BM226, BM231, BM241, BM242 & BM244 WITH THE FOLLOWING COORDINATES AND ELEVATION.

LEGEND:

– – – – – – –	ROAD (TARMAC)
- - - - - - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
⋈	GATE
□	BUILDINGS
■ ■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
♣ ♣	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

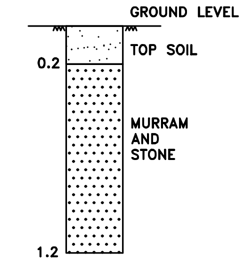
WEST MAINLAND – LINE WM14
PLAN AND PROFILE
(CH. 1+200 – CH. 2+400)
SHEET 2 OF 4

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-023C0

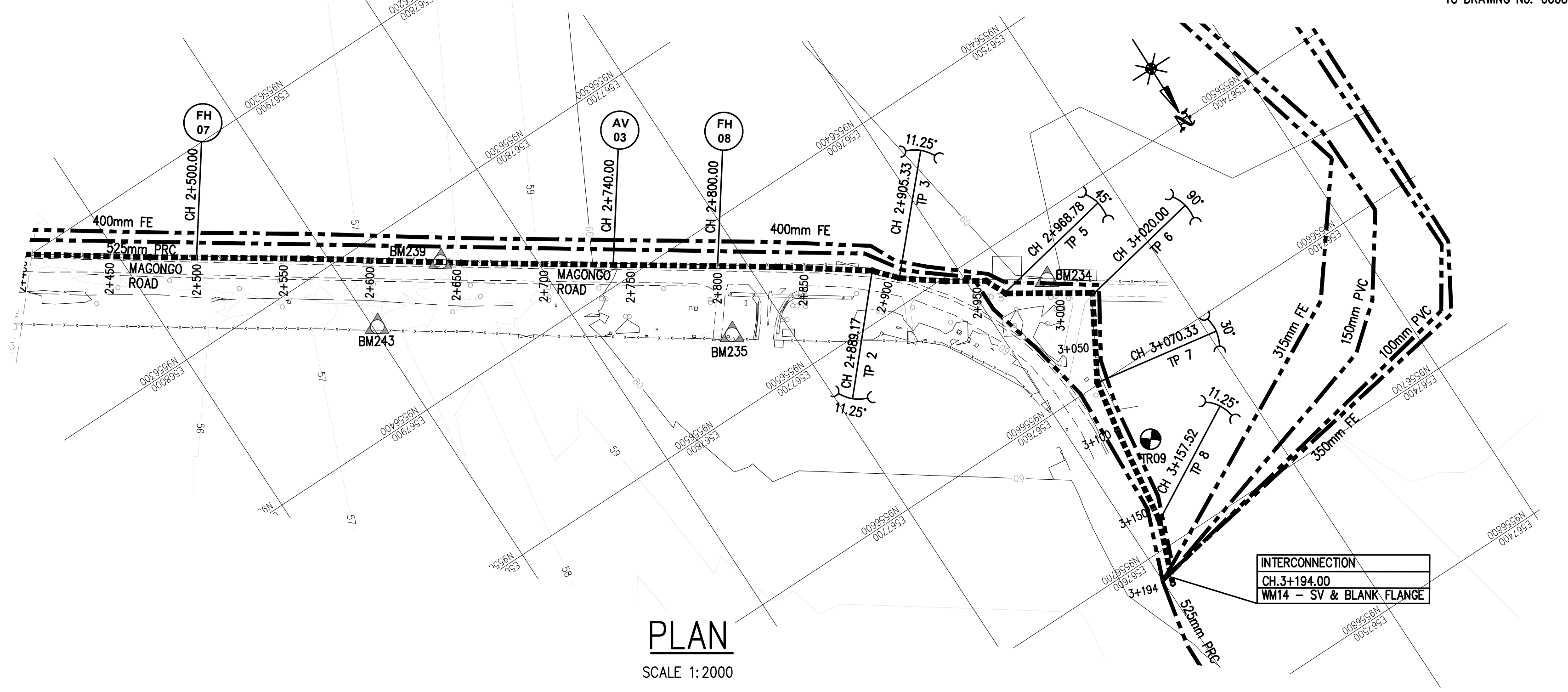
C STATUS | DRAWING No. 6000002-W&S-WM-P-023 | C0 REV

AWAITING FINAL SURVEY

TRIAL HOLE TR09 DETAILS

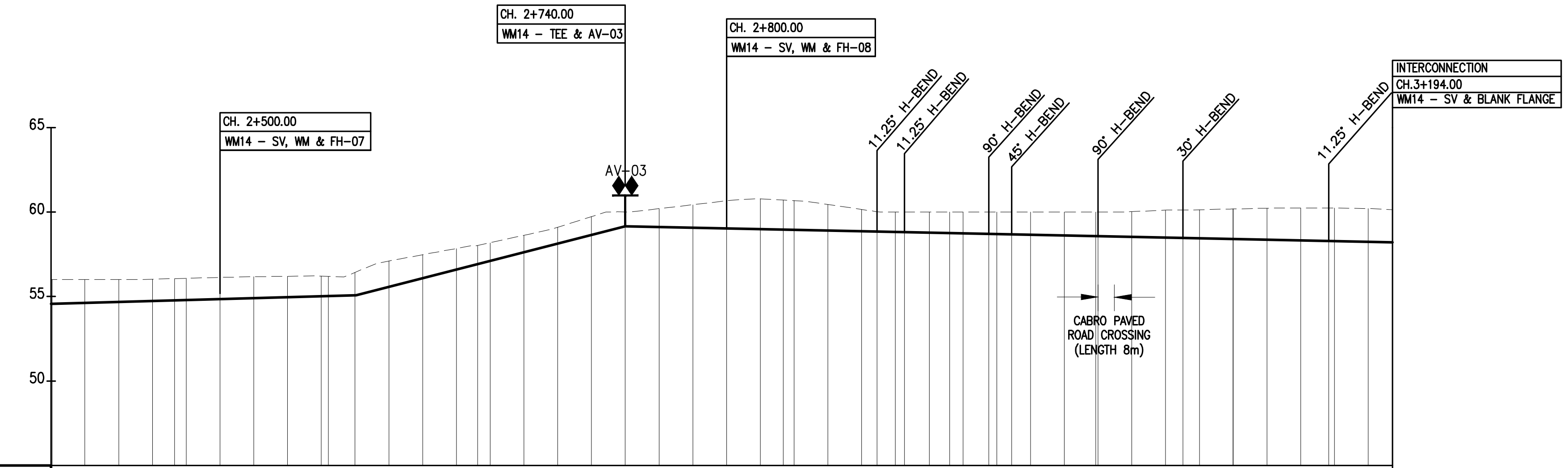


NOTES:
1. FOR FITTING DETAILS AT CH. 3+194.00, REFER TO DRAWING No: 6000002-W&S-WM-P-081



PLAN

SCALE 1:2000



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE	DN 315 HDPE PIPE TO PN 12.5													
GEOLOGICAL CONDITION	MURRAM AND STONE													
EXISTING GROUND LEVEL (m)	56.01	56.01	56.01	56.03	56.08	56.13	56.17	56.20	56.21	56.43	57.11	57.48	57.84	58.18
INVERT LEVELS (m)	54.57	54.63	54.68	54.74	54.79	54.85	54.91	54.96	55.02	55.08	55.57	56.09	56.60	57.11
CHAINAGES (M)	2+400	2+420	2+440	2+460	2+480	2+500	2+520	2+540	2+560	2+580	2+600	2+620	2+640	2+660
DEPTH OF INVERT (m)	1.44	1.38	1.33	1.29	1.29	1.28	1.27	1.23	1.19	1.36	1.53	1.39	1.25	1.07
SLOPE OF PIPE (%)	0.28%										2.56%			
REFERENCE PEG No.														

EXISTING GROUND LEVEL (m)	58.62	59.10	59.73	60.00	60.20	60.43	60.67	60.78	60.67	60.45	60.15	60.00	60.00	60.00
INVERT LEVELS (m)	57.62	58.13	58.65	59.16	59.12	59.07	59.03	58.99	58.95	58.91	58.86	58.82	58.78	58.74
CHAINAGES (M)	2+680	2+700	2+720	2+740	2+760	2+780	2+800	2+820	2+840	2+860	2+880	2+900	2+920	2+940
DEPTH OF INVERT (m)	1.00	0.97	1.09	0.85	1.08	1.36	1.64	1.79	1.72	1.54	1.29	1.18	1.22	1.26
SLOPE OF PIPE (%)					−0.21%									
REFERENCE PEG No.												TP 2 TP 3		

EXISTING GROUND LEVEL (m)	60.00	60.00	60.00	60.00	60.02	60.11	60.14	60.18	60.23	60.25	60.24	60.20	60.14
INVERT LEVELS (m)	58.70	58.66	58.61	58.57	58.53	58.49	58.45	58.40	58.36	58.32	58.28	58.24	58.21
CHAINAGES (M)	2+960	2+980	3+000	3+020	3+040	3+060	3+080	3+100	3+120	3+140	3+160	3+180	3+194
DEPTH OF INVERT (m)	1.30	1.34	1.39	1.43	1.49	1.62	1.69	1.78	1.87	1.92	1.96	1.97	1.94
SLOPE OF PIPE (%)					−0.21%								
REFERENCE PEG No.	TP 4	TP 5		TP 6			TP 7				TP 8		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM234, BM235, BM239 & BM243 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM234	567,560.06	9, 556,534.22	60.11
BM235	567,729.64	9, 556,460.15	60.98
BM239	567,846.92	9, 556,331.99	57.73
BM243	567,897.33	9, 556,344.92	57.63

LEGEND:

ROAD (TARMAC)
ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
FENCE / HEDGE
14 CONTOURS, lm INTERVAL
ELECTRIC POST
CULVERT
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV SLUICE VALVE
FH FIRE HYDRANT
AV-01 COMBINATION AIR VALVE & No.
WM WATER METER
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL
BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

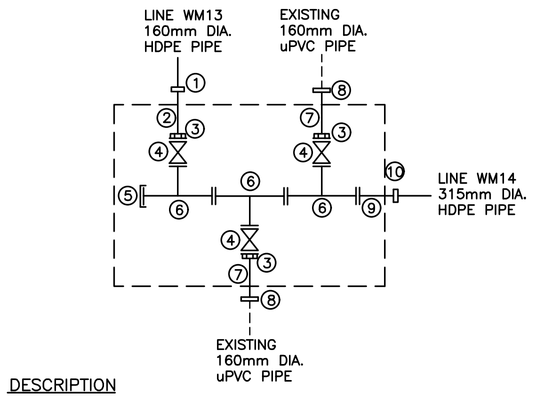
Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WM14
PLAN AND PROFILE
(CH. 2+400 – CH. 3+194.00)
SHEET 3 OF 4

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-024C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-024 C0 REV

CHAMBER SIZE
2000x2000

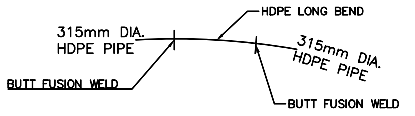
DETAIL CH. 0+000.00
LINE WM14 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 3 Nos. 150mm DIA. FLANGE ADAPTOR
④ 3 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250mm DIA. BLANK FLANGE
⑥ 3 Nos. 250x150mm DIA. ALL FLANGED STEEL TEE
⑦ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
⑧ 2 Nos. 160/150mm DIA. STEPPED COUPLING
⑨ 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑩ 1 No. 250/315mm DIA. STEPPED COUPLING

DETAIL CH. 2+905.33, 3+157.52 & 5+574.99
LINE WM14 - 11.25° H.BEND



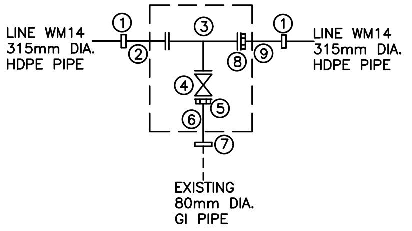
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1500x1200

DETAIL CH. 0+780.00
LINE WM14 - INTERCONNECTION

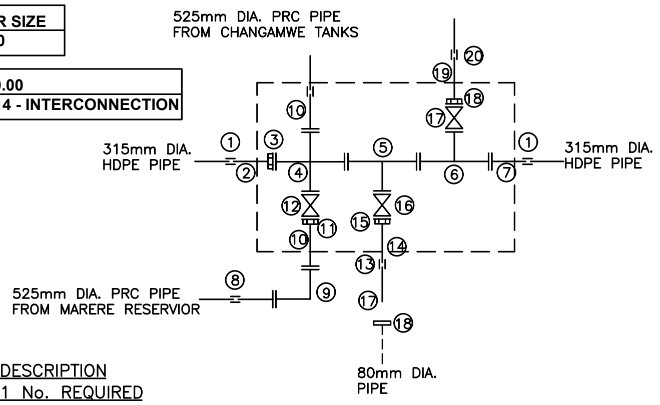


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 250/315mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 250x80mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 Nos. 80mm DIA. FLANGE ADAPTOR
⑥ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 80/80mm DIA. STEPPED COUPLING
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
2500x2000

DETAIL CH. 0+940.00
LINE WM14 - INTERCONNECTION

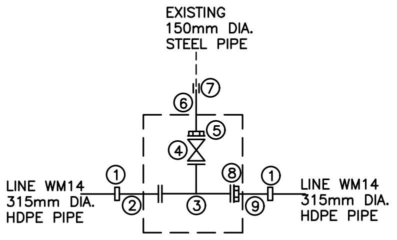


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. PLAIN ENDED PIPE 2.4m LONG WITH A PUDDLE FLANGE
③ 1 No. 250mm DIA. FLANGE ADAPTOR
④ 1 No. 600x250mm DIA. ALL FLANGED CROSS TEE
⑤ 1 No. 250x80mm DIA. ALL FLANGED TEE
⑥ 1 No. 250x100mm DIA. ALL FLANGED TEE
⑦ 1 No. 250mm DIA. SINGLE FLANGED PIPE PIECE 2.4m LONG WITH A PUDDLE FLANGE
⑧ 2 Nos. 600/525mm DIA. STEPPED COUPLING
⑨ 1 No. 600mm DIA. ALL FLANGED 90° BEND
⑩ 2 Nos. 250mm DIA. SINGLE FLANGED PIPE PIECE 2.4m LONG WITH A PUDDLE FLANGE
⑪ 1 No. 600mm DIA. FLANGE ADAPTOR
⑫ 1 No. 600mm DIA. PN10 SLUICE VALVE
⑬ 1 No. 80mm DIA. COUPLING
⑭ 1 No. 80mm DIA. PLAIN ENDED PIPE 2.4m LONG WITH A PUDDLE FLANGE
⑮ 1 No. 80mm DIA. FLANGE ADAPTOR
⑯ 1 No. 80mm DIA. PN10 SLUICE VALVE
⑰ 1 No. 100mm DIA. PN10 SLUICE VALVE
⑱ 1 No. 100mm DIA. FLANGE ADAPTOR
⑲ 1 No. 100mm DIA. PLAIN ENDED PIPE 2.4m LONG WITH A PUDDLE FLANGE
⑳ 1 No. 110/100mm DIA. STEPPED COUPLING

DETAIL CH. 1+530.06
LINE WM14 - INTERCONNECTION

CHAMBER SIZE
1500x1200

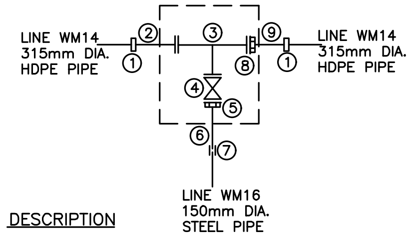


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 250/315mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 150mm DIA. STRAIGHT COUPLING
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2m LONG WITH A PUDDLE FLANGE

DETAIL CH. 1+560.00
LINE WM14 - INTERCONNECTION

CHAMBER SIZE
1500x1200

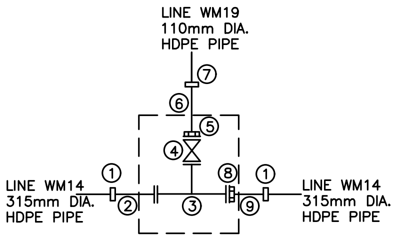


DESCRIPTION
1 No. REQUIRED

① 2 Nos. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 150mm DIA. STRAIGHT COUPLING
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
1500x1200

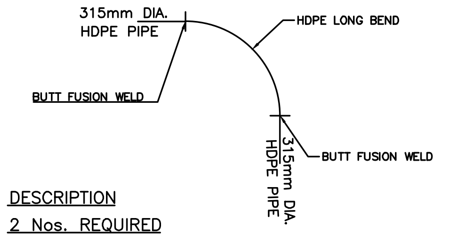
DETAIL CH. 2+105.85
LINE WM14 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

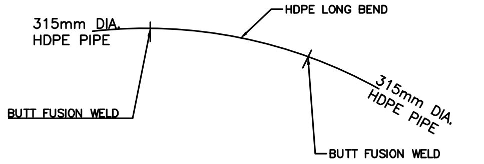
① 2 Nos. 250/315mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2m LONG WITH A PUDDLE FLANGE

DETAIL CH. 2+955.29 & CH. 3+020.00
LINE WM14 - 90° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

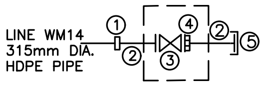
DETAIL CH. 2+968.78
LINE WM14 - 45° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1500x1200

DETAIL CH. 2+994.99
LINE WM14 - SV & BLANK FLANGE



DESCRIPTION
1 No. REQUIRED

① 1 No. 250/315mm DIA. STEPPED COUPLING
② 2 Nos. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
③ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 250mm DIA. FLANGE ADAPTOR
⑤ 1 No. 250mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

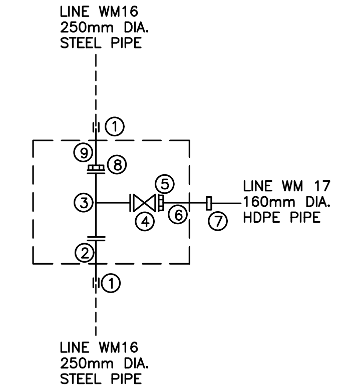
Drawing Title
WEST MAINLAND – LINE WM14
PIPE FITTING DETAILS
SHEET 4 OF 4

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-025CO

C STATUS | DRAWING No. 6000002-W&S-WM-P-025 | CO REV

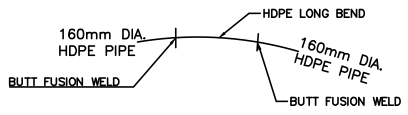
CHAMBER SIZE
1200x1200

DETAIL
CH. 0+000.00
LINE WM17 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
- ① 2 Nos. 250mm DIA. STRAIGHT COUPLING
- ② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPES 1.2 m LONG WITH A PUDDLE FLANGE
- ③ 1 No. 250x150mm DIA. ALL FLANGED STEEL TEE
- ④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
- ⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
- ⑥ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
- ⑦ 1 No. 160/150mm DIA. STEPPED COUPLING
- ⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
- ⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2 m LONG WITH A PUDDLE FLANGE

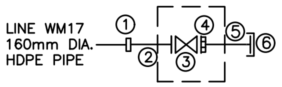
DETAIL
CH. 0+023.48
LINE WM17 - 22.5° H.BEND



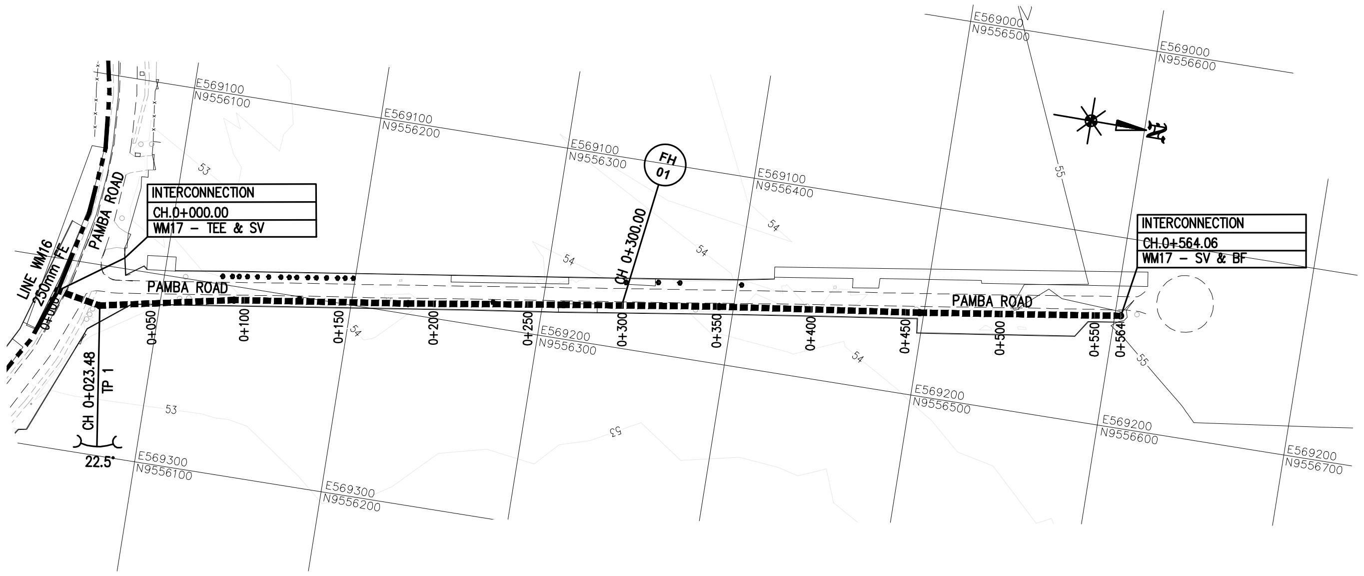
DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

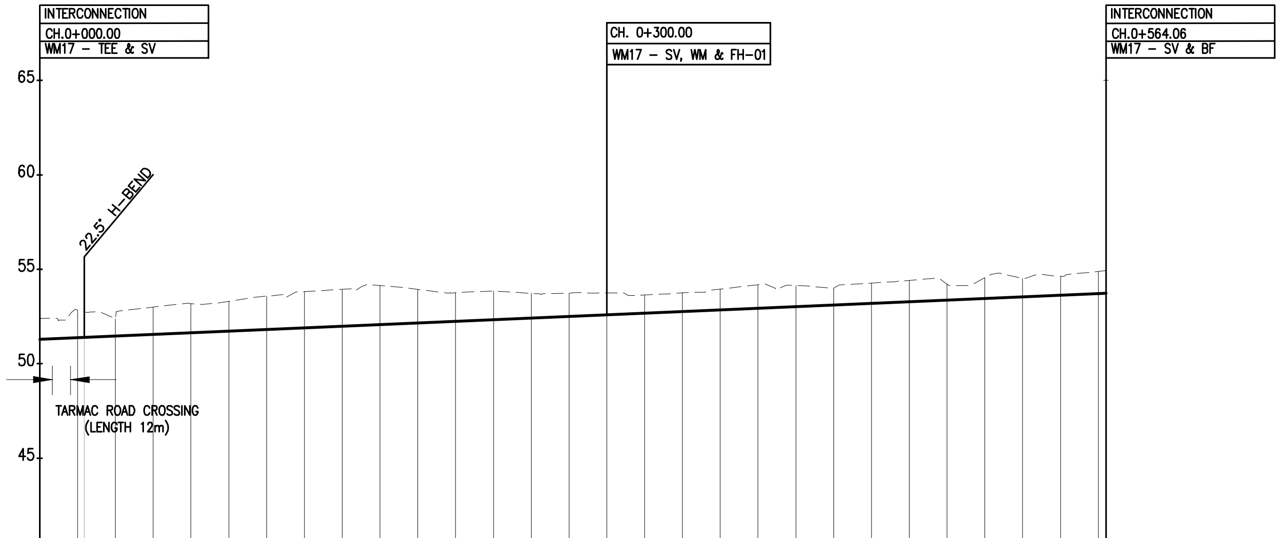
DETAIL
CH. 0+564.06
LINE WM17 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
- ① 1 No. 160/150mm DIA. STEPPED COUPLING
- ② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
- ③ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
- ④ 1 No. 150mm DIA. FLANGE ADAPTOR
- ⑤ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
- ⑥ 1 No. 150mm DIA. BLANK FLANGE



PLAN
SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	SAND SOILS															
EXISTING GROUND LEVEL (m)	52.49	52.83	52.73	52.38	53.00	53.18	53.30	53.58	53.82	53.94	54.14	53.94	53.77	53.84	53.73	53.74
INVERT LEVELS (m)	51.29	51.38	51.39	51.46	51.55	51.64	51.72	51.81	51.90	51.98	52.07	52.15	52.24	52.33	52.41	52.50
CHAINAGE (m)	0+000.00	0+020.00	0+023.48	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00
DEPTH OF INVERT (m)	1.20	1.46	1.34	0.91	1.45	1.55	1.58	1.77	1.93	1.95	2.07	1.78	1.52	1.52	1.31	1.24
SLOPE OF PIPE (%)	0.43%															
REFERENCE PEG NO.			TP 1													

EXISTING GROUND LEVEL (m)	53.74	53.64	53.76	53.95	54.18	54.14	54.00	54.27	54.41	54.22	54.55	54.51	54.63	54.88	54.93
INVERT LEVELS (m)	52.59	52.67	52.76	52.85	52.93	53.02	53.11	53.19	53.28	53.36	53.45	53.54	53.62	53.71	53.73
CHAINAGE (m)	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+564.06
DEPTH OF INVERT (m)	1.16	0.97	1.00	1.11	1.25	1.12	0.89	1.08	1.13	0.85	1.10	0.98	1.01	1.17	1.20

LONGITUDINAL PROFILE
SCALE H 1:2000, V 1:200

NOTES
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:
	ROAD (TARMAC)
	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
	PROPOSED CONCRETE CHAMBER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

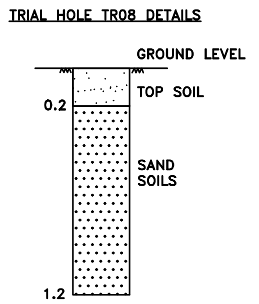
CONTRACT No.:CWWDA/AFD/W2/2022

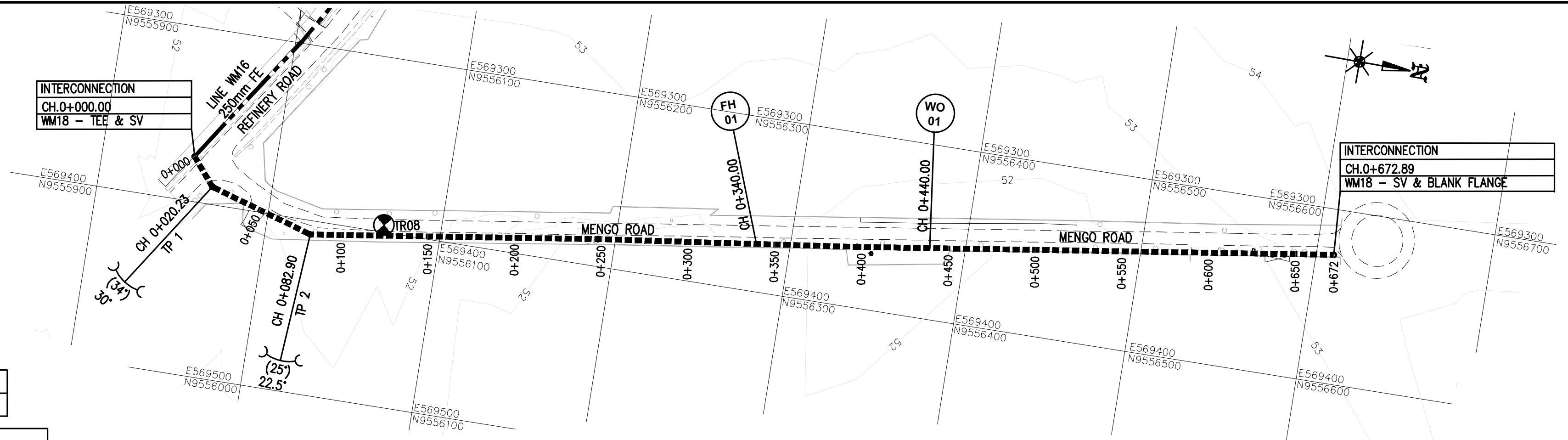
Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WM17
PLAN AND PROFILE
(CH. 0+000 – CH. 0+564.06)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-026C0
C STATUS	DRAWING No. **6000002-W&S-WM-P-026** CO REV

TRIAL HOLE TR08 DETAILS





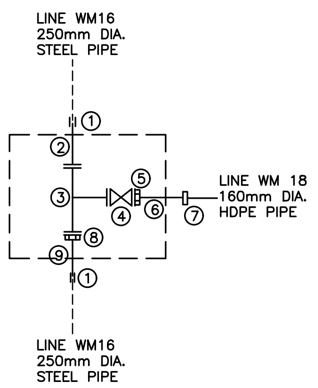
PLAN

SCALE 1:2000

CHAMBER SIZE
1500x1200

DETAIL

CH. 0+000.00
LINE WM18 - INTERCONNECTION



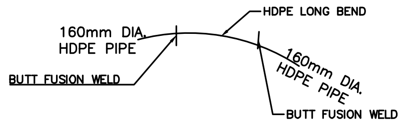
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 250mm DIA. STRAIGHT COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 250x150mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH PUDDLE FLANGE
⑦ 1 No. 160/150mm DIA. STEPPED COUPLING
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2 m LONG WITH A PUDDLE FLANGE

DETAIL

CH. 0+020.23
LINE WM18 - 30° H.BEND



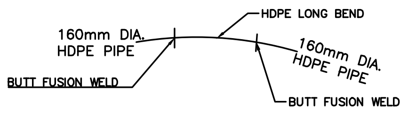
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+082.90
LINE WM18 - 22.5° H.BEND



DESCRIPTION

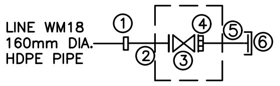
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

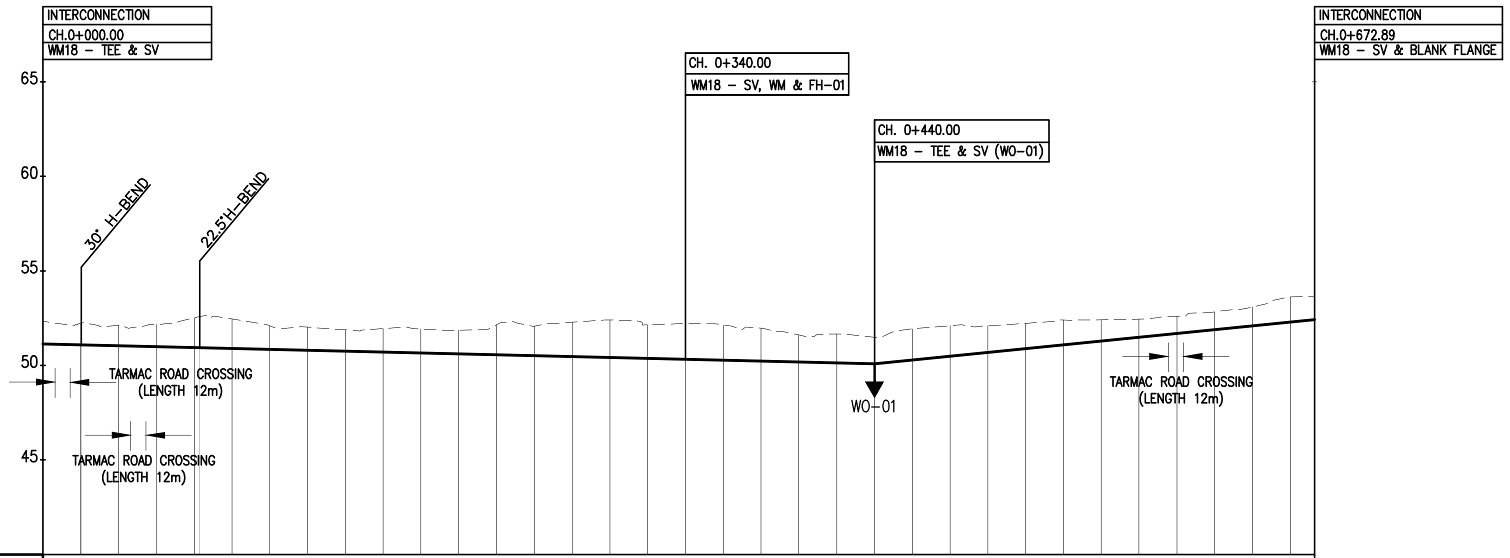
CH. 0+672.89
LINE WM18 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 150mm DIA. FLANGE ADAPTOR
⑤ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑥ 1 No. 150mm DIA. BLANK FLANGE



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5																	
GEOLOGICAL CONDITION	SAND SOILS																	
EXISTING GROUND LEVEL (m)	52.34	52.26	52.12	52.16	52.52	52.58	52.45	52.09	52.03	51.88	51.95	51.93	51.87	52.14	52.07	52.29	52.40	52.15
INVERT LEVELS (m)	51.14	51.09	51.04	50.99	50.95	50.94	50.90	50.85	50.80	50.76	50.71	50.66	50.61	50.56	50.52	50.47	50.42	50.37
CHAINAGE (m)	0+000.00	0+020.23	0+040.00	0+060.00	0+080.00	0+082.90	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00
DEPTH OF INVERT (m)	1.20	1.17	1.08	1.16	1.57	1.64	1.55	1.24	1.23	1.13	1.24	1.27	1.25	1.58	1.56	1.82	1.98	1.78
SLOPE OF PIPE (%)	-0.24%																	
REFERENCE PEG NO.		TP 1				TP 2												

EXISTING GROUND LEVEL (m)	52.21	52.14	51.97	51.61	51.66	51.49	51.93	52.10	52.09	52.22	52.40	52.42	52.45	52.58	52.83	53.09	53.62	53.63
INVERT LEVELS (m)	50.32	50.28	50.23	50.18	50.13	50.09	50.29	50.49	50.69	50.89	51.09	51.29	51.49	51.69	51.90	52.10	52.30	52.43
CHAINAGE (m)	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+600.00	0+620.00	0+640.00	0+660.00	0+672.89
DEPTH OF INVERT (m)	1.89	1.86	1.74	1.43	1.52	1.40	1.65	1.62	1.40	1.33	1.31	1.12	0.95	0.89	0.94	1.00	1.32	1.20
SLOPE OF PIPE (%)						1.00%												
REFERENCE PEG NO.																		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, lm INTERVAL
○	ELECTRIC POST
)(	CULVERT
⋈	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
♣ ♣	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌝	PROPOSED CONCRETE CHAMBER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

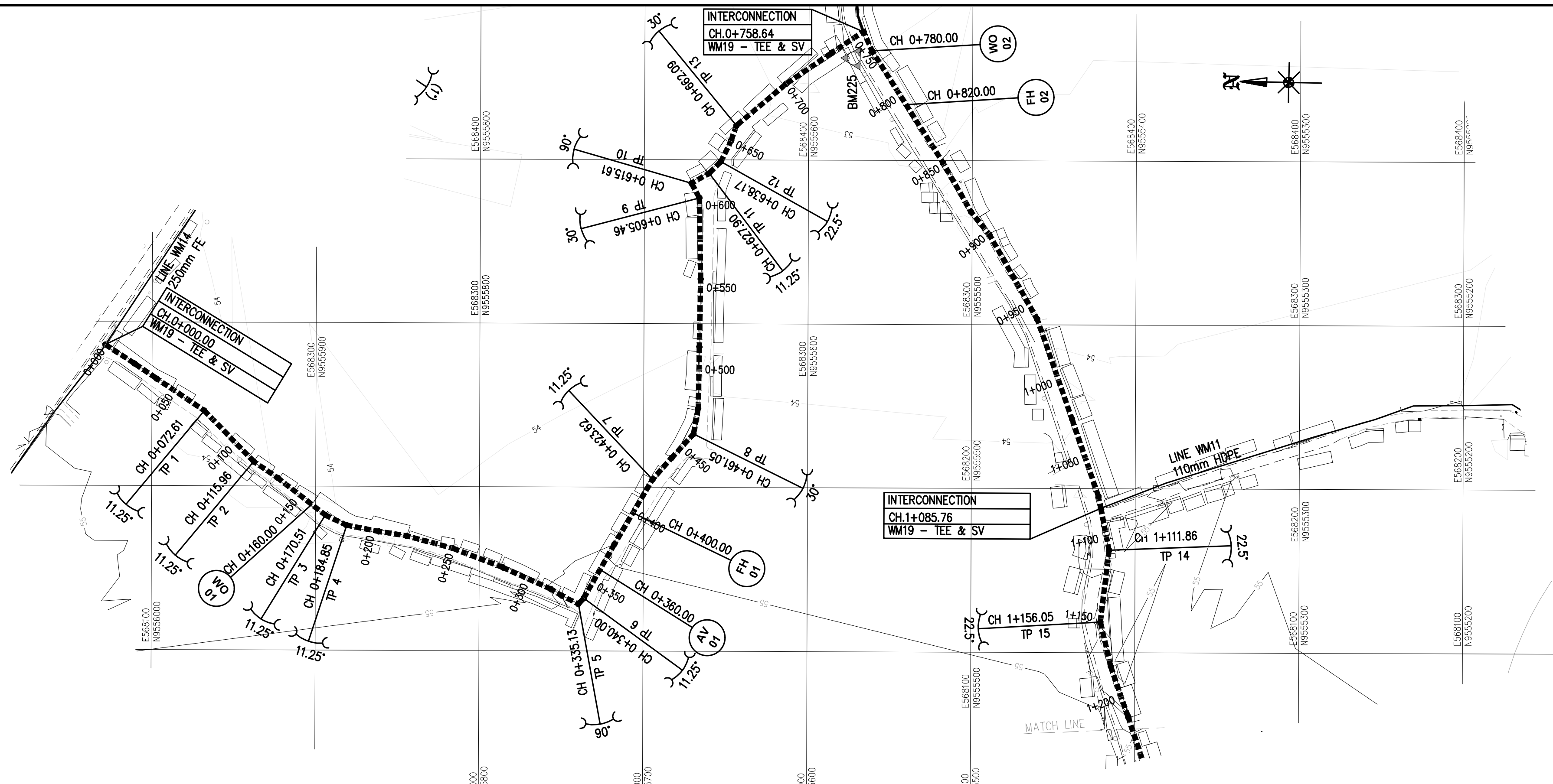
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

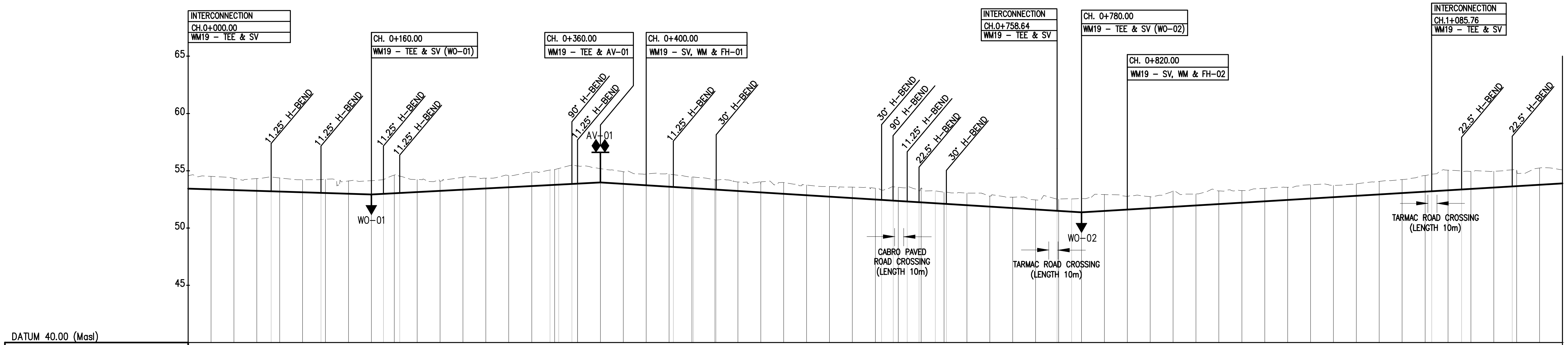
WEST MAINLAND – LINE WM18
PLAN AND PROFILE
(CH. 0+000 – CH. 0+672.89)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-027C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-027 / C0 REV



PLAN

SCALE 1:2000



TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: LOAM SOILS UNDERLAIN BY MURRAM

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (%)	REFERENCE PEG NO.
0+000.00	54.57	53.43	1.14	-0.31%	
0+020.00	54.51	53.37	1.14		
0+040.00	54.34	53.31	1.03		
0+060.00	54.32	53.25	1.08		
0+072.61	54.45	53.21	1.24		TP 1
0+080.00	54.37	53.19	1.19		
0+100.00	54.22	53.12	1.09		
0+115.96	54.23	53.07	1.16		TP 2
0+120.00	54.26	53.06	1.19		
0+140.00	54.11	53.00	1.11		
0+160.00	54.14	52.94	1.20	0.52%	
0+170.51	54.24	52.99	1.24		TP 3
0+180.00	54.62	53.04	1.58		
0+184.85	54.49	53.07	1.42		TP 4
0+200.00	54.24	53.15	1.09		
0+220.00	54.09	53.25	0.84		
0+240.00	54.44	53.36	1.08		
0+260.00	54.35	53.46	0.89		
0+280.00	54.59	53.57	1.02		
0+300.00	54.88	53.67	1.21		
0+315.94	55.06	53.75	1.31		
0+323.66	55.20	53.79	1.41		TP 5
0+335.13	55.45	53.85	1.60		TP 6
0+340.00	55.40	53.88	1.52		
0+360.00	55.18	53.98	1.20	-0.62%	
0+380.00	54.92	53.86	1.06		
0+400.00	54.72	53.74	0.98		
0+420.00	54.71	53.61	1.10		
0+423.62	54.65	53.59	1.06		TP 7
0+440.00	54.46	53.49	0.97		
0+441.28	54.45	53.48	0.97		
0+460.00	54.21	53.36	0.85		
0+461.05	54.18	53.36	0.82		TP 8
0+480.00	54.02	53.24	0.78		
0+500.00	54.04	53.12	0.92		
0+520.00	53.97	52.99	0.98		
0+540.00	53.76	52.87	0.89		
0+560.00	53.62	52.74	0.88		
0+580.00	53.57	52.62	0.95		
0+600.00	53.47	52.50	0.98		
0+605.46	53.30	52.46	0.84		TP 9
0+615.61	53.61	52.40	1.21		TP 10
0+627.90	53.61	52.32	1.29		TP 11
0+638.17	53.23	52.26	0.97		TP 12
0+652.43	53.24	52.17	1.07		
0+660.00	53.11	52.12	0.99		
0+662.09	53.14	52.11	1.03		TP 13
0+680.00	53.06	52.00	1.06		
0+700.00	52.78	51.88	0.90		
0+720.00	52.70	51.75	0.94		
0+740.00	52.45	51.63	0.83		
0+758.64	52.53	51.51	1.02		
0+771.49	52.55	51.43	1.11		
0+780.00	52.58	51.38	1.20	0.60%	
0+800.00	52.93	51.50	1.43		
0+820.00	52.76	51.62	1.14		
0+840.00	52.74	51.74	1.00		
0+860.00	53.25	51.86	1.39		
0+880.00	52.98	51.98	1.00		
0+900.00	53.24	52.10	1.14		
0+920.00	53.27	52.22	1.05		
0+940.00	53.46	52.34	1.13		
0+960.00	53.56	52.45	1.11		
0+980.00	53.78	52.57	1.21		
1+000.00	53.72	52.69	1.02		
1+020.00	53.86	52.81	1.05		
1+040.00	54.08	52.93	1.14		
1+060.00	54.23	53.05	1.18		
1+085.76	54.69	53.21	1.49		
1+100.00	55.05	53.29	1.75		
1+111.86	54.99	53.36	1.63		TP 14
1+120.00	54.94	53.41	1.53		
1+140.00	54.96	53.53	1.43		
1+156.05	55.07	53.63	1.45		TP 15
1+160.00	55.06	53.65	1.41		
1+180.00	55.24	53.77	1.47		
1+200.00	55.09	53.89	1.20		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM225 & BM227 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM225	568,462.16	9, 555,572.41	52.91
BM227	568,538.55	9, 555,566.68	52.42

LEGEND:

- ROAD (TARMAC)
- ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- 14 CONTOURS, Im INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- SV SLUICE VALVE
- FH FIRE HYDRANT
- WO-01 WASHOUT VALVE & No.
- AV-01 COMBINATION AIR VALVE & No.
- WM WATER METER
- n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

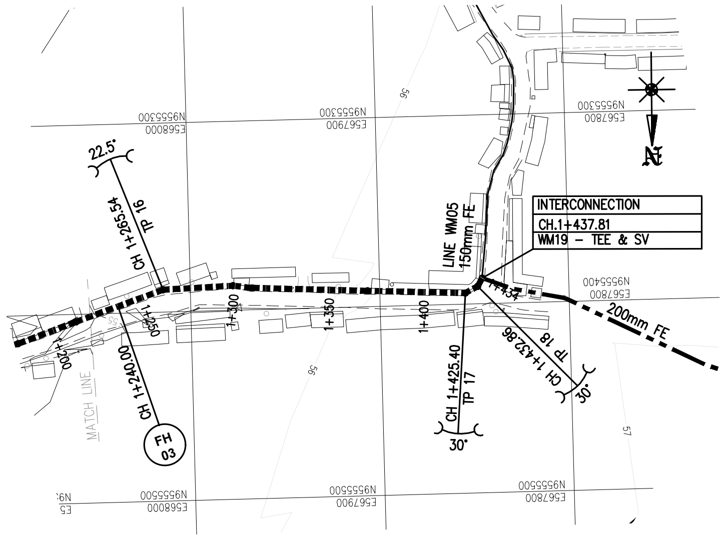
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

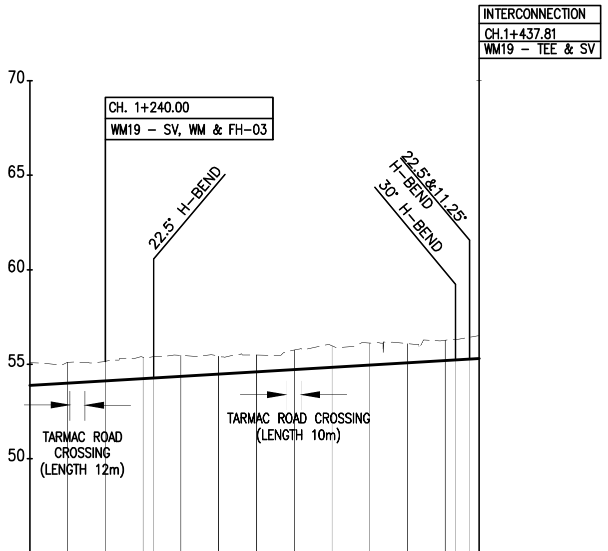
WEST MAINLAND – LINE WM19
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-028C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-028 · CO REV



PLAN

SCALE 1:2000



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	LOAM SOILS UNDERLAIN BY MURRAM															
EXISTING GROUND LEVEL (m)	55.09	55.11	55.16	55.37	55.40	55.47	55.38	55.48	55.75	55.98	56.12	56.09	56.28	56.30	56.43	56.51
INVERT LEVELS (m)	53.89	54.01	54.13	54.25	54.28	54.37	54.50	54.61	54.73	54.85	54.97	55.08	55.20	55.24	55.28	55.31
CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+260.00	1+265.54	1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00	1+400.00	1+420.00	1+425.40	1+432.86	1+437.81
DEPTH OF INVERT (m)	1.20	1.10	1.03	1.12	1.12	1.10	0.88	0.88	1.03	1.14	1.16	1.01	1.07	1.06	1.15	1.20
SLOPE OF PIPE (%)	0.60%															
REFERENCE PEG NO.					TP 16									TP 17	TP 18	

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

— — — —	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

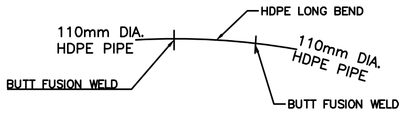
Drawing Title

WEST MAINLAND - LINE WM19
PLAN AND PROFILE
(CH. 1+200 - CH. 1+437.81)
SHEET 2 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-029C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-029 — CO REV

DETAIL

CH. 0+072.61, 0+115.96, 0+170.51, 0+184.85, 0+340.00, 0+423.62, 0+627.90
LINE WM19 - 11.25° H.BEND



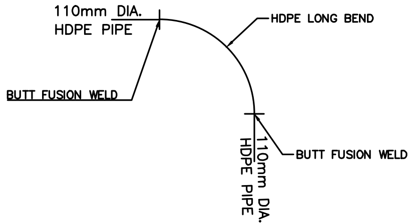
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+335.13, 0+615.61
LINE WM19 - 90° H.BEND



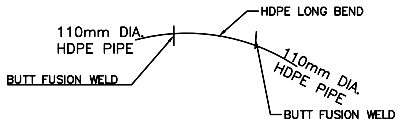
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+461.05, CH. 0+605.46, 0+662.09, 1+425.40, 1+432.86
LINE WM19 - 30° H.BEND



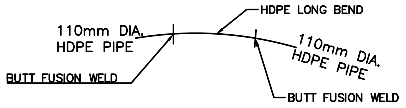
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+638.17, 1+156.05 & 1+265.54
LINE WM19 - 22.5° H.BEND



DESCRIPTION

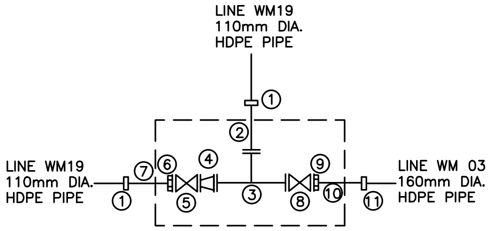
3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
2000x1200

DETAIL

CH. 0+758.64
LINE WM19 - INTERCONNECTION



DESCRIPTION

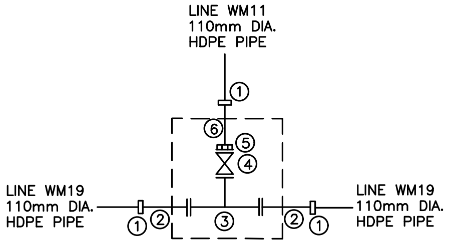
1 No. REQUIRED

① 2 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 150X100mm DIA. ALL FLANGED STEEL CONCENTRIC TAPER
⑤ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑥ 1 No. 100mm DIA. FLANGE ADAPTOR
⑦ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH PUDDLE FLANGE
⑧ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑨ 1 No. 150mm DIA. FLANGE ADAPTOR
⑩ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
⑪ 1 No. 160/150mm DIA. STEPPED COUPLING

CHAMBER SIZE
1200x1200

DETAIL

CH. 1+085.76
LINE WM19 - INTERCONNECTION



DESCRIPTION

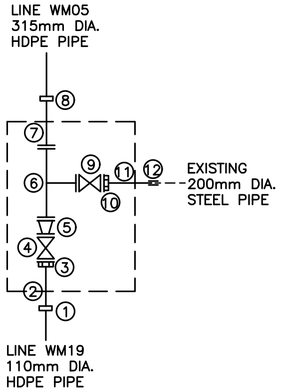
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 2 Nos. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
2000x1200

DETAIL

CH. 1+437.81
LINE WM19 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250X100mm DIA. ALL FLANGED STEEL CONCENTRIC TAPER
⑥ 1 No. 250x200mm DIA. ALL FLANGED STEEL TEE
⑦ 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑧ 1 No. 315/250mm DIA. STEPPED COUPLING
⑨ 1 No. 200mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 200mm DIA. FLANGE ADAPTOR
⑪ 1 No. 200mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 200mm DIA. STRAIGHT COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

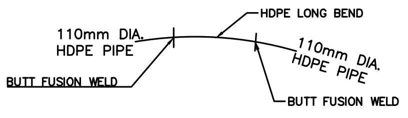
Drawing Title

WEST MAINLAND – LINE WM19
PIPE FITTING DETAILS

SHEET 3 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-030C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-030	C0 REV

DETAIL | **CH. 0+017.05 & 0+066.68**
LINE WM20 - 22.5° H.BEND

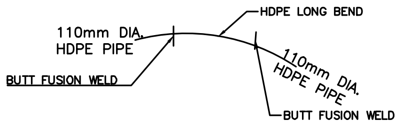


DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL | **CH. 0+032.70**
LINE WM20 - 30° H.BEND



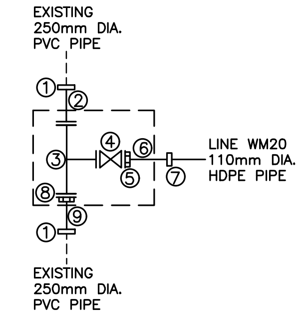
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL | **CH. 0+000.00**
LINE WM20 - INTERCONNECTION



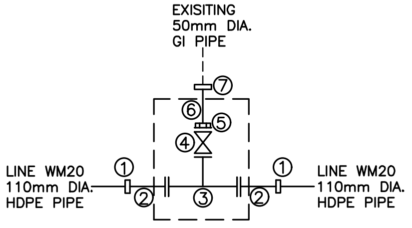
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 250/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING
⑧ 1 No. 250mm DIA. FLANGE ADAPTOR
⑨ 1 No. 250mm DIA. PLAIN ENDED PIPE 1.2 m LONG WITH A PUDDLE FLANGE

CHAMBER SIZE
1200x1200

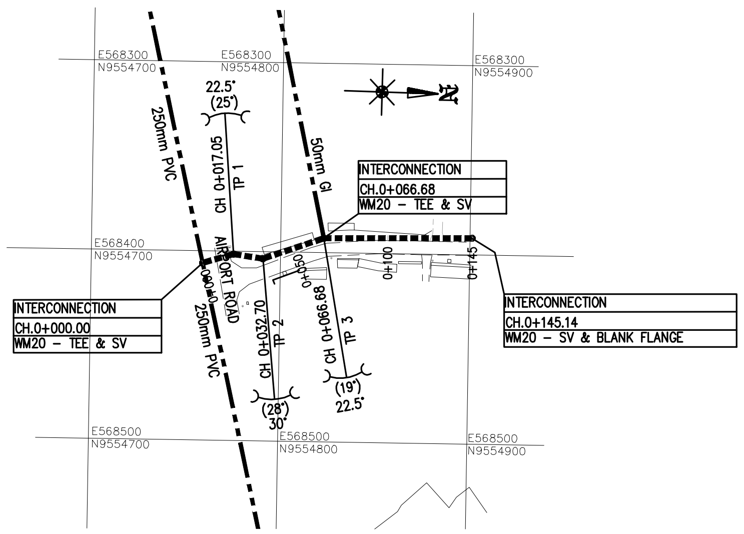
DETAIL | **CH. 0+066.68**
LINE WM20 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100x50mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 50mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 50mm DIA. FLANGE ADAPTOR
⑥ 1 No. 50mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 50mm DIA. STRAIGHT COUPLING
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED PIPE 1.2 m LONG WITH A PUDDLE FLANGE

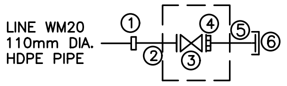


PLAN

SCALE 1:2000

CHAMBER SIZE
1200x1200

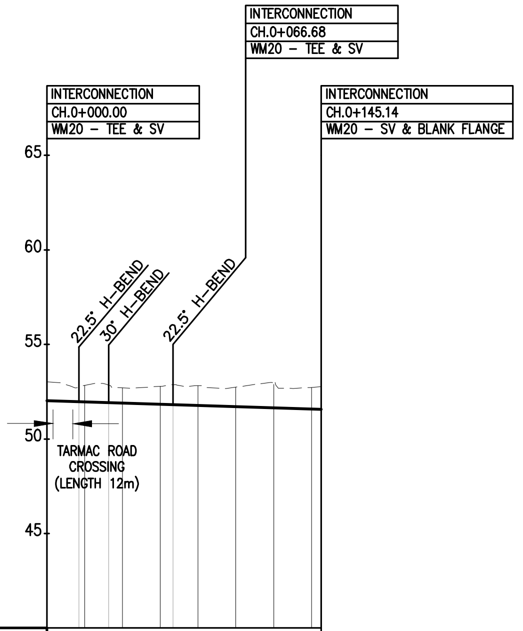
DETAIL | **CH. 0+145.14**
LINE WM20 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 100mm DIA. FLANGE ADAPTOR
⑤ 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑥ 1 No. 100mm DIA. BLANK FLANGE



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5										
GEOLOGICAL CONDITION	SANDY LOAM SOILS										
EXISTING GROUND LEVEL (m)	53.02	52.74	52.84	52.71	52.78	52.87	52.81	52.74	52.89	52.72	52.76
INVERT LEVELS (m)	52.02	51.96	51.92	51.89	51.83	51.81	51.77	51.70	51.64	51.58	51.56
CHAINAGE (m)	0+000.00	0+017.05	0+032.70	0+040.00	0+060.00	0+066.68	0+080.00	0+100.00	0+120.00	0+140.00	0+145.14
DEPTH OF INVERT (m)	1.00	0.78	0.93	0.82	0.96	1.06	1.05	1.04	1.25	1.15	1.20
SLOPE OF PIPE (%)	0.31%										
REFERENCE PEG NO.		TP 1	TP 2			TP 3					

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – – –	ROAD (TARMAC)
– – – – –	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–·–·–·–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
—·—·—	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
⚬ ⚬	TREES
●	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

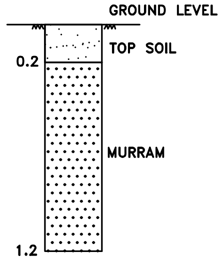
Drawing Title

WEST MAINLAND – LINE WM 20
PLAN AND PROFILE
(CH. 0+000 – CH. 0+145.14)
SHEET 1 OF 1

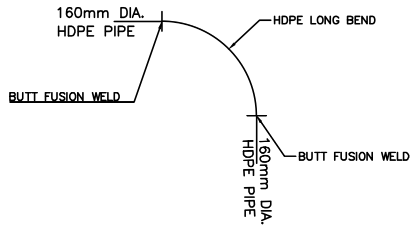
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-031C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-031 — C0 REV

AWAITING FINAL SURVEY

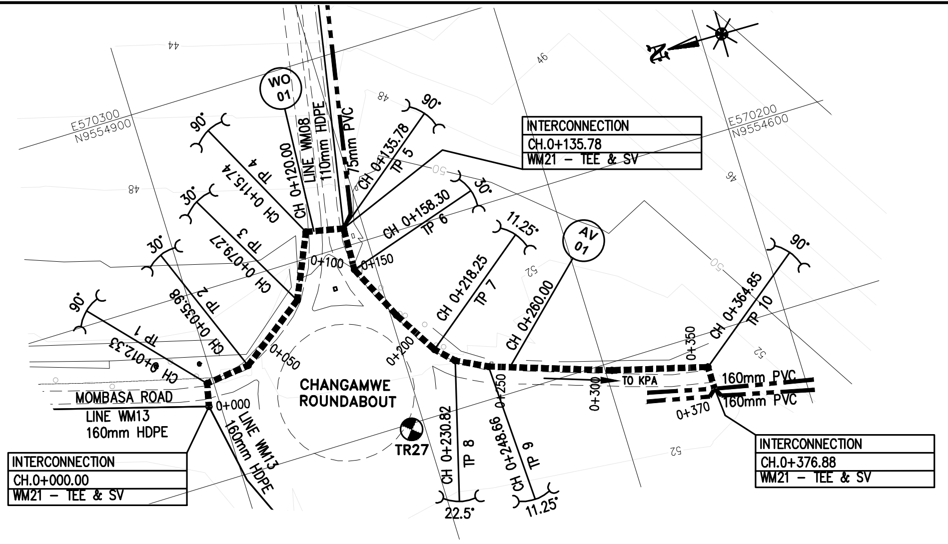
TRIAL HOLE TR27 DETAILS



DETAIL CH. 0+012.33, 0+115.74, 0+135.78 & 0+364.85
LINE WM21 - 90° H.BEND



DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

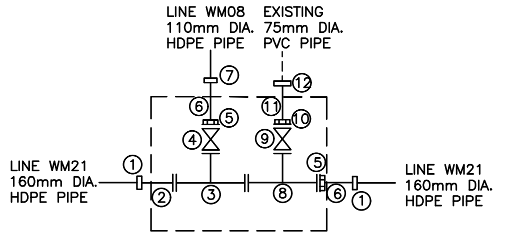


PLAN

SCALE 1:2000

CHAMBER SIZE
1200x1200

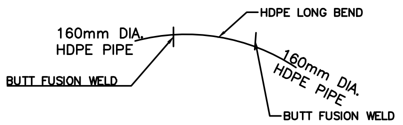
DETAIL CH. 0+135.78
LINE WM21 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

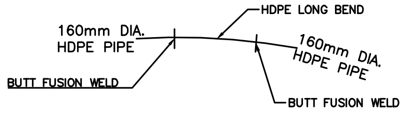
① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 1 Nos. 110/100mm DIA. STEPPED COUPLING
⑧ 1 No. 150x80mm DIA. ALL FLANGED STEEL TEE
⑨ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 80mm DIA. FLANGE ADAPTOR
⑪ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE
⑫ 1 No. 75/80mm DIA. STEPPED COUPLING

DETAIL CH. 0+035.98, 0+079.27 & 0+158.30
LINE WM21 - 30° H.BEND

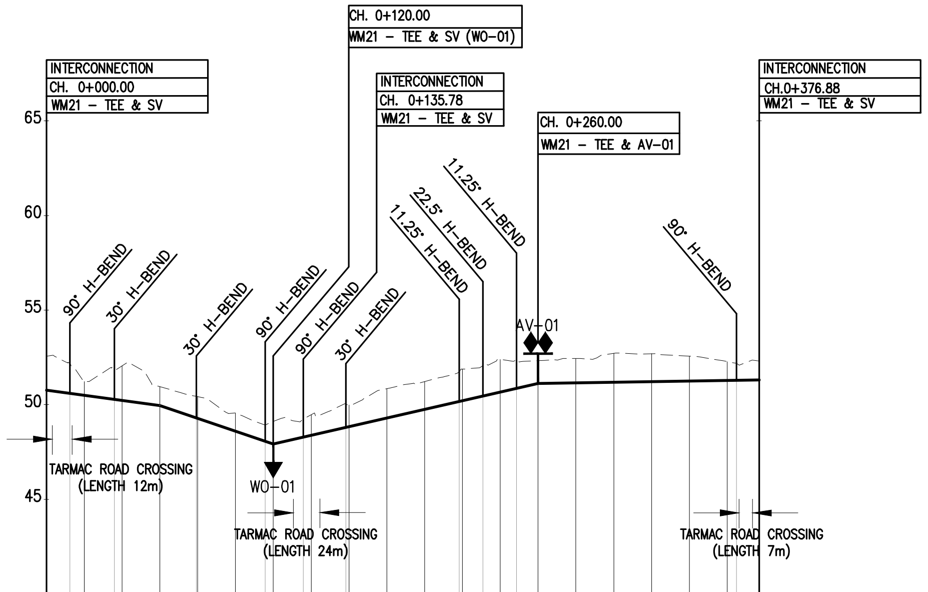


DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+218.25
LINE WM21 - 11.25° H.BEND



DESCRIPTION
16 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE: DN 160 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: MURRAM

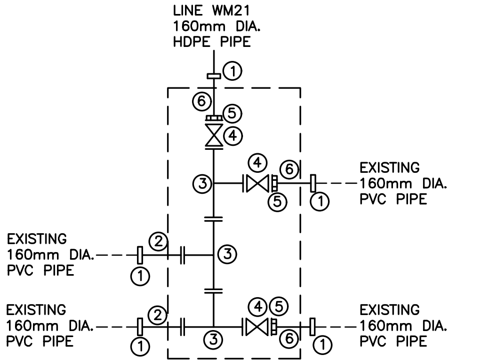
CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (%)	REFERENCE PEG NO.
0+000.00	52.57	50.77	1.80	−1.35%	
0+012.33	52.19	50.60	1.59		TP 1
0+020.00	51.22	50.50	0.72		
0+035.98	51.89	50.28	1.61		TP 2
0+040.00	52.06	50.23	1.83		
0+060.00	50.96	49.96	1.00	−3.40%	
0+079.27	50.45	49.30	1.14		TP 3
0+080.00	50.43	49.28	1.15		
0+100.00	49.57	48.60	0.97		
0+115.74	48.93	48.07	0.86		TP 4
0+120.00	49.12	47.92	1.20	2.29%	
0+135.78	49.24	48.28	0.96		TP 5
0+140.00	49.47	48.38	1.09		
0+158.30	50.04	48.80	1.24		TP 6
0+160.00	49.99	48.84	1.15		
0+180.00	50.84	49.29	1.55		
0+200.00	51.23	49.75	1.48		
0+218.25	51.76	50.17	1.59		TP 7
0+230.82	52.07	50.46	1.62		TP 8
0+240.00	52.39	50.67	1.72		
0+248.66	52.41	50.87	1.55		TP 9
0+260.00	52.33	51.13	1.20	0.20%	
0+280.00	52.45	51.16	1.29		
0+300.00	52.72	51.19	1.53		
0+320.00	52.70	51.22	1.48		
0+340.00	52.57	51.25	1.32		
0+360.00	52.28	51.28	1.00		
0+364.85	52.19	51.29	0.90		TP 10
0+376.88	52.31	51.31	1.00		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

CHAMBER SIZE
1800x1200

DETAIL CH. 0+376.88
LINE WM21 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 5 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 3 Nos. 150x150mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 150mm DIA. FLANGE ADAPTOR
⑥ 3 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
⋈	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
∘ ∘	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

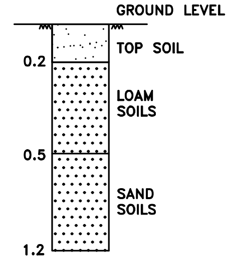
Drawing Title

WEST MAINLAND – LINE WM21
PLAN AND PROFILE
(CH. 0+000 – CH. 0+376.88)
SHEET 1 OF 1

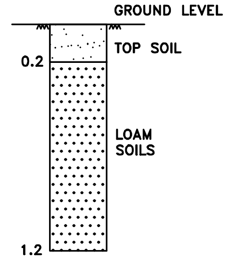
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-032CO
C STATUS	DRAWING No. 6000002-W&S-WM-P-032	CO REV

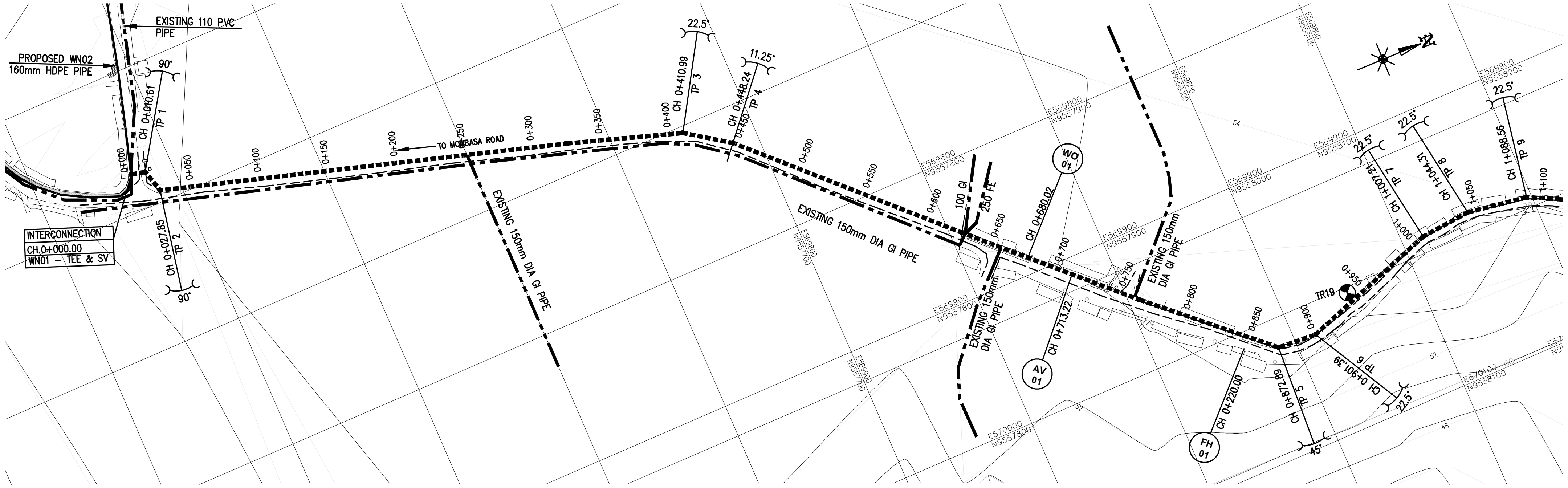
AWAITING FINAL SURVEY

TRIAL HOLE TR19 DETAILS



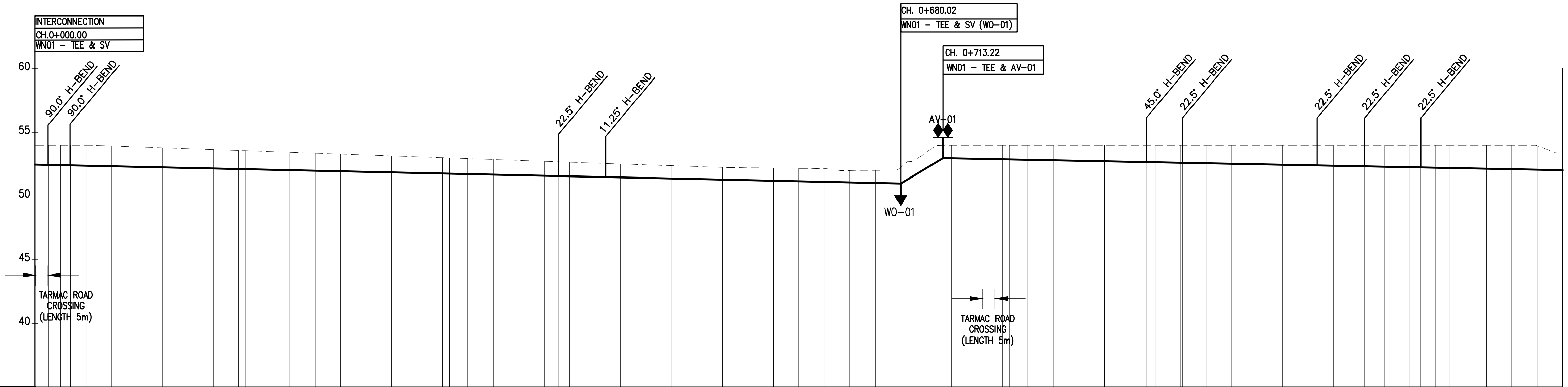
TRIAL HOLE TR20 DETAILS





PLAN

SCALE 1:2000



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE: DN 160 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: LOAM SOILS

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400
EXISTING GROUND LEVEL (m)	54.00	54.00	54.00	53.94	53.87	53.80	53.73	53.65	53.58	53.51	53.44	53.37	53.30	53.23	53.16	53.09	53.01	52.94	52.88	52.80	52.73
INVERT LEVELS (m)	52.47	52.43	52.38	52.34	52.30	52.25	52.21	52.17	52.12	52.08	52.04	51.99	51.95	51.90	51.86	51.82	51.77	51.73	51.69	51.64	51.60
DEPTH OF INVERT (m)	1.53	1.57	1.62	1.60	1.57	1.54	1.52	1.49	1.46	1.43	1.41	1.38	1.35	1.32	1.30	1.27	1.24	1.21	1.19	1.16	1.13

CHAINAGES (M)	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800
EXISTING GROUND LEVEL (m)	52.66	52.59	52.52	52.45	52.39	52.32	52.25	52.22	52.20	52.17	52.15	52.01	52.02	52.26	53.39	54.00	54.00	54.00	54.00	54.00
INVERT LEVELS (m)	51.56	51.51	51.47	51.43	51.38	51.34	51.30	51.25	51.21	51.16	51.12	51.08	51.03	50.99	52.19	52.97	52.93	52.89	52.85	52.81
DEPTH OF INVERT (m)	1.11	1.08	1.05	1.03	1.00	0.98	0.95	0.97	0.99	1.01	1.03	0.93	0.98	1.27	1.20	1.03	1.07	1.11	1.15	1.19

CHAINAGES (M)	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
EXISTING GROUND LEVEL (m)	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	53.96	53.49
INVERT LEVELS (m)	52.77	52.73	52.69	52.65	52.61	52.57	52.54	52.50	52.46	52.42	52.38	52.34	52.30	52.26	52.22	52.18	52.14	52.10	52.07	52.03
DEPTH OF INVERT (m)	1.23	1.27	1.31	1.35	1.39	1.43	1.46	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.82	1.86	1.90	1.90	1.47

SLOPE OF PIPE (%): −0.22% (0+000 – 0+680); 6.00% (0+680 – 0+720); −0.20% (0+720 – 1+200)

REFERENCE PEG No.: TP 1, TP 2, TP 3, TP 4, TP 5, TP 6, TP 7, TP 8, TP 9

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

— — —	ROAD (TARMAC)
- - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⌶	CULVERT
⊸	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUIVE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

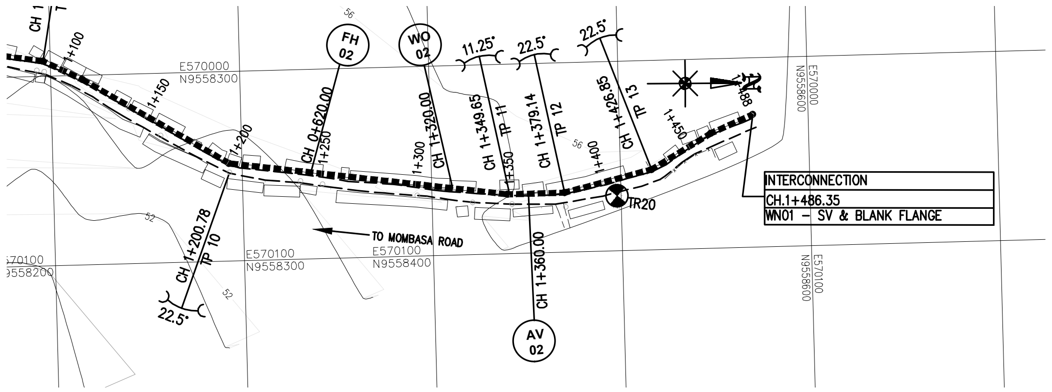
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN01
PLAN AND PROFILE
(CH. 0+000 – CH. 1+1200.00)
SHEET 1 OF 3

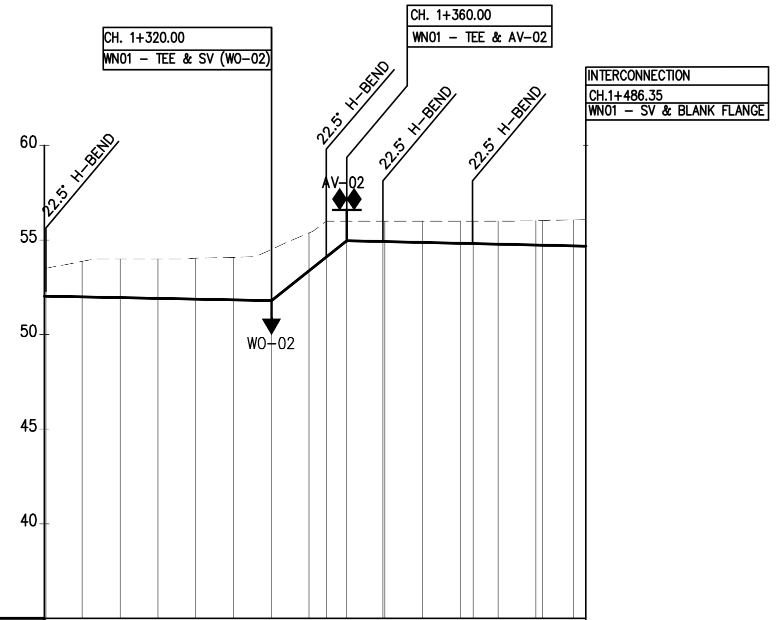
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-033C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-033 — CO REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5														
GEOLOGICAL CONDITION	LOAM SOILS														
EXISTING GROUND LEVEL (m)	53.49	53.88	54.00	54.00	54.03	54.08	54.50	55.38	56.00	56.00	56.00	56.00	56.00	56.03	56.07	56.08
INVERT LEVELS (m)	52.03	51.99	51.95	51.91	51.87	51.83	51.79	53.37	54.96	54.92	54.87	54.83	54.78	54.73	54.69	54.67
CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+486
DEPTH OF INVERT (m)	1.47	1.89	2.05	2.09	2.16	2.25	2.71	2.01	1.04	1.08	1.13	1.17	1.22	1.29	1.38	1.40
SLOPE OF PIPE (%)	-0.20%						7.94%		-0.23%							
REFERENCE PEG No.	TP 10								TP 11	TP 12		TP 13				

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – – –	ROAD (TARMAC)
- - - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, lm INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
⋈	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▪ ▬ ▪ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
♣ ♣	TREES
⊗	TRIAL HOLE
⌒ 30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
⧄ n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUIVE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

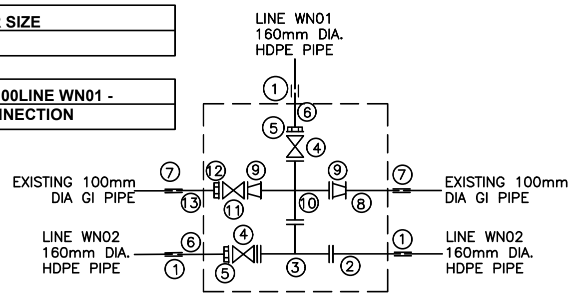
WEST MAINLAND – LINE WN01
PLAN AND PROFILE
(CH. 0+000 – CH. 1+486.35)
SHEET 2 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-034C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-034 CO REV

CHAMBER SIZE
1500x1200

DETAIL

CH. 0+000.00LINE WN01 -
INTERCONNECTION



DESCRIPTION

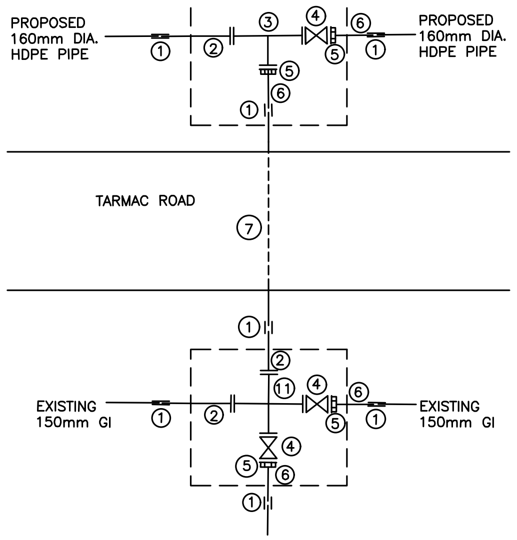
1 No. REQUIRED

① 3 Nos. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. SINGLE FLANGED PIPE WITH PADDLE FLANGE (1.2m).
③ 1 Nos. 150x150mm DIA. FLANGED EQUAL TEE
④ 2 No. 150mm DIA. PN10 SLUICE VALVE
⑤ 2 No. 150mm DIA. FLANGE ADAPTOR
⑥ 2 No. 150mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE (1.2m)
⑦ 2 No. 100mm DIA COUPLINGS
⑧ 1 No. 100mm DIA. 1.2m LONG,SINGLE FLANGED PIPE WITH PADDLE FLANGE
⑨ 2 No. 150x100mm DIA. ALL FLANGED REDUCER
⑩ 1 No. 150x150mm DIA. ALL FLANGED CROSS TEE
⑪ 1 No. 100mm DIA. PN10 SLUICE VALVE
⑫ 1 No. 100mm DIA. FLANGED ADAPTOR
⑬ 1 No. 100mm DIA. 1.2m LONG PLAIN ENDED PIPE WITH PADDLE FLANGE

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+252.83,0+658.01
LINE WN01 - INTERCONNECTION



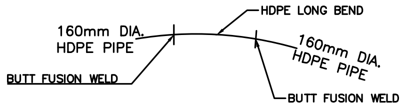
DESCRIPTION

1 No. REQUIRED

① 7 Nos. 160/150mm DIA. STEPPED COUPLING
② 3 No. 150mm DIA. 1.2m LONG SINGLE FLANGED PIPE WITH PADDLE FLANGE.
③ 1 Nos. 150x150mm DIA. ALL FLANGED EQUAL TEE
④ 3 No. 150mm DIA. PN10 SLUICE VALVE
⑤ 4 No. 150mm DIA. FLANGE ADAPTOR
⑥ 4 No. 150mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE (1.2m)
⑦ 1 No. 150mm DIA. 12m LONG ROAD CROSSING (IN 250mm SLEEVE)

DETAIL

CH. 0+256.65, 0+309.72, 0+578.13 &
0+809.62
LINE WN01 - 22.5° H.BEND



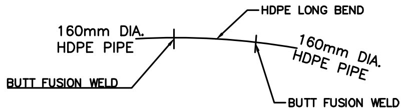
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+031.26, 0+244.43, 0+251.89, 0+300.03, 0+319.07,
0+386.78, 0+412.63, 0+427.90, 0+467.58, 0+744.73,
0+787.72 & 0+832.19
LINE WN01 - 11.25° H.BEND



DESCRIPTION

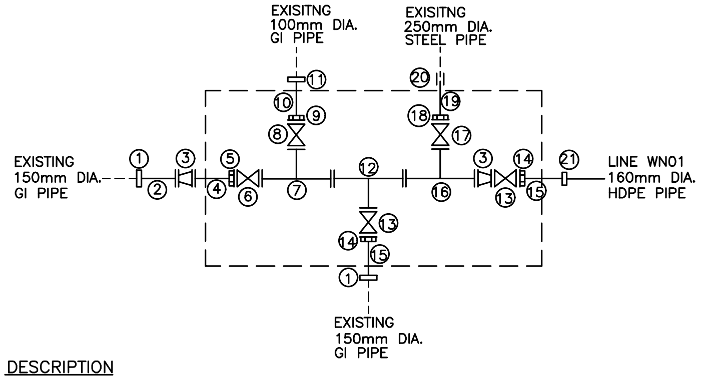
12 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
2100x1500

DETAIL

CH. 0+629.97
LINE WN01 - INTERCONNECTION



DESCRIPTION

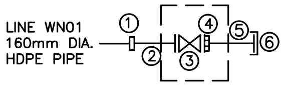
1 No. REQUIRED

① 2 Nos. 150mm DIA. STRAIGHT COUPLING
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG
③ 2 Nos. 250x150mm DIA. ALL FLANGED CONCENTRIC TAPER
④ 1 No. 250mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH PUDDLE FLANGE
⑤ 1 No. 250mm DIA. FLANGE ADAPTOR
⑥ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑦ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
⑧ 1 No. 100mm DIA. ALL FLANGED SLUIVE VALVE
⑨ 1 No. 100mm DIA. FLANGE ADAPTOR
⑩ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑪ 1 No. 100mm DIA. STRAIGHT COUPLING
⑫ 1 No. 250x150mm DIA. ALL FLANGED STEEL TEE
⑬ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑭ 2 Nos. 150mm DIA. FLANGE ADAPTOR
⑮ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑯ 1 No. 250x250mm DIA. ALL FLANGED STEEL TEE
⑰ 1 No. 250mm DIA. ALL FLANGED SLUIVE VALVE
⑱ 1 No. 250mm DIA. FLANGE ADAPTOR
⑲ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑳ 1 No. 250mm DIA. STRAIGHT COUPLING
㉑ 1 No. 160/150mm DIA. STEPPED COUPLING

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+867.63
LINE WN01 - SV & BLANK FLANGE



DESCRIPTION

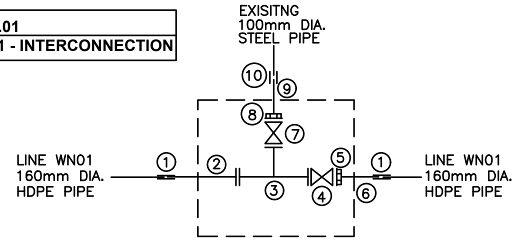
1 No. REQUIRED

① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150mm DIA. ALL FLANGED SLUIVE VALVE
④ 1 No. 150mm DIA. FLANGE ADAPTOR
⑤ 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑥ 1 No. 150mm DIA. BLANK FLANGE

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+658.01
LINE WN01 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. SINGLE FLANGED PIPE WITH PADDLE FLANGE (1.2m).
③ 1 Nos. 150x100mm DIA. FLANGED TEE
④ 1 No. 150mm DIA. PN10 SLUICE VALVE
⑤ 1 No. 150mm DIA. FLANGE ADAPTOR
⑥ 1 No. 150mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE (1.2m)
⑦ 1 No. 100mm DIA SLUICE VALVE PN10
⑧ 1 No. 100mm DIA. FLANGED ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE (1.2m)
⑩ 1 No. 110/100mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

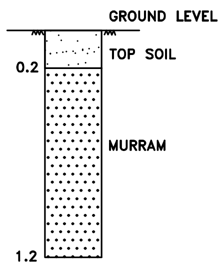
Drawing Title

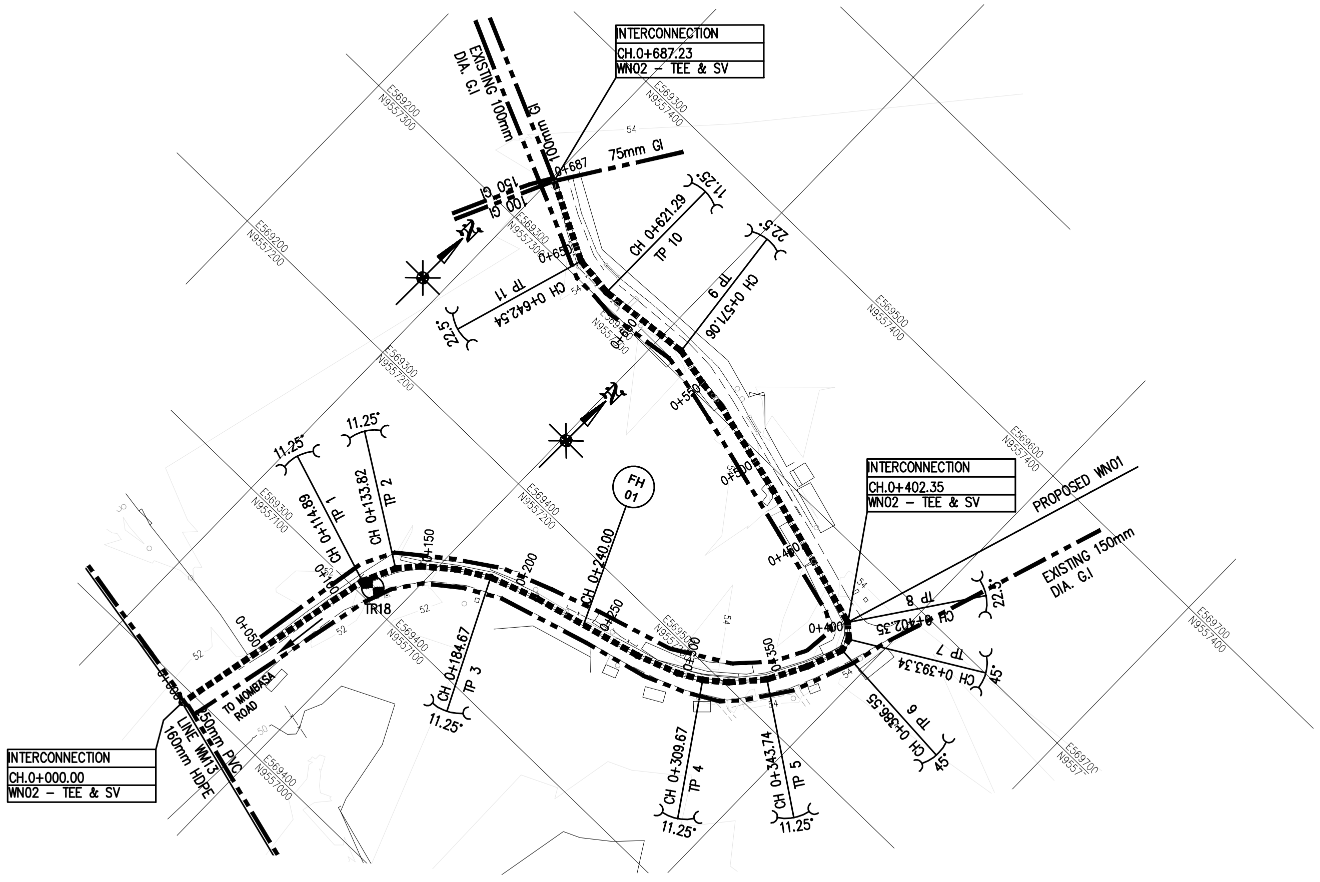
WEST MAINLAND – LINE WN01
PIPE FITTING DETAILS
SHEET 3 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-035CO

C STATUS | DRAWING No. 6000002-W&S-WM-P-035 | CO REV

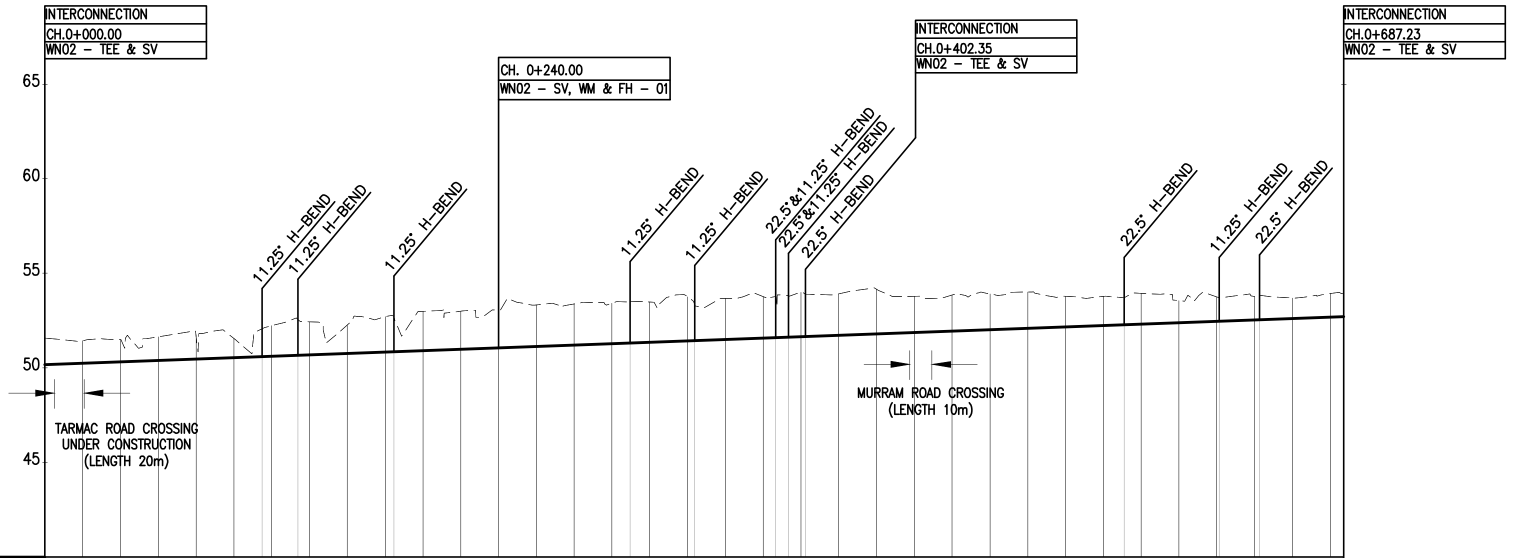
TRIAL HOLE TR18 DETAILS





PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5											
GEOLOGICAL CONDITION	MURRAM											
EXISTING GROUND LEVEL (m)	51.57	51.43	51.49	51.64	51.71	51.55	52.06	52.23	52.55	52.44	52.26	52.71
INVERT LEVELS (m)	50.17	50.25	50.32	50.39	50.47	50.54	50.60	50.62	50.67	50.69	50.76	50.84
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+114.89	0+120.00	0+133.82	0+140.00	0+160.00	0+180.00
DEPTH OF INVERT (m)	1.40	1.18	1.17	1.24	1.24	1.01	1.46	1.61	1.88	1.75	1.49	1.87
SLOPE OF PIPE (%)	0.37%											
REFERENCE PEG NO.							TP 1		TP 2			

TYPE AND SIZE OF PIPE												
GEOLOGICAL CONDITION												
EXISTING GROUND LEVEL (m)	52.72	52.99	53.00	53.06	53.33	53.38	53.48	53.47	53.75	53.27	53.67	53.77
INVERT LEVELS (m)	50.85	50.91	50.98	51.06	51.13	51.20	51.31	51.35	51.43	51.44	51.50	51.57
CHAINAGE (m)	0+184.67	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+309.67	0+320.00	0+340.00	0+343.74	0+360.00	0+380.00
DEPTH OF INVERT (m)	1.86	2.08	2.01	2.00	2.20	2.18	2.16	2.12	2.32	1.83	2.17	2.19
SLOPE OF PIPE (%)												
REFERENCE PEG NO.	TP 3						TP 4			TP 5		

TYPE AND SIZE OF PIPE												
GEOLOGICAL CONDITION												
EXISTING GROUND LEVEL (m)	53.78	53.81	54.00	53.89	53.91	54.15	53.78	53.86	53.91	54.01	53.78	53.77
INVERT LEVELS (m)	51.60	51.62	51.65	51.66	51.72	51.79	51.87	51.94	52.01	52.09	52.16	52.24
CHAINAGE (m)	0+386.55	0+393.34	0+400.00	0+402.35	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00
DEPTH OF INVERT (m)	2.18	2.19	2.35	2.23	2.19	2.35	1.91	1.92	1.89	1.92	1.62	1.53
SLOPE OF PIPE (%)												
REFERENCE PEG NO.	TP 6	TP 7		TP 8								

TYPE AND SIZE OF PIPE										
GEOLOGICAL CONDITION										
EXISTING GROUND LEVEL (m)	53.70	53.94	53.55	53.74	53.70	53.77	53.84	53.70	53.93	53.90
INVERT LEVELS (m)	52.28	52.31	52.38	52.46	52.46	52.53	52.54	52.60	52.68	52.70
CHAINAGE (m)	0+571.06	0+580.00	0+600.00	0+620.00	0+621.29	0+640.00	0+642.54	0+660.00	0+680.00	0+687.23
DEPTH OF INVERT (m)	1.43	1.63	1.17	1.28	1.24	1.24	1.30	1.09	1.25	1.20
SLOPE OF PIPE (%)										
REFERENCE PEG NO.	TP 9				TP 10		TP 11			

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
—— 14 ——	CONTOURS, lm INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
■ ■ ■	PROPOSED WATER MAIN
■ · ■ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN02
PLAN AND PROFILE
(CH. 0+000 – CH. 0+687.23)
SHEET 1 OF 2

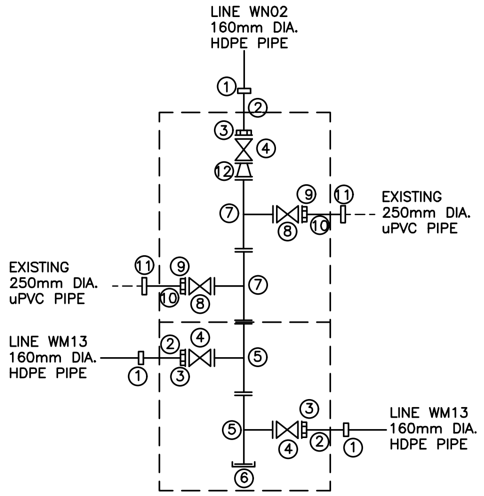
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-036C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-036

CO REV

DETAIL

CHAMBER SIZE
1500x1200 & 1200x1200

CH. 0+000.00
LINE WN02 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

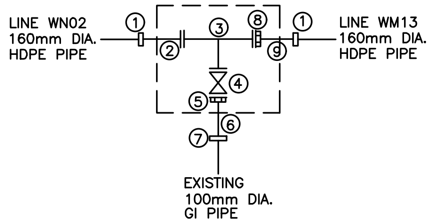
① 3 Nos. 160/150mm DIA. STEPPED COUPLING

② 3 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
③ 3 Nos. 150mm DIA. FLANGE ADAPTOR
④ 3 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 250x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 250mm DIA. BLANK FLANGE
⑦ 2 Nos. 250x250mm DIA. ALL FLANGED STEEL TEE
⑧ 2 Nos. 250mm DIA. ALL FLANGED SLUICE VALVE
⑨ 2 Nos. 250mm DIA. FLANGE ADAPTOR
⑩ 2 Nos. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑪ 2 Nos. 250/250mm DIA. STEPPED COUPLING
⑫ 1 No. 250x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑬ 1 No. 250mm DIA. ALL FLANGED PIPE 2.0m LONG WITH PUDDLE FLANGES.

DETAIL

CHAMBER SIZE
1200x1200

CH. 0+402.35
LINE WN02 - INTERCONNECTION

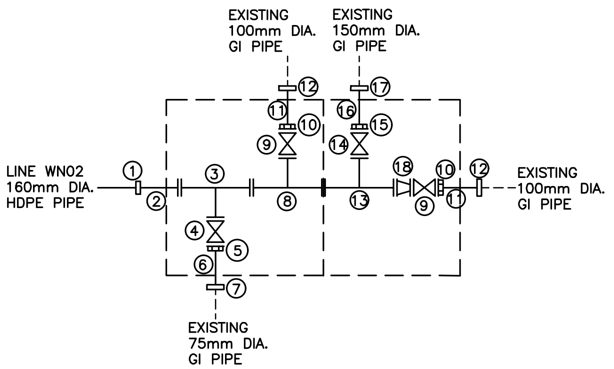


DESCRIPTION
1 No. REQUIRED
① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2M LONG WITH PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 1 No. 100mm DIA. STRAIGHT COUPLING
⑧ 1 No. 100mm DIA. FLANGE ADAPTOR
⑨ 1 No. 100mm DIA. PLAIN ENDED PIPE 1.2M LONG WITH A PUDDLE FLANGE

DETAIL

CHAMBER SIZE
1200x1200 & 1200x1200

CH. 0+687.23
LINE WN02 - INTERCONNECTION

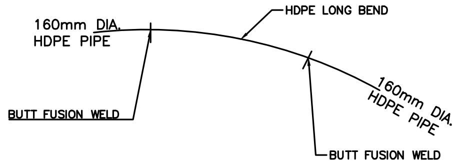


DESCRIPTION
1 No. REQUIRED
① 1 No. 160/150mm DIA. STEPPED COUPLING

② 1 No. 150mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150x80mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 80mm DIA. FLANGE ADAPTOR
⑥ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 1 No. 80/75mm DIA. STEPPED COUPLING
⑧ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
⑨ 2 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑩ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑪ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑫ 2 Nos. 100mm DIA. STRAIGHT COUPLING
⑬ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
⑭ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑮ 1 No. 150mm DIA. FLANGE ADAPTOR
⑯ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑰ 1 No. 150mm DIA. STRAIGHT COUPLING
⑱ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER

DETAIL

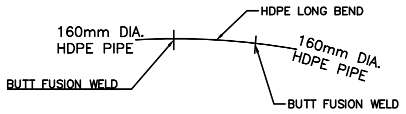
CH. 0+386.55 & 0+393.34
LINE WN02 - 45° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

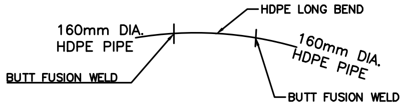
CH. 0+114.89, 0+133.82, 0+184.67, 0+309.67, 0+343.74 & 0+621.29
LINE WN02 - 11.25° H.BEND



DESCRIPTION
6 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+402.35, 0+571.06 & 0+642.54
LINE WN02 - 22.5° H.BEND



DESCRIPTION
3 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

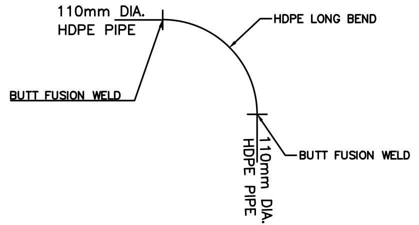
Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WN02
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-037C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-037 · C0 REV

DETAIL

CH. 0+091.95
LINE WN03 - 90° H.BEND



DESCRIPTION

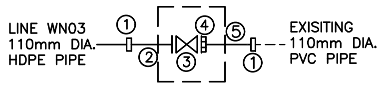
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

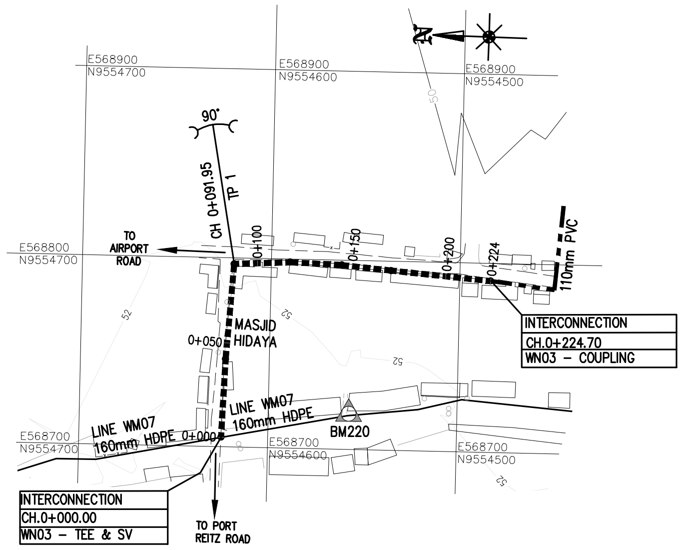
CH. 0+224.70
LINE WM07 - SV



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 100mm DIA. FLANGE ADAPTOR
⑤ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH A PUDDLE FLANGE



PLAN

SCALE 1:2000

BENCHMARK REF No.	COORDINATES EASTING	COORDINATES NORTHING	ELEVATION
BM220	568,718.58	9, 554,557.54	52.37

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

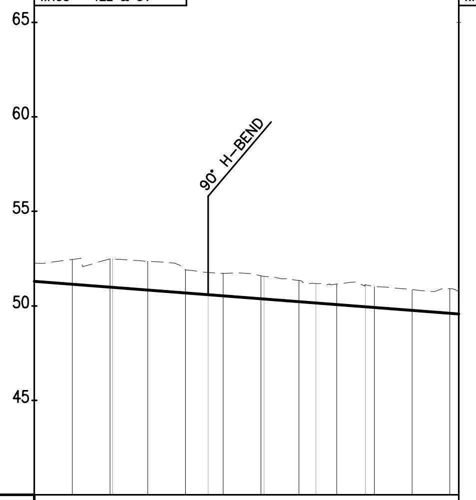
- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⌶	CULVERT
—	GATE
□	BUILDINGS
━ ━ ━	PROPOSED WATER MAIN
━·━·━	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
∘ ∘	TREES
⊗	TRIAL HOLE
30°	BEND (V) WITH ANGLE INDICATED
n	HORIZONTAL BEND (H) OR VERTICAL PIPELINE GRADIENT WITH SLOPE
——	PERIMETER WALL DIRECTION (SLOPE MIN. OR 1 IN n)
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

INTERCONNECTION
CH.0+000.00
WN03 – TEE & SV

INTERCONNECTION
CH.0+224.70
WN03 – SV



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5																			
GEOLOGICAL CONDITION	SANDY LOAM SOILS																			
EXISTING GROUND LEVEL (m)	52.26	52.45	52.49	52.49	52.36	51.91	51.76	51.72	51.59	51.56	51.34	51.18	51.15	51.11	51.03	50.86	50.91	50.80
INVERT LEVELS (m)	51.30	51.15	51.00	50.99	50.84	50.69	50.60	50.53	50.38	50.37	50.23	50.16	50.07	49.95	49.92	49.76	49.61	49.57
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+041.34	0+060.00	0+080.00	0+091.95	0+100.00	0+120.00	0+121.65	0+140.00	0+149.05	0+160.00	0+175.25	0+180.00	0+200.00	0+220.00	0+224.70
DEPTH OF INVERT (m)	0.96	1.30	1.49	1.51	1.52	1.22	1.17	1.19	1.21	1.20	1.12	1.02	1.08	1.16	1.11	1.09	1.30	1.23
SLOPE OF PIPE (%)	-0.77%																	
REFERENCE PEG NO.	TP 1																	

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

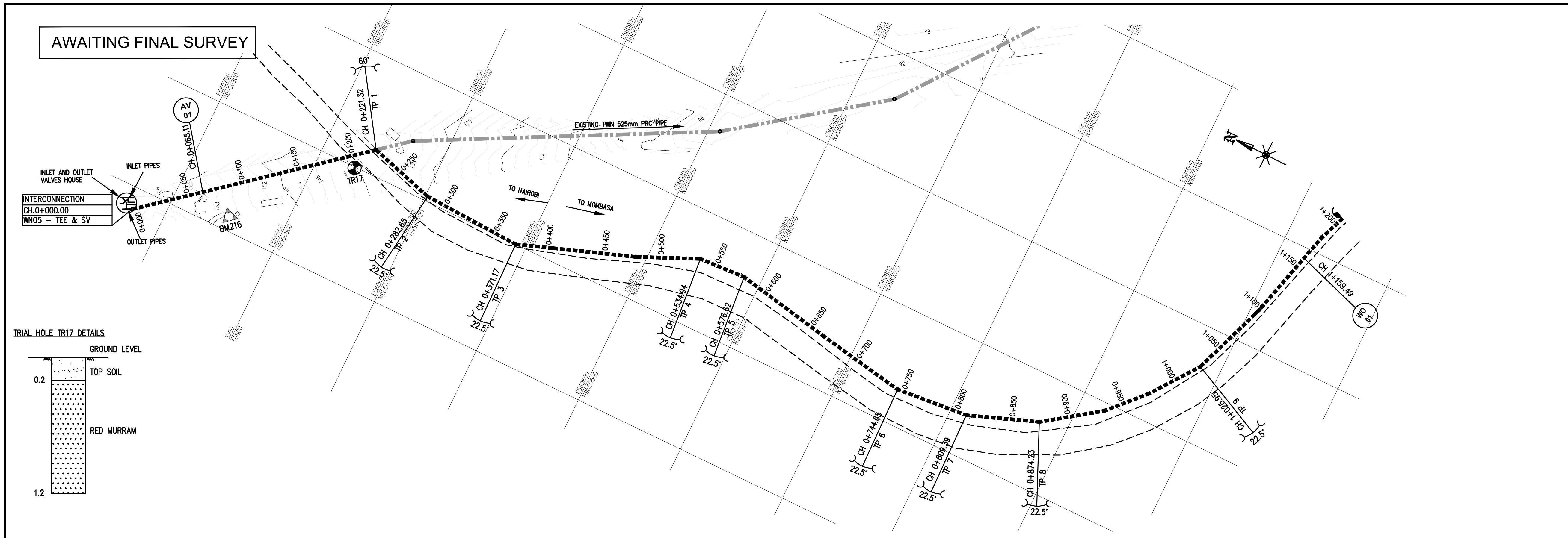
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN03
PLAN AND PROFILE
(CH. 0+000 – CH. 0+224.70)
SHEET 1 OF 1

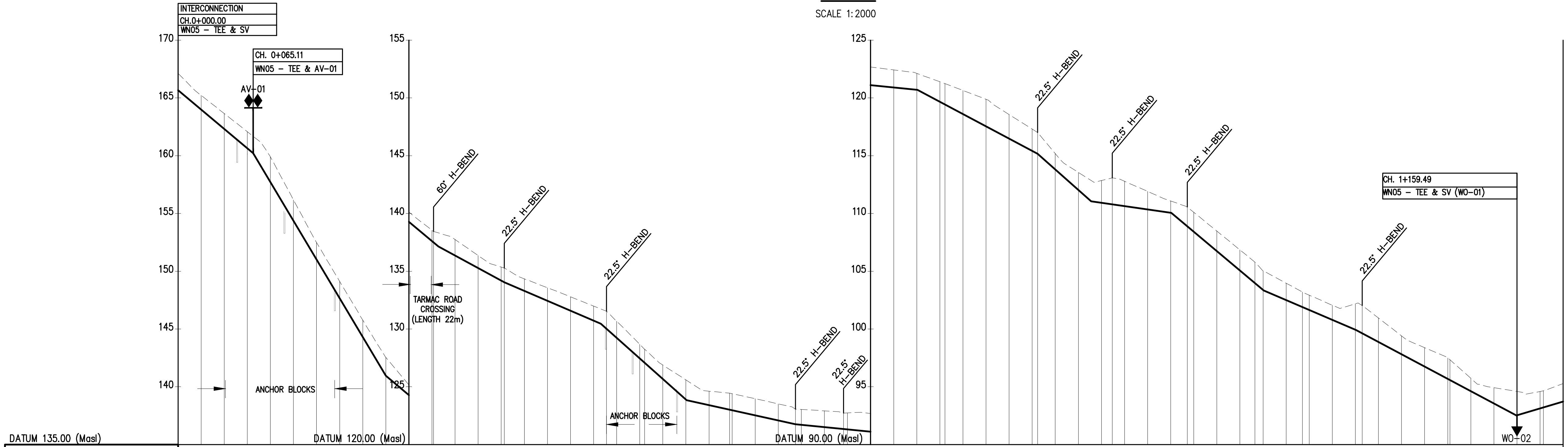
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-038C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-038 C0 REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



TYPE AND SIZE OF PIPE: DN 800 FERROUS PIPE TO PN 16

GEOLOGICAL CONDITION: MURRAM

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380
EXISTING GROUND LEVEL (m)	167.13	165.23	163.65	162.08	159.91	156.18	152.48	149.13	145.77	142.54	140.16	138.54	137.74	136.37	135.36	134.34	133.58	132.79	131.98	130.68
INVERT LEVELS (m)	165.67	164.00	162.33	160.65	157.72	154.37	151.01	147.66	144.30	140.94	139.27	137.60	136.36	135.28	134.20	133.31	132.44	131.58	130.72	129.23
DEPTH OF INVERT (m)	1.45	1.23	1.33	1.43	2.18	1.81	1.46	1.47	1.47	1.60	0.89	0.94	1.39	1.09	1.17	1.04	1.13	1.21	1.26	1.45
SLOPE OF PIPE (%)			-8.37%				-16.78%				-8.35%			-5.41%			-4.30%			
REFERENCE PEG No.												TP 1			TP 2					TP 3

CHAINAGES (M)	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780
EXISTING GROUND LEVEL (m)	128.67	126.88	125.59	124.62	124.41	123.96	123.52	123.03	122.92	122.73	122.68	122.43	122.12	121.40	120.65	119.89	118.56	117.31	115.18	113.56
INVERT LEVELS (m)	127.44	125.66	123.88	123.40	122.96	122.52	122.09	121.71	121.51	121.30	121.10	120.90	120.70	119.66	118.60	117.54	116.48	115.42	113.81	112.04
DEPTH OF INVERT (m)	1.23	1.22	1.72	1.22	1.44	1.44	1.43	1.33	1.41	1.43	1.58	1.53	1.42	1.74	2.05	2.35	2.09	1.89	1.37	1.52
SLOPE OF PIPE (%)	-8.92%					-2.19%					-1.01%					-5.31%				-8.86%
REFERENCE PEG No.								TP 4		TP 5								TP 6		

CHAINAGES (M)	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
EXISTING GROUND LEVEL (m)	112.85	112.79	111.91	111.08	110.10	108.47	106.85	105.04	103.97	102.93	102.05	102.19	100.95	99.41	98.38	97.49	95.73	94.91	94.59	94.59	95.28
INVERT LEVELS (m)	110.92	110.64	110.35	110.06	108.42	106.74	105.06	103.38	102.50	101.65	100.80	99.94	98.88	97.82	96.75	95.68	94.62	93.55	92.53	93.12	93.71
DEPTH OF INVERT (m)	1.92	2.15	1.56	1.02	1.69	1.74	1.79	1.66	1.47	1.28	1.26	2.24	2.07	1.59	1.63	1.81	1.12	1.36	2.07	1.47	1.57
SLOPE OF PIPE (%)			-1.44%			-8.40%					-4.26%						-5.33%			2.96%	
REFERENCE PEG No.	TP 7				TP 8							TP 9									

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM216 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM216	560,612.63	9, 560,847.94	156.95

LEGEND:

	ROAD (TARMAC)
	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
	ELECTRIC POST
	CULVERT
	GATE
	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

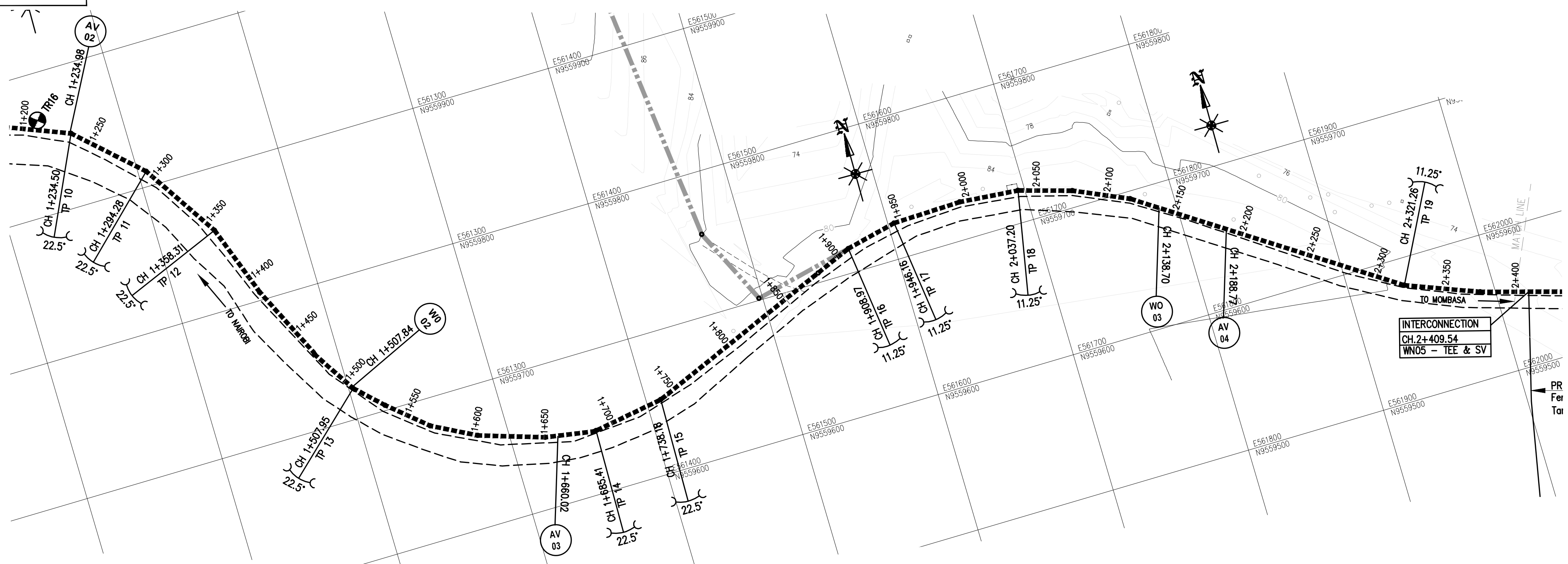
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 10

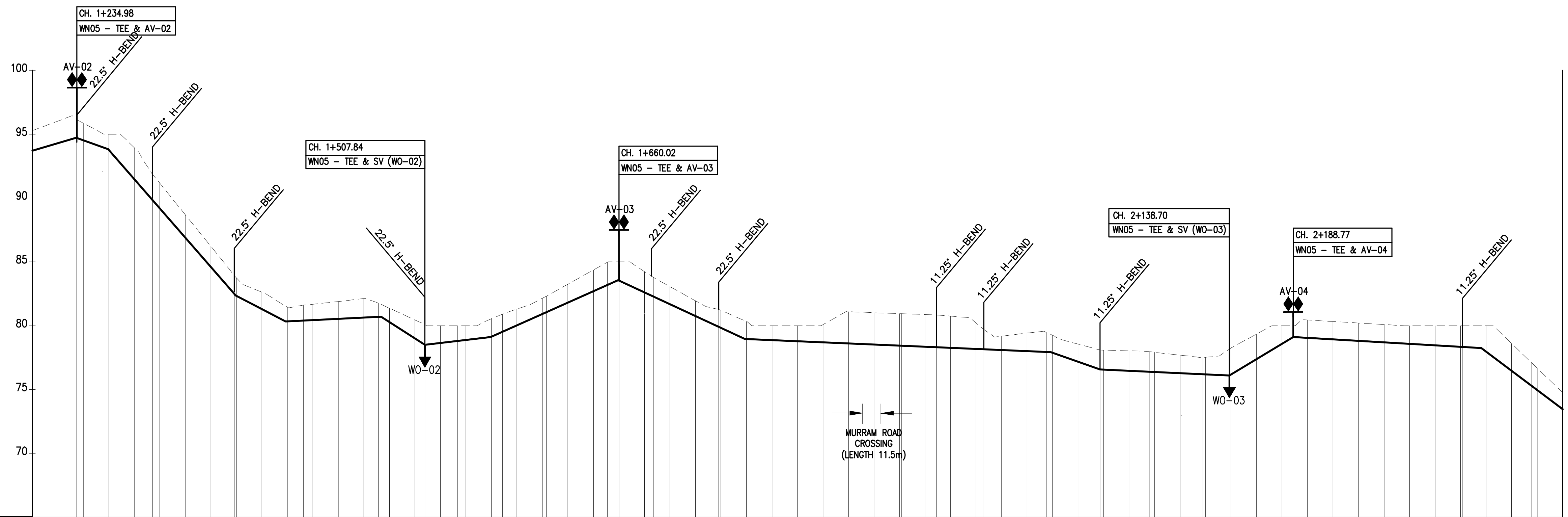
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-039C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-039	CO REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 65.00 (Masl)

TYPE AND SIZE OF PIPE: DN 800 FERROUS PIPE TO PN 16

GEOLOGICAL CONDITION: SAND SOILS

CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+500
EXISTING GROUND LEVEL (m)	95.28	96.03	95.87	95.00	93.95	91.16	88.69	86.22	83.75	82.63	81.45	81.67	81.90	82.12	81.38	80.45
INVERT LEVELS (m)	93.71	94.30	94.53	93.77	91.48	89.18	86.89	84.60	82.34	81.31	80.35	80.44	80.54	80.64	80.30	79.02
DEPTH OF INVERT (m)	1.57	1.73	1.34	1.23	2.47	1.97	1.80	1.62	1.40	1.32	1.11	1.22	1.35	1.48	1.08	1.43

CHAINAGES (M)	1+520	1+540	1+560	1+580	1+600	1+620	1+640	1+660	1+680	1+700	1+720	1+740	1+760	1+780	1+800	1+820
EXISTING GROUND LEVEL (m)	80.00	80.00	80.54	81.31	82.15	83.25	84.37	85.00	84.25	83.06	81.95	81.20	80.33	80.00	80.00	80.08
INVERT LEVELS (m)	78.65	78.88	79.13	80.02	80.92	81.81	82.71	83.54	82.62	81.69	80.76	79.83	78.96	78.87	78.79	78.70
DEPTH OF INVERT (m)	1.35	1.12	1.41	1.28	1.23	1.44	1.66	1.46	1.63	1.37	1.19	1.37	1.38	1.13	1.21	1.38

CHAINAGES (M)	1+840	1+860	1+880	1+900	1+920	1+940	1+960	1+980	2+000	2+020	2+040	2+060	2+080	2+100	2+120	2+140
EXISTING GROUND LEVEL (m)	81.10	81.02	80.95	80.88	80.75	80.22	79.18	79.42	79.25	78.56	78.09	78.04	77.92	77.69	77.53	78.26
INVERT LEVELS (m)	78.61	78.53	78.44	78.36	78.27	78.19	78.10	78.01	77.89	77.18	76.56	76.46	76.37	76.28	76.19	76.18
DEPTH OF INVERT (m)	2.48	2.49	2.51	2.52	2.48	2.04	1.08	1.41	1.37	1.38	1.53	1.57	1.55	1.41	1.34	2.07

CHAINAGES (M)	2+160	2+180	2+200	2+220	2+240	2+260	2+280	2+300	2+320	2+340	2+360	2+380	2+400
EXISTING GROUND LEVEL (m)	79.35	80.00	80.45	80.33	80.21	80.09	80.00	80.00	80.00	80.00	78.60	76.67	74.77
INVERT LEVELS (m)	77.39	78.59	79.05	78.94	78.82	78.70	78.59	78.47	78.35	77.98	76.47	74.96	73.45
DEPTH OF INVERT (m)	1.96	1.41	1.39	1.39	1.39	1.39	1.41	1.53	1.65	2.02	2.13	1.71	1.31

SLOPE OF PIPE (%): 2.96% | -3.61% | -11.46% | -5.18% | 0.50% | -6.39% | 1.15% | 4.48% | -4.63% | -0.43% | -3.55% | -0.46% | 6.02% | -0.58% | -7.54%

REFERENCE PEG No.: TP 10 | TP 11 | TP 12 | TP 13 | TP 14 | TP 15 | TP 16 | TP 17 | TP 18 | TP 19

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

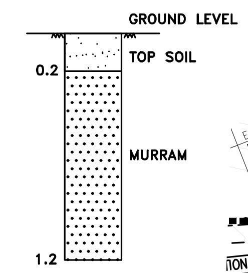
Drawing Title

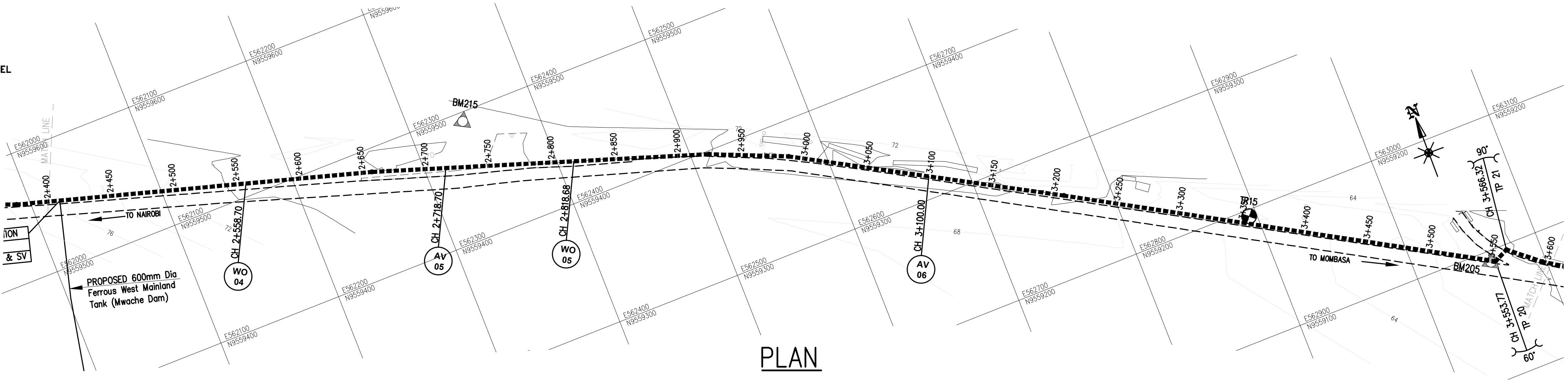
WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 1+200 – CH. 2+400)
SHEET 2 OF 10

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-040C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-040	CO REV

AWAITING FINAL SURVEY

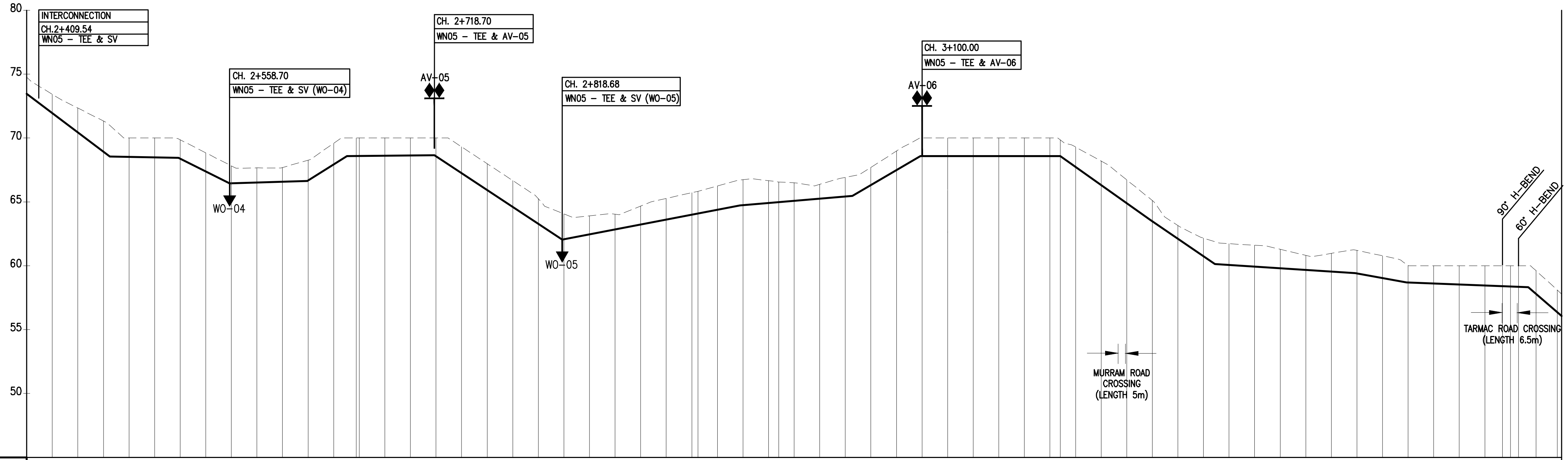
TRIAL HOLE TR15 DETAILS





PLAN

SCALE 1:2000



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE: DN 800 FERROUS PIPE TO PN 16

GEOLOGICAL CONDITION: SAND SOILS

CHAINAGES (M)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)
2+400	74.77	73.45	1.31
2+420	73.42	71.95	1.47
2+440	72.34	70.44	1.90
2+460	71.33	68.93	2.40
2+480	70.00	68.52	1.48
2+500	70.00	68.48	1.52
2+520	69.86	68.38	1.48
2+540	68.84	67.38	1.46
2+560	67.82	66.45	1.37
2+580	67.66	66.51	1.15
2+600	67.69	66.58	1.11
2+620	68.27	66.68	1.58
2+640	69.59	67.94	1.65
2+660	70.00	68.60	1.40
2+680	70.00	68.61	1.39
2+700	70.00	68.63	1.37
2+720	70.00	68.56	1.44
2+740	69.31	67.24	2.07
2+760	67.99	65.92	2.07
2+780	66.67	64.60	2.07
2+800	65.24	63.29	1.95
2+820	64.06	62.08	1.99
2+840	63.90	62.46	1.44
2+860	64.03	62.85	1.19
2+880	64.68	63.23	1.45
2+900	65.27	63.61	1.66
2+920	65.72	64.00	1.72
2+940	66.25	64.38	1.87
2+960	66.74	64.74	2.00
2+980	66.65	64.91	1.74
3+000	66.49	65.08	1.41
3+020	66.37	65.25	1.12
3+040	66.92	65.42	1.49
3+060	67.70	66.32	1.38
3+080	68.98	67.49	1.49
3+100	70.00	68.58	1.42
3+120	70.00	68.58	1.42
3+140	70.00	68.58	1.42
3+160	70.00	68.58	1.42
3+180	70.00	68.58	1.42
3+200	70.00	68.58	1.42
3+220	69.30	67.73	1.57
3+240	68.20	66.31	1.89
3+260	66.72	64.89	1.83
3+280	65.11	63.48	1.63
3+300	63.15	62.11	1.05
3+320	62.16	60.74	1.42
3+340	61.72	60.06	1.67
3+360	61.61	59.93	1.68
3+380	61.29	59.80	1.49
3+400	60.82	59.67	1.14
3+420	60.97	59.55	1.42
3+440	61.20	59.40	1.80
3+460	60.78	59.04	1.75
3+480	60.03	58.69	1.35
3+500	60.00	58.61	1.39
3+520	60.00	58.53	1.47
3+540	60.00	58.45	1.55
3+560	60.00	58.37	1.63
3+580	59.61	57.80	1.81
3+600	57.79	56.08	1.71

SLOPE OF PIPE (%): -7.54% | -0.20% | -5.00% | 0.32% | 6.29% | 0.08% | -6.59% | 1.92% | 0.86% | 5.86% | -0.00% | -7.10% | -6.84% | -0.64% | -1.84% | -0.40% | -8.61%

REFERENCE PEG No.: TP 20, TP 21

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM205 & BM215 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM205	563,059.00	9, 559091.29	60.94
BM215	562,342.21	9, 559,492.76	72.28

LEGEND:

- ROAD (TARMAC)
- ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- 14 CONTOURS, Im INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- SV SLUICE VALVE
- FH FIRE HYDRANT
- WO-01 WASHOUT VALVE & No.
- AV-01 COMBINATION AIR VALVE & No.
- BENCHMARK (CONCRETE WITH IRON

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

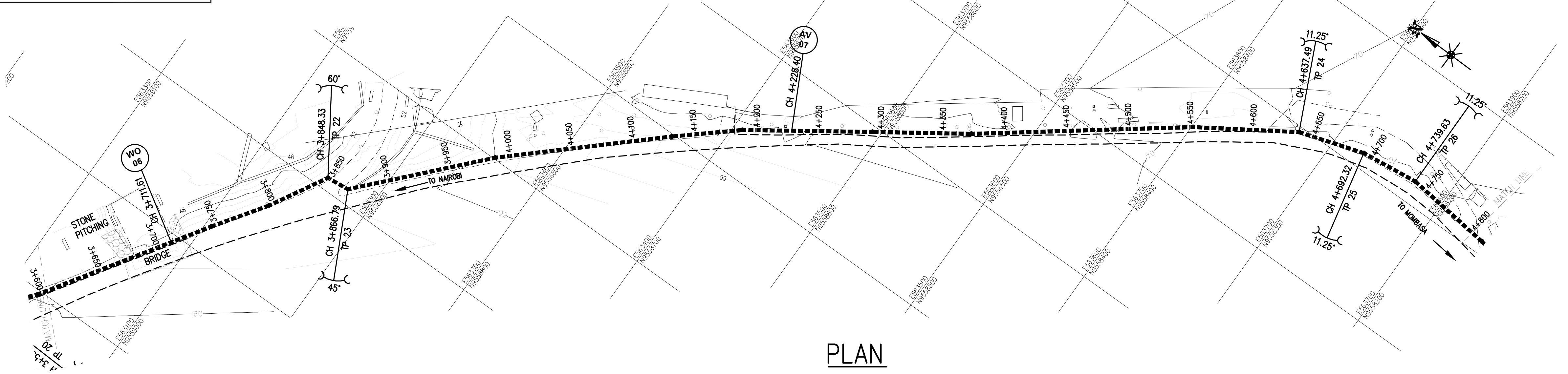
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 2+400 – CH. 3+600)
SHEET 3 OF 10

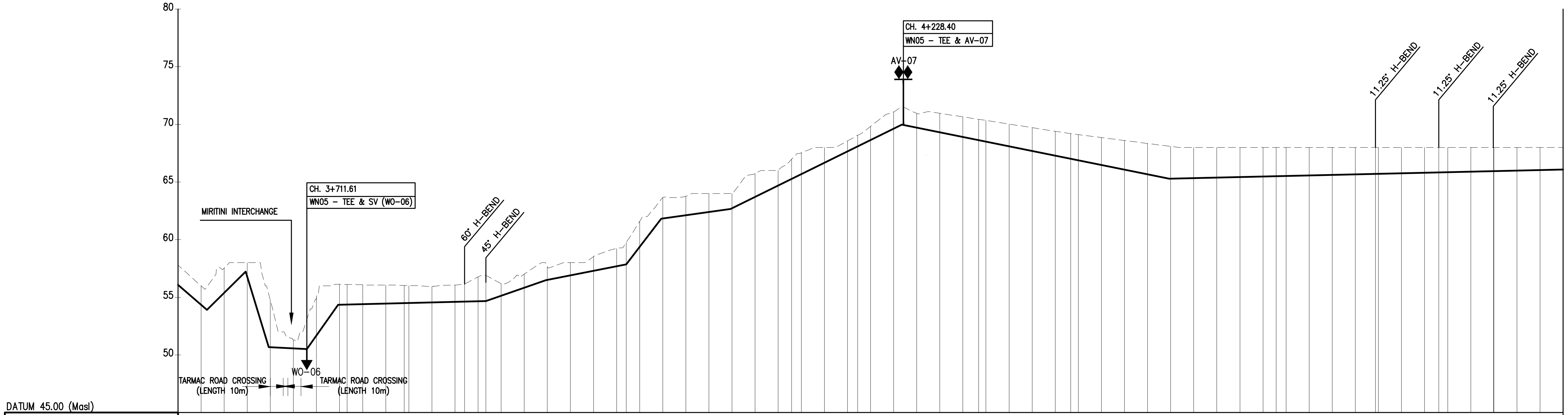
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-041C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-041 C0 REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



TYPE AND SIZE OF PIPE	DN 800 FERROUS PIPE TO PN 16																			
GEOLOGICAL CONDITION	SAND SOILS																			
EXISTING GROUND LEVEL (m)	57.79	56.00	57.53	58.00	54.76	51.30	54.98	56.13	56.08	56.07	56.01	55.95	56.06	56.77	56.18	57.01	57.65	58.00	58.54	59.23
INVERT LEVELS (m)	56.08	54.35	55.38	56.80	50.67	50.56	51.70	54.36	54.41	54.46	54.51	54.56	54.61	54.66	55.14	55.83	56.50	56.90	57.30	57.70
CHAINAGES (M)	3+600	3+620	3+640	3+660	3+680	3+700	3+720	3+740	3+760	3+780	3+800	3+820	3+840	3+860	3+880	3+900	3+920	3+940	3+960	3+980
DEPTH OF INVERT (m)	1.71	1.64	2.14	1.20	4.09	0.74	3.28	1.77	1.68	1.61	1.51	1.39	1.45	2.11	1.04	1.18	1.15	1.10	1.24	1.54
SLOPE OF PIPE (%)	-8.61%	9.89%		-32.86%	-0.51%		14.20%	0.25%						3.46%			1.99%			13.01%
REFERENCE PEG No.													TP 22	TP 23						

TYPE AND SIZE OF PIPE																				
GEOLOGICAL CONDITION																				
EXISTING GROUND LEVEL (m)	61.59	63.66	63.76	64.00	64.00	65.74	66.02	67.54	68.00	68.56	69.82	71.08	70.96	70.96	70.65	70.34	70.03	69.72	69.40	69.11
INVERT LEVELS (m)	59.38	61.83	62.11	62.39	62.72	63.71	64.69	65.68	66.67	67.65	68.64	69.63	69.71	69.31	68.91	68.50	68.10	67.69	67.29	66.88
CHAINAGES (M)	4+000	4+020	4+040	4+060	4+080	4+100	4+120	4+140	4+160	4+180	4+200	4+220	4+240	4+260	4+280	4+300	4+320	4+340	4+360	4+380
DEPTH OF INVERT (m)	2.21	1.83	1.65	1.61	1.28	2.03	1.33	1.86	1.33	0.91	1.18	1.46	1.24	1.65	1.75	1.84	1.93	2.02	2.11	2.22
SLOPE OF PIPE (%)		1.41%			4.93%							-2.02%								
REFERENCE PEG No.																				

TYPE AND SIZE OF PIPE																					
GEOLOGICAL CONDITION																					
EXISTING GROUND LEVEL (m)	68.85	68.60	68.35	68.09	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00
INVERT LEVELS (m)	66.48	66.08	65.67	65.30	65.34	65.39	65.43	65.48	65.53	65.57	65.62	65.66	65.71	65.76	65.80	65.85	65.89	65.94	65.99	66.03	66.08
CHAINAGES (M)	4+400	4+420	4+440	4+460	4+480	4+500	4+520	4+540	4+560	4+580	4+600	4+620	4+640	4+660	4+680	4+700	4+720	4+740	4+760	4+780	4+800
DEPTH OF INVERT (m)	2.37	2.53	2.68	2.80	2.66	2.61	2.57	2.52	2.47	2.43	2.38	2.34	2.29	2.24	2.20	2.15	2.11	2.06	2.01	1.97	1.92
SLOPE OF PIPE (%)				0.23%																	
REFERENCE PEG No.													TP 24			TP 25		TP 26			

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - - -	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
— 14 —	CONTOURS, 1m INTERVAL
○	ELECTRIC POST
)–(	CULVERT
⊢	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
∘ ∘	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

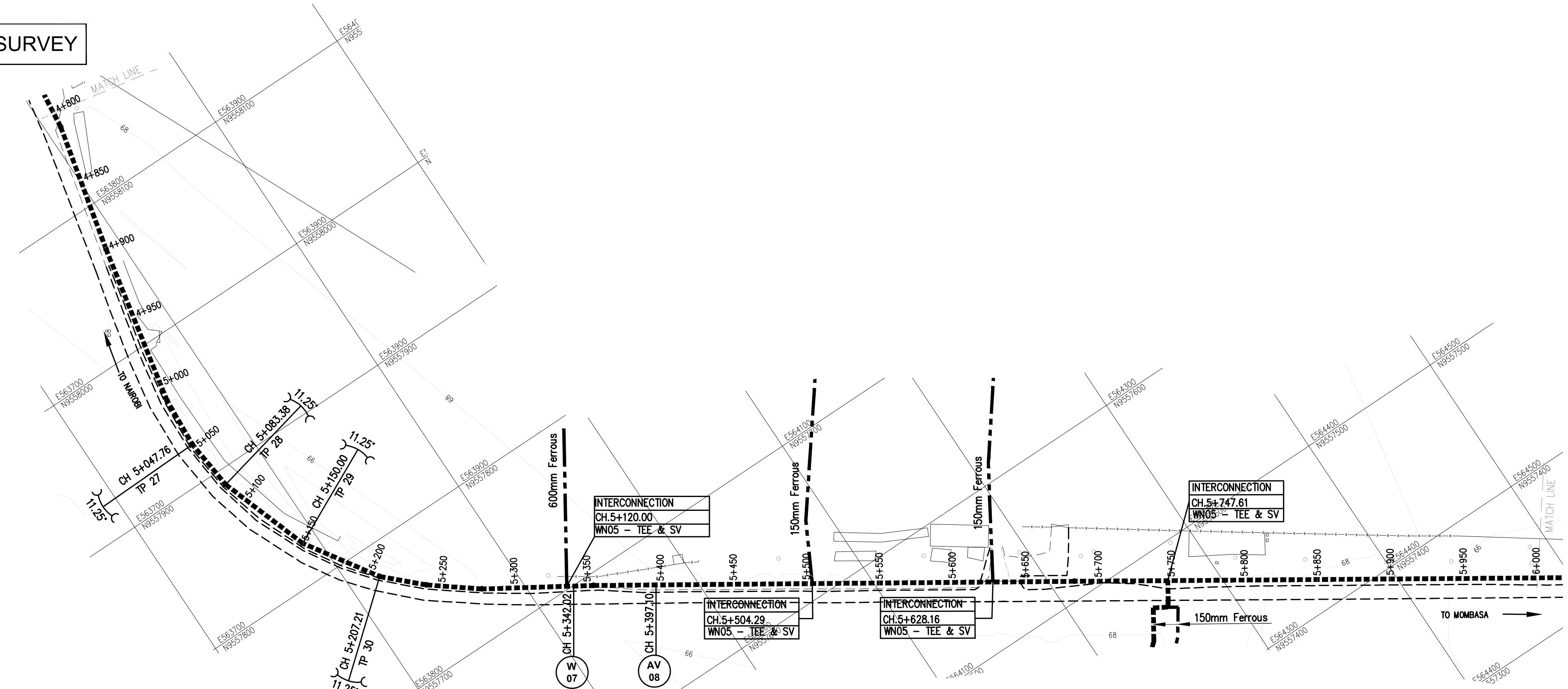
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 03+600 – CH. 4+800)
SHEET 4 OF 10

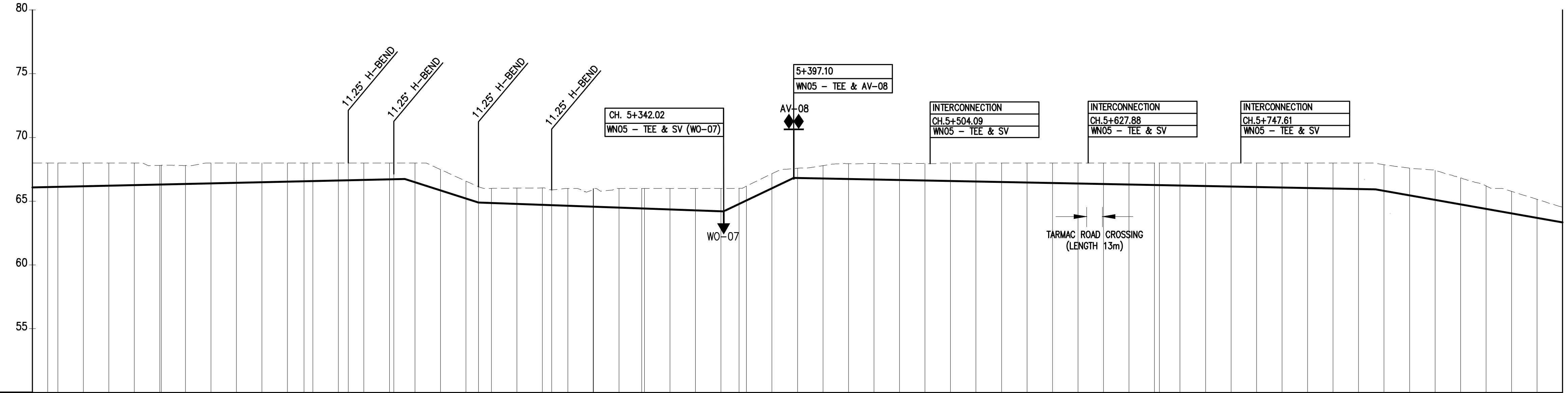
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-042C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-042 C0 REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 50.00 (Masl)

TYPE AND SIZE OF PIPE: DN 800 FERROUS PIPE TO PN 16 (4+800 – 5+750); DN 600 FERROUS PIPE TO PN 16 (5+750 – 6+000)

GEOLOGICAL CONDITION: SAND SOILS

EXISTING GROUND LEVEL (m)	68.00	68.00	68.00	68.00	68.00	67.81	67.81	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00
INVERT LEVELS (m)	66.08	66.12	66.17	66.21	66.26	66.31	66.35	66.40	66.44	66.49	66.54	66.58	66.63	66.67	66.72
CHAINAGES (M)	4+800	4+820	4+840	4+860	4+880	4+900	4+920	4+940	4+960	4+980	5+000	5+020	5+040	5+060	5+080
DEPTH OF INVERT (m)	1.92	1.88	1.83	1.79	1.74	1.51	1.45	1.60	1.56	1.51	1.46	1.42	1.37	1.33	1.28

EXISTING GROUND LEVEL (m)	68.00	67.49	66.58	66.01	66.02	66.04	66.00	66.00	66.00	66.00	66.00	66.00	66.00	66.19	67.15
INVERT LEVELS (m)	66.50	65.86	65.22	64.87	64.79	64.72	64.65	64.58	64.50	64.43	64.36	64.29	64.21	65.06	66.01
CHAINAGES (M)	5+100	5+120	5+140	5+160	5+180	5+200	5+220	5+240	5+260	5+280	5+300	5+320	5+340	5+360	5+380
DEPTH OF INVERT (m)	1.50	1.63	1.36	1.14	1.23	1.32	1.35	1.42	1.50	1.57	1.64	1.71	1.79	1.13	1.14

EXISTING GROUND LEVEL (m)	67.58	67.80	67.95	67.96	67.94	67.96	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00
INVERT LEVELS (m)	66.82	66.78	66.74	66.70	66.66	66.62	66.59	66.55	66.51	66.47	66.43	66.39	66.35	66.31	66.27
CHAINAGES (M)	5+400	5+420	5+440	5+460	5+480	5+500	5+520	5+540	5+560	5+580	5+600	5+620	5+640	5+660	5+680
DEPTH OF INVERT (m)	0.76	1.01	1.21	1.26	1.27	1.33	1.41	1.45	1.49	1.53	1.57	1.61	1.65	1.69	1.73

EXISTING GROUND LEVEL (m)	68.00	68.00	68.00	68.00	68.00	68.00	68.00	68.00	67.87	67.59	67.42	66.83	66.20	65.77	65.14	64.54
INVERT LEVELS (m)	66.23	66.19	66.16	66.12	66.08	66.04	66.00	65.96	65.82	65.46	65.11	64.75	64.40	64.04	63.69	63.34
CHAINAGES (M)	5+700	5+720	5+740	5+760	5+780	5+800	5+820	5+840	5+860	5+880	5+900	5+920	5+940	5+960	5+980	6+000
DEPTH OF INVERT (m)	1.77	1.81	1.84	1.88	1.92	1.96	2.00	2.04	2.05	2.13	2.31	2.08	1.80	1.73	1.45	1.21

SLOPE OF PIPE (%): 0.23% (4+800 – 5+100); −3.19% (5+100 – 5+140); −0.36% (5+140 – 5+340); 4.76% (5+340 – 5+400); −0.20% (5+400 – 5+860); −1.77% (5+860 – 6+000)

REFERENCE PEG No.: TP 27; TP 28; TP 29; TP 30; TP 48

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

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LEGEND:

– – – –	ROAD (TARMAC)
– – – –	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
⋈	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ ▪ ▬ ▪	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

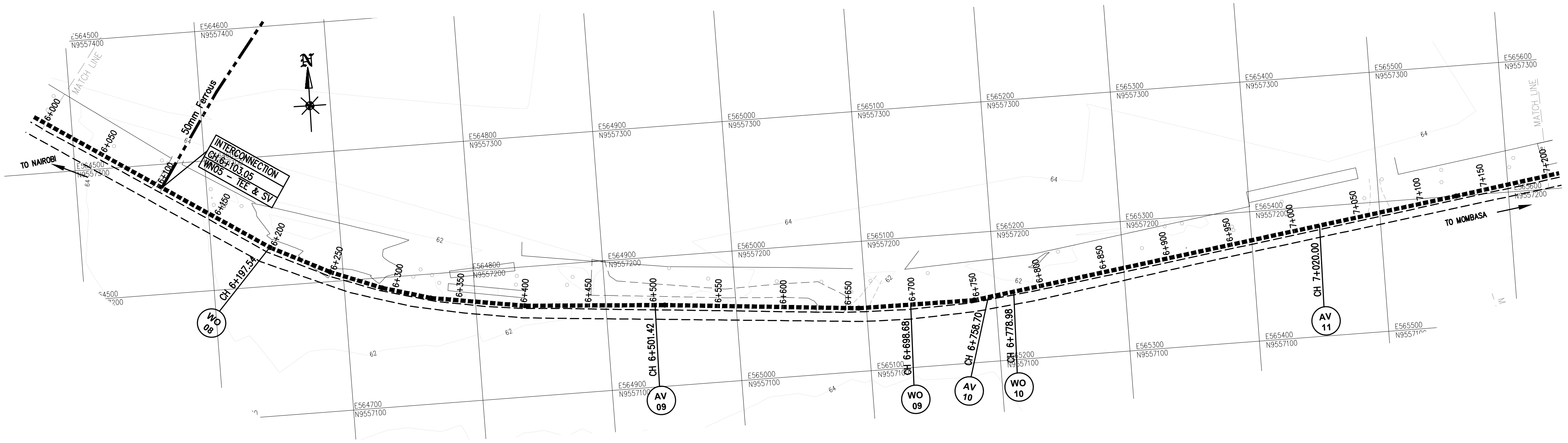
Drawing Title

WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 4+800 – CH. 6+000)
SHEET 5 OF 10

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-043C0

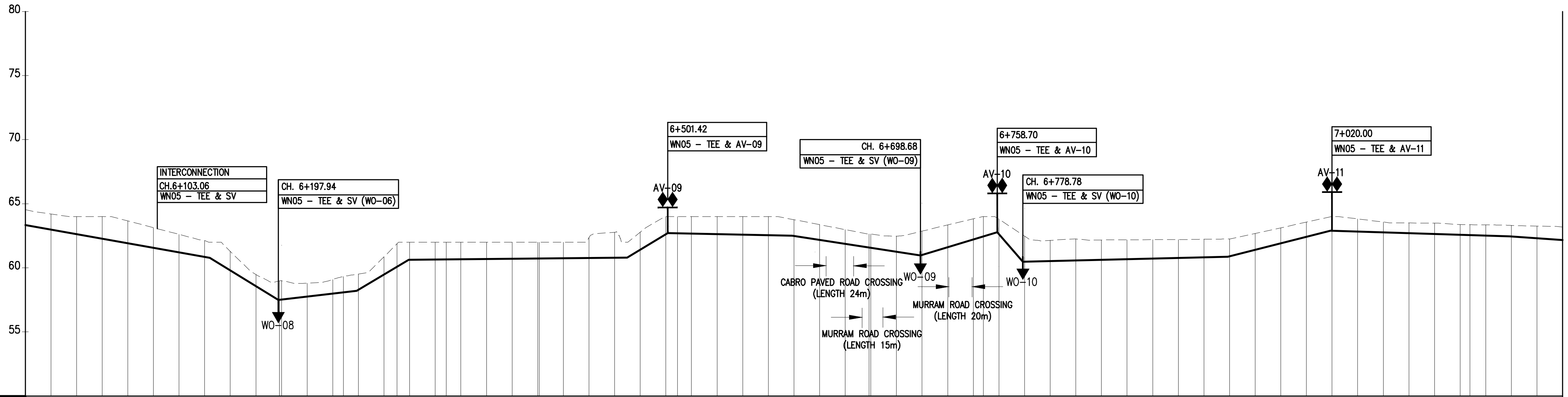
C STATUS | DRAWING No. 6000002-W&S-WM-P-043 | C0 REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 50.00 (Masl)

TYPE AND SIZE OF PIPE	DN 600 FERROUS PIPE TO PN 16														
GEOLOGICAL CONDITION	SAND SOILS														
EXISTING GROUND LEVEL (m)	64.54	64.20	64.00	64.00	63.66	63.14	62.61	62.13	61.29	59.47	59.00	58.80	59.09	59.51	60.87
INVERT LEVELS (m)	63.34	62.98	62.63	62.27	61.92	61.56	61.21	60.85	59.80	58.57	57.52	57.76	57.99	58.29	59.48
CHAINAGES (M)	6+000	6+020	6+040	6+060	6+080	6+100	6+120	6+140	6+160	6+180	6+200	6+220	6+240	6+260	6+280
DEPTH OF INVERT (m)	1.21	1.22	1.37	1.73	1.74	1.57	1.40	1.28	1.48	0.90	1.48	1.04	1.09	1.22	1.38
SLOPE OF PIPE (%)	-1.77%							-6.14%			1.17%			5.97%	
REFERENCE PEG No.															

EXISTING GROUND LEVEL (m)	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.35	62.77	62.78	64.00	64.00	64.00	64.00	64.00
INVERT LEVELS (m)	60.63	60.65	60.67	60.69	60.71	60.73	60.75	60.77	60.79	61.42	62.63	62.67	62.63	62.59	62.54
CHAINAGES (M)	6+300	6+320	6+340	6+360	6+380	6+400	6+420	6+440	6+460	6+480	6+500	6+520	6+540	6+560	6+580
DEPTH OF INVERT (m)	1.37	1.35	1.33	1.31	1.29	1.27	1.25	1.58	1.98	1.37	1.37	1.33	1.37	1.41	1.46
SLOPE OF PIPE (%)	0.10%									6.04%	-0.22%				
REFERENCE PEG No.															

EXISTING GROUND LEVEL (m)	63.76	63.37	62.98	62.64	62.47	62.86	63.34	63.83	63.79	62.47	62.14	62.25	62.18	62.19	62.20
INVERT LEVELS (m)	62.48	62.17	61.87	61.56	61.26	61.01	61.61	62.22	62.63	60.47	60.52	60.57	60.62	60.67	60.72
CHAINAGES (M)	6+600	6+620	6+640	6+660	6+680	6+700	6+720	6+740	6+760	6+780	6+800	6+820	6+840	6+860	6+880
DEPTH OF INVERT (m)	1.28	1.20	1.11	1.08	1.22	1.85	1.73	1.61	1.16	2.00	1.62	1.67	1.55	1.52	1.48
SLOPE OF PIPE (%)	-1.53%					3.02%			-11.57%	0.25%					
REFERENCE PEG No.															

EXISTING GROUND LEVEL (m)	62.21	62.23	62.24	62.68	63.12	63.57	64.00	63.82	63.57	63.50	63.49	63.38	63.35	63.31	63.26	63.19
INVERT LEVELS (m)	60.77	60.82	60.90	61.41	61.92	62.43	62.90	62.83	62.77	62.70	62.64	62.58	62.51	62.44	62.30	62.16
CHAINAGES (M)	6+900	6+920	6+940	6+960	6+980	7+000	7+020	7+040	7+060	7+080	7+100	7+120	7+140	7+160	7+180	7+200
DEPTH OF INVERT (m)	1.44	1.41	1.35	1.27	1.21	1.14	1.10	0.98	0.80	0.80	0.84	0.80	0.84	0.87	0.95	1.03
SLOPE OF PIPE (%)			2.55%				-0.32%								-0.70%	
REFERENCE PEG No.																

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

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6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

ROAD (TARMAC)
ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
FENCE / HEDGE
14 CONTOURS, Im INTERVAL
ELECTRIC POST
CULVERT
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL
SV SLUICE VALVE
FH FIRE HYDRANT
WO-01 WASHOUT VALVE & No.
AV-01 COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

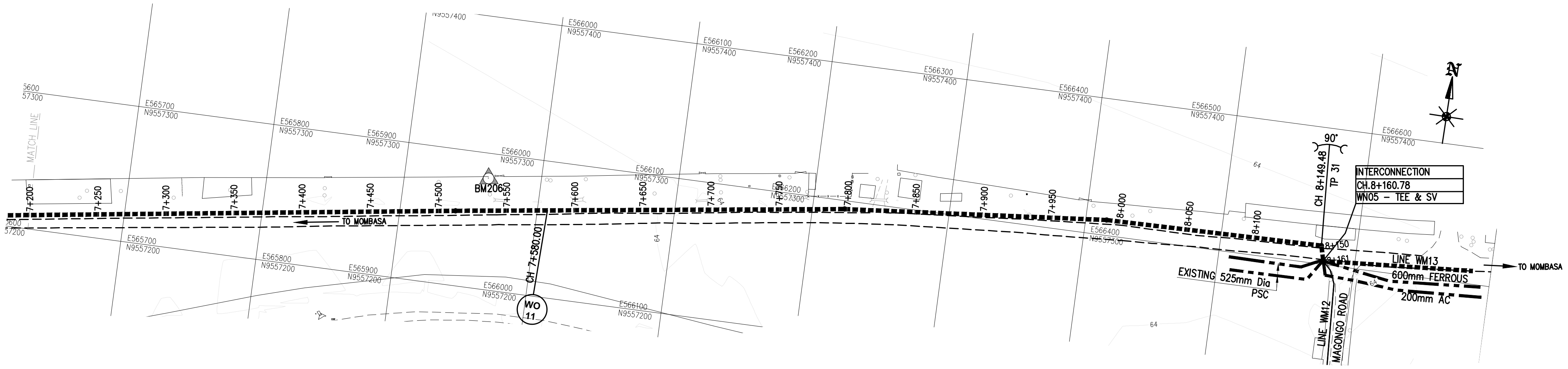
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 6+000 – CH. 7+200)
SHEET 6 OF 10

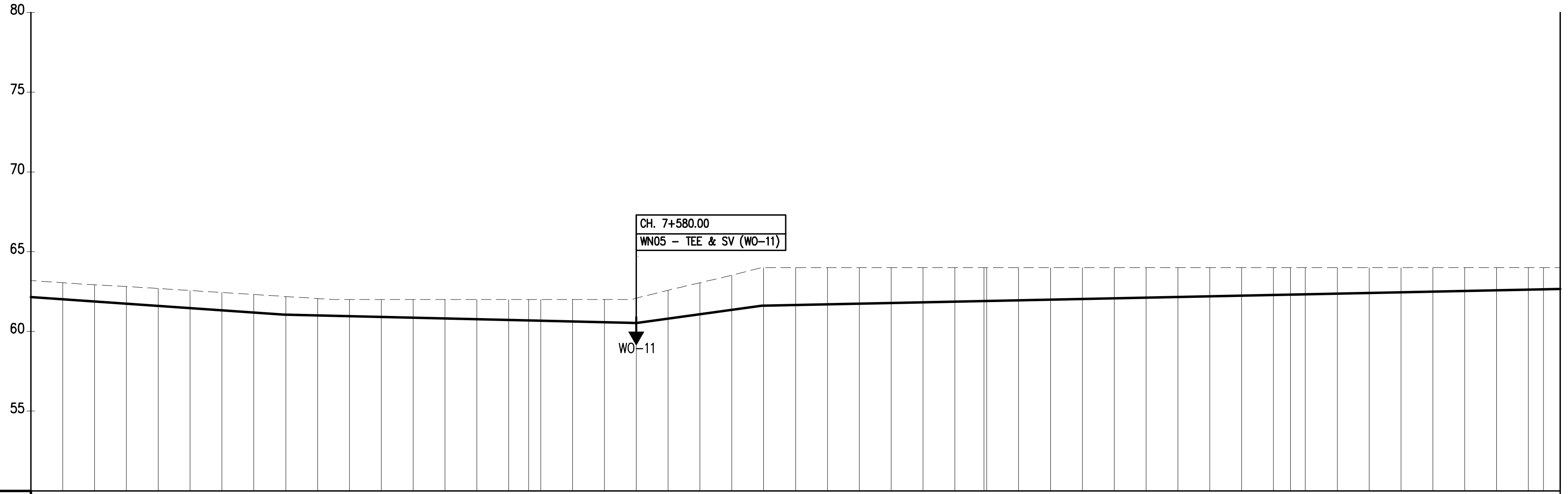
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-044C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-044 C0 REV

AWAITING FINAL SURVEY



PLAN

SCALE 1:2000



DATUM 50.00 (Masl)

TYPE AND SIZE OF PIPE	DN 600 FERROUS PIPE TO PN 16																
GEOLOGICAL CONDITION	SAND SOILS																
EXISTING GROUND LEVEL (m)	63.19	63.05	62.93	62.81	62.69	62.57	62.44	62.31	62.19	62.06	62.00	62.00	62.00	62.00	62.00	62.00	62.00
INVERT LEVELS (m)	62.16	62.02	61.88	61.74	61.60	61.46	61.32	61.18	61.05	61.00	60.95	60.91	60.86	60.82	60.77	60.72	60.68
CHAINAGES (M)	7+200	7+220	7+240	7+260	7+280	7+300	7+320	7+340	7+360	7+380	7+400	7+420	7+440	7+460	7+480	7+500	7+520
DEPTH OF INVERT (m)	1.03	1.03	1.05	1.07	1.09	1.10	1.12	1.13	1.14	1.06	1.05	1.09	1.14	1.18	1.23	1.28	1.32
SLOPE OF PIPE (%)	-0.70%									-0.23%							
REFERENCE PEG No.																	

TYPE AND SIZE OF PIPE																	
GEOLOGICAL CONDITION																	
EXISTING GROUND LEVEL (m)	62.00	62.00	62.08	62.58	63.05	63.53	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00
INVERT LEVELS (m)	60.63	60.58	60.54	60.81	61.08	61.36	61.62	61.66	61.70	61.74	61.78	61.83	61.87	61.91	61.95	61.99	62.03
CHAINAGES (M)	7+540	7+560	7+580	7+600	7+620	7+640	7+660	7+680	7+700	7+720	7+740	7+760	7+780	7+800	7+820	7+840	7+860
DEPTH OF INVERT (m)	1.37	1.42	1.54	1.77	1.97	2.17	2.38	2.34	2.30	2.26	2.22	2.17	2.13	2.09	2.05	2.01	1.97
SLOPE OF PIPE (%)				1.37%				0.21%									
REFERENCE PEG No.																	

TYPE AND SIZE OF PIPE															
GEOLOGICAL CONDITION															
EXISTING GROUND LEVEL (m)	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00
INVERT LEVELS (m)	62.07	62.12	62.16	62.20	62.24	62.28	62.32	62.36	62.41	62.45	62.49	62.53	62.57	62.61	62.65
CHAINAGES (M)	7+880	7+900	7+920	7+940	7+960	7+980	8+000	8+020	8+040	8+060	8+080	8+100	8+120	8+140	8+160
DEPTH OF INVERT (m)	1.93	1.88	1.84	1.80	1.76	1.72	1.68	1.64	1.59	1.55	1.51	1.47	1.43	1.39	1.35
SLOPE OF PIPE (%)															
REFERENCE PEG No.															TP 30

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

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5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM206 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM206	565,961.29	9, 557,281.75	62.86

LEGEND:

- ROAD (TARMAC)
- ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- 14 CONTOURS, Im INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- 30˚ HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- SV SLUICE VALVE
- FH FIRE HYDRANT
- WO-01 WASHOUT VALVE & No.
- AV-01 COMBINATION AIR VALVE & No.
- BENCHMARK (CONCRETE WITH IRON

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

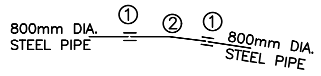
Drawing Title

WEST MAINLAND – LINE WN05
PLAN AND PROFILE
(CH. 7+200 – CH. 8+160.78)
SHEET 7 OF 10

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-045C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-045	CO REV

DETAIL

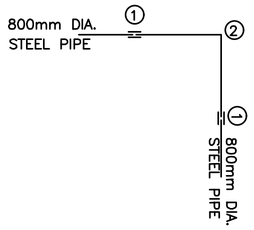
CH. 0+254.89, 1+730.22, 1+821.25, 2+105.31,
4+421.54, 4+476.37, 4+523.69, 4+867.43,
4+933.93, 4+991.27
LINE WN05 - 11.25° H.BEND



DESCRIPTION
10 Nos. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED
STEEL 11.25° BEND

DETAIL

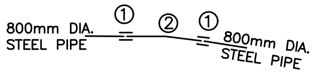
CH. 1+620.65, 3+350.36, 7+933.47
LINE WN05 - 90° H.BEND



DESCRIPTION
3 Nos. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED STEEL 90° BEND

DETAIL

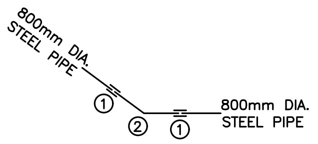
CH. 0+280.00, 0+780.00, 0+820.00 & 1+020.00
LINE WN05 - 11.25° V.BEND



DESCRIPTION
4 Nos. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED
STEEL 11.25° BEND

DETAIL

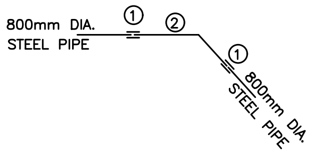
CH. 0+682.81, 0+847.12, 1+035.96,
1+114.99 & 1+559.71
LINE WN05 - 22.5° H.BEND



DESCRIPTION
5 Nos. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED STEEL 22.5° BEND

DETAIL

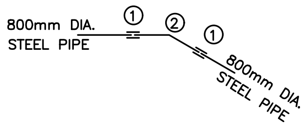
CH. 3+337.84 & 3+632.39
LINE WN05 - 60° H.BEND



DESCRIPTION
2 Nos. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED STEEL 60° BEND

DETAIL

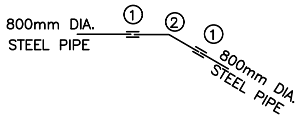
CH. 1+287.96
LINE WN05 - 30° H.BEND



DESCRIPTION
1 No. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED STEEL 30° BEND

DETAIL

CH. 3+650.85
LINE WN05 - 45° H.BEND



DESCRIPTION
2 Nos. REQUIRED
① 2 Nos. 800mm DIA. COUPLING
② 1 No. 800mm DIA. PLAIN ENDED STEEL 45° BEND

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

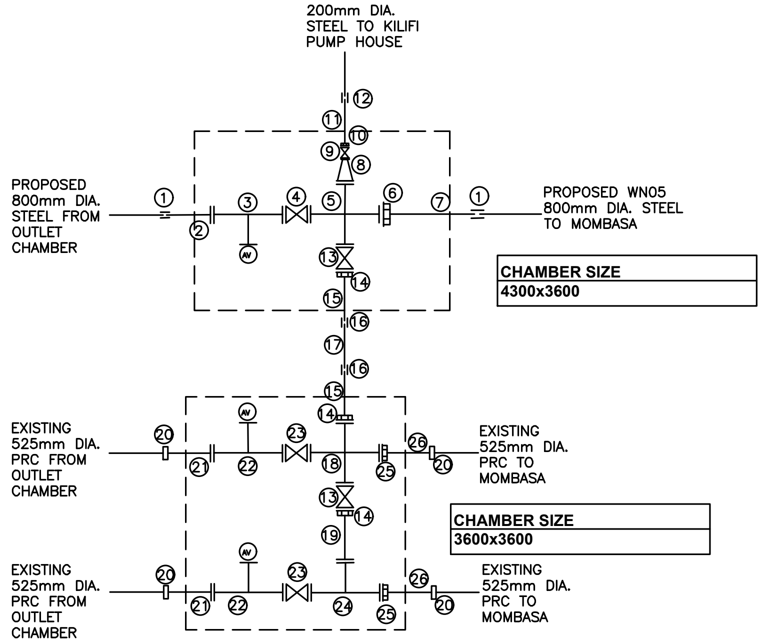
CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WN05
PIPE FITTING DETAILS
SHEET 8 OF 10

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-046C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-046 · C0 REV

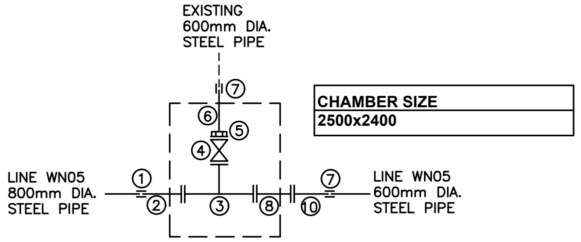
DETAIL CH. 0+221.32 LINE WN05 - INTERCONNECTION



DESCRIPTION

① 1 No. 800mm DIA. STRAIGHT COUPLING
② 1 No. 2.4m LONG 800mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
③ 1 No. 800x80mm DIA. ALL FLANGED AIR VALVE TEE
④ 1 No. 800mm DIA. PN10 FLANGED SLUICE VALVE
⑤ 1 No. 800X400mm DIA. FLANGED CROSS TEE
⑥ 1 No. 800mm DIA. FLANGE ADAPTOR
⑦ 1 Nos. 2.4m LONG 800mm DIA. PLAIN ENDED PIPE PIECE WITH A PUDDLE FLANGE
⑧ 1 No. 400X200mm DIA. ALL FLANGED CONCENTRIC TAPER
⑨ 1 No. 200mm DIA. PN10 SLUICE VALVE
⑩ 1 No. 200mm DIA. FLANGED ADAPTOR
⑪ 1 Nos. 1.2m LONG 200mm DIA. PLAIN ENDED PIPE PIECE WITH PUDDLE FLANGE
⑫ 1 No. 200mm DIA. STRAIGHT COUPLING
⑬ 2 No. 400mm DIA. PN10 SLUICE VALVE
⑭ 3 No. 400mm DIA. FLANGED ADAPTOR
⑮ 2 No. 400mm DIA. 1.2m LONG, SINGLE FLANGED STEEL PIPE LONG WITH PUDDLE FLANGE
⑯ 2 No. 400mm DIA. COUPLINGS
⑰ 1 Nos. 400mm DIA. PLAIN STEEL PIPE PIECE (3m BUT DETERMINED ON SITE)
⑱ 1 No. 600X400mm DIA. FLANGED CROSS TEE
⑲ 1 No. 400mm DIA. 1.2m LONG, SINGLE FLANGED STEEL PIPE
⑳ 4 Nos. 600/525mm DIA. STEPPED COUPLINGS
㉑ 2 No. 2.4m LONG 600mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
㉒ 2 No. 600x80mm DIA. ALL FLANGED AIR VALVE TEE
㉓ 2 No. 600mm DIA. PN10 FLANGED SLUICE VALVE
㉔ 1 No. 600X400mm DIA. FLANGED TEE
㉕ 2 No. 600mm DIA. FLANGED ADAPTOR
㉖ 2 Nos. 600mm DIA. PLAIN STEEL PIPE PIECE WITH PUDDLE FLANGE

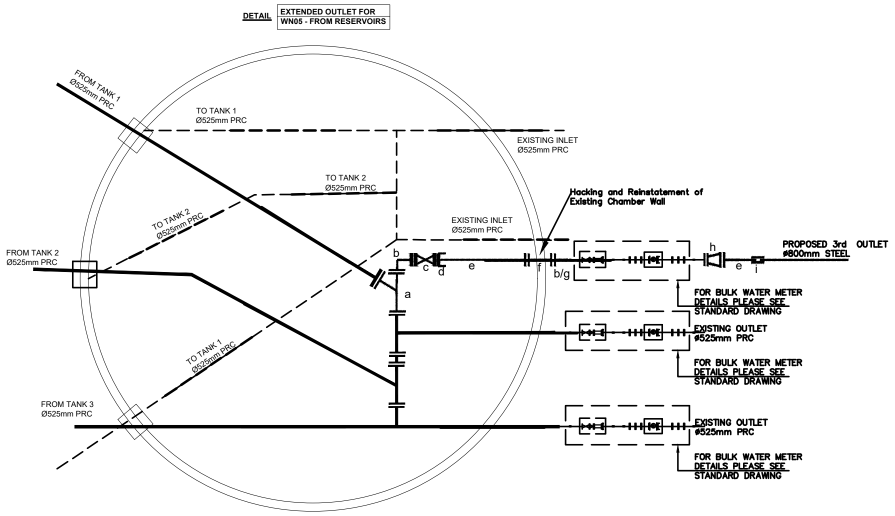
DETAIL CH. 5+120.00 LINE WN05 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

① 1 No. 800mm DIA. STRAIGHT COUPLING
② 1 Nos. 800mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 800x600mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 600mm DIA. ALL FLANGED SLUICE VALVE PN16
⑤ 1 No. 600mm DIA. FLANGE ADAPTOR
⑥ 1 No. 600mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
⑦ 2 Nos. 600mm DIA. STRAIGHT COUPLING
⑧ 1 No. 800mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑩ 1 Nos. 600mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG

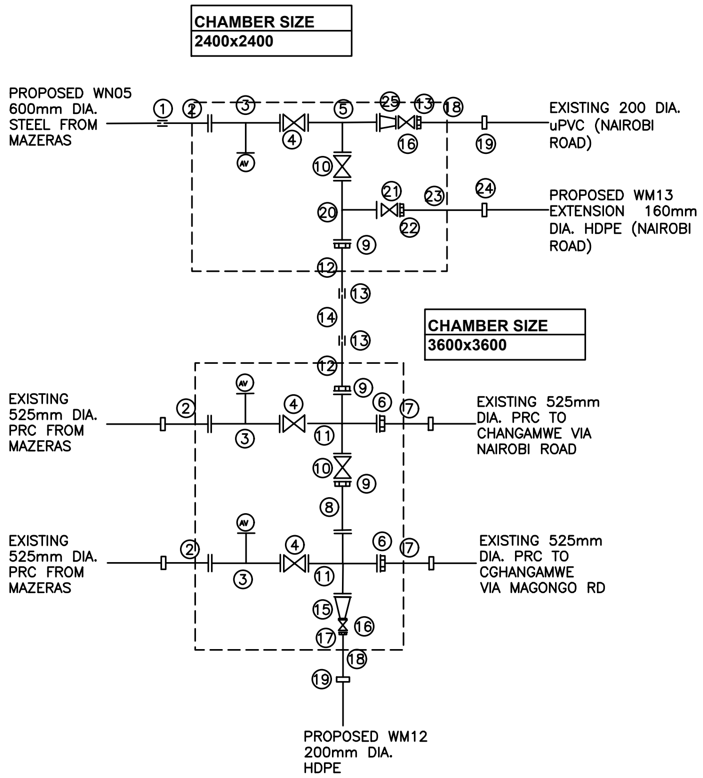
DETAIL EXTENDED OUTLET FOR WN05 - FROM RESERVOIRS



DESCRIPTION

ⓐ 1No. SPECIAL EQUAL TEE 600mm x 600mm
ⓑ 3No. 600mm DIA. FLANGED BENDS
ⓒ 1No. PN10 600mm DIA. SLUICE VALVE
ⓓ 2No. 600mm DIA. FLANGE ADAPTORS
ⓔ 2No. 600mm DIA. SINGLE FLANGED PIPE PIECE
ⓕ 1No. 600mm DIA. DOUBLE FLANGED PIPE PIECE WITH PUDDLE FLANGE
ⓖ 1No. 600mm 2.4m LONG DOUBLE FLANGED PIPE PIECE (to be measured on-site
ⓗ 1No. 800mm x 600mm ALL FLANGED REDUCER
ⓘ 1No. 800mm DIA. COUPLING

DETAIL INTERCONNECTION CH. 7+933.48



DESCRIPTION

① 1 No. 600mm DIA. STRAIGHT COUPLING
② 3 No. 2.4m LONG 600mm DIA. SINGLE FLANGED PIPE PIECE with paddle flange
③ 3 No. 600x80mm DIA. ALL FLANGED AIRVALVE TEE
④ 3 No. 600mm DIA. PN16 FLANGED SLUICE VALVE
⑤ 1 No. 600X400mm DIA. FLANGED TEE
⑥ 2 No. 600mm DIA. FLANGE ADAPTOR
⑦ 2 Nos. 2.4m LONG 600mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE
⑧ 1 No. 400mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG
⑨ 3 No. 400mm DIA. FLANGED ADAPTOR
⑩ 2 No. 400mm DIA. PN16 SLUICE VALVE
⑪ 2 No. 600X400mm DIA. ALL FLANGED CROSS TEE
⑫ 2 Nos. 1.2m LONG 400mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE
⑬ 2 No. 400mm DIA. COUPLINGS
⑭ 1 Nos. 400mm DIA. PLAIN STEEL PIPE PIECE (LENGTH DETERMINED ON SITE)
⑮ 1 No. 600X200mm DIA. ALL FLANGED CONCENTRIC TAPER
⑯ 1 No. 200mm DIA. PN16 SLUICE VALVE
⑰ 1 No. 200mm DIA. FLANGE ADAPTOR
⑱ 1 No. 2.4m LONG 200mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE
⑲ 2 No. 200mm DIA. SPEPPED COUPLING
⑳ 1 No. 400X150mm DIA. FLANGED REDUCING TEE
㉑ 1 No. 150mm DIA. PN16 SLUICE VALVE
㉒ 1 No. 150mm DIA. FLANGED ADAPTOR
㉓ 1 Nos. 2.4m LONG 150mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE
㉔ 1 No. 150/160 mm DIA. STEPPED COUPLING
㉕ 1 No. 400X200mm DIA. ALL FLANGED TAPER

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝ ⌞ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

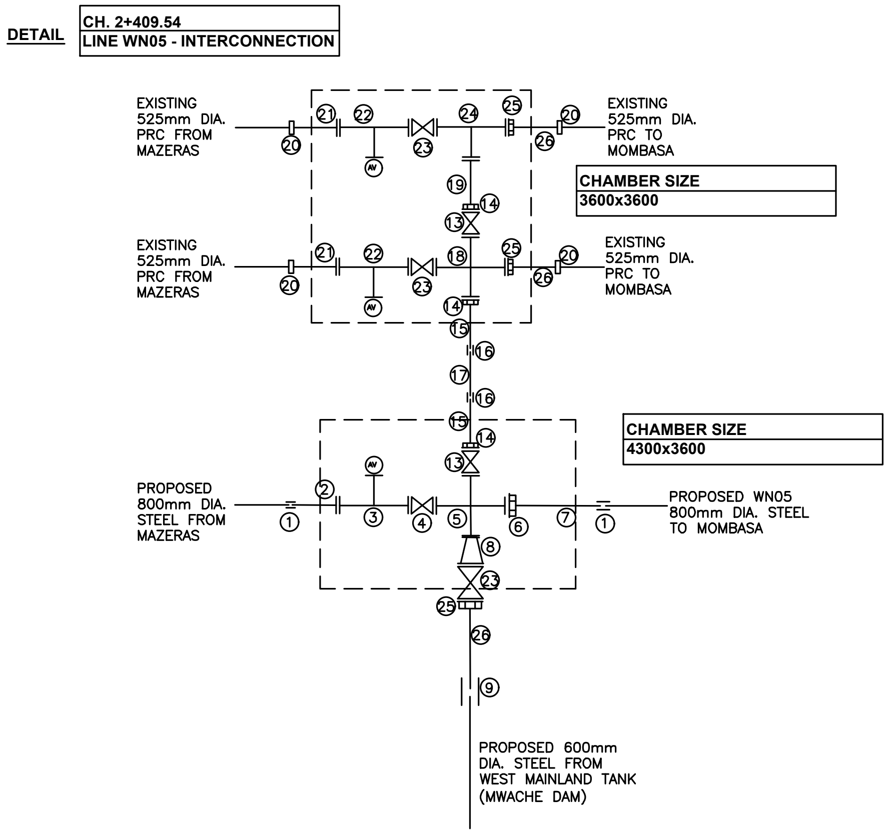
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

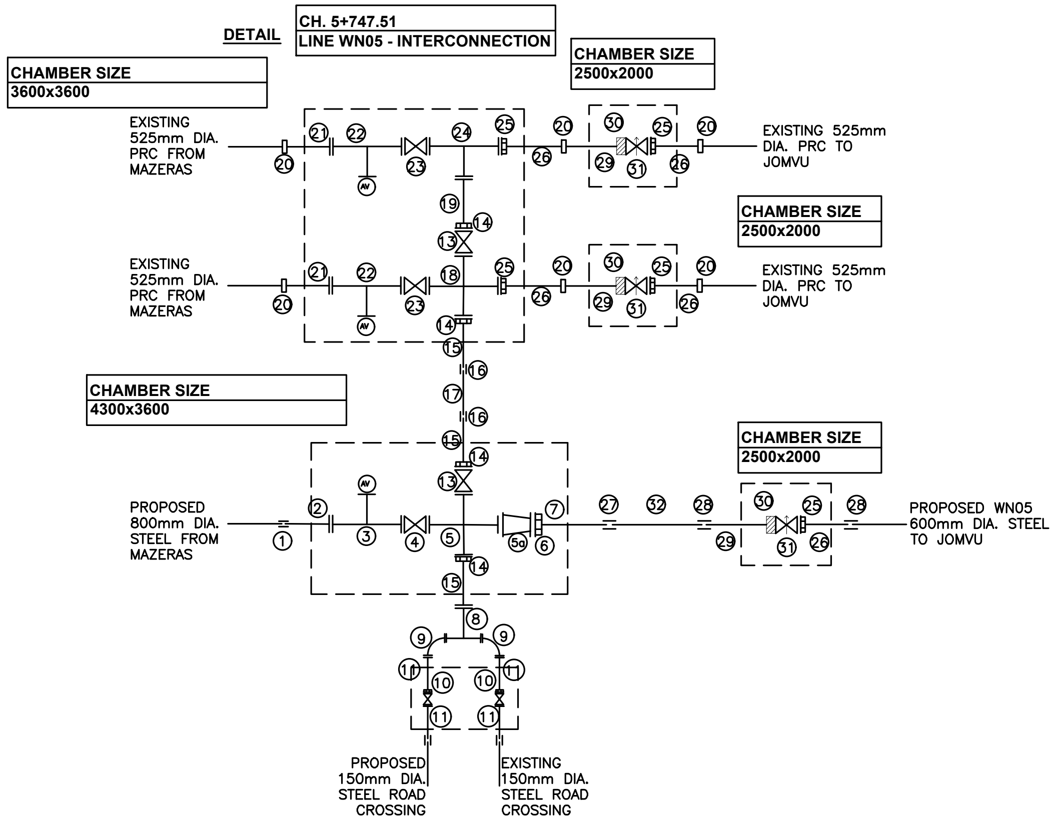
Drawing Title
WEST MAINLAND – LINE WN05
PIPE FITTING DETAILS
SHEET 9 OF 10

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-047C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-047 C0 REV



DESCRIPTION

① 1 No. 800mm DIA. STRAIGHT COUPLING
② 1 No. 2.4m LONG 800mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
③ 1 No. 800x80mm DIA. ALL FLANGED AIR VALVE TEE
④ 1 No. 800mm DIA. PN10 FLANGED SLUICE VALVE
⑤ 1 No. 800X400mm DIA. FLANGED CROSS TEE
⑥ 1 No. 800mm DIA. FLANGE ADAPTOR
⑦ 1 Nos. 2.4m LONG 800mm DIA. PLAIN ENDED PIPE PIECE WITH A PUDDLE FLANGE
⑧ 1 No. 600X400mm DIA. ALL FLANGED CONCENTRIC TAPER
⑨ 1 No. 600mm DIA. STRAIGHT COUPLING
⑬ 2 No. 400mm DIA. PN10 SLUICE VALVE
⑭ 3 No. 400mm DIA. FLANGED ADAPTOR
⑮ 2 No. 400mm DIA. 1.2m LONG, SINGLE FLANGED STEEL PIPE LONG WITH PUDDLE FLANGE
⑯ 2 No. 400mm DIA. COUPLINGS
⑰ 1 Nos. 400mm DIA. PLAIN STEEL PIPE PIECE (3m BUT DETERMINED ON SITE)
⑱ 1 No. 600X400mm DIA. FLANGED CROSS TEE
⑲ 1 No. 400mm DIA. 1.2m LONG, SINGLE FLANGED STEEL PIPE
⑳ 4 Nos. 600/525mm DIA. STEPPED COUPLINGS
㉑ 2 No. 2.4m LONG 600mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
㉒ 2 No. 600x80mm DIA. ALL FLANGED AIR VALVE TEE
㉓ 3 No. 600mm DIA. PN10 FLANGED SLUICE VALVE
㉔ 1 No. 600X400mm DIA. FLANGED TEE
㉕ 3 No. 600mm DIA. FLANGED ADAPTOR
㉖ 3 Nos. 600mm DIA. PLAIN STEEL PIPE PIECE WITH PUDDLE FLANGE



DESCRIPTION

① 1 No. 800mm DIA. STRAIGHT COUPLING
② 1 No. 2.4m LONG 800mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
③ 1 No. 800x80mm DIA. ALL FLANGED AIR VALVE TEE
④ 1 No. 800mm DIA. PN10 FLANGED SLUICE VALVE
⑤ 1 No. 800X400mm DIA. FLANGED CROSS TEE
(5a) 1 No. 800X600mm DIA. FLANGED CONCENTRIC REDUCER
⑥ 1 No. 800mm DIA. FLANGE ADAPTOR
⑦ 1 Nos. 2.4m LONG 800mm DIA. PLAIN ENDED PIPE PIECE WITH A PUDDLE FLANGE
⑧ 1 No. 400X150mm DIA. ALL FLANGED TEE
⑨ 2 No. 150mm DIA. ALL FLANGED BENDS
⑩ 2 No. 150mm DIA. FLANGED ADAPTORS
⑪ 4 Nos. 1.2m LONG 150mm DIA. SINGLE FLANGED PIPE PIECES WITH PUDDLE FLANGE
⑫ 2 No. 150mm DIA. STRAIGHT COUPLINGS
(12a) 2 No. 150mm DIA. PN10 SLUICE VALVE
⑬ 2 No. 400mm DIA. PN10 SLUICE VALVE
⑭ 3 No. 400mm DIA. FLANGED ADAPTOR
⑮ 2 No. 400mm DIA. 1.2m LONG, SINGLE FLANGED STEEL PIPE LONG WITH PUDDLE FLANGE
⑯ 2 No. 400mm DIA. COUPLINGS
⑰ 1 Nos. 400mm DIA. PLAIN STEEL PIPE PIECE (3m BUT DETERMINED ON SITE)
⑱ 1 No. 600X400mm DIA. FLANGED CROSS TEE
⑲ 1 No. 400mm DIA. 1.2m LONG, SINGLE FLANGED STEEL PIPE
⑳ 6 Nos. 600/525mm DIA. STEPPED COUPLINGS
㉑ 2 No. 2.4m LONG 600mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
㉒ 2 No. 600x80mm DIA. ALL FLANGED AIR VALVE TEE
㉓ 2 No. 600mm DIA. PN10 FLANGED SLUICE VALVE
㉔ 1 No. 600X400mm DIA. FLANGED TEE
㉕ 5 No. 600mm DIA. FLANGED ADAPTOR
㉖ 5 Nos. 600mm DIA. PLAIN STEEL PIPE PIECE WITH PUDDLE FLANGE
㉗ 1 Nos. 800/600mm DIA. STEPPED COUPLING
㉘ 2 Nos. 600mm DIA. STRAIGHT COUPLING
㉙ 3 No. 1.2m LONG 600mm DIA. SINGLE FLANGED PIPE PIECE WITH A PUDDLE FLANGE
㉚ 3 No. 600mm DIA. PN16 Y–STRAINERS
㉛ 3 No. 600mm DIA. PN16 PRESSURE REDUCING VALVE
㉜ 1 No. 600mm DIA. 1.2m LONG PLAIN STEEL PIPE PIECE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER
⋈	PRESSURE REDUCING VALVE
▨	STRAINER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

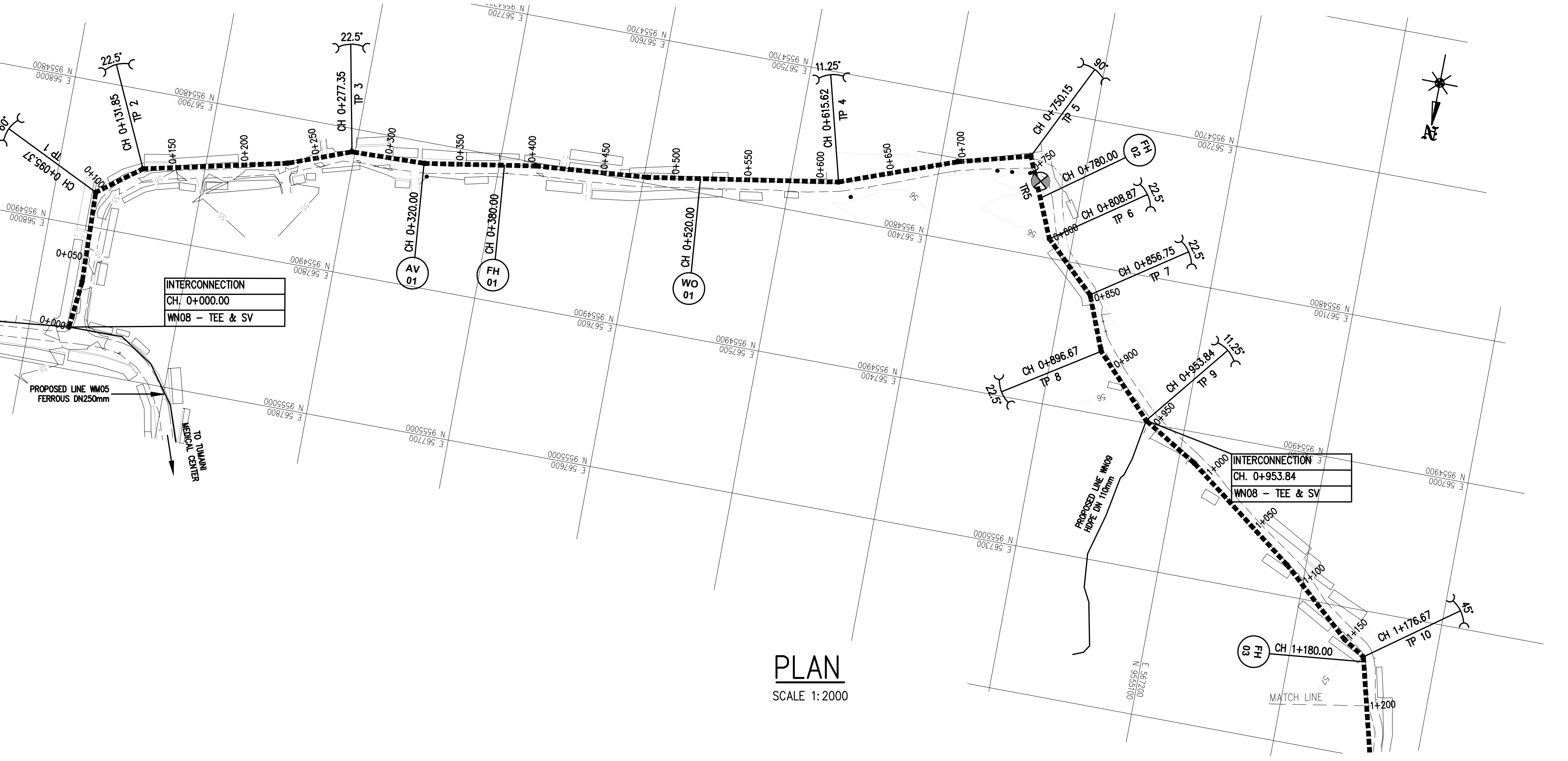
CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WN05
PIPE FITTING DETAILS
SHEET 10 OF 10

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-048C0

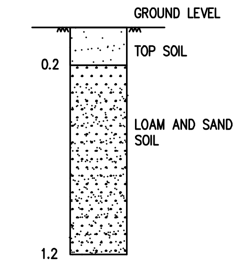
C STATUS | DRAWING No. 6000002-W&S-WM-P-048 | C0 REV

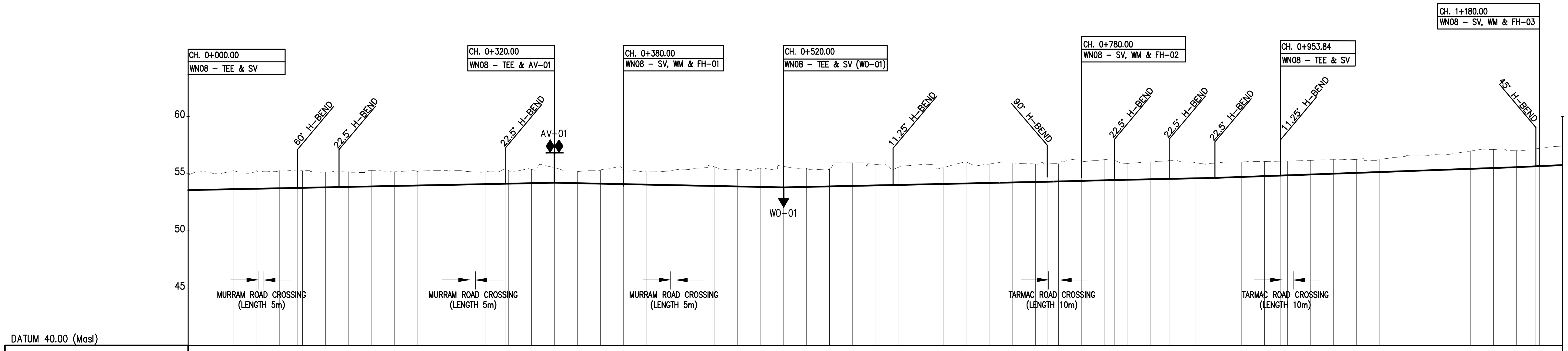


PLAN

SCALE 1:2000

TRIAL HOLE TR5 DETAILS





TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: MIXTURE OF LOAM AND SAND SOIL

EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	CHAINAGE (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (%)	REFERENCE PEG NO.
54.85	53.56	0+000.00	1.29	0.20%	
55.08	53.60	0+020.00	1.47		
55.25	53.64	0+040.00	1.60		
55.23	53.68	0+060.00	1.55		
55.25	53.72	0+080.00	1.53		
55.23	53.75	0+095.37	1.47		TP 1
55.26	53.76	0+100.00	1.49		
55.15	53.80	0+120.00	1.34		
55.24	53.83	0+131.85	1.42		TP 2
55.16	53.84	0+140.00	1.32		
55.29	53.88	0+160.00	1.40		
55.16	53.92	0+180.00	1.24		
55.19	53.96	0+200.00	1.23		
55.27	54.00	0+220.00	1.27		
55.25	54.04	0+240.00	1.21		
55.17	54.08	0+260.00	1.09		
55.43	54.12	0+277.35	1.31		TP 3
55.26	54.12	0+280.00	1.14		
55.36	54.16	0+300.00	1.20		
55.51	54.20	0+320.00	1.31	−0.20%	
55.18	54.16	0+340.00	1.02		
55.32	54.12	0+360.00	1.20		
55.33	54.08	0+380.00	1.25		
55.18	54.04	0+400.00	1.14		
55.23	54.00	0+420.00	1.22		
55.36	53.96	0+440.00	1.40		
55.58	53.92	0+460.00	1.66		
55.36	53.88	0+480.00	1.48		
55.46	53.84	0+500.00	1.62		
55.63	53.80	0+520.00	1.83	0.22%	
55.46	53.85	0+540.00	1.61		
55.42	53.89	0+560.00	1.53		
55.96	53.93	0+580.00	2.02		
55.81	53.98	0+600.00	1.83		
55.36	54.01	0+615.62	1.35		TP 4
55.54	54.02	0+620.00	1.52		
55.78	54.06	0+640.00	1.72		
55.55	54.11	0+660.00	1.44		
55.99	54.15	0+680.00	1.84		
55.84	54.19	0+699.32	1.65		
55.85	54.19	0+700.00	1.66		
55.97	54.21	0+708.99	1.75	0.22%	
55.93	54.24	0+720.00	1.69		
55.84	54.28	0+740.00	1.56		
55.86	54.30	0+750.15	1.56	0.22%	TP 5
55.87	54.33	0+760.00	1.54		
56.12	54.37	0+780.00	1.75		
56.22	54.41	0+800.00	1.81		
56.15	54.43	0+808.87	1.72	0.22%	TP 6
55.89	54.46	0+820.00	1.44		
56.02	54.50	0+840.00	1.52		
56.16	54.54	0+856.75	1.62		TP 7
56.16	54.54	0+860.00	1.62		
55.95	54.59	0+880.00	1.37		
55.91	54.62	0+896.67	1.29	0.36%	TP 8
55.95	54.63	0+900.00	1.32		
56.02	54.71	0+920.00	1.32		
56.06	54.78	0+940.00	1.28		
56.08	54.83	0+953.84	1.25		TP 9
56.10	54.85	0+960.00	1.25		
56.16	54.92	0+980.00	1.24		
56.25	54.99	1+000.00	1.25		
56.25	55.07	1+020.00	1.19		
56.25	55.14	1+040.00	1.11		
56.48	55.21	1+060.00	1.27		
56.60	55.28	1+080.00	1.32		
56.66	55.35	1+100.00	1.31		
56.98	55.43	1+120.00	1.56		
57.12	55.50	1+140.00	1.62		
57.01	55.57	1+160.00	1.44	0.44%	
57.17	55.65	1+176.67	1.52		TP 10
57.20	55.66	1+180.00	1.54		
57.41	55.75	1+200.00	1.66		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

═ ═ ═	ROAD (TARMAC)
- - - -	ROAD (MURRAM/EARTH/CABRO)
-·-·-·-	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
○	WATER TANK
—	GATE
☐	BUILDINGS
■ ■ ■	PROPOSED WATER MAIN
━ · ━	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

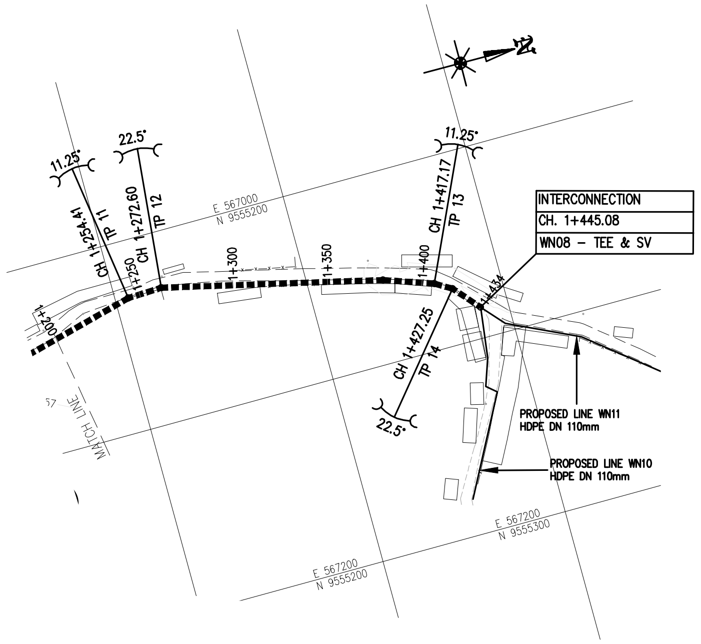
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

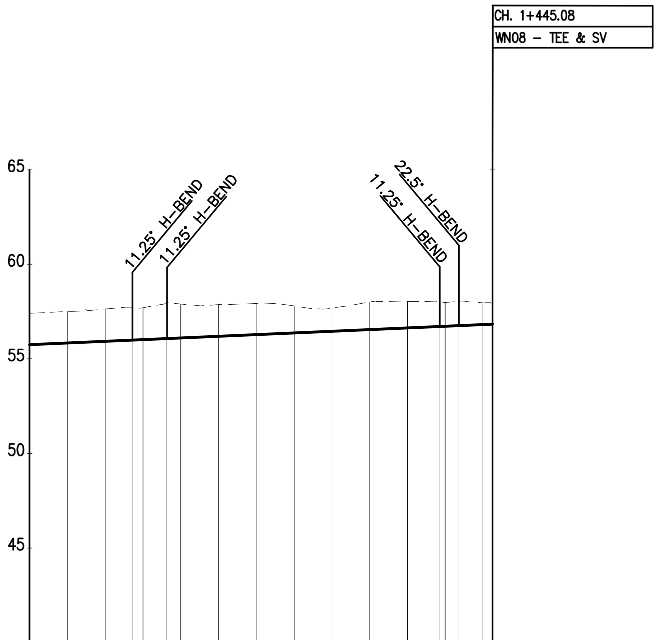
WEST MAINLAND – LINE WN08
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-049C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-049 C0 REV



PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5																	
GEOLOGICAL CONDITION	LOAM AND SAND SOIL																	
EXISTING GROUND LEVEL (m)	57.41	57.50	57.63	57.72	57.70	57.98	57.90	57.86	57.93	57.80	57.68	58.00	58.04	58.01	57.98	58.05	57.95	57.93
INVERT LEVELS (m)	55.75	55.84	55.93	55.99	56.01	56.07	56.10	56.19	56.28	56.37	56.46	56.54	56.63	56.71	56.72	56.75	56.81	56.83
CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+254.41	1+260.00	1+272.60	1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00	1+400.00	1+417.17	1+420.00	1+427.25	1+440.00	1+445.08
DEPTH OF INVERT (m)	1.66	1.67	1.71	1.73	1.68	1.91	1.79	1.67	1.65	1.43	1.22	1.45	1.41	1.30	1.26	1.30	1.14	1.10
SLOPE OF PIPE (%)	0.44%																	
REFERENCE PEG NO.				TP 11		TP 12								TP 13		TP 14		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

- - - - - -	ROAD (TARMAC)
- - - - - -	ROAD (MURRAM/EARTH/CABRO)
–×–×–×–	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
○	WATER TANK
	GATE
☐	BUILDINGS
■■■■■	PROPOSED WATER MAIN
—·—·—	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
●	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

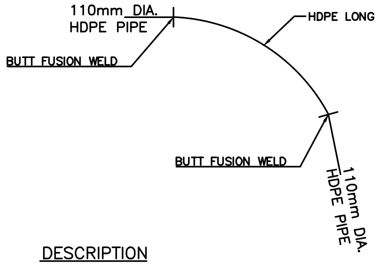
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WN08
PLAN AND PROFILE
(CH. 1+200 – CH. 1+445.08)
SHEET 2 OF 3

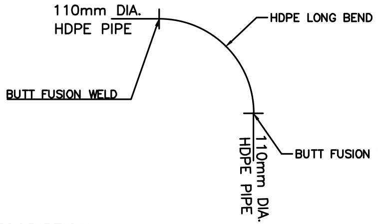
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-050CO
C STATUS	DRAWING No. 6000002-W&S-WM-P-050 CO REV

DETAIL CH. 0+095.37
LINE WN08 - 60° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

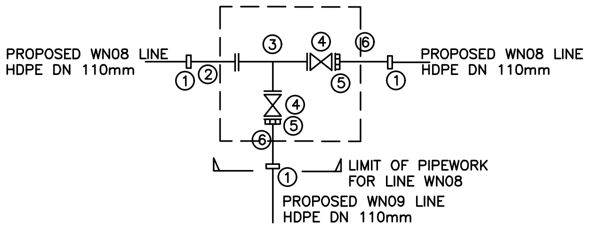
DETAIL CH. 0+750.15
LINE WN08 - 90° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

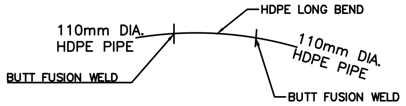
CHAMBER SIZE
1200x1200

DETAIL CH. 0+953.84
LINE WN08 - INTERCONNECTION



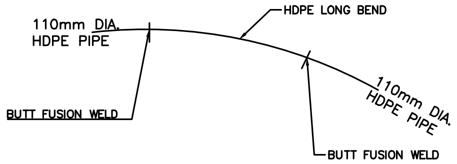
DESCRIPTION
1 No. REQUIRED
① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 2 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE

DETAIL CH. 0+131.85, 0+277.35, 0+808.87, 0+856.75,
0+896.67 & 1+272.60
LINE WN08 - 22.5° H.BEND



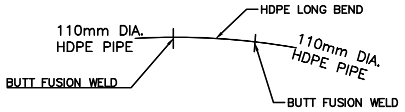
DESCRIPTION
6 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 1+176.67
LINE WN08 - 45° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

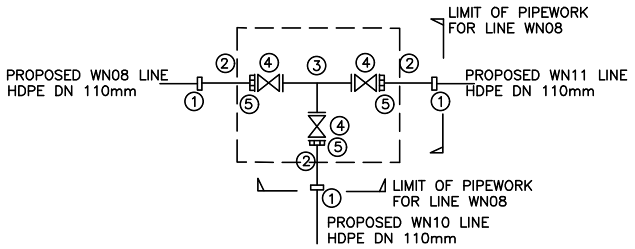
DETAIL CH. 0+615.62, 0+953.84, 1+254.41, 1+390.11
1+417.17 & 1+427.25
LINE WN08 - 11.25° H.BEND



DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL CH. 1+445.08
LINE WN08 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE
③ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 100mm DIA. FLANGE ADAPTOR

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌝⌞⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

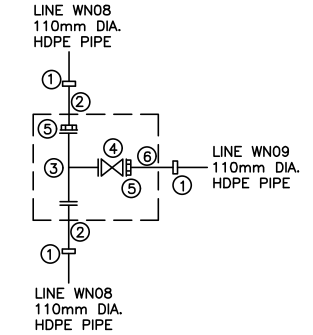
Drawing Title
WEST MAINLAND – LINE WN08
PIPE FITTING DETAILS
SHEET 3 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-051C0
C STATUS DRAWING No. 6000002-W&S-WM-P-051	C0 REV

CHAMBER SIZE
1200x1200

DETAIL

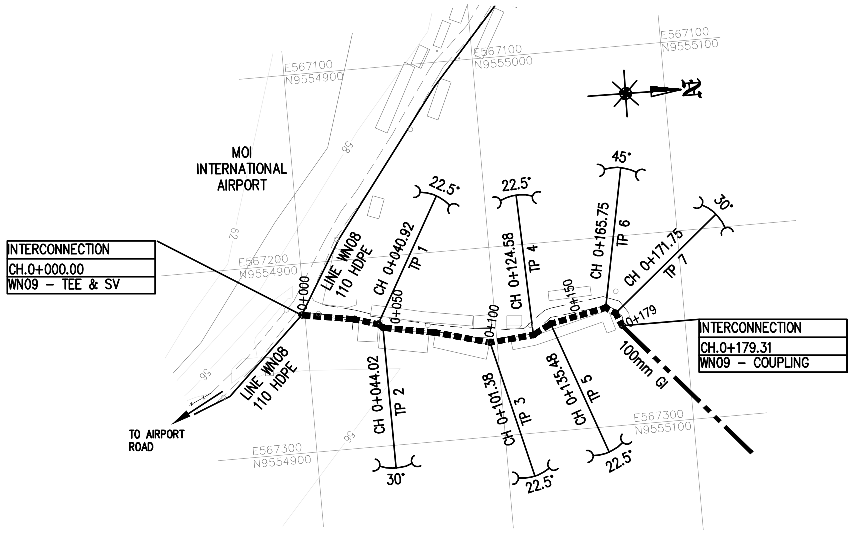
CH. 0+000.00
LINE WN09 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE

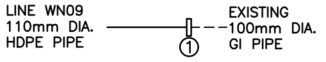


PLAN

SCALE 1:2000

DETAIL

CH. 0+179.31
LINE WN09 - COUPLING



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING

NOTES

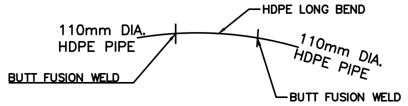
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

┄┄┄	ROAD (TARMAC)
┄┄┄	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
SV	SLUICE VALVE

DETAIL

CH. 0+040.92, 0+101.38 & 0+124.58, 0+135.48
LINE WN09 - 22.5° H.BEND



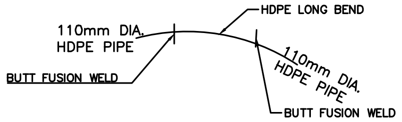
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+044.02 & 0+171.75
LINE WN09 - 30° H.BEND



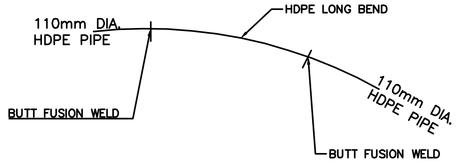
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

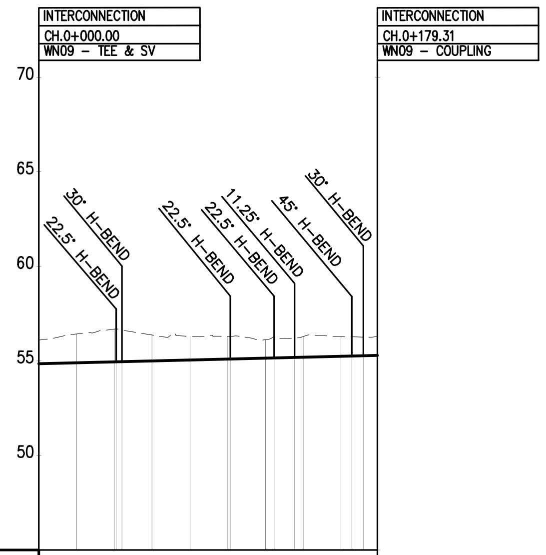
CH. 0+165.75
LINE WN09 - 45° H.BEND



DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	SANDY LOAM SOILS															
EXISTING GROUND LEVEL (m)	56.10	56.43	56.69	56.63	56.36	56.30	56.30	56.29	56.12	56.28	56.21	56.28	56.28	56.27	56.25	56.29
INVERT LEVELS (m)	54.85	54.90	54.95	54.96	55.00	55.05	55.10	55.10	55.15	55.16	55.19	55.20	55.25	55.26	55.28	55.29
CHAINAGE (m)	0+000.00	0+020.00	0+040.92	0+044.02	0+060.00	0+080.00	0+100.00	0+101.38	0+120.00	0+124.58	0+135.48	0+140.00	0+160.00	0+165.75	0+171.75	0+179.31
DEPTH OF INVERT (m)	1.25	1.53	1.74	1.67	1.36	1.25	1.20	1.19	0.97	1.12	1.02	1.08	1.03	1.01	0.98	1.00
SLOPE OF PIPE (%)	0.25%															
REFERENCE PEG NO.			TP 1	TP 2				TP 3		TP 4	TP 5			TP 6	TP 7	

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

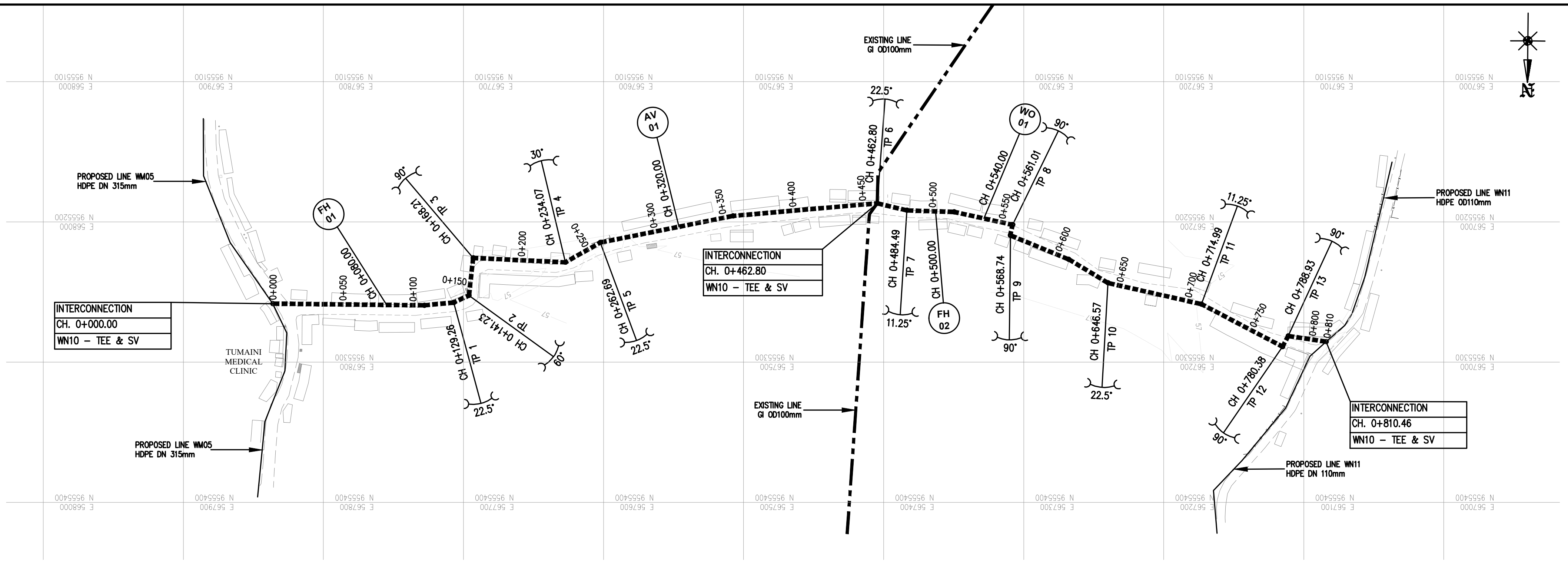
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

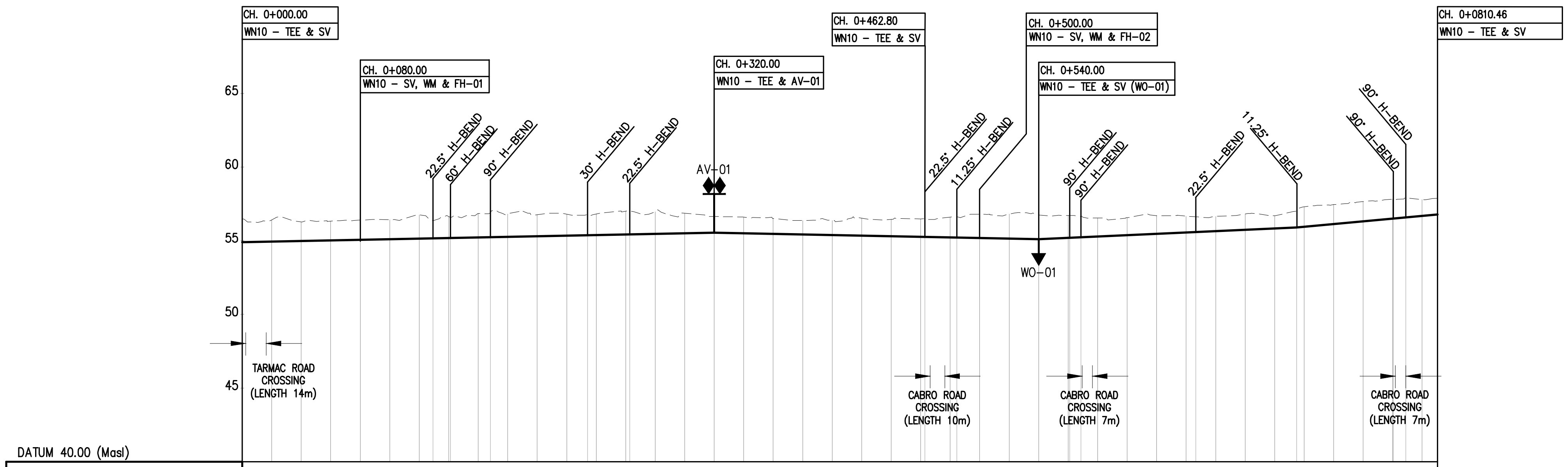
WEST MAINLAND – LINE WN09
PLAN, PROFILE & FITTING DETAILS
(CH. 0+000 – CH. 0+179.31)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-052C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-052	C0 REV



PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: SANDY LOAM SOIL

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (%)	REFERENCE PEG NO.
0+000.00	56.49	54.90	1.59	0.20%	
0+020.00	56.41	54.94	1.47		
0+040.00	56.27	54.98	1.30		
0+060.00	56.33	55.02	1.31		
0+080.00	56.40	55.06	1.34		
0+100.00	56.43	55.10	1.33		
0+120.00	56.75	55.14	1.61		
0+129.26	56.36	55.15	1.21		TP 1
0+140.00	56.64	55.18	1.46		
0+141.23	56.59	55.18	1.41		TP 2
0+160.00	56.85	55.22	1.63		
0+168.21	56.90	55.23	1.67		TP 3
0+180.00	56.81	55.26	1.55		
0+200.00	56.76	55.30	1.47		
0+220.00	56.80	55.34	1.46		
0+234.07	56.75	55.36	1.38		TP 4
0+240.00	56.82	55.38	1.44		
0+260.00	56.99	55.42	1.58		
0+262.69	57.05	55.42	1.62		TP 5
0+280.00	56.96	55.46	1.50		
0+300.00	56.87	55.50	1.37		
0+320.00	56.64	55.54	1.10	−0.20%	
0+340.00	56.60	55.50	1.10		
0+360.00	56.50	55.46	1.05		
0+380.00	56.37	55.42	0.95		
0+400.00	56.38	55.38	1.00		
0+420.00	56.53	55.34	1.19		
0+440.00	56.45	55.30	1.16		
0+460.00	56.48	55.26	1.22		
0+462.80	56.47	55.25	1.22		TP 6
0+480.00	56.59	55.22	1.38		
0+484.49	56.62	55.21	1.42		TP 7
0+500.00	56.79	55.18	1.61		
0+520.00	56.81	55.14	1.67		
0+540.00	56.74	55.10	1.64	0.46%	
0+560.00	56.71	55.19	1.52		
0+561.01	56.72	55.19	1.52		TP 8
0+568.74	56.70	55.23	1.47		TP 9
0+580.00	56.54	55.28	1.26		
0+600.00	56.56	55.37	1.19		
0+620.00	56.70	55.47	1.24		
0+640.00	56.67	55.56	1.11		
0+646.57	56.63	55.59	1.04		TP 10
0+660.00	56.65	55.65	1.00		
0+680.00	56.81	55.74	1.07		
0+700.00	56.69	55.84	0.85		
0+714.99	57.01	55.91	1.10	0.91%	TP 11
0+720.00	57.30	55.95	1.35		
0+740.00	57.45	56.13	1.32		
0+760.00	57.66	56.32	1.34		
0+780.00	57.83	56.50	1.33		
0+780.38	57.83	56.50	1.33		TP 12
0+788.93	57.93	56.58	1.34		TP 13
0+800.00	57.79	56.68	1.11		
0+810.46	57.93	56.83	1.10		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

LEGEND:

	ROAD (TARMAC)
	ROAD (MURRAM/EARTH/CABRO)
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
○	WATER TANK
	GATE
□	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
⚬ ⚬	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

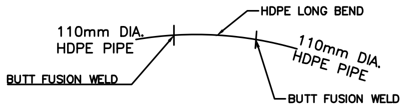
Drawing Title

WEST MAINLAND – LINE WN10
PLAN AND PROFILE
(CH. 0+000 – CH. 0+810.46)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-053C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-053	C0 REV

DETAIL

CH. 0+129.26, 0+262.69, 0+462.80 & 0+646.57
LINE WN10 - 22.5° H.BEND



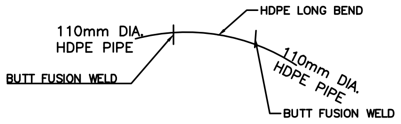
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+234.07
LINE WN10 - 30° H.BEND



DESCRIPTION

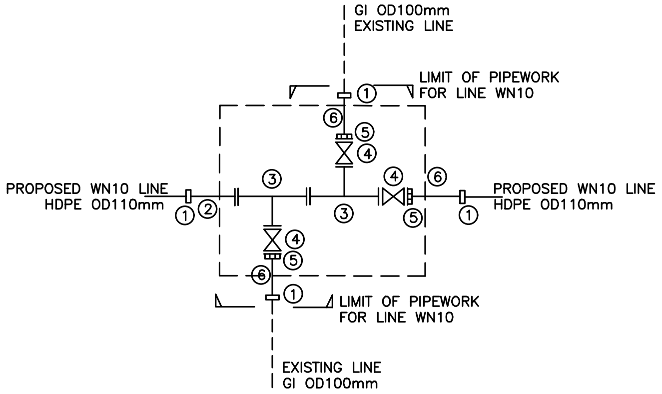
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+462.80
LINE WN10 - INTERCONNECTION



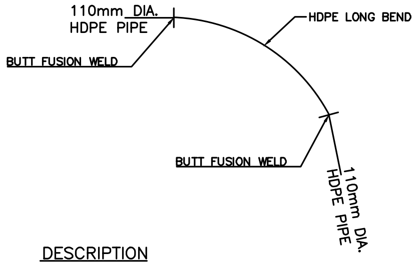
DESCRIPTION

1 No. REQUIRED

① 4 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 2 Nos. 100x100mm DIA. ALL FLANGED STEEL TEE
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 3 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2M LONG WITH A PUDDLE FLANGE

DETAIL

CH. 0+141.23
LINE WN10 - 60° H.BEND



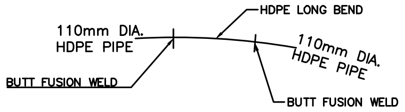
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+484.49 & 0+714.99
LINE WN10 - 11.25° H.BEND



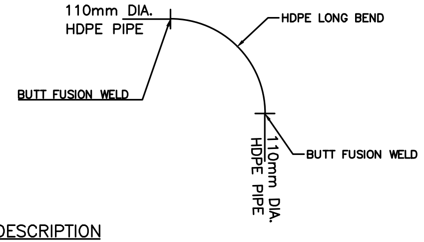
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+168.21, 0+561.01 0+568.74, 0+780.38 & 0+788.93
LINE WN10 - 90° BEND



DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

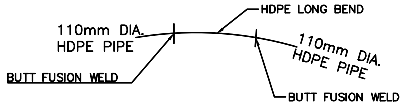
Drawing Title

WEST MAINLAND – LINE WN10
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO
Drawn by LAO
Checked by
Approved by
Scale AS SHOWN (A1)
Date NOVEMBER, 2021
Job No. 6000002
ACAD File: W&S-WM-P-054CO
C STATUS
DRAWING No. 6000002-W&S-WM-P-054
CO REV

DETAIL

CH. 0+017.16, 0+277.03, 0+307.16, 0+431.69, 0+447.38,
LINE WN11 - 22.5° H.BEND



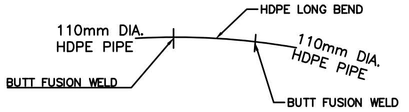
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+056.94, 0+110.31, 0+157.26, 0+211.34, 0+223.59, 0+316.00, 0+402.89, 0+538.45 & 0+555.13
LINE WN11 - 11.25° H.BEND



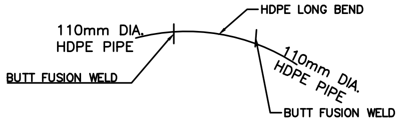
DESCRIPTION

9 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+131.90, 0+517.55
LINE WN11 - 30° H.BEND



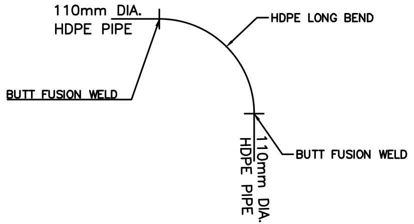
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+228.71
LINE WN11 - 90° H.BEND



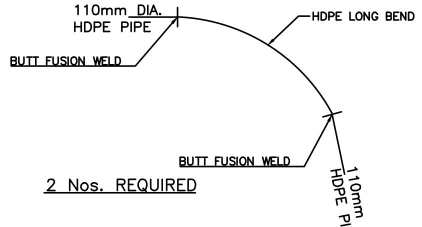
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+236.43, 0+505.32
LINE WN11 - 60° H.BEND

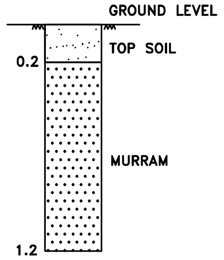


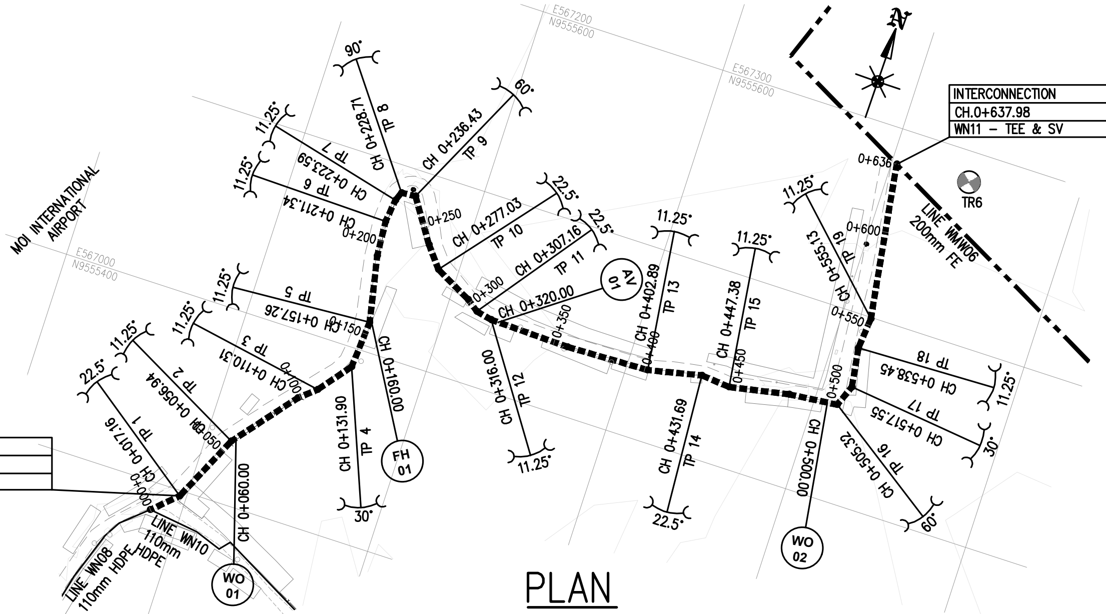
2 Nos. REQUIRED

DESCRIPTION

HDPE LONG BEND – BUTT FUSION WELDED

TRIAL HOLE TR06 DETAILS





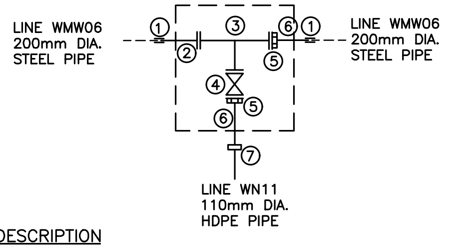
PLAN

SCALE 1:2000

CHAMBER SIZE
1200x1200

DETAIL

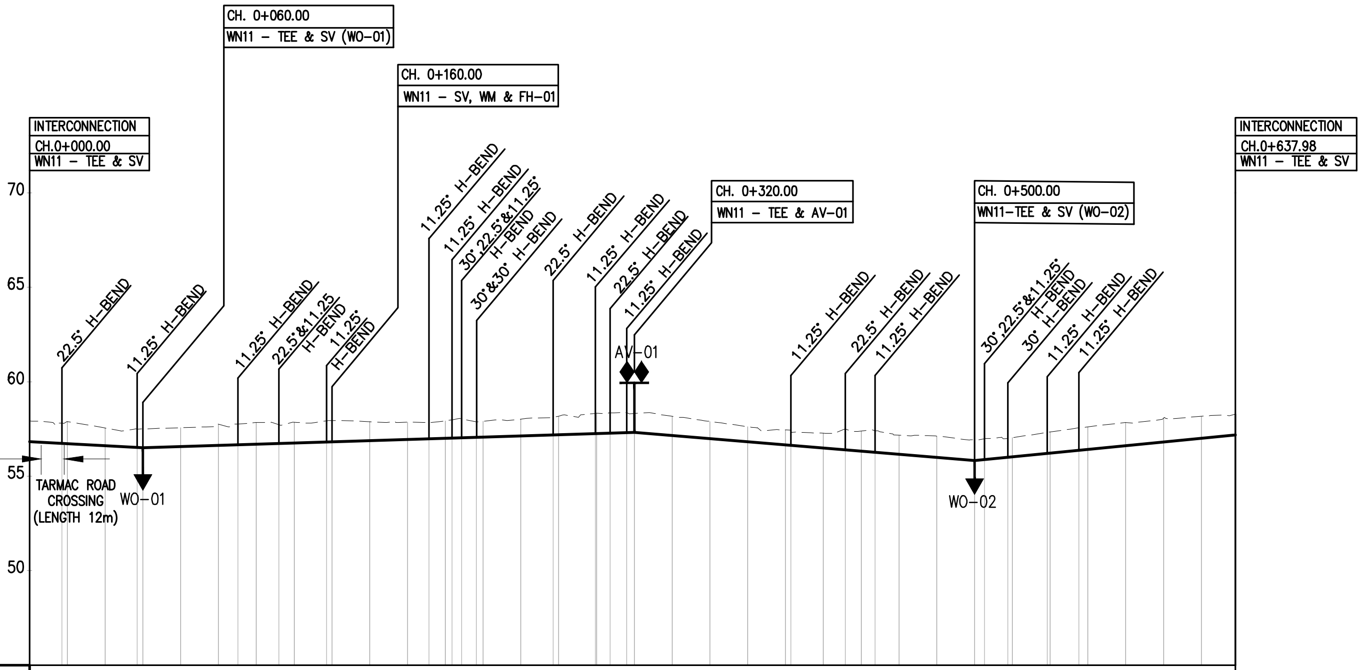
CH. 0+637.98
LINE WN11 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 2 Nos. 200mm DIA. STRAIGHT COUPLING
② 1 No. 200mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 200x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 100mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2 m LONG WITH A PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5												
GEOLOGICAL CONDITION	MURRAM												
EXISTING GROUND LEVEL (m)	57.93	57.81	57.90	57.55	57.50	57.50	57.57	57.73	57.76	57.84	57.73	57.86	57.93
INVERT LEVELS (m)	56.83	56.74	56.72	56.61	56.52	56.50	56.57	56.63	56.66	56.69	56.73	56.75	56.81
CHAINAGE (m)	0+000.00	0+017.16	0+020.00	0+040.00	0+056.94	0+060.00	0+080.00	0+100.00	0+110.31	0+120.00	0+131.90	0+140.00	0+157.26
DEPTH OF INVERT (m)	1.10	1.07	1.17	0.94	0.98	1.00	1.00	1.11	1.09	1.15	1.00	1.11	1.12
SLOPE OF PIPE (1/n)	–0.55%					0.31%							
REFERENCE PEG NO.		TP 1			TP 2				TP 3		TP 4		TP 5

TYPE AND SIZE OF PIPE													
GEOLOGICAL CONDITION													
EXISTING GROUND LEVEL (m)	57.95	57.89	57.86	57.85	57.93		58.04	57.87	57.91	58.02	58.11	58.17	58.33
INVERT LEVELS (m)	56.82	56.88	56.94	56.98	57.00		57.03	57.05	57.07	57.13	57.18	57.19	57.25
CHAINAGE (m)	0+160.00	0+180.00	0+200.00	0+211.34	0+220.00		0+228.71	0+236.43	0+240.00	0+260.00	0+277.03	0+280.00	0+299.33
DEPTH OF INVERT (m)	1.13	1.01	0.92	0.87	0.93		1.01	0.82	0.85	0.89	0.93	0.98	1.08
SLOPE OF PIPE (1/n)													
REFERENCE PEG NO.				TP 6		TP 7	TP 8	TP 9			TP 10		

TYPE AND SIZE OF PIPE													
GEOLOGICAL CONDITION													
EXISTING GROUND LEVEL (m)	58.35	58.36	58.32	58.17	57.90	57.62	57.45	57.40	57.28	57.51	57.39	57.40	57.17
INVERT LEVELS (m)	57.28	57.30	57.32	57.15	56.98	56.82	56.65	56.63	56.49	56.39	56.32	56.26	56.15
CHAINAGE (m)	0+307.16	0+316.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+402.89	0+420.00	0+431.69	0+440.00	0+447.38	0+460.00
DEPTH OF INVERT (m)	1.07	1.06	1.00	1.02	0.91	0.80	0.80	0.77	0.79	1.12	1.07	1.15	1.01
SLOPE OF PIPE (1/n)			–0.83%										
REFERENCE PEG NO.	TP 11	TP 12						TP 13		TP 14		TP 15	

TYPE AND SIZE OF PIPE													
GEOLOGICAL CONDITION													
EXISTING GROUND LEVEL (m)	57.12	56.92	56.98	57.00	57.04	57.33	57.35	57.56	57.61	57.84	58.07	58.17	58.29
INVERT LEVELS (m)	55.99	55.82	55.87	55.99	56.02	56.20	56.22	56.37	56.41	56.61	56.81	57.01	57.19
CHAINAGE (m)	0+480.00	0+500.00	0+505.32	0+517.55	0+520.00	0+538.45	0+540.00	0+555.13	0+560.00	0+580.00	0+600.00	0+620.00	0+637.98
DEPTH OF INVERT (m)	1.14	1.10	1.10	1.01	1.02	1.13	1.13	1.19	1.20	1.23	1.26	1.16	1.10
SLOPE OF PIPE (1/n)		0.99%											
REFERENCE PEG NO.			TP 16	TP 17		TP 18		TP 19					

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

– – – –	ROAD (TARMAC)
- - - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–x–	FENCE / HEDGE
—— 14 ——	CONTOURS, lm INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

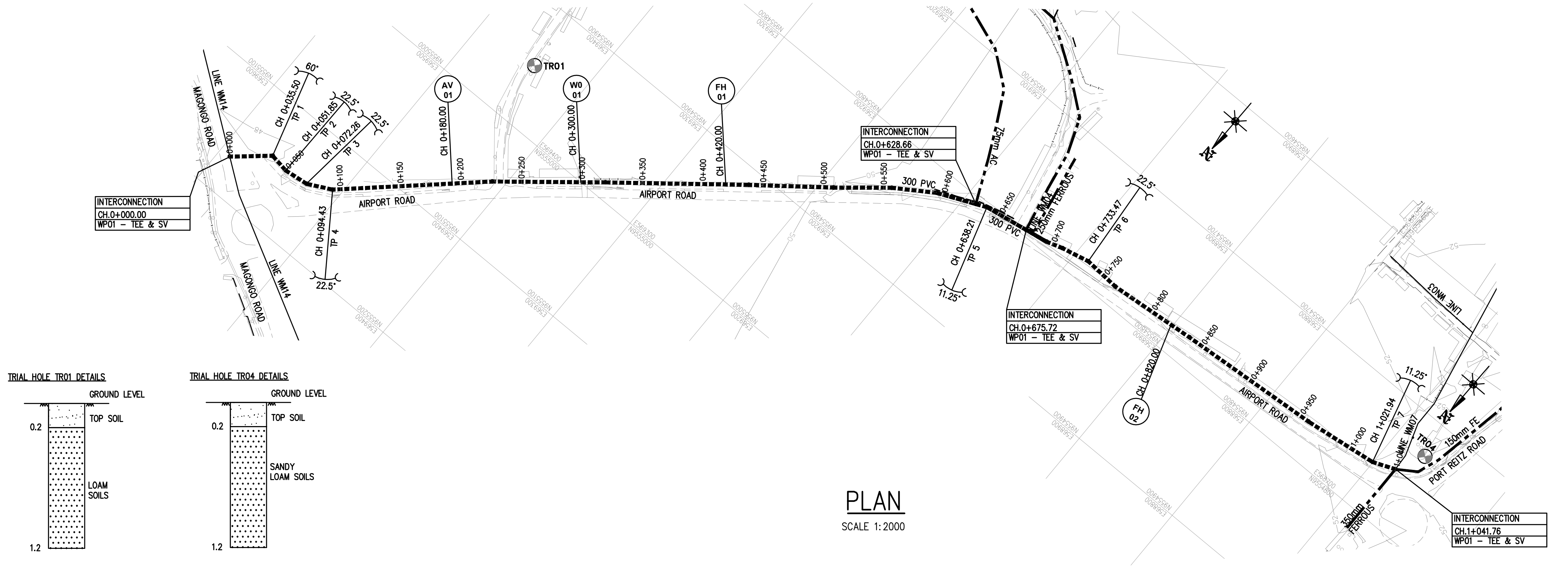
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

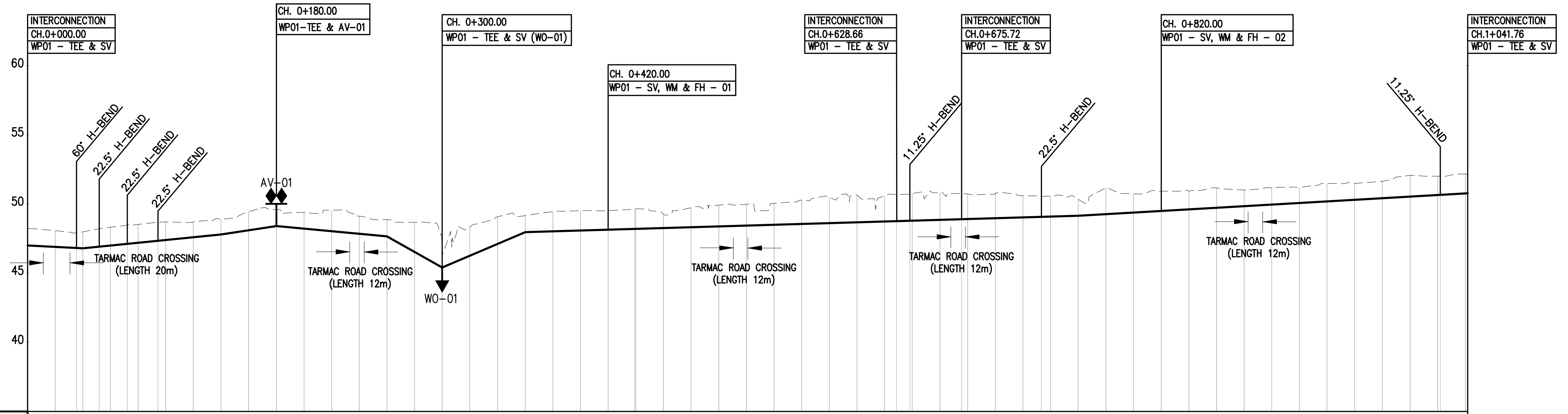
WEST MAINLAND – LINE WN11
PLAN, PROFILE & FITTING DETAILS
(CH. 0+000 – CH. 0+637.98)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-055C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-055	C0 REV



PLAN

SCALE 1:2000



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE	DN 355 HDPE PIPE TO PN 12.5															
GEOLOGICAL CONDITION	LOAM SOILS															
EXISTING GROUND LEVEL (m)	48.33	48.06	47.91	47.99	48.19	48.31	48.50	48.52	48.67	48.70	48.69	48.89	49.43	49.60	49.40	49.55
INVERT LEVELS (m)	47.09	46.89	46.81	46.79	46.90	46.99	47.11	47.19	47.33	47.39	47.59	47.79	48.09	48.40	48.22	48.03
CHAINAGE (m)	0+000.00	0+020.00	0+035.50	0+040.00	0+051.85	0+060.00	0+072.26	0+080.00	0+094.43	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00
DEPTH OF INVERT (m)	1.24	1.17	1.10	1.20	1.29	1.32	1.39	1.34	1.34	1.31	1.10	1.10	1.33	1.20	1.18	1.52
SLOPE OF PIPE (%)	–0.51%			1.00%								1.54%		–0.93%		
REFERENCE PEG NO.			TP 1		TP 2		TP 3		TP 4							

TYPE AND SIZE OF PIPE																
GEOLOGICAL CONDITION																
EXISTING GROUND LEVEL (m)	49.12	48.86	48.68	46.78	48.35	49.07	49.16	49.44	49.51	49.51	49.65	49.26	49.73	49.92	49.98	50.04
INVERT LEVELS (m)	47.84	47.66	46.53	45.40	46.25	47.10	47.96	48.01	48.07	48.13	48.19	48.25	48.31	48.37	48.43	48.49
CHAINAGE (m)	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00
DEPTH OF INVERT (m)	1.27	1.20	2.15	1.38	2.09	1.97	1.20	1.43	1.43	1.38	1.46	1.01	1.42	1.55	1.55	1.56
SLOPE OF PIPE (%)		–5.63%		4.25%			0.30%									
REFERENCE PEG NO.																

TYPE AND SIZE OF PIPE																
GEOLOGICAL CONDITION		SANDY LOAM SOILS														
EXISTING GROUND LEVEL (m)	50.27	50.48	50.63	50.59	50.68	50.71	50.75	50.81	50.79	50.71	50.76	50.59	50.57	50.56	50.33	51.16
INVERT LEVELS (m)	48.55	48.61	48.67	48.73	48.75	48.78	48.78	48.84	48.89	48.90	48.96	49.02	49.06	49.08	49.14	49.26
CHAINAGE (m)	0+560.00	0+580.00	0+600.00	0+620.00	0+628.66	0+638.21	0+640.00	0+660.00	0+675.72	0+680.00	0+700.00	0+720.00	0+733.47	0+740.00	0+760.00	0+780.00
DEPTH OF INVERT (m)	1.73	1.87	1.97	1.87	1.93	1.94	1.96	1.97	1.90	1.81	1.80	1.57	1.51	1.48	1.20	1.90
SLOPE OF PIPE (%)															0.58%	
REFERENCE PEG NO.						TP 5							TP 6			

TYPE AND SIZE OF PIPE															
GEOLOGICAL CONDITION															
EXISTING GROUND LEVEL (m)	50.71	50.93	50.93	51.15	51.01	51.18	51.18	51.48	51.48	51.64	52.07	52.00	52.00	52.18	52.17
INVERT LEVELS (m)	49.37	49.49	49.60	49.72	49.84	49.95	50.07	50.18	50.30	50.42	50.53	50.65	50.66	50.76	50.77
CHAINAGE (m)	0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00	0+940.00	0+960.00	0+980.00	1+000.00	1+020.00	1+021.94	1+040.00	1+041.76
DEPTH OF INVERT (m)	1.34	1.44	1.33	1.43	1.18	1.23	1.11	1.29	1.18	1.23	1.54	1.35	1.34	1.42	1.40
SLOPE OF PIPE (%)															
REFERENCE PEG NO.													TP 7		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

═ ═	ROAD (TARMAC)
– –	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
–x–x–	FENCE / HEDGE
—14—	CONTOURS, lm INTERVAL
○	ELECTRIC POST
⊐⊏	CULVERT
—	GATE
□	BUILDINGS
■ ■ ■	PROPOSED WATER MAIN
▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
—	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

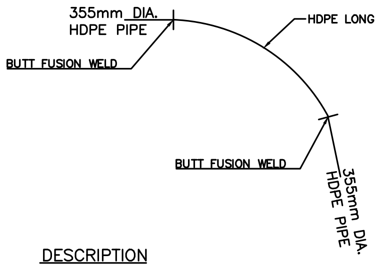
Drawing Title

WEST MAINLAND – LINE WP01
PLAN AND PROFILE
(CH. 0+000 – CH. 1+041.76)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-057C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-057 C0 REV

DETAIL

CH. 0+035.50
LINE WP01 - 60° H.BEND



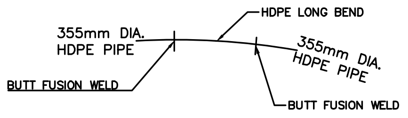
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+638.21 & 1+021.94
LINE WP01 - 11.25° H.BEND



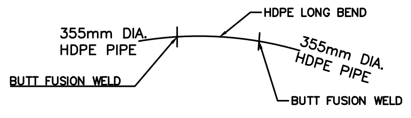
DESCRIPTION

12 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+051.85, 0+072.26, 0+94.43 & 0+733.47
LINE WP01 - 22.5° H.BEND



DESCRIPTION

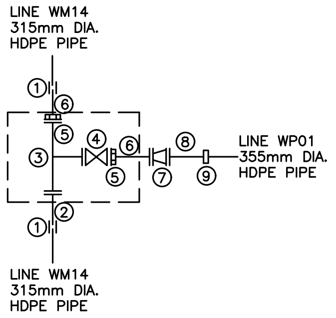
4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1800x1800

DETAIL

CH. 0+000.00
LINE WP01 - INTERCONNECTION



DESCRIPTION

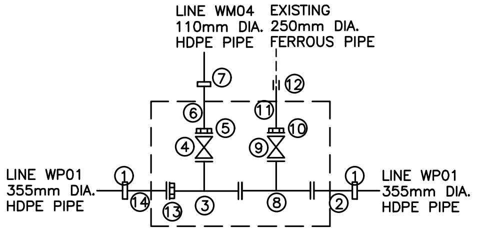
1 No. REQUIRED

① 2 Nos. 315/250mm DIA. STEPPED COUPLING
② 1 No. 250mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 250x250mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑤ 2 Nos. 250mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 250mm DIA. PLAIN ENDED PIPE 1.2m LONG WITH PUDDLE FLANGE
⑦ 1 No. 300X250mm DIA. ALL FLANGED STEEL CONCENTRIC TAPER
⑧ 1 No. 300mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG
⑨ 1 No. 300/355mm DIA. STEPPED COUPLING

CHAMBER SIZE
1800x1800

DETAIL

CH. 0+675.72
LINE WP01 - INTERCONNECTION



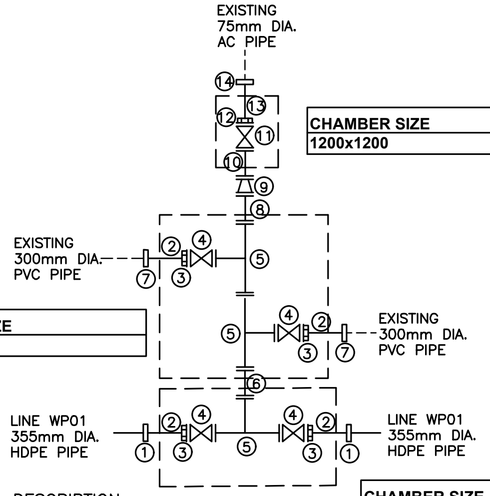
DESCRIPTION

1 No. REQUIRED

① 2 Nos. 355/300mm DIA. STEPPED COUPLING
② 1 No. 300mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 300x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING
⑧ 1 No. 300x250mm DIA. ALL FLANGED STEEL TEE
⑨ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑩ 1 No. 250mm DIA. FLANGE ADAPTOR
⑪ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑫ 1 No. 250mm DIA. STRAIGHT COUPLING
⑬ 1 No. 300mm DIA. FLANGE ADAPTOR
⑭ 1 No. 300mm DIA. PLAIN ENDED PIPE WITH PUDDLE FLANGE

DETAIL

CH. 0+628.66
LINE WP01 - INTERCONNECTION



CHAMBER SIZE
1200x1200

CHAMBER SIZE
1800x1800

CHAMBER SIZE
1800x1800

DESCRIPTION

1 No. REQUIRED

① 2 Nos. 315/300mm DIA. STEPPED COUPLING
② 4 Nos. 300mm DIA. PLAIN ENDED STEEL PIPES 1.2m LONG WITH PUDDLE FLANGE
③ 4 Nos. 300mm DIA. FLANGE ADAPTOR
④ 4 Nos. 300mm DIA. ALL FLANGED SLUICE VALVE
⑤ 3 Nos. 300x300mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 300mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH PUDDLE FLANGE
⑦ 2 Nos. 300mm DIA. STEPPED COUPLING
⑧ 1 No. 300mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH PUDDLE FLANGE
⑨ 1 No. 300X80mm DIA. ALL FLANGED STEEL CONCENTRIC TAPER
⑩ 1 No. 80mm DIA. ALL FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑪ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑫ 1 No. 80mm DIA. FLANGE ADAPTOR
⑬ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑭ 1 No. 80/75mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

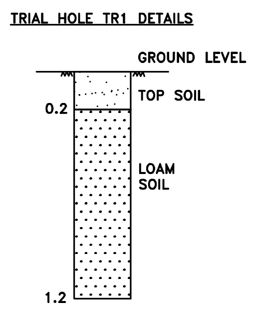
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

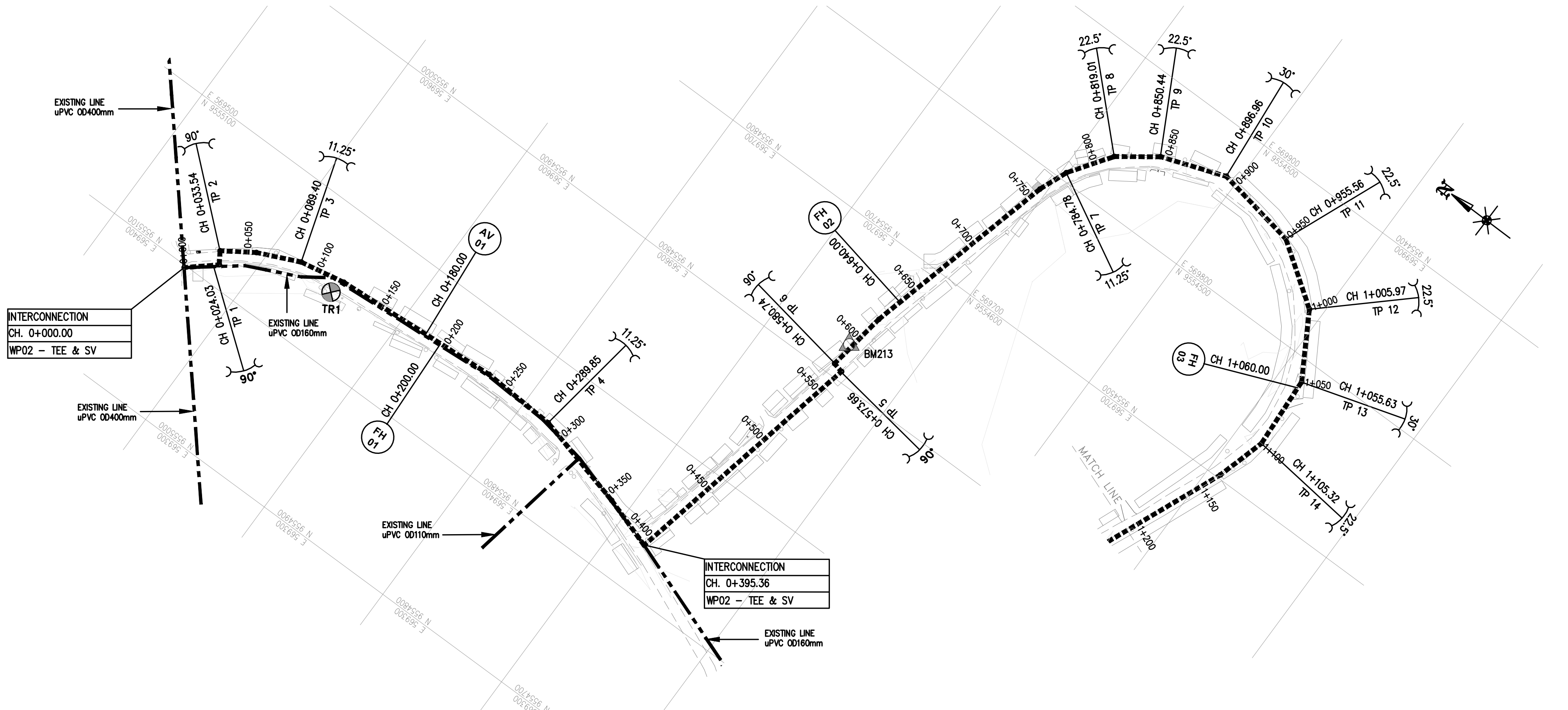
Drawing Title

WEST MAINLAND – LINE WP01
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-058C0

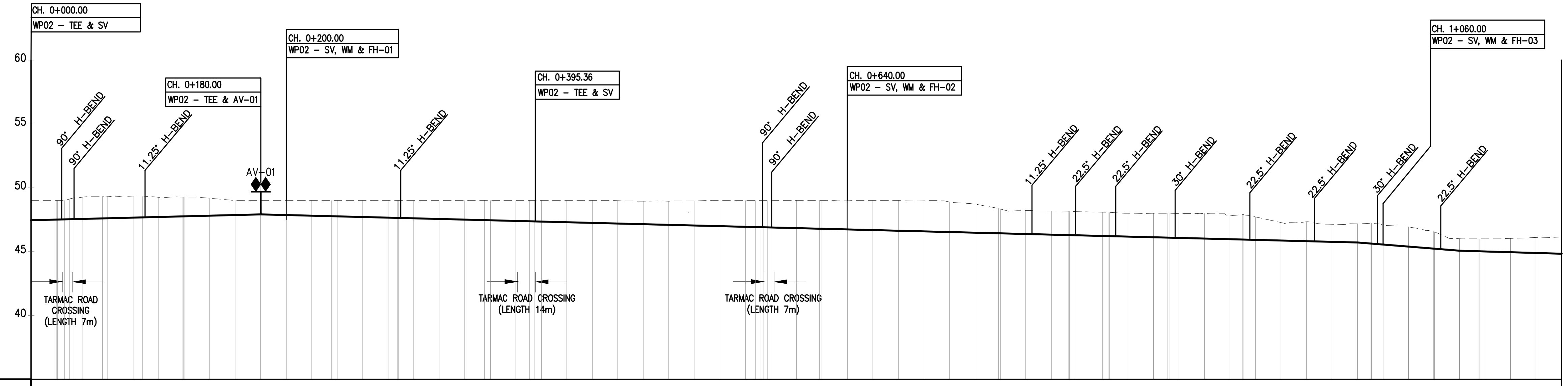
C STATUS | DRAWING No. **6000002-W&S-WM-P-058** | C0 REV





PLAN

SCALE 1:2000



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE: DN 160mm HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: LOAM SOIL

EXISTING GROUND LEVEL (m)	49.00	49.00	49.27	49.34	49.34	49.26	49.28	49.19	49.01	49.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00
INVERT LEVELS (m)	47.46	47.51	47.56	47.62	47.67	47.72	47.77	47.82	47.87	47.92	47.87	47.82	47.77	47.72	47.67	47.62	47.57	47.51	47.46	47.41
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380
DEPTH OF INVERT (m)	1.54	1.49	1.70	1.73	1.68	1.54	1.51	1.36	1.13	1.08	1.13	1.18	1.23	1.28	1.33	1.38	1.43	1.49	1.54	1.59
SLOPE OF PIPE (%)	0.26%									-0.26%										
REFERENCE PEG No.		TP 1 TP 2			TP 3										TP 4					

EXISTING GROUND LEVEL (m)	49.00	49.00	49.00	48.99	48.95	48.96	48.97	49.00	49.00	49.00	49.00	49.00	48.99	49.00	49.00	48.99	48.89	48.72	48.34	48.22
INVERT LEVELS (m)	47.36	47.31	47.26	47.21	47.15	47.10	47.05	47.00	46.95	46.90	46.85	46.80	46.74	46.69	46.64	46.59	46.54	46.49	46.44	46.38
CHAINAGES (M)	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780
DEPTH OF INVERT (m)	1.64	1.69	1.74	1.78	1.79	1.85	1.91	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.36	2.40	2.35	2.23	1.91	1.83
SLOPE OF PIPE (%)																				
REFERENCE PEG No.									TP 5	TP 6										TP 7

EXISTING GROUND LEVEL (m)	48.18	48.14	48.09	48.00	48.00	47.98	47.99	47.81	47.72	47.29	47.34	47.12	47.18	47.10	46.94	46.56	46.01	46.00	46.03	46.10	46.08
INVERT LEVELS (m)	46.33	46.28	46.23	46.18	46.13	46.08	46.03	45.97	45.92	45.87	45.82	45.77	45.72	45.56	45.40	45.24	45.08	45.02	44.96	44.90	44.84
CHAINAGES (M)	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
DEPTH OF INVERT (m)	1.85	1.85	1.86	1.82	1.87	1.91	1.96	1.83	1.79	1.41	1.52	1.35	1.46	1.54	1.54	1.33	0.93	0.98	1.08	1.20	1.24
SLOPE OF PIPE (%)													-0.80%				-0.30%				
REFERENCE PEG No.	TP 8		TP 9		TP 10			TP 11			TP 12		TP 13			TP 14					

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
7. THE SURVEY WAS BASED ON THE DATUM BM213 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM213	569,624.17	9,554,646.09	49.38

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- 14 CONTOURS, Im INTERVAL
- ELECTRIC POST
- WATER TANK
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- ⊗ TRIAL HOLE
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- SV SLUICE VALVE
- FH FIRE HYDRANT
- WO-01 WASHOUT VALVE & No.
- WM WATER METER
- n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- △ BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

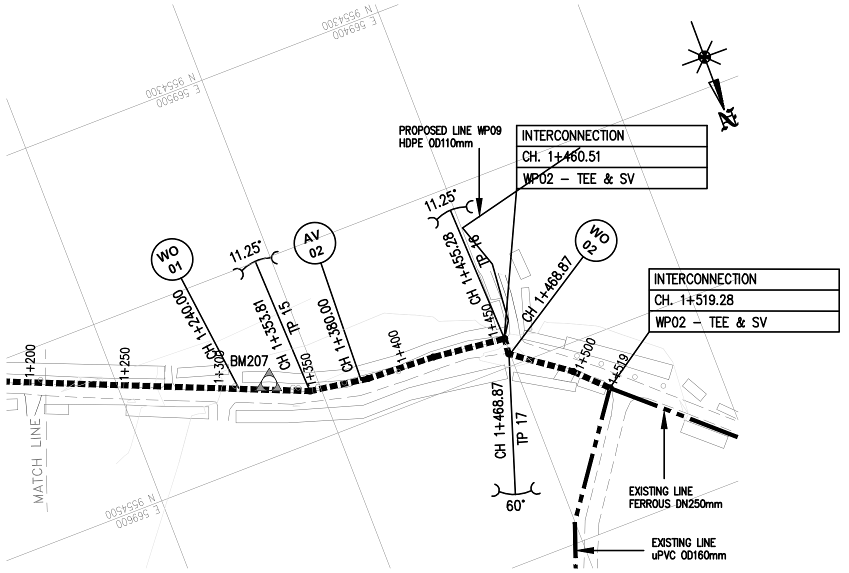
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WP02

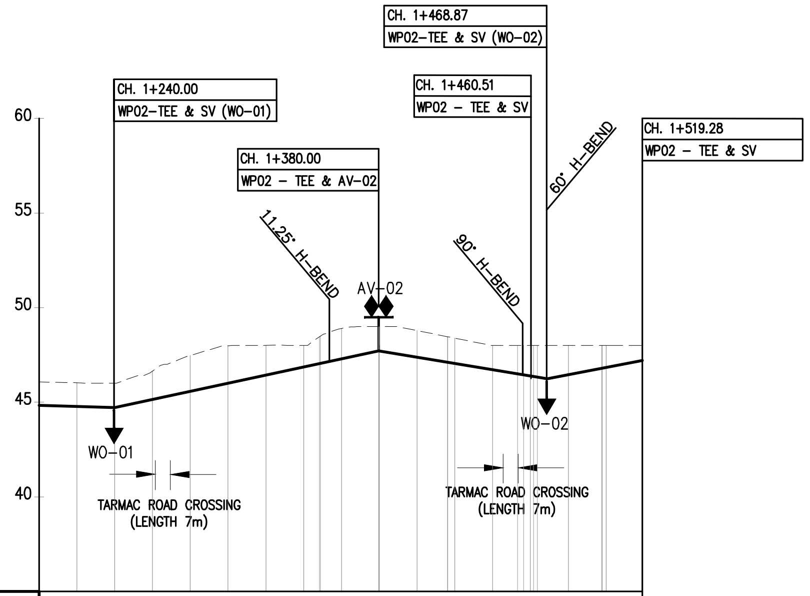
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-059C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-059 — C0 REV



PLAN

SCALE 1:2000



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160mm HDPE PIPE TO PN 12.5																
GEOLOGICAL CONDITION	LOAM SOIL																
EXISTING GROUND LEVEL (m)	46.08	46.03	46.01	46.64	47.48	47.99	48.01	48.01	48.90	49.00	48.79	48.39	48.00	48.00	48.00	48.00	48.00
INVERT LEVELS (m)	44.84	44.78	44.71	45.15	45.58	46.01	46.44	46.87	47.30	47.72	47.39	47.05	46.72	46.39	46.46	46.84	47.21
CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+500	1+519
DEPTH OF INVERT (m)	1.24	1.25	1.29	1.50	1.90	1.98	1.57	1.14	1.60	1.28	1.41	1.33	1.28	1.61	1.54	1.16	0.79
SLOPE OF PIPE (%)	-0.30%		2.15%								-1.66%				1.92%		
REFERENCE PEG No.									TP 15					TP 16	TP 17		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
7. THE SURVEY WAS BASED ON THE DATUM BM207 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM207	569,524.60	9,554,462.31	48.50

LEGEND:

ROAD (TARMAC)
ROAD / TRACK (EARTH / MURRAM)
FENCE / HEDGE
CONTOURS, 1m INTERVAL
ELECTRIC POST
WATER TANK
GATE
BUILDINGS
PROPOSED WATER MAIN
EXISTING WATER MAIN
TP10 TRAVERSE POINT & No.
TREES
TRIAL HOLE
30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV SLUICE VALVE
FH FIRE HYDRANT
WO-01 WASHOUT VALVE & No.
AV-01 COMBINATION AIR VALVE & No.
WM WATER METER
n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
PERIMETER WALL
BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

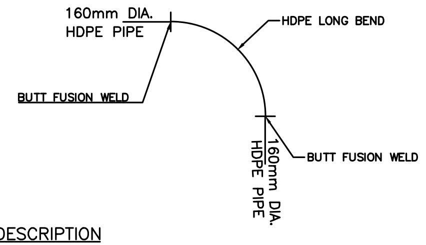
Drawing Title

WEST MAINLAND – LINE WP02
PLAN AND PROFILE
(CH. 1+200 – CH. 1+519.28)
SHEET 2 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-060C0

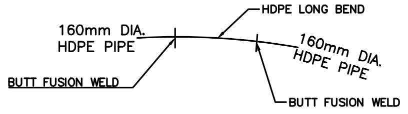
C STATUS | DRAWING No. 6000002-W&S-WM-P-060 | C0 REV

DETAIL CH. 0+024.03, 0+033.54, 0+573.66 & 0+580.74
LINE WP02 - 45°, 30° & 11.25° BEND



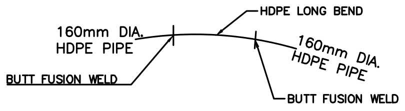
DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+089.40, 0+289.85 & 0+784.78 & 1+353.81
LINE WP02 - 11.25° H.BEND



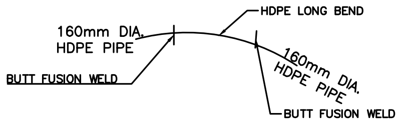
DESCRIPTION
4 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+819.01, 0+850.44, 0+955.56, 1+005.97 & 1+105.32
LINE WP02 - 22.5° H.BEND



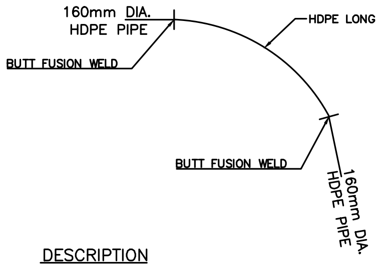
DESCRIPTION
5 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+896.96 & 1+055.63
LINE WP02 - 30° H.BEND



DESCRIPTION
2 Nos. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

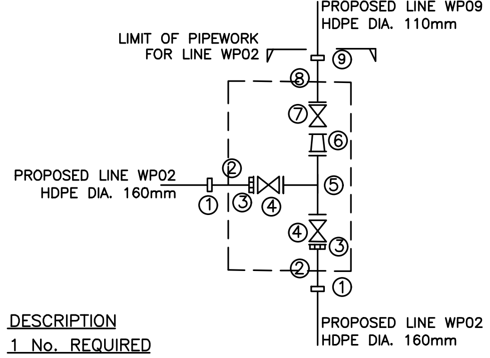
DETAIL CH. 1+468.87
LINE WP02 - 60° H.BEND



DESCRIPTION
1 No. REQUIRED
HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1500X1200

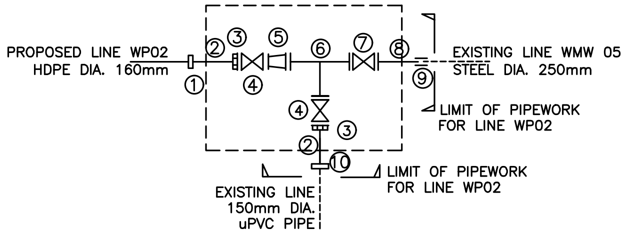
DETAIL CH. 1+460.51
LINE WP02 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 2 Nos. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150x150mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 100mm DIA. SINGLE FLANGED PIPE 1.2m LONG WITH PUDDLE FLANGE
⑨ 1 No. 110/100mm DIA. STEPPED COUPLING

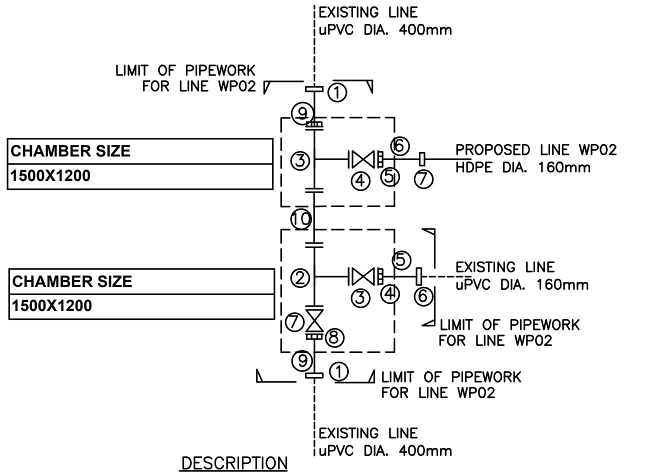
CHAMBER SIZE
1500X1200

DETAIL CH. 1+525.62
WP02 - INTERCONNECTION



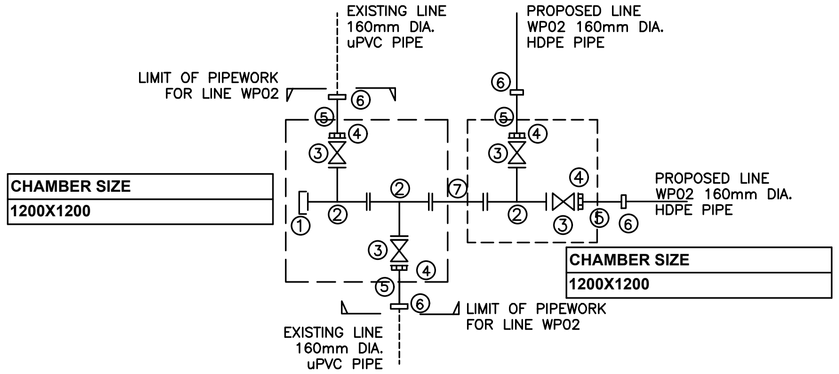
DESCRIPTION
1 No. REQUIRED
① 1 No. 160/150mm DIA. STEPPED COUPLING
② 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPES 1.2m LONG WITH PUDDLE FLANGE
③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
④ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 250mmx150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑥ 1 No. 250mmx150mm DIA. ALL FLANGED STEEL TEE
⑦ 1 No. 250mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 250mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑨ 1 No. 250mm DIA. STRAIGHT COUPLING
⑩ 1 No. 150/150mm DIA. STEPPED COUPLING

DETAIL CH. 0+000.00
LINE WP02 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 2 Nos. 400/400mm DIA. STEPPED COUPLING
② 2 Nos. 400x150mm DIA. ALL FLANGED STEEL TEE
③ 2 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
④ 2 Nos. 150mm DIA. FLANGE ADAPTER
⑤ 2 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑥ 2 Nos. 160/150mm DIA. STEPPED COUPLING
⑦ 1 No. 400mm DIA. ALL FLANGED SLUICE VALVE
⑧ 2 Nos. 400mm DIA. FLANGE ADAPTOR
⑨ 2 Nos. 400mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑩ 1 No. 400mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH PUDDLE FLANGE

DETAIL CH. 0+395.36
WP02 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 1 No. 150mm DIA. BLANK FLANGE
② 3 Nos. 150X150mm DIA. ALL FLANGED STEEL TEE
③ 4 Nos. 150mm DIA. ALL FLANGED SLUICE VALVE
④ 4 Nos. 150mm DIA. FLANGE ADAPTOR
⑤ 4 Nos. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑥ 4 Nos. 160/150mm DIA. STEPPED COUPLING
⑦ 1 No. 150mm DIA. ALL FLANGED STEEL PIPE 2m LONG WITH PUDDLE FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

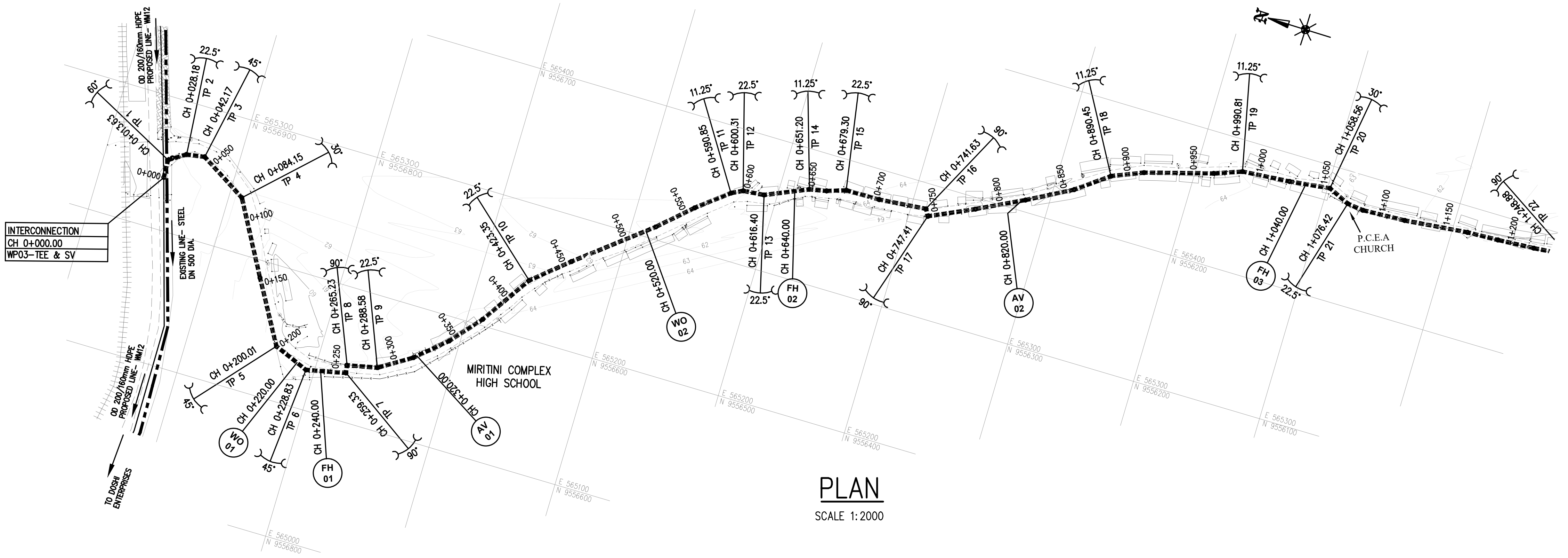
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

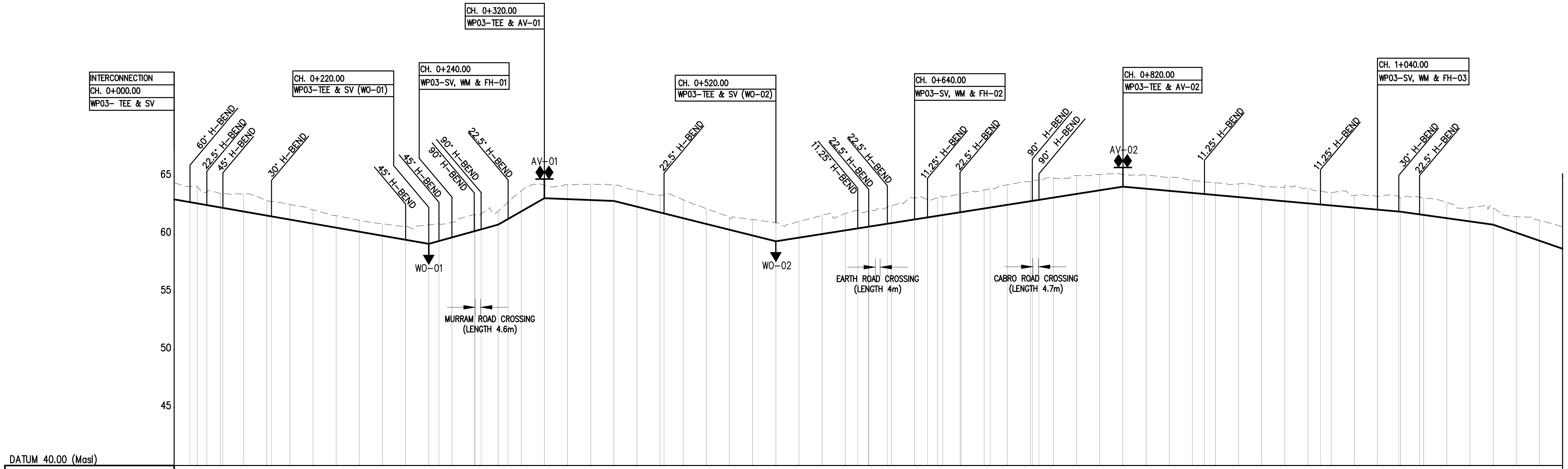
Drawing Title
WEST MAINLAND – LINE WP02
PIPE FITTING DETAILS
SHEET 3 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-061C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-061 · C0 REV



PLAN

SCALE 1:2000



TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5													
GEOLOGICAL CONDITION	SAND SOIL													
EXISTING GROUND LEVEL (m)	64.46	64.11	64.10	63.59	63.52	63.45	63.49	62.93	62.79	62.57	62.11	61.60	61.21	60.89
INVERT LEVELS (m)	63.00	62.76	62.65	62.51	62.30	62.26	61.95	61.61	61.53	61.26	60.91	60.56	60.21	59.86
CHAINAGE (m)	0+000.00	0+013.63	0+020.00	0+028.18	0+040.00	0+042.17	0+060.00	0+080.00	0+084.15	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00
DEPTH OF INVERT (m)	1.46	1.35	1.45	1.09	1.21	1.18	1.53	1.32	1.26	1.32	1.20	1.04	1.00	1.03
SLOPE OF PIPE (%)	-1.74%													
REFERENCE PEG NO.		TP 1		TP 2		TP 3			TP 4					

EXISTING GROUND LEVEL (m)	60.74	60.74	60.81	60.90	61.01	61.70	61.69	61.73	61.98	62.83	63.75	64.23	64.26	64.31
INVERT LEVELS (m)	59.51	59.51	59.16	59.41	59.72	60.25	60.27	60.42	60.82	61.32	61.97	63.11	63.03	62.95
CHAINAGE (m)	0+200.00	0+200.01	0+220.00	0+228.83	0+240.00	0+259.33	0+260.00	0+265.23	0+280.00	0+288.58	0+300.00	0+320.00	0+340.00	0+360.00
DEPTH OF INVERT (m)	1.23	1.23	1.64	1.49	1.30	1.45	1.42	1.32	1.16	1.52	1.78	1.12	1.23	1.36
SLOPE OF PIPE (%)				2.76%						5.73%			-0.41%	
REFERENCE PEG NO.		TP 5		TP 6		TP 7		TP 8		TP 9				

EXISTING GROUND LEVEL (m)	64.25	63.77	63.37	63.41	62.98	62.20	61.41	61.26	60.99	61.09	61.63	61.79	62.09	62.01
INVERT LEVELS (m)	62.87	62.37	61.88	61.79	61.38	60.88	60.39	59.89	59.39	59.71	60.02	60.34	60.51	60.65
CHAINAGE (m)	0+380.00	0+400.00	0+420.00	0+423.35	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+590.85	0+600.00
DEPTH OF INVERT (m)	1.38	1.39	1.49	1.62	1.60	1.32	1.02	1.37	1.60	1.39	1.61	1.45	1.59	1.36
SLOPE OF PIPE (%)		-1:40.26								1.57%				
REFERENCE PEG NO.				TP 10									TP 11	

EXISTING GROUND LEVEL (m)	62.02	62.33	62.45	63.12	62.98	63.16	63.50	63.51	63.81	64.27	64.54	64.63	64.50	64.86
INVERT LEVELS (m)	60.66	60.91	60.97	61.28	61.46	61.59	61.90	61.91	62.22	62.54	62.85	62.88	62.97	63.17
CHAINAGE (m)	0+600.31	0+616.40	0+620.00	0+640.00	0+651.20	0+660.00	0+679.30	0+680.00	0+700.00	0+720.00	0+740.00	0+741.63	0+747.41	0+760.00
DEPTH OF INVERT (m)	1.36	1.43	1.49	1.84	1.52	1.57	1.60	1.60	1.59	1.74	1.75	1.68	1.53	1.69
SLOPE OF PIPE (%)														
REFERENCE PEG NO.	TP 12	TP 13			TP 14		TP 15					TP 16	TP 17	

EXISTING GROUND LEVEL (m)	65.07	65.16	65.18	65.12	64.92	64.66	64.54	64.44	64.35	64.17	64.17	63.98	63.72	63.61
INVERT LEVELS (m)	63.48	63.80	64.11	63.93	63.75	63.57	63.47	63.39	63.21	63.02	62.84	62.66	62.56	62.48
CHAINAGE (m)	0+780.00	0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+890.45	0+900.00	0+920.00	0+940.00	0+960.00	0+980.00	0+990.81	1+000.00
DEPTH OF INVERT (m)	1.59	1.36	1.07	1.19	1.17	1.10	1.07	1.05	1.14	1.15	1.32	1.32	1.15	1.13
SLOPE OF PIPE (%)				-0.90%										
REFERENCE PEG NO.							TP 18						TP 19	

EXISTING GROUND LEVEL (m)	63.35	63.28	63.22	63.17	63.21	63.15	62.74	62.30	62.27	61.51	61.19	60.66
INVERT LEVELS (m)	62.30	62.12	61.95	61.94	61.71	61.66	61.38	61.10	60.82	60.13	59.44	58.75
CHAINAGE (m)	1+020.00	1+040.00	1+058.56	1+060.00	1+076.42	1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+180.00	1+200.00
DEPTH OF INVERT (m)	1.05	1.16	1.27	1.23	1.50	1.49	1.36	1.20	1.44	1.38	1.75	1.91
SLOPE OF PIPE (%)				-1.39%						-3.46%		
REFERENCE PEG NO.			TP 20		TP 21							

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (TARMAC/CABRO)
	ROAD / TRACK (EARTH / MURRAM)
	RAILWAY LINE
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
	RIVER
	PAVEMENT BLOCKS
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

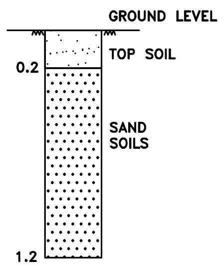
Drawing Title

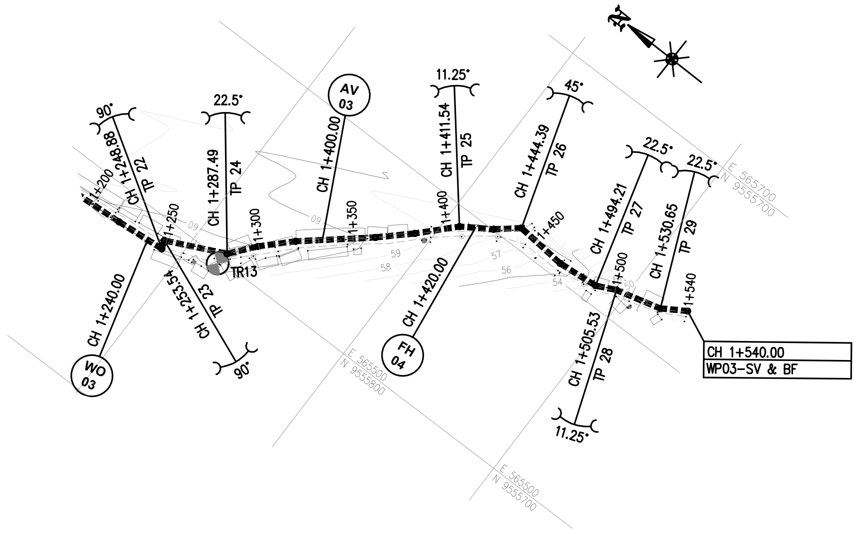
WEST MAINLAND – LINE WP03
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-062C0

C STATUS | DRAWING No. 6000002-W&S-WM-P-062 | C0 REV

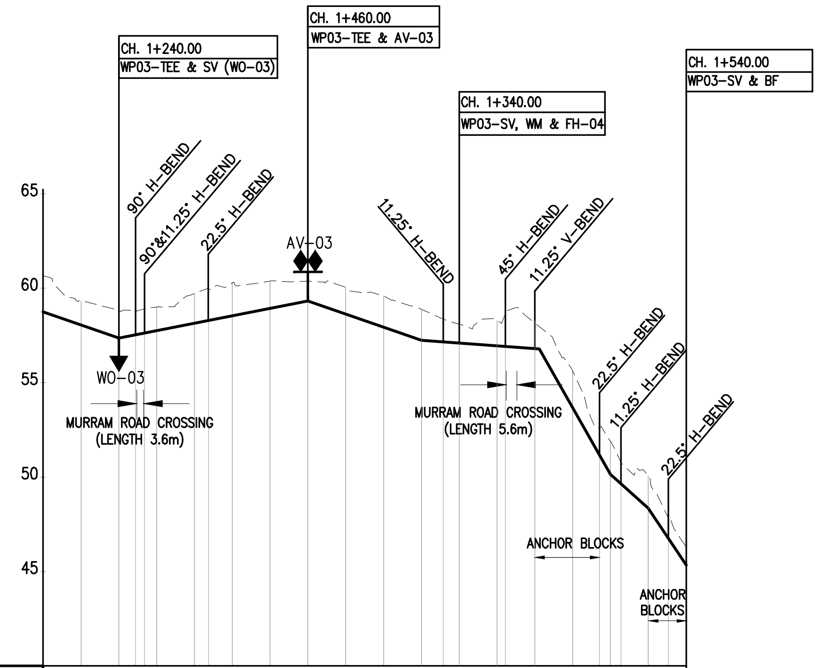
TRIAL HOLE TR13 DETAILS





PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE: DN 160 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: SAND SOIL

CHAINAGE (m)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)
1+200.00	60.66	58.75	1.91
1+220.00	59.34	58.05	1.29
1+240.00	58.83	57.36	1.46
1+248.88	58.92	57.54	1.38
1+253.54	58.90	57.63	1.27
1+260.00	59.00	57.75	1.25
1+280.00	59.72	58.15	1.57
1+287.49	59.94	58.29	1.64
1+300.00	60.27	58.54	1.73
1+320.00	60.37	58.93	1.44
1+340.00	60.36	59.32	1.04
1+360.00	60.03	58.63	1.40
1+380.00	59.59	57.93	1.66
1+400.00	58.88	57.23	1.65
1+420.00	58.10	57.09	1.56
1+440.00	58.29	56.95	1.43
1+460.00	58.15	56.81	1.34
1+480.00	55.61	53.67	1.93
1+494.21	52.60	51.17	1.43
1+500.00	51.91	50.15	1.76
1+505.53	50.76	49.65	1.11
1+520.00	50.07	48.35	1.72
1+530.65	48.04	46.74	1.29
1+540.00	46.29	45.33	0.96

SLOPE OF PIPE (%): −3.46% 1.96% −3.49% −1.65% −17.61% −8.98% −15.13%

REFERENCE PEG NO.: TP 22 TP 23 TP 24 TP 25 TP 26 TP 27 TP 28 TP 29

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
—·—·—	FENCE / HEDGE
— 14 —	CONTOURS, lm INTERVAL
○	ELECTRIC POST
⌶	CULVERT
—	GATE
☐	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
▨	RIVER
▨	ROCK OUTCROP
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

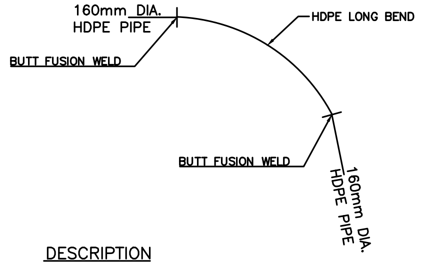
Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND – LINE WP03
PLAN AND PROFILE
(CH. 1+200 – CH. 1+540.00)
SHEET 2 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-063CO
C STATUS	DRAWING No. 6000002-W&S-WM-P-063 — CO REV

DETAIL

CH. 0+013.63
LINE WP03 - 60° H.BEND



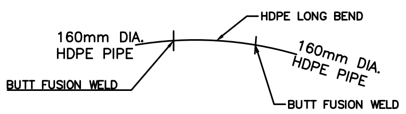
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+028.18, 0+288.58, 0+423.35, 0+600.31, 0+616.40, 0+679.30, 1+076.42, 1+287.49, 1+494.21 & 1+530.65
LINE WP03 - 22.5° H.BEND



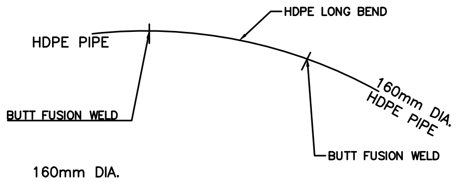
DESCRIPTION

9 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+042.17, 0+200.01, 0+228.83 & 1+444.39
LINE WP03 - 45° H.BEND



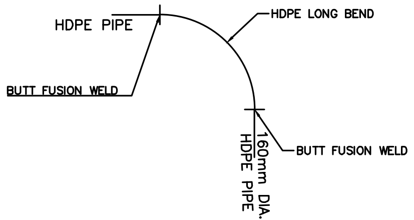
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+259.33, 0+265.23, 0+741.663, 1+248.88, 0+747.41 & 1+253.54
LINE WP03 - 90° H.BEND



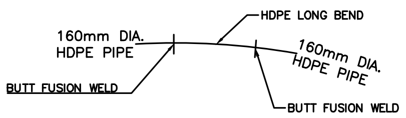
DESCRIPTION

6 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+590.85, 0+651.20, 0+890.45, 0+990.81, 1+411.54, & 1+505.53
LINE WP03 - 11.25° H.BEND



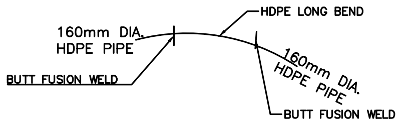
DESCRIPTION

6 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+084.15 & 1+058.56
LINE WP03 - 30° H.BEND



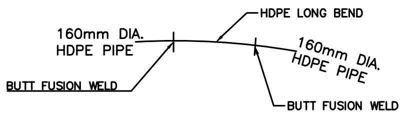
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 1+460.00
LINE WP03 - 11.25° V.BEND



DESCRIPTION

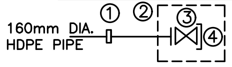
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 1+540.00
LINE WP03 - SV & B.F - 01



DESCRIPTION

1 No. REQUIRED

① 1 Nos. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 150mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

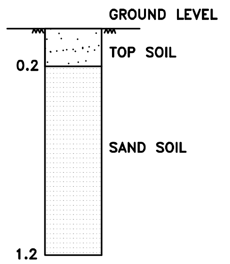
Drawing Title

WEST MAINLAND – LINE WP03
PIPE FITTING DETAILS
SHEET 3 OF 3

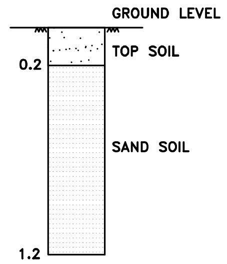
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-064C0

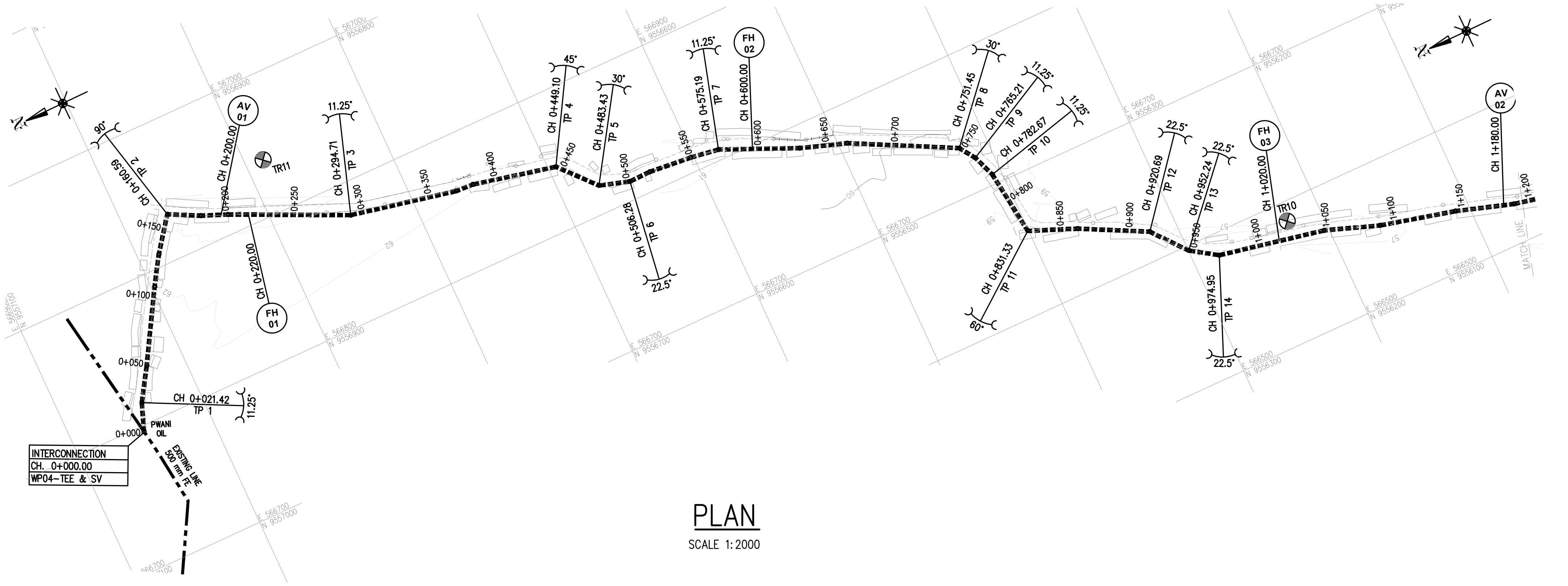
C STATUS | DRAWING No. 6000002-W&S-WM-P-064 | C0 REV

TRIAL HOLE TR10 DETAILS



TRIAL HOLE TR11 DETAILS





PLAN

SCALE 1:2000

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

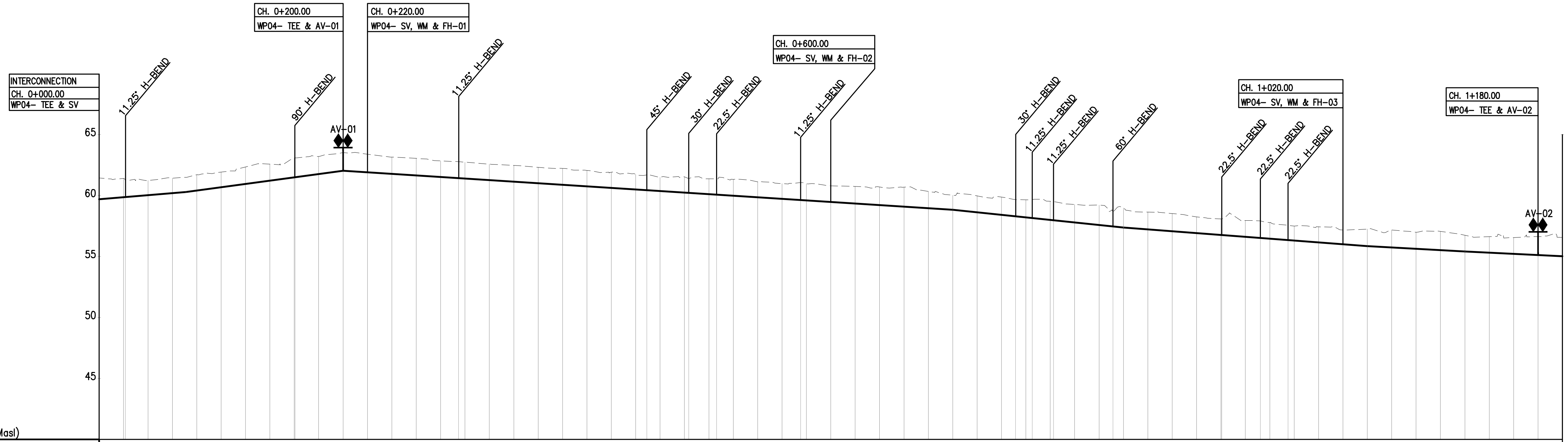
LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
▨	QUARRY
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ ▪ ▪ ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5														
GEOLOGICAL CONDITION	SAND SOIL														
EXISTING GROUND LEVEL (m)	61.45	61.41	61.25	61.23	61.41	61.70	61.93	62.35	62.58	63.07	63.09	63.20	63.53	63.40	63.15
INVERT LEVELS (m)	59.70	59.86	59.88	60.03	60.19	60.41	60.68	60.95	61.22	61.49	61.50	61.76	62.03	61.91	61.78
CHAINAGE (m)	0+000.00	0+020.00	0+021.42	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+160.59	0+180.00	0+200.00	0+220.00	0+240.00
DEPTH OF INVERT (m)	1.75	1.54	1.38	1.20	1.22	1.29	1.25	1.40	1.36	1.58	1.59	1.44	1.49	1.49	1.38
SLOPE OF PIPE (%)	0.82%					1.36%							-0.64%		
REFERENCE PEG NO.			TP 1								TP 2				

EXISTING GROUND LEVEL (m)	63.05	62.85	62.78	62.74	62.58	62.47	62.31	62.22	62.06	61.91	61.73	61.70	61.49	61.53	61.38
INVERT LEVELS (m)	61.65	61.52	61.43	61.39	61.26	61.14	61.01	60.88	60.75	60.62	60.49	60.44	60.37	60.24	60.22
CHAINAGE (m)	0+260.00	0+280.00	0+294.71	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+449.10	0+460.00	0+480.00	0+483.43
DEPTH OF INVERT (m)	1.40	1.32	1.35	1.34	1.31	1.33	1.31	1.34	1.31	1.29	1.24	1.26	1.13	1.29	1.17
SLOPE OF PIPE (%)															
REFERENCE PEG NO.			TP 3									TP 4			TP 5

EXISTING GROUND LEVEL (m)	61.38	61.36	61.33	61.12	60.98	61.06	60.98	60.80	60.75	60.70	60.69	60.34	60.03	59.98	59.87
INVERT LEVELS (m)	60.11	60.07	59.98	59.85	59.72	59.63	59.60	59.47	59.34	59.21	59.08	58.96	58.83	58.62	58.41
CHAINAGE (m)	0+500.00	0+506.28	0+520.00	0+540.00	0+560.00	0+575.19	0+580.00	0+600.00	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00
DEPTH OF INVERT (m)	1.27	1.29	1.34	1.27	1.25	1.44	1.38	1.33	1.41	1.49	1.60	1.39	1.20	1.36	1.45
SLOPE OF PIPE (%)													-1.03%		
REFERENCE PEG NO.		TP 6				TP 7									

EXISTING GROUND LEVEL (m)	59.67	59.65	59.67	59.53	59.50	59.27	59.22		58.99	58.64	58.52	58.26	58.09	58.09	57.95
INVERT LEVELS (m)	58.30	58.21	58.16	58.00	57.98	57.80	57.59	57.47	57.38	57.23	57.08	56.93	56.77	56.77	56.62
CHAINAGE (m)	0+751.45	0+760.00	0+765.21	0+780.00	0+782.67	0+800.00	0+820.00	0+831.33	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00	0+920.69	0+940.00
DEPTH OF INVERT (m)	1.38	1.44	1.52	1.52	1.53	1.47	1.62		1.60	1.41	1.44	1.33	1.32	1.32	1.33
SLOPE OF PIPE (%)									-0.77%						
REFERENCE PEG NO.	TP 8		TP 9		TP 10			TP 11						TP 12	

EXISTING GROUND LEVEL (m)	57.92	57.79	57.57	57.50	57.44	57.18	57.25	57.18	56.99	57.06	56.75	56.63	56.56	56.63	56.56
INVERT LEVELS (m)	56.52	56.47	56.35	56.31	56.16	56.01	55.85	55.74	55.63	55.53	55.42	55.32	55.22	55.12	55.03
CHAINAGE (m)	0+952.24	0+960.00	0+974.95	0+980.00	1+000.00	1+020.00	1+040.00	1+060.00	1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+180.00	1+200.00
DEPTH OF INVERT (m)	1.40	1.32	1.22	1.18	1.28	1.17	1.40	1.44	1.35	1.53	1.33	1.31	1.33	1.51	1.53
SLOPE OF PIPE (%)							-0.54%				-0.49%				
REFERENCE PEG NO.	TP 13		TP 14												

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

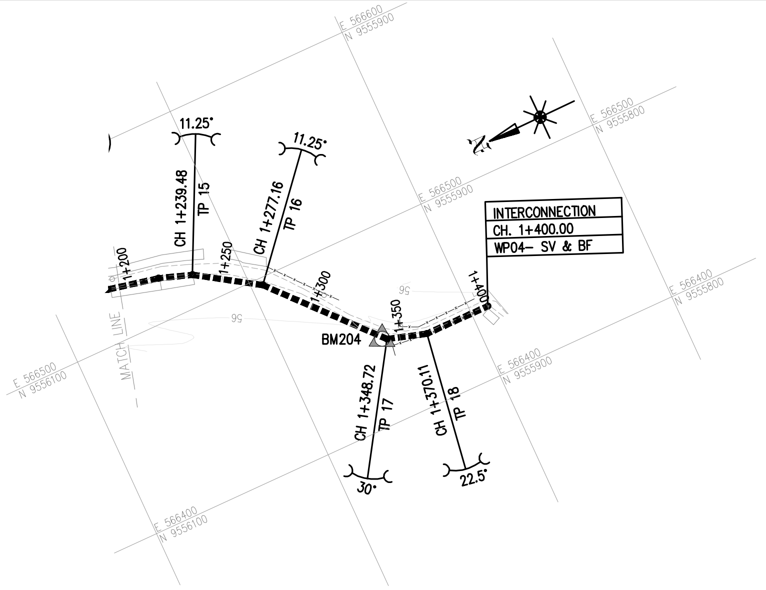
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

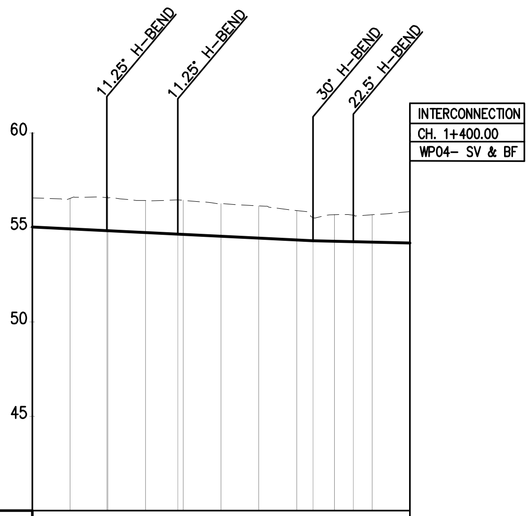
WEST MAINLAND – LINE WP04
PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-065C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-065	CO REV



PLAN

SCALE 1:2000



DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 160 HDPE PIPE TO PN 12.5																
GEOLOGICAL CONDITION	SAND SOIL																
EXISTING GROUND LEVEL (m)	56.56	56.54	56.58	56.59	56.42	56.46	56.43	56.26	56.14	55.89	55.52	55.67	55.65	55.66	55.81		
INVERT LEVELS (m)	55.03	54.93	54.83	54.83	54.73	54.65	54.64	54.54	54.44	54.34	54.30	54.27	54.25	54.22	54.17		
CHAINAGE (m)	1+200.00	1+220.00	1+239.48	1+240.00	1+260.00	1+277.16	1+280.00	1+300.00	1+320.00	1+340.00	1+348.72	1+360.00	1+370.11	1+380.00	1+400.00		
DEPTH OF INVERT (m)	1.53	1.61	1.75	1.76	1.69	1.81	1.80	1.72	1.70	1.55	1.22	1.40	1.40	1.44	1.64		
SLOPE OF PIPE (%)	−0.49%										−0.25%						
REFERENCE PEG NO.			TP 15			TP 16					TP 17		TP 18				

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. THE SURVEY WAS BASED ON THE DATUM BM204 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM204	566,443.72	9, 555,948.33	55.83

LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
▨	QUARRY
○	ELECTRIC POST
	CULVERT
	GATE
☐	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

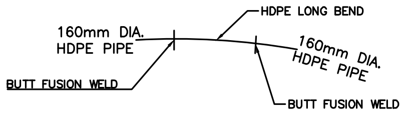
Drawing Title

WEST MAINLAND – LINE WP04
PLAN AND PROFILE
(CH. 1+200 – CH. 1+400.00)
SHEET 2 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-066C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-066 · C0 REV

DETAIL

CH. 0+021.43, 0+294.71, 0+575.19, 0+765.21, 0+782.67, 1+239.48, & 1+277.16
LINE WP04 - 11.25° H.BEND



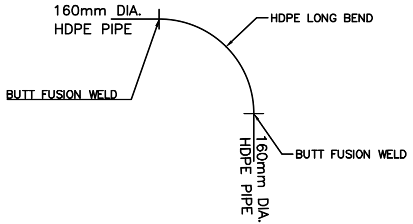
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+160.59
LINE WP04 - 90° H.BEND



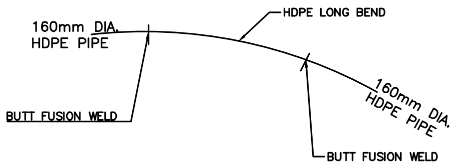
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+449.10
LINE WP04 - 45° H.BEND



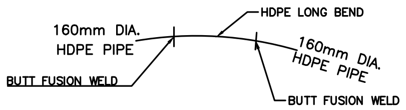
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+506.28, 0+920.69, 0+952.24 & 0+974.95 & 1+370.11
LINE WP04 - 22.5° H.BEND



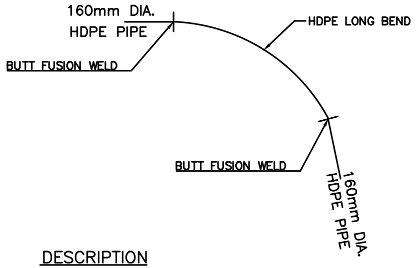
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+831.33
LINE WP04 - 60° H.BEND



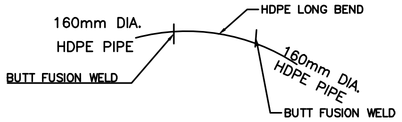
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+483.43, 0+751.45 & 1+348.72
LINE WP04 - 30° H.BEND



DESCRIPTION

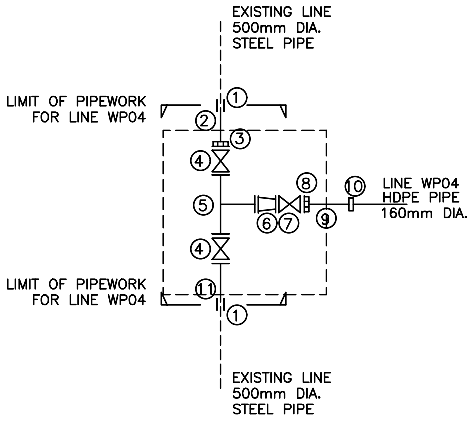
3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
3000x1500

DETAIL

CH. 0+000.00
LINE WP04 - INTERCONNECTION



DESCRIPTION

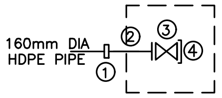
1 No. REQUIRED

① 2 Nos. 500mm DIA. STRAIGHT COUPLING
② 1 No. 500mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 500mm DIA. FLANGE ADAPTOR
④ 2 Nos. 500mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 500x250mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 250x150mm DIA. ALL FLANGED CONCENTRIC TAPER
⑦ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑧ 1 No. 150mm DIA. FLANGE ADAPTOR
⑨ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑩ 1 No. 160/150mm DIA. STEPPED COUPLING
⑪ 1 NO. 500mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE

CHAMBER SIZE
1200x1200

DETAIL

CH. 1+405.28
LINE WP04 - SV & BF



DESCRIPTION

1 No. REQUIRED

① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 150mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

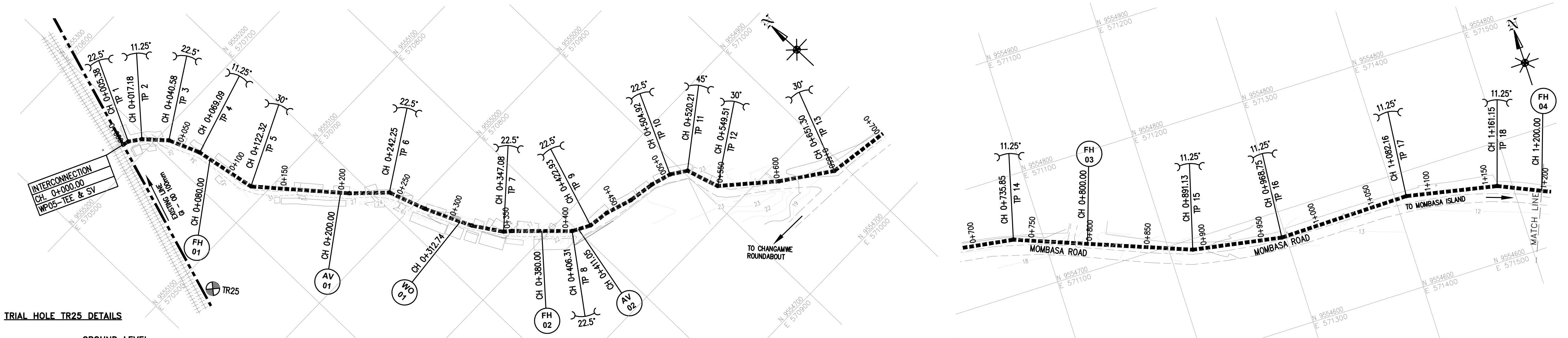
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WP04
PIPE FITTING DETAILS
SHEET 3 OF 3

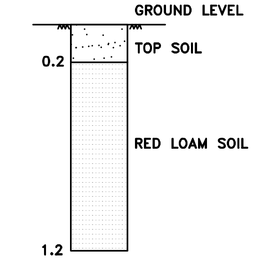
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-067C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-067	C0 REV

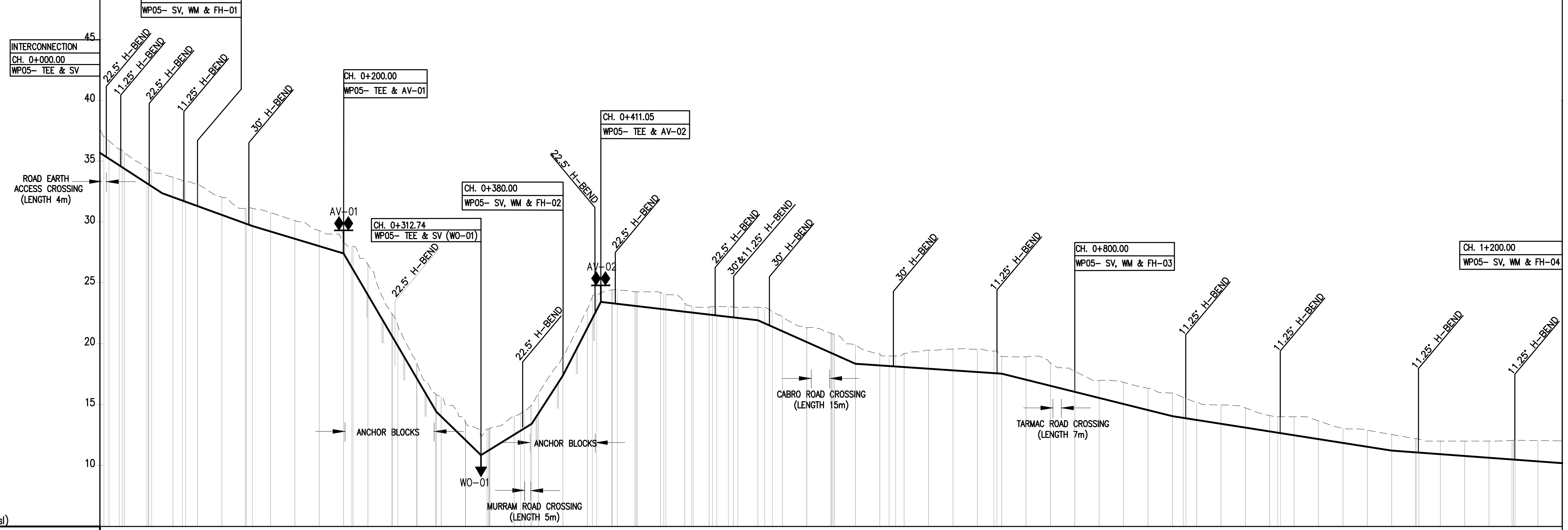


PLAN

SCALE 1:2000

TRIAL HOLE TR25 DETAILS





DATUM 5.00 (Masl)

	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280
TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5														
GEOLOGICAL CONDITION	RED LOAM SOIL														
EXISTING GROUND LEVEL (m)	37.63	35.71	34.29	33.65	33.10	32.03	31.11	30.77	30.10	29.28	28.32	26.50	22.42	18.37	15.64
INVERT LEVELS (m)	35.67	34.38	33.08	32.03	31.30	30.57	29.85	29.21	28.61	28.01	27.41	24.00	20.59	17.18	14.04
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280
DEPTH OF INVERT (m)	1.96	1.34	1.21	1.62	1.79	1.46	1.27	1.55	1.49	1.27	0.91	2.50	1.83	1.19	1.60
SLOPE OF PIPE (%)		-6.50%			-3.64%			-3.00%				-17.07%			
REFERENCE PEG No.		TP 1 TP 2		TP 3	TP 4			TP 5						TP 6	

	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580
EXISTING GROUND LEVEL (m)	13.56	13.05	14.08	15.97	19.00	22.85	24.42	24.26	24.20	23.36	23.02	23.00	23.00	22.22	21.32
INVERT LEVELS (m)	12.09	11.30	12.54	14.30	17.39	21.28	23.33	23.09	22.86	22.62	22.39	22.16	21.92	21.03	20.14
CHAINAGES (M)	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580
DEPTH OF INVERT (m)	1.47	1.75	1.54	1.68	1.61	1.57	1.10	1.17	1.35	0.73	0.63	0.84	1.08	1.19	1.18
SLOPE OF PIPE (%)	-9.74%		6.19%		15.48%	19.45%	-1.17%							-4.47%	
REFERENCE PEG No.		V-BEND		TP 7			TP 8	TP 9				TP 10	TP 11	TP 12	

	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880
EXISTING GROUND LEVEL (m)	20.86	19.94	19.18	19.19	19.47	19.56	19.56	18.97	18.94	18.42	17.75	16.98	16.83	16.34	15.95
INVERT LEVELS (m)	19.24	18.35	18.21	18.08	17.94	17.81	17.67	17.54	17.04	16.54	16.04	15.54	15.04	14.54	14.05
CHAINAGES (M)	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880
DEPTH OF INVERT (m)	1.61	1.59	0.97	1.11	1.53	1.76	1.88	1.43	1.90	1.88	1.71	1.44	1.79	1.80	1.90
SLOPE OF PIPE (%)			-0.68%						-2.50%						
REFERENCE PEG No.				TP 13				TP 14							

	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
EXISTING GROUND LEVEL (m)	15.17	14.97	14.73	14.10	14.00	13.66	13.06	12.90	12.54	12.20	12.00	12.00	12.00	12.07	12.05	12.02
INVERT LEVELS (m)	13.73	13.42	13.10	12.79	12.48	12.16	11.85	11.53	11.22	11.07	10.93	10.78	10.63	10.48	10.34	10.19
CHAINAGES (M)	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200
DEPTH OF INVERT (m)	1.44	1.55	1.63	1.31	1.52	1.50	1.21	1.37	1.32	1.13	1.08	1.22	1.37	1.58	1.72	1.83
SLOPE OF PIPE (%)	-1.57%									-0.74%						
REFERENCE PEG No.	TP 15				TP 16						TP 17				TP 18	

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

– – – –	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
┼┼┼┼┼┼	RAILWAY LINE
○	ELECTRIC POST
⊏⊐	CULVERT
⋈	GATE
□	BUILDINGS
——	PROPOSED WATER MAIN
– – – –	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

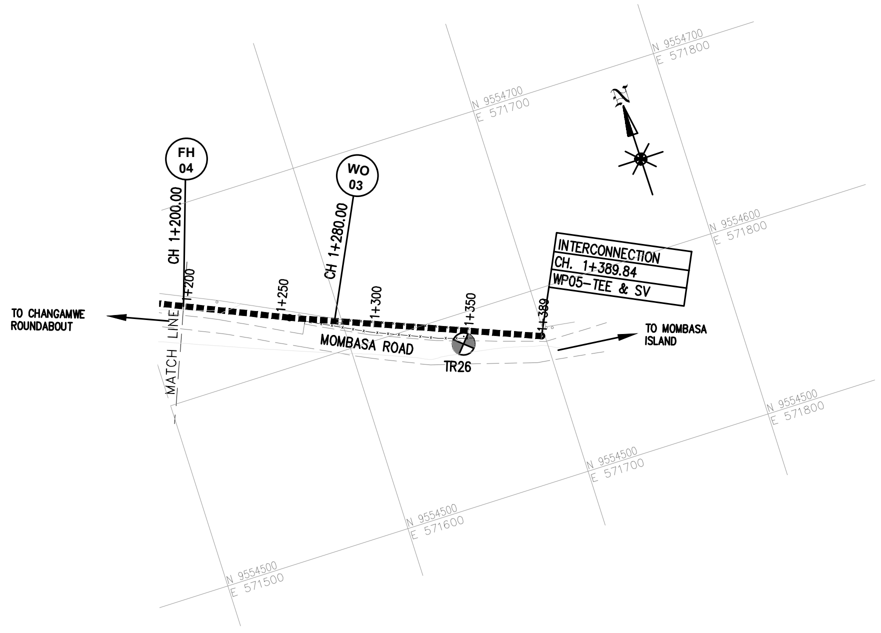
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WP05

PLAN AND PROFILE
(CH. 0+000 – CH. 1+200)
SHEET 1 OF 3

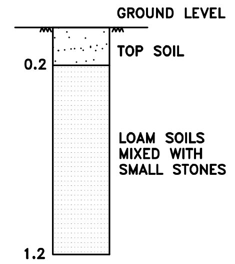
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-068C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-068 C0 REV

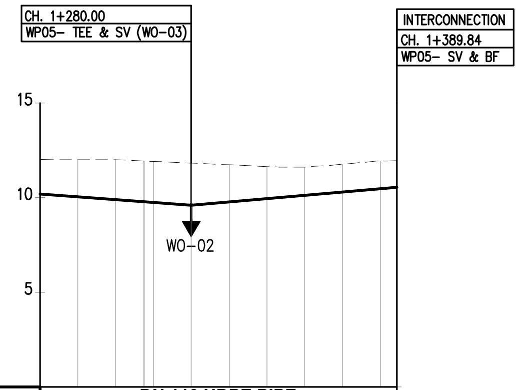


PLAN

SCALE 1:2000

TRIAL HOLE TR26 DETAILS





DATUM 0.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5										
GEOLOGICAL CONDITION	LOAM SOIL MIXED WITH SMALL STONES										
EXISTING GROUND LEVEL (m)	12.02	12.00	12.00	11.91	11.82	11.73	11.64	11.61	11.76	11.93	11.94
INVERT LEVELS (m)	10.19	10.04	9.89	9.75	9.60	9.77	9.95	10.12	10.30	10.47	10.55
CHAINAGES (M)	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+389
DEPTH OF INVERT (m)	1.83	1.96	2.10	2.17	2.22	1.96	1.69	1.49	1.47	1.46	1.40
SLOPE OF PIPE (%)	-0.74%					0.87%					
REFERENCE PEG No.											

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

— — —	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
┼┼┼┼┼┼	RAILWAY LINE
○	ELECTRIC POST
)(	CULVERT
—	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
○ ○	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

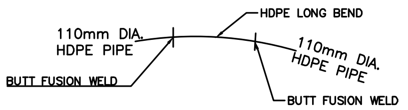
Drawing Title

WEST MAINLAND – LINE WP05
PLAN AND PROFILE
(CH. 1+200 – CH. 1+389.84)
SHEET 2 OF 3

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-069C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-069 C0 REV

DETAIL

CH. 0+005.38, 0+040.58,
0+242.25,0+347.08, 0+406.31, 0+422.93
& 0+504.92
LINE WP05 - 22.5° H.BEND



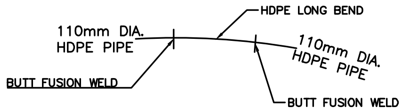
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+017.18, 0+069.09, 0+735.85, 0+891.13, 0+968.75,
1+082.16 & 1+161.15
LINE WP05 - 11.25° H.BEND



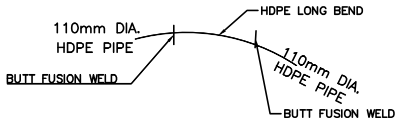
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+122.32, 0+549.51 & 0+651.30
LINE WP05 - 30° H.BEND



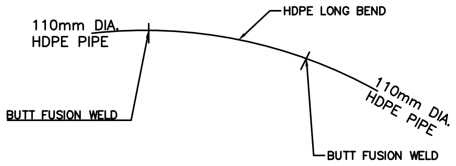
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+520.21
LINE WP05 - 45° H.BEND



DESCRIPTION

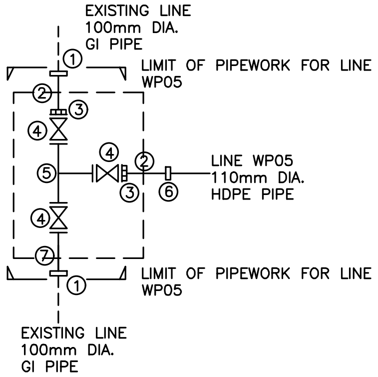
1 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+000.00
LINE WP05 - INTERCONNECTION



DESCRIPTION

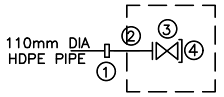
1 No. REQUIRED

① 2 Nos. 100mm DIA. STRAIGHT COUPLINGS
② 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 2 Nos. 100mm DIA. FLANGE ADAPTOR
④ 3 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 110/100mm DIA. STEPPED COUPLING
⑦ 1 No. 100mm DIA. SINGLE FLANGED PIPE 1.2m LONG WITH PUDDLE FLANGE

CHAMBER SIZE
1200x1200

DETAIL

CH. 1+389.84
LINE WP05 - SV & BF



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 100mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

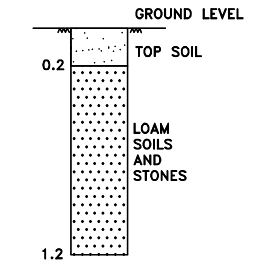
Drawing Title

WEST MAINLAND – LINE WP05
PIPE FITTING DETAILS
SHEET 3 OF 3

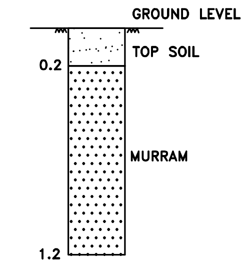
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-070C0

C STATUS | DRAWING No. 6000002-W&S-WM-P-070 | C0 REV

TRIAL HOLE TR21 DETAILS

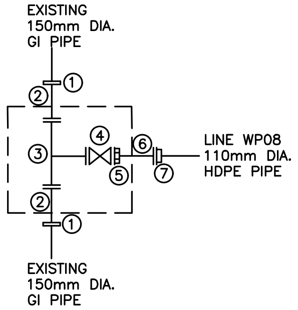


TRIAL HOLE TR22 DETAILS



CHAMBER SIZE
1200x1200

DETAIL CH. 0+000.00
LINE WP08 - INTERCONNECTION

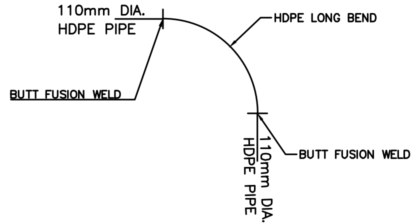


DESCRIPTION

1 No. REQUIRED

① 2 Nos. 150mm DIA. STRAIGHT COUPLING
② 2 Nos. 150mm DIA. FLANGED SPIGOT STEEL PIPES 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150x100mm DIA. ALL FLANGED STEEL TEE
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100mm DIA. FLANGE ADAPTOR
⑥ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑦ 1 No. 110/100mm DIA. STEPPED COUPLING

DETAIL CH. 0+009.15
LINE WP08 - 90° H.BEND

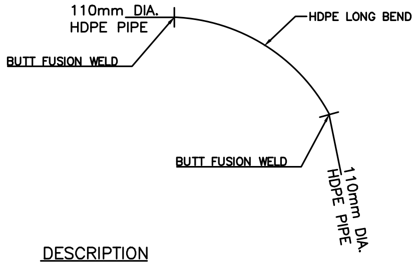


DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

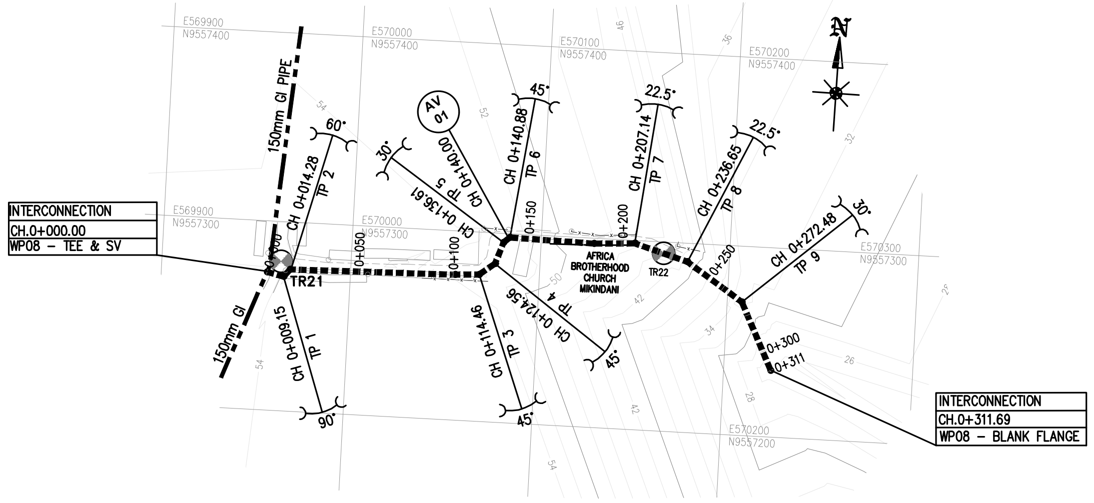
DETAIL CH. 0+014.28
LINE WP08 - 60° H.BEND



DESCRIPTION

1 No. REQUIRED

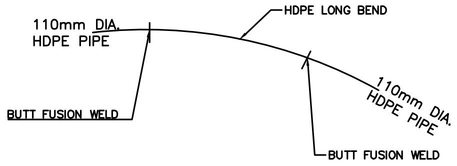
HDPE LONG BEND – BUTT FUSION WELDED



PLAN

SCALE 1:2000

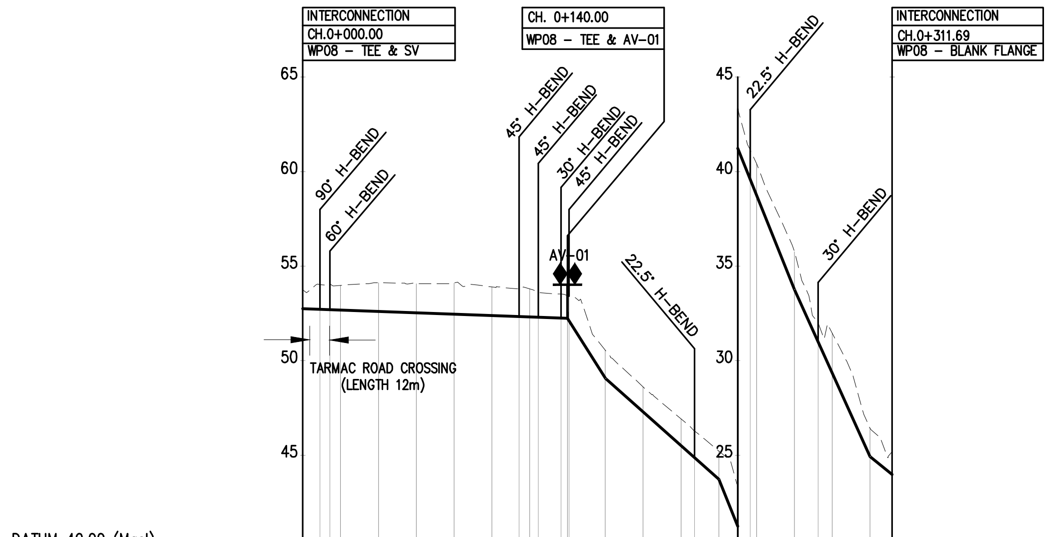
DETAIL CH. 0+114.46 & 0+124.56 & 0+140.88
LINE WP08 - 45° H.BEND



DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED



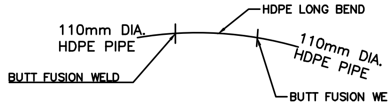
DATUM 40.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110 HDPE PIPE TO PN 12.5																								
GEOLOGICAL CONDITION	LOAM SOILS & STONES							MURRAM																	
EXISTING GROUND LEVEL (m)	53.75	54.02	54.06	53.99	54.12	54.07	54.11	53.90	53.79	53.80	53.60	53.52	53.40	50.55	48.61	46.92	46.28	45.22	41.14	40.41	35.76	32.00	31.46	26.42	25.18
INVERT LEVELS (m)	52.75	52.72	52.70	52.68	52.60	52.53	52.46	52.38	52.33	52.31	52.29	52.25	52.09	49.07	47.28	45.50	44.87	43.72	39.57	38.74	33.76	31.00	29.34	24.92	23.98
CHAINAGE (m)	0+000.00	0+009.15	0+014.28	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+114.46	0+120.00	0+124.56	0+136.61	0+140.88	0+160.00	0+180.00	0+200.00	0+207.14	0+220.00	0+236.65	0+240.00	0+260.00	0+272.48	0+280.00	0+300.00	0+311.69
DEPTH OF INVERT (m)	1.00	1.30	1.36	1.31	1.51	1.54	1.65	1.52	1.46	1.49	1.31	1.27	1.31	1.48	1.33	1.42	1.42	1.50	1.57	1.67	2.00	1.00	2.12	1.50	1.20
SLOPE OF PIPE (%)	−0.37%												−15.82%	−8.90%				−24.88%		−22.08%				−8.05%	
REFERENCE PEG NO.		TP 1	TP 2						TP 3		TP 4	TP 5	TP 6				TP 7		TP 8			TP 9			

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

DETAIL CH. 0+207.14 & 0+236.65
LINE WP08 - 22.5° H.BEND

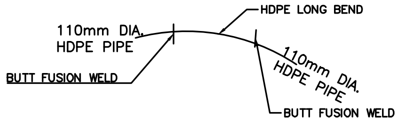


DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+136.61 & 0+272.48
LINE WP08 - 30° H.BEND

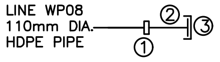


DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL CH. 0+311.69
LINE WP08 - BLANK FLANGE



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. FLANGED SPIGOT STEEL PIPE 1.2m LONG
③ 1 No. 100mm DIA. BLANK FLANGE

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / FOOTPATH / TRACK (EARTH / MURRAM)
—x—x—x—	FENCE / HEDGE
— 14 —	CONTOURS, Im INTERVAL
○	ELECTRIC POST
	CULVERT
	GATE
□	BUILDINGS
▬ ▬ ▬	PROPOSED WATER MAIN
▬ · ▬ · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
—	PERIMETER WALL
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

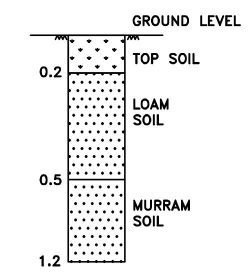
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

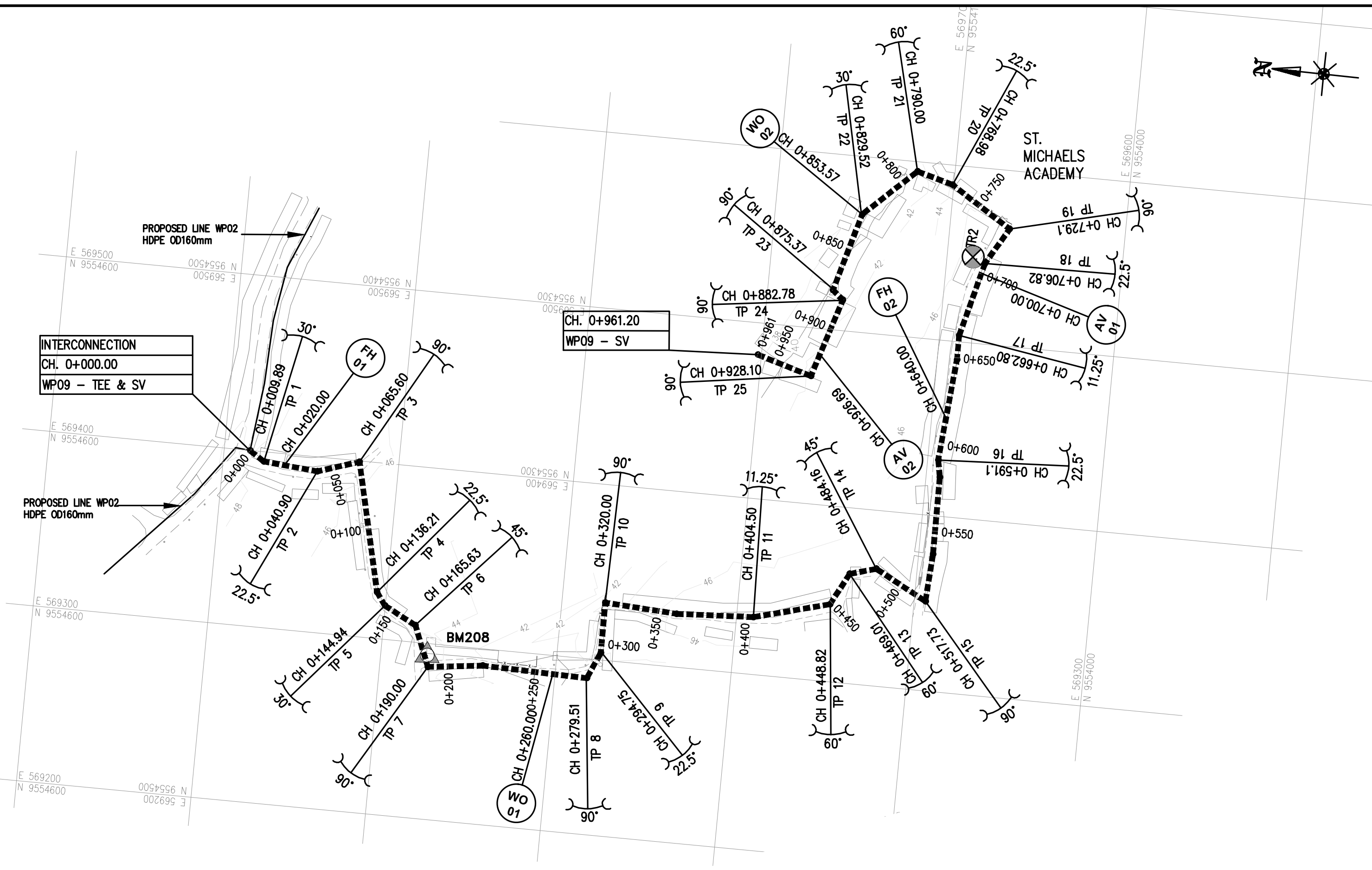
Drawing Title

WEST MAINLAND – LINE WP08
PLAN, PROFILE AND FITTING DETAILS
(CH. 0+000 – CH. 0+311.69)
SHEET 1 OF 1

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-071C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-071 — C0 REV

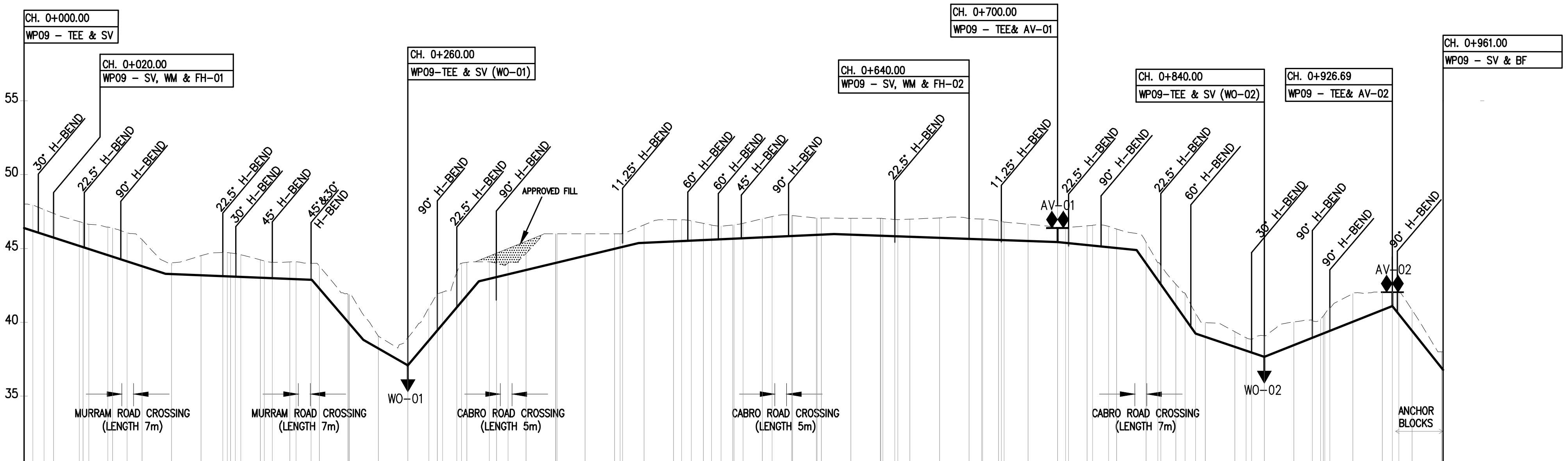
TRIAL HOLE TR1 DETAILS





PLAN

SCALE 1:2000



DATUM 30.00 (Masl)

TYPE AND SIZE OF PIPE: DN 160mm HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: LOAM SOIL UNDERLAIN WITH MURRAM SOIL

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180
EXISTING GROUND LEVEL (m)	48.00	47.37	46.74	46.38	45.60	44.02	44.51	44.69	44.22	44.09
INVERT LEVELS (m)	46.39	45.75	45.10	44.45	43.81	43.28	43.19	43.11	43.02	42.94
DEPTH OF INVERT (m)	1.61	1.63	1.64	1.93	1.79	0.74	1.32	1.59	1.20	1.15

CHAINAGES (M)	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380
EXISTING GROUND LEVEL (m)	43.82	41.90	39.06	38.95	41.91	44.07	44.01	44.65	46.00	46.00
INVERT LEVELS (m)	42.28	39.95	38.23	37.08	39.46	41.83	43.07	43.55	44.02	44.50
DEPTH OF INVERT (m)	1.54	1.95	0.83	1.86	2.46	2.24	0.94	1.10	1.98	1.50

CHAINAGES (M)	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580
EXISTING GROUND LEVEL (m)	46.00	46.60	46.95	46.70	46.59	47.01	47.24	47.06	47.05	47.04
INVERT LEVELS (m)	44.97	45.38	45.47	45.56	45.65	45.75	45.84	45.93	45.93	45.86
DEPTH OF INVERT (m)	1.03	1.22	1.48	1.14	0.93	1.27	1.40	1.12	1.12	1.18

CHAINAGES (M)	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780
EXISTING GROUND LEVEL (m)	46.99	47.07	47.03	46.86	46.64	46.45	46.53	46.32	45.41	42.59
INVERT LEVELS (m)	45.79	45.72	45.65	45.58	45.51	45.44	45.24	45.04	43.97	41.14
DEPTH OF INVERT (m)	1.19	1.35	1.38	1.28	1.13	1.01	1.29	1.28	1.44	1.45

CHAINAGES (M)	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+961
EXISTING GROUND LEVEL (m)	39.99	39.37	39.09	40.02	40.44	41.95	42.07	40.85	38.00	38.00
INVERT LEVELS (m)	39.02	38.34	37.67	38.46	39.25	40.04	40.83	39.42	36.91	36.79
DEPTH OF INVERT (m)	0.97	1.03	1.42	1.56	1.19	1.91	1.24	1.43	1.09	1.21

SLOPE OF PIPE (%): −3.23% | −0.42% | −11.64% | −5.73% | 11.87% | 2.38% | 0.46% | −0.35% | −1.01% | −14.14% | −3.37% | 3.95% | −12.55%

REFERENCE PEG No.: TP 1, TP 2, TP 3, TP 4, TP 5, TP 6, TP 7, TP 8, TP 9, TP 10, TP 11, TP 12, TP 13, TP 14, TP 15, TP 16, TP 17, TP 18, TP 19, TP 20, TP 21, TP 22, TP 23, TP 24, TP 25

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
7. FOR FITTING DETAILS AT CH. 0+000.00, REFER TO DRG. No. M410/MO/WM/WP02/03 ON LINE WP02 AT CH. 1+460.51
8. THE SURVEY WAS BASED ON THE DATUM BM208 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM208	569,293.21	9,554,373.53	44.92

LEGEND:

	ROAD (TARMAC)
	ROAD (MURRAM/EARTH/CABRO)
	FENCE / HEDGE
14	CONTOURS, Im INTERVAL
	ELECTRIC POST
○	WATER TANK
	GATE
☐	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL
△	BENCHMARK (Concrete with Iron Pin)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

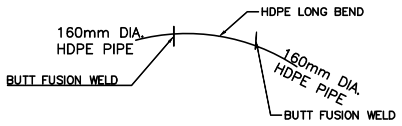
Drawing Title

WEST MAINLAND – LINE WP09
PLAN AND PROFILE
(CH. 0+000 – CH. 0+961.20)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-072C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-072 · CO REV

DETAIL

CH. 0+009.89, 0+149.44 & 0+853.57
LINE WP09 - 30° H.BEND



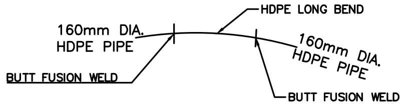
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+040.90, 0+140.57, 0+302.47, 0+611.33,
0+726.97 & 0+792.30
LINE WP09 - 22.5° H.BEND



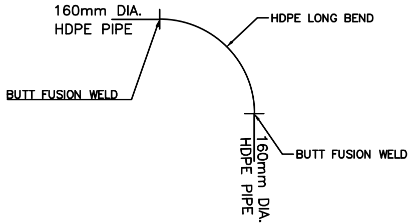
DESCRIPTION

6 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+065.60, 0+194.90,0+285.97, 0+331.21,
0+530.20, 0+751.02, 0+899.82, 0+907.79 & 0+954.81
LINE WP09 - 90° BEND



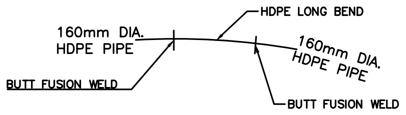
DESCRIPTION

9 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+416.27 & 0+683.33
LINE WP09 - 11.25° H.BEND



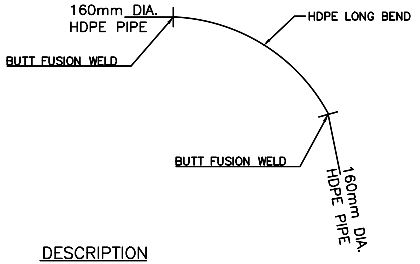
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+460.52, 0+481.15 & 0+813.57
LINE WP09 - 60° H.BEND



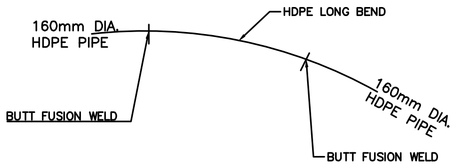
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+170.11
LINE WP09 - 45° H.BEND



DESCRIPTION

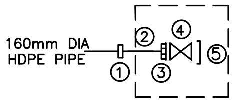
1 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+987.50
WP09 - SV & BF



DESCRIPTION

1 No. REQUIRED

① 1 No. 160/150mm DIA. STEPPED COUPLING
② 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 150mm DIA. FLANGE ADAPTER
④ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌝	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

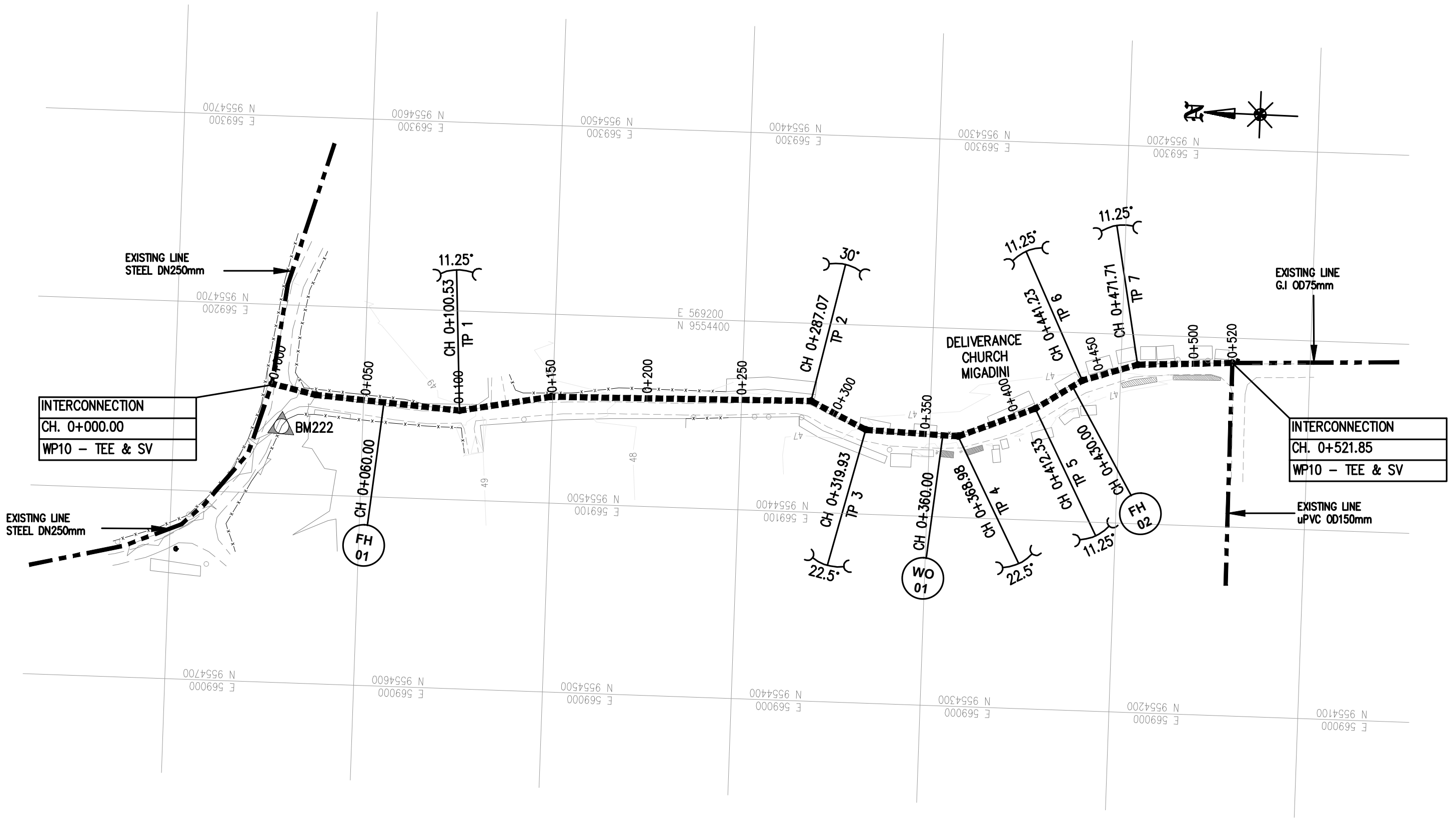
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

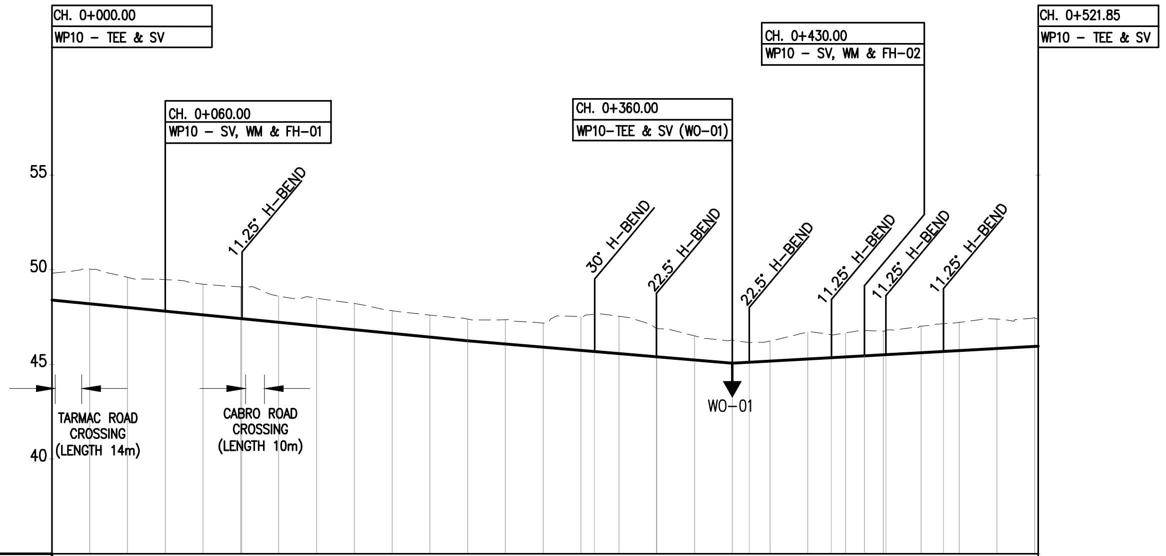
Drawing Title
WEST MAINLAND – LINE WP09
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-073C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-073 CO REV



PLAN

SCALE 1:2000



DATUM 35.00 (Masl)

TYPE AND SIZE OF PIPE	DN 110mm HDPE PIPE TO PN 12.5								
GEOLOGICAL CONDITION	LOAM AND MURRAM SOIL MIX								
EXISTING GROUND LEVEL (m)	49.82	50.04	49.61	49.48	49.25	49.09	49.09	48.61	48.49
INVERT LEVELS (m)	48.40	48.21	48.01	47.82	47.62	47.43	47.42	47.23	47.03
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+100.53	0+120.00	0+140.00
DEPTH OF INVERT (m)	1.42	1.83	1.59	1.67	1.62	1.67	1.67	1.38	1.46
SLOPE OF PIPE (%)	–0.98%								
REFERENCE PEG NO.							TP 1		

EXISTING GROUND LEVEL (m)	48.22	47.84	47.60	47.39	47.36	47.19	47.53	47.65	47.55
INVERT LEVELS (m)	46.84	46.64	46.45	46.25	46.08	45.91	45.74	45.68	45.57
CHAINAGE (m)	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+287.07	0+300.00
DEPTH OF INVERT (m)	1.38	1.19	1.15	1.14	1.28	1.28	1.79	1.97	1.98
SLOPE OF PIPE (%)					–0.85%				
REFERENCE PEG NO.								TP 2	

EXISTING GROUND LEVEL (m)	46.90	46.90	46.51	46.28	46.16	46.23	46.71	46.58	46.66
INVERT LEVELS (m)	45.40	45.40	45.23	45.06	45.11	45.17	45.29	45.35	45.40
CHAINAGE (m)	0+319.93	0+320.00	0+340.00	0+360.00	0+368.98	0+380.00	0+400.00	0+412.33	0+420.00
DEPTH OF INVERT (m)	1.50	1.50	1.28	1.22	1.05	1.06	1.42	1.22	1.26
SLOPE OF PIPE (%)					0.56%				
REFERENCE PEG NO.	TP 3				TP 4			TP 5	

EXISTING GROUND LEVEL (m)	46.79	46.76	46.79	47.02	47.15	47.23	47.40	47.47	47.43
INVERT LEVELS (m)	45.47	45.51	45.52	45.62	45.69	45.73	45.85	45.96	45.97
CHAINAGE (m)	0+430.00	0+440.00	0+441.23	0+460.00	0+471.71	0+480.00	0+500.00	0+520.00	0+521.85
DEPTH OF INVERT (m)	1.32	1.25	1.27	1.39	1.47	1.49	1.56	1.51	1.46
SLOPE OF PIPE (%)									
REFERENCE PEG NO.			TP 6		TP 7				

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT TWO METERS INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
6. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
7. THE SURVEY WAS BASED ON THE DATUM BM222 WITH THE FOLLOWING COORDINATES AND ELEVATION

BENCHMARK REF No.	COORDINATES		ELEVATION
	EASTING	NORTHING	
BM222	569,135.73	9,554,642.95	50.29

LEGEND:

— — — —	ROAD (TARMAC)
- - - - -	ROAD (MURRAM/EARTH/CABRO)
—x—x—x—	FENCE / HEDGE
—— 14 ——	CONTOURS, Im INTERVAL
○	ELECTRIC POST
○	WATER TANK
⋈	GATE
□	BUILDINGS
▬ ▬ ▬ ▬	PROPOSED WATER MAIN
▬ · · ▬ · · ▬	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
● ●	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL
△	BENCHMARK (CONCRETE WITH IRON PIN)

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

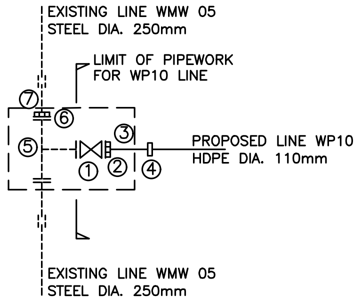
WEST MAINLAND – LINE WP10
PLAN AND PROFILE
(CH. 0+000 – CH. 0+521.85)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-074C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-074
C0 REV	

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+000.00
LINE WP10 - INTERCONNECTION



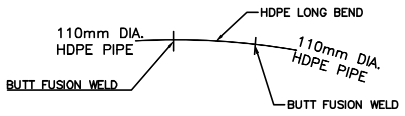
DESCRIPTION

1 No. REQUIRED

① 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
② 1 No. 100mm DIA. FLANGE ADAPTER
③ 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
④ 1 No. 110/100mm DIA. STEPPED COUPLING
⑤ 1 No. 250x100mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 250mm DIA. FLANGE ADAPTER
⑦ 1 No. 250mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE

DETAIL

CH. 0+100.53, 0+412.33, 0+441.23 & 0+471.71
LINE WP10 - 11.25° H.BEND



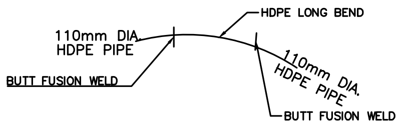
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+287.07
LINE WP10 - 30° H.BEND



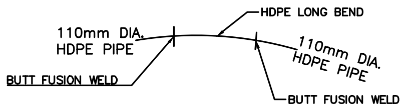
DESCRIPTION

1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+319.93 & 0+368.98
LINE WP10 - 22.5° H.BEND



DESCRIPTION

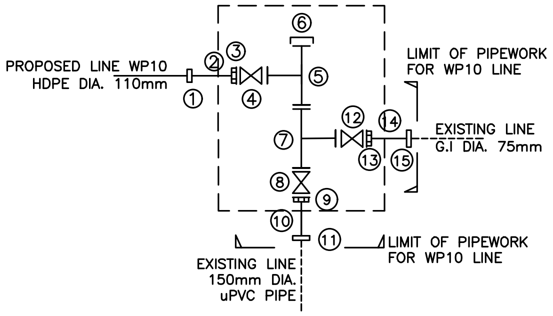
2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+521.85
WP10 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

① 1 No. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100mm DIA. FLANGE ADAPTOR
④ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 150mmx100mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 150mm DIA. BLANK FLANGE
⑦ 1 No. 150mmx80mm DIA. ALL FLANGED STEEL TEE
⑧ 1 No. 150mm DIA. ALL FLANGED SLUICE VALVE
⑨ 1 No. 150mm DIA. FLANGE ADAPTOR
⑩ 1 No. 150mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑪ 1 No. 150mm DIA. STEPPED COUPLING
⑫ 1 No. 80mm DIA. ALL FLANGED SLUICE VALVE
⑬ 1 No. 80mm DIA. FLANGE ADAPTOR
⑭ 1 No. 80mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
⑮ 1 No. 80/75mm DIA. STEPPED COUPLING

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
WM	WATER METER
⬚	PROPOSED CONCRETE CHAMBER
	EXISTING LINE FITTINGS

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

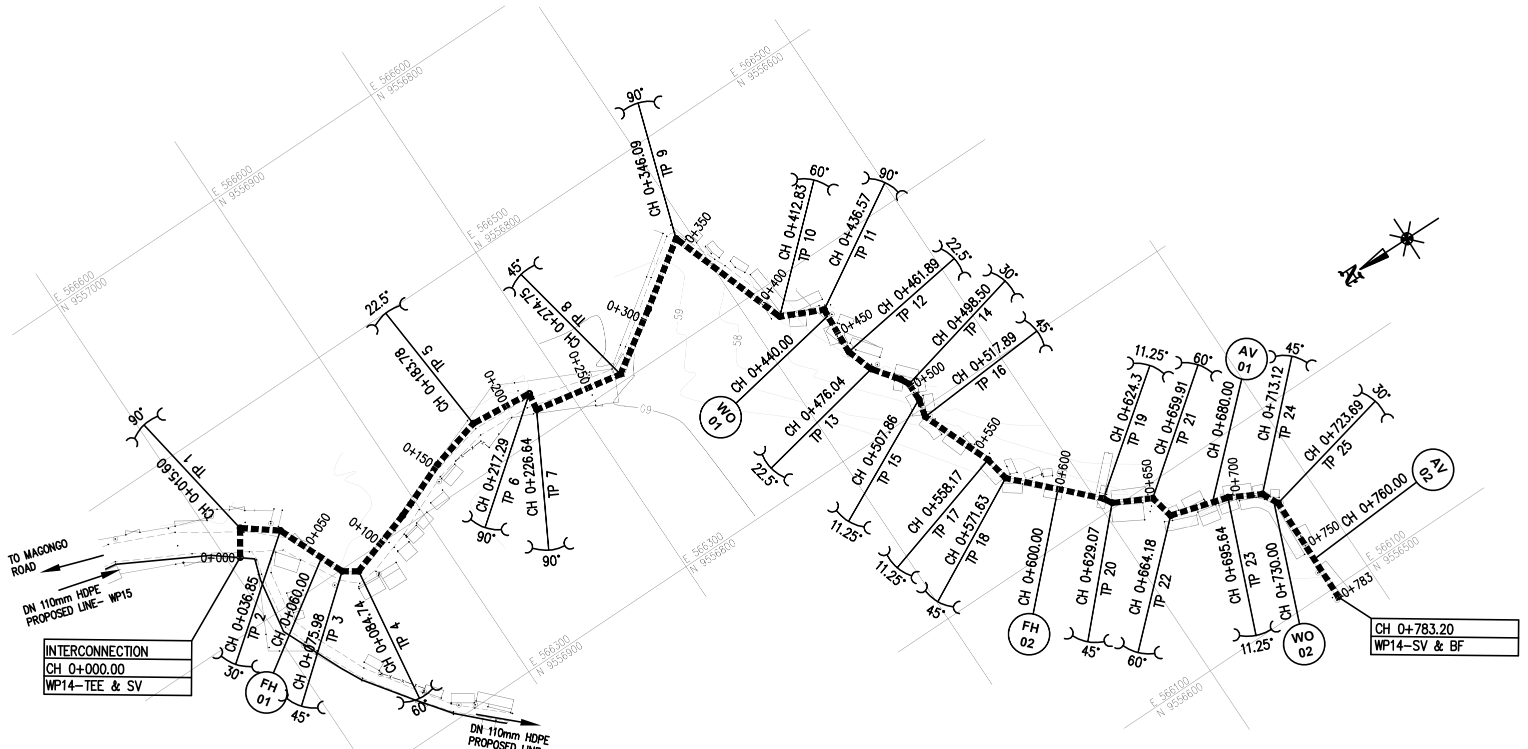
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WP10
PIPE FITTING DETAILS
SHEET 2 OF 2

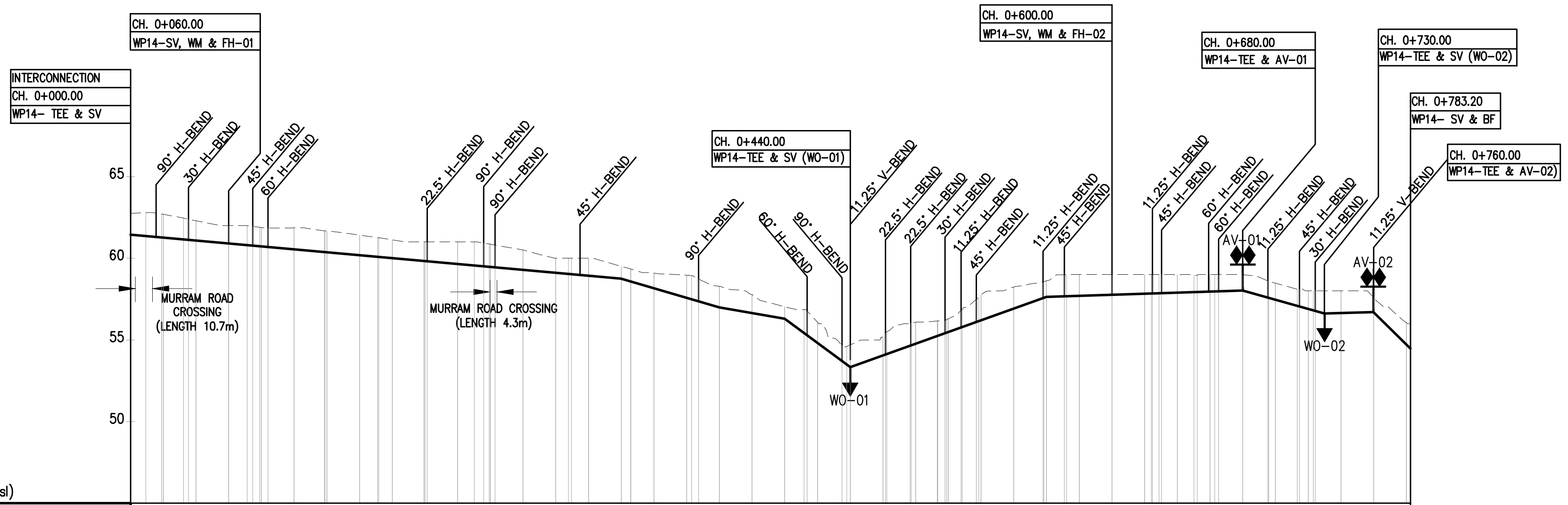
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-075C0

C STATUS | DRAWING No. 6000002-W&S-WM-P-075 | C0 REV



PLAN

SCALE 1:2000



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE: DN 110 HDPE PIPE TO PN 12.5

GEOLOGICAL CONDITION: SAND SOIL

CHAINAGES (M)	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	DEPTH OF INVERT (m)
0+000	62.74	61.44	1.30
0+020	62.69	61.26	1.43
0+040	62.30	61.08	1.22
0+060	62.00	60.90	1.10
0+080	61.88	60.72	1.16
0+100	61.86	60.55	1.32
0+120	61.67	60.37	1.30
0+140	61.42	60.19	1.24
0+160	61.13	60.01	1.12
0+180	61.00	59.83	1.17
0+200	61.00	59.65	1.35
0+220	60.87	59.47	1.39
0+240	60.50	59.29	1.21
0+260	60.00	59.11	0.89
0+280	60.00	58.94	1.06
0+300	59.50	58.75	0.75
0+320	59.09	58.17	0.92
0+340	58.96	57.58	1.38
0+360	58.28	56.99	1.29
0+380	57.78	56.64	1.13
0+400	57.04	56.29	0.74
0+420	56.09	54.81	1.27
0+440	54.69	53.33	1.36
0+460	55.24	54.05	1.20
0+480	56.09	54.77	1.32
0+500	56.29	55.48	0.81
0+520	57.75	56.20	1.55
0+540	58.25	56.92	1.33
0+560	58.62	57.64	0.98
0+580	59.00	57.70	1.30
0+600	59.00	57.76	1.24
0+620	59.00	57.83	1.17
0+640	59.00	57.89	1.11
0+660	59.00	57.95	1.05
0+680	58.98	58.02	0.96
0+700	58.47	57.46	1.02
0+720	58.00	56.90	1.10
0+740	58.00	56.65	1.35
0+760	57.58	56.69	0.89
0+780	56.06	54.72	1.34
0+783	56.00	54.48	1.52

SLOPE OF PIPE (%): −0.89% | −2.94% | −1.75% | −7.41% | 3.59% | 0.32% | −2.80% | 0.25% | −9.86%

REFERENCE PEG No.: TP 1, TP 2, TP 3, TP 4, TP 5, TP 6, TP 7, TP 8, TP 9, TP 10, TP 11, TP 12, TP 13, TP 14, TP 15, TP 16, TP 17, TP 18, TP 19, TP 20, TP 21, TP 22, TP 23, TP 24, TP 25

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- - - -	ROAD (TARMAC)
- - - -	ROAD / TRACK (EARTH / MURRAM)
-·-·-·-	FENCE / HEDGE
— 14 —	CONTOURS, Im INTERVAL
○	ELECTRIC POST
)—(	CULVERT
⊢⊣	GATE
□	BUILDINGS
■ ■ ■ ■	PROPOSED WATER MAIN
▬ · ▬ ·	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
∘ ∘	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
——	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

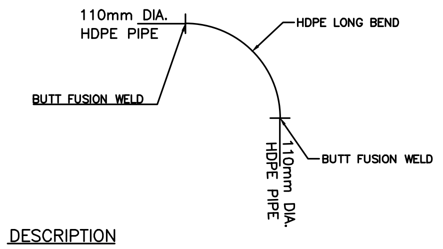
WEST MAINLAND – LINE WP14
PLAN AND PROFILE
(CH. 0+000 – CH. 0+783.20)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-076C0

C STATUS | DRAWING No. 6000002-W&S-WM-P-076 | C0 REV

DETAIL

CH. 0+015.60, 0+217.29, 0+226.64, 0+352.27 & 0+444.71
LINE WP14 - 90° H.BEND



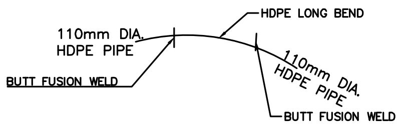
DESCRIPTION

4 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+036.85, 0+507.04 & 0+732.88
LINE WP14 - 30° H.BEND



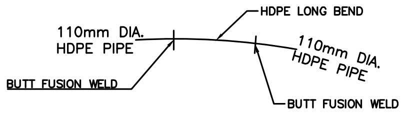
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+516.69, 0+450, 0+566.79,
0+633.06, 0+704.79 & 0+760
LINE WP14 - 11.25° H.BEND



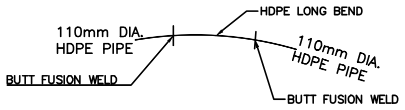
DESCRIPTION

6 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+183.78, 0+470.49 & 0+485.46
LINE WP14 - 22.5° H.BEND



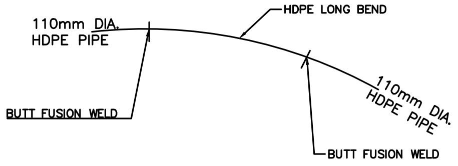
DESCRIPTION

3 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+075.98, 0+274.75, 0+526.47,
0+580.25, 0+638.27 & 0+723.12
LINE WP14 - 45° H.BEND



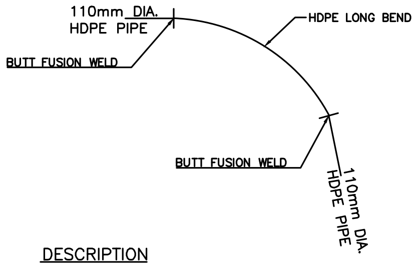
DESCRIPTION

6 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+084.74, 0+420.84, 0+659.91 & 0+673.03
LINE WP14 - 60° H.BEND



DESCRIPTION

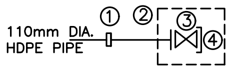
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+791.70
LINE WP14 - SV & B.F - 01



DESCRIPTION

1 No. REQUIRED

① 1 Nos. 110/100mm STEPPED COUPLING

② 1 No. 100mm DIA. SINGLE FLANGED
STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE

③ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE

④ 1 No. 100mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜ ⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

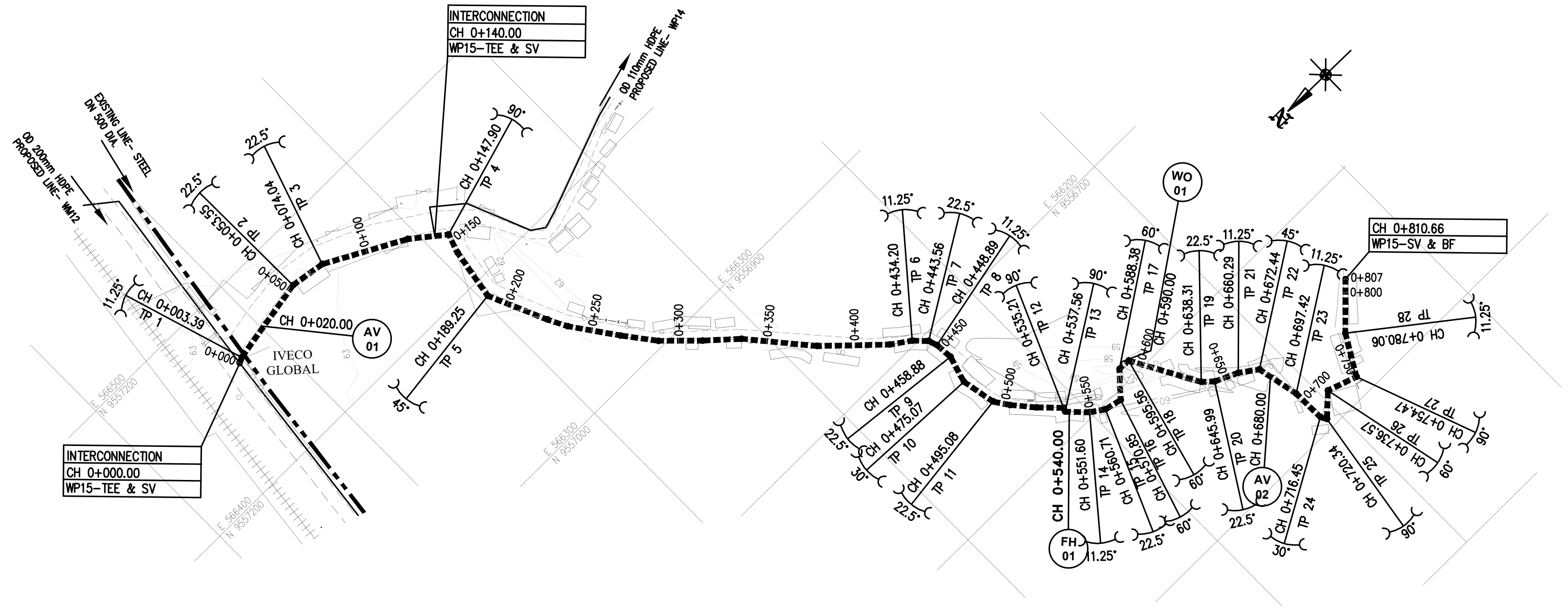
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WP14
PIPE FITTING DETAILS
SHEET 2 OF 2

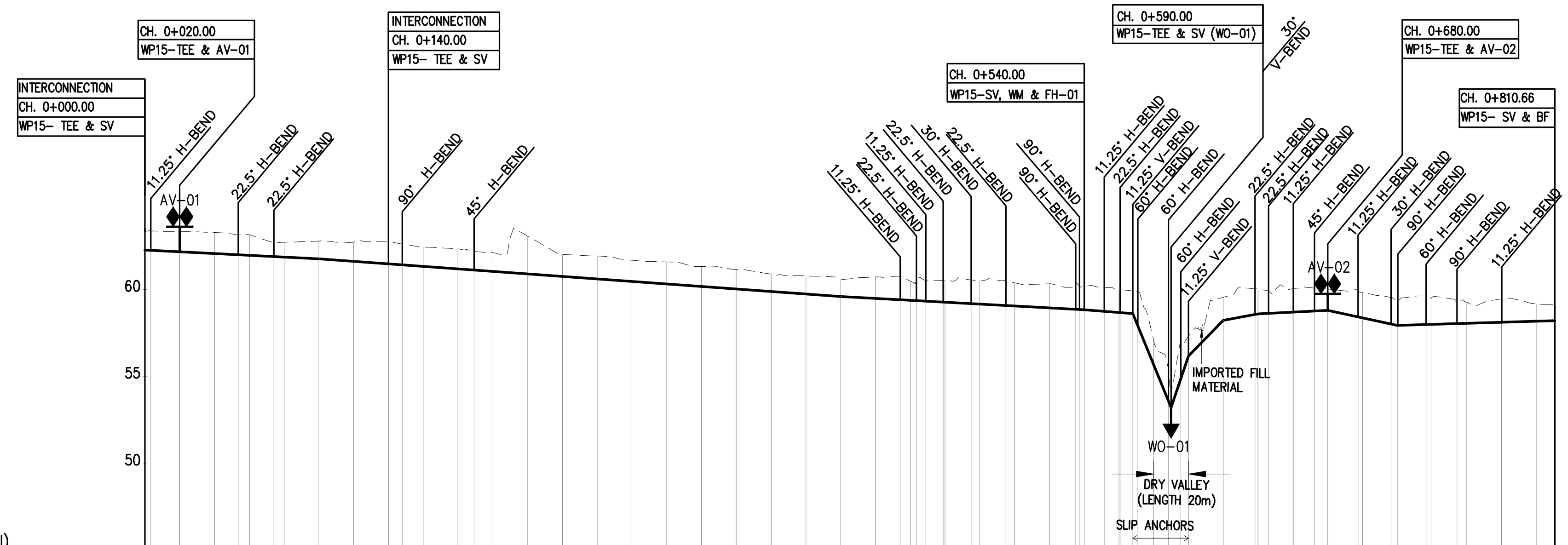
Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-077C0

C STATUS | DRAWING No. 6000002-W&S-WM-P-077 | CO REV



PLAN

SCALE 1:2000



DATUM 45.00 (Masl)

TYPE AND SIZE OF PIPE	OD 110 HDPE PIPE TO PN 12.5
GEOLOGICAL CONDITION	SAND SOIL

EXISTING GROUND LEVEL (m)	63.33	63.36	63.33	63.27	63.13	63.14	62.69	62.71	62.78	62.72	62.76	62.60
INVERT LEVELS (m)	62.26	62.24	62.16	62.06	61.99	61.96	61.88	61.85	61.75	61.61	61.46	61.41
CHAINAGE (m)	0+000.00	0+003.39	0+020.00	0+040.00	0+053.55	0+060.00	0+074.04	0+080.00	0+100.00	0+120.00	0+140.00	0+147.90
DEPTH OF INVERT (m)	1.07	1.12	1.17	1.21	1.14	1.18	0.81	0.85	1.03	1.11	1.30	1.20
SLOPE OF PIPE (%)	-0.51%								-0.72%			
REFERENCE PEG NO.		TP 1			TP 2		TP 3					TP 4

EXISTING GROUND LEVEL (m)	62.44	62.33	62.19	62.10	63.07	62.01	61.92	61.67	61.58	61.32	61.15	60.88
INVERT LEVELS (m)	61.32	61.18	61.11	61.03	60.89	60.74	60.60	60.46	60.31	60.17	60.02	59.88
CHAINAGE (m)	0+160.00	0+180.00	0+189.25	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00
DEPTH OF INVERT (m)	1.12	1.15	1.08	1.07	2.18	1.26	1.32	1.22	1.27	1.15	1.13	1.00
SLOPE OF PIPE (%)												
REFERENCE PEG NO.			TP 5									

EXISTING GROUND LEVEL (m)	60.77	60.58	60.72	60.76	60.48	60.59	60.49	60.50	60.50	60.54	60.49	60.48
INVERT LEVELS (m)	59.74	59.59	59.48	59.41	59.38	59.36	59.33	59.27	59.27	59.19	59.16	59.08
CHAINAGE (m)	0+380.00	0+400.00	0+420.00	0+434.20	0+440.00	0+443.56	0+448.89	0+458.88	0+460.00	0+475.07	0+480.00	0+495.08
DEPTH OF INVERT (m)	1.03	0.99	1.23	1.35	1.10	1.24	1.17	1.23	1.23	1.35	1.33	1.40
SLOPE OF PIPE (%)		-0.54%										
REFERENCE PEG NO.				TP 6		TP 7	TP 8	TP 9		TP 10		TP 11

EXISTING GROUND LEVEL (m)	60.37	60.32	60.45	60.17	60.17	60.10	59.98	59.90	59.87	55.37	54.37	57.15
INVERT LEVELS (m)	59.05	58.94	58.86	58.85	58.83	58.74	58.66	58.61	57.91	53.61	53.21	54.86
CHAINAGE (m)	0+500.00	0+520.00	0+535.21	0+537.56	0+540.00	0+551.60	0+560.71	0+568.00	0+570.85	0+588.38	0+590.00	0+595.56
DEPTH OF INVERT (m)	1.32	1.38	1.59	1.29	1.33	1.36	1.32	1.30	1.96	1.76	1.16	2.29
SLOPE OF PIPE (%)					-0.82%				-24.5%		29.67%	
REFERENCE PEG NO.			TP 12	TP 13		TP 14	TP 15		TP 16	TP 17		TP 18

EXISTING GROUND LEVEL (m)	57.31	59.55	59.55	60.04	59.92	60.04	60.04	60.05	60.02	59.94	59.82	59.53
INVERT LEVELS (m)	56.18	58.21	58.21	58.56	58.62	58.69	58.70	58.76	58.80	58.42	58.37	58.01
CHAINAGE (m)	0+600.00	0+620.00	0+620.00	0+638.31	0+645.99	0+660.00	0+660.29	0+672.44	0+680.00	0+697.42	0+700.00	0+716.45
DEPTH OF INVERT (m)	1.13	1.34	1.34	1.48	1.30	1.34	1.35	1.29	1.23	1.52	1.45	1.51
SLOPE OF PIPE (%)	10.17%	1.89%			0.52%				-2.15%			
REFERENCE PEG NO.				TP 19	TP 20		TP 21	TP 22		TP 23		TP 24

EXISTING GROUND LEVEL (m)	59.30	59.59	59.54	59.30	59.27	59.44	59.44	59.17	59.10
INVERT LEVELS (m)	57.94	57.99	58.00	58.04	58.06	58.11	58.11	58.17	58.20
CHAINAGE (m)	0+720.34	0+736.57	0+740.00	0+754.47	0+760.00	0+780.00	0+780.06	0+800.00	0+810.66
DEPTH OF INVERT (m)	1.36	1.60	1.54	1.26	1.21	1.32	1.33	0.99	0.90
SLOPE OF PIPE (%)	0.29%								
REFERENCE PEG NO.	TP 25	TP 26		TP 27			TP 28		

LONGITUDINAL PROFILE

SCALE H 1:2000, V 1:200

NOTES

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
	RAILWAY LINE
14	CONTOURS, Im INTERVAL
	ELECTRIC POST
	CULVERT
	GATE
	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
TP10	TRAVERSE POINT & No.
	TREES
⊗	TRIAL HOLE
30°	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
n	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

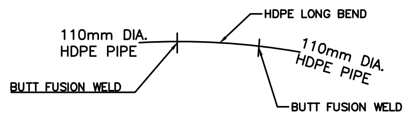
Drawing Title

WEST MAINLAND – LINE WP15
PLAN AND PROFILE
(CH. 0+000 – CH. 0+810.66)
SHEET 1 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-078C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-078 — C0 REV

DETAIL

CH. 0+003.39, 0+434.20, 0+448.89,0+551.60, 0+660.29, 0+697.42, 0+780.06
LINE WP15 - 11.25° H.BEND



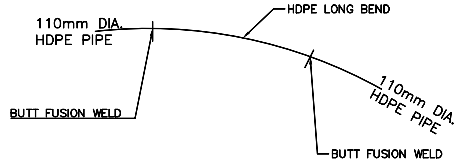
DESCRIPTION

7 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+189.25 & 0+672.44
LINE WP15 - 45° H.BEND



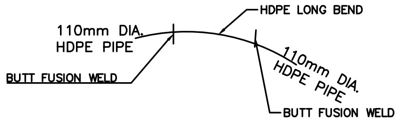
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+475.07 & 0+716.45
LINE WP15 - 30° H.BEND



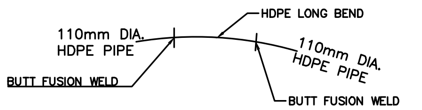
DESCRIPTION

2 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+053.55, 0+074.04, 0+443.56, 0+458.88, 0+495.08, 0+560.71, 0+638.31 & 0+645.99
LINE WP15 - 22.5° H.BEND



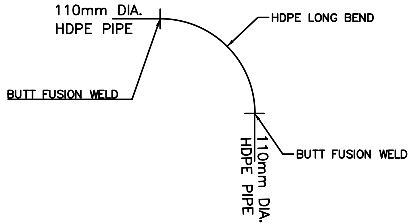
DESCRIPTION

8 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+147.90, 0+535.21, 0+537.56, 0+720.34 & 0+754.47
LINE WP15 - 90° H.BEND



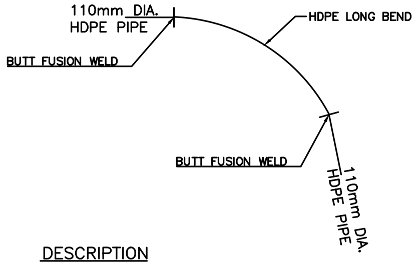
DESCRIPTION

5 Nos. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

DETAIL

CH. 0+570.85, 0+588.38, 0+595.56 & 0+736.57
LINE WP15 - 60° H.BEND



DESCRIPTION

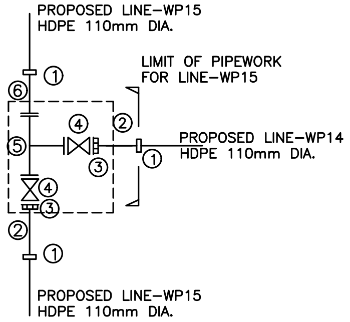
1 No. REQUIRED

HDPE LONG BEND – BUTT FUSION WELDED

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+140.00
WP15 - INTERCONNECTION



DESCRIPTION

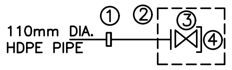
1 No. REQUIRED

① 3 Nos. 110/100mm DIA. STEPPED COUPLING
② 2 Nos. 100mm DIA. PLAIN ENDED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 2 Nos. 100mm DIA. FLANGE ADAPTOR
④ 2 Nos. 100mm DIA. ALL FLANGED SLUICE VALVE
⑤ 1 No. 100x100mm DIA. ALL FLANGED STEEL TEE
⑥ 1 No. 100mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE

CHAMBER SIZE
1200x1200

DETAIL

CH. 0+810.66
LINE WP15 - SV & B.F - 01



DESCRIPTION

1 No. REQUIRED

① 1 Nos. 110/100mm DIA. STEPPED COUPLING
② 1 No. 100mm DIA. SINGLE FLANGED STEEL PIPE 1.2m LONG WITH PUDDLE FLANGE
③ 1 No. 100mm DIA. ALL FLANGED SLUICE VALVE
④ 1 No. 100mm DIA. BLANK FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.

LEGEND:

SV	SLUICE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
AV-01	COMBINATION AIR VALVE & No.
WM	WATER METER
⌜⌟	PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

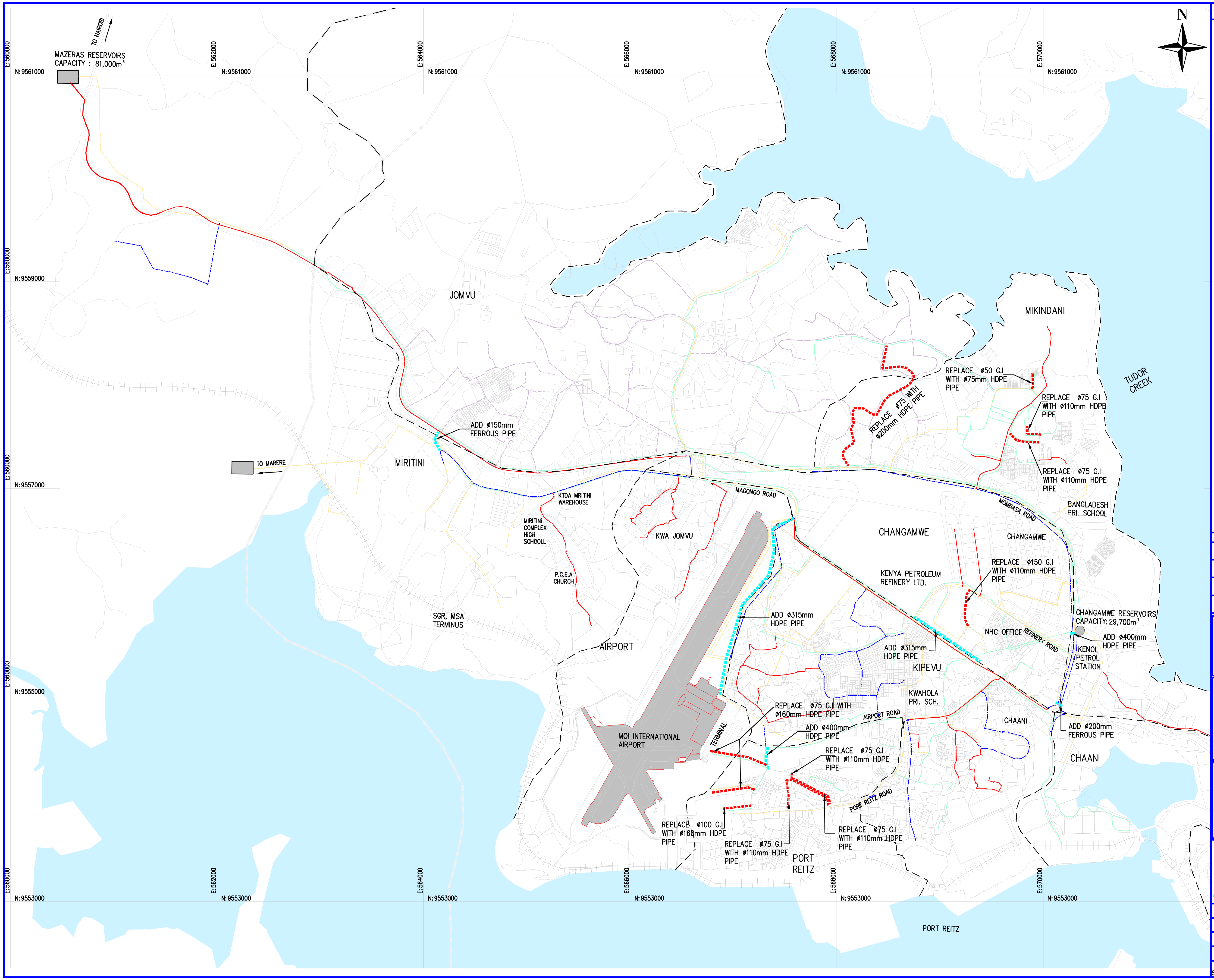
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND – LINE WP15
PIPE FITTING DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by LAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-079C0

C STATUS | DRAWING No. 6000002-W&S-WM-P-079 | C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

━━━━	PROPOSED 2030 WATER PIPELINES
—·—·—	PROPOSED 2020 WATER PIPELINES
- - - -	EXISTING WATER LINES
— — —	SUB-LOCATION BOUNDARIES
- - - -	WORKS UNDER IMPLEMENTATION BY MOWASCO
—·—·—	MOWASCO PROJECT – WSDP
—··—··—	MOWASCO PROJECT – KWSCRP
—·—·—	WASSIP
▬ ▬ ▬	REPLACED PIPELINES
▬ ▬ ▬	ADDITIONAL PIPELINES

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

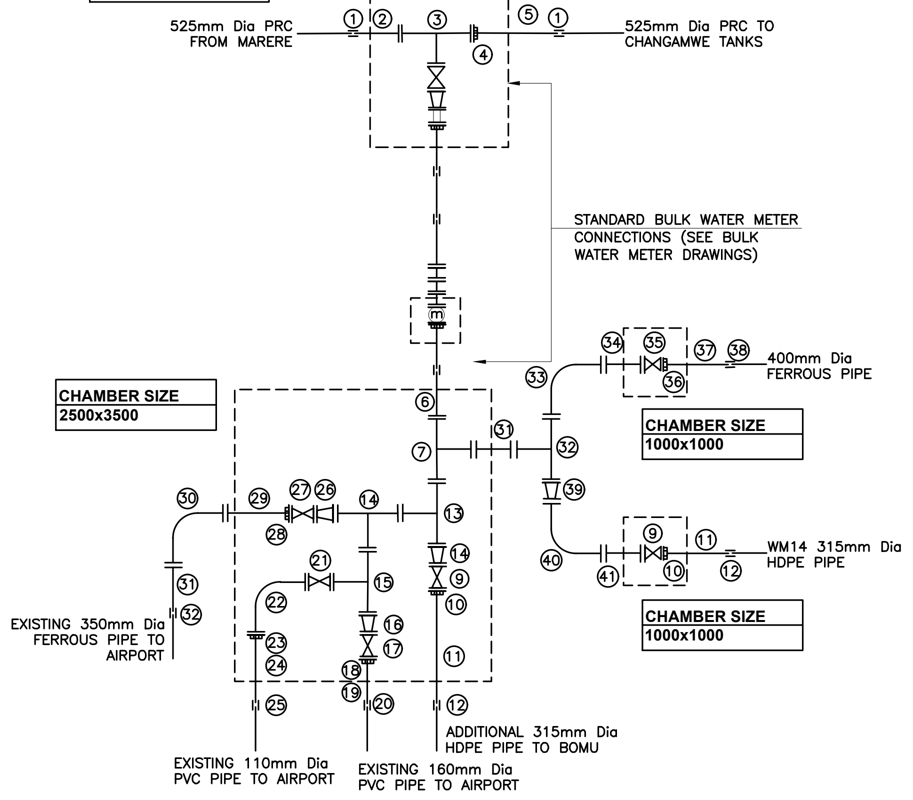
Drawing Title

MOMBASA WATER DISTRIBUTION PIPELINES – WEST MAINLAND ADDITIONAL LINES – GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-080C0
C STATUS	DRAWING No. 6000002-W&S-WM-P-080	CO REV

DETAIL

JUNCTION AT SCOPE ON MAGONGO ROAD



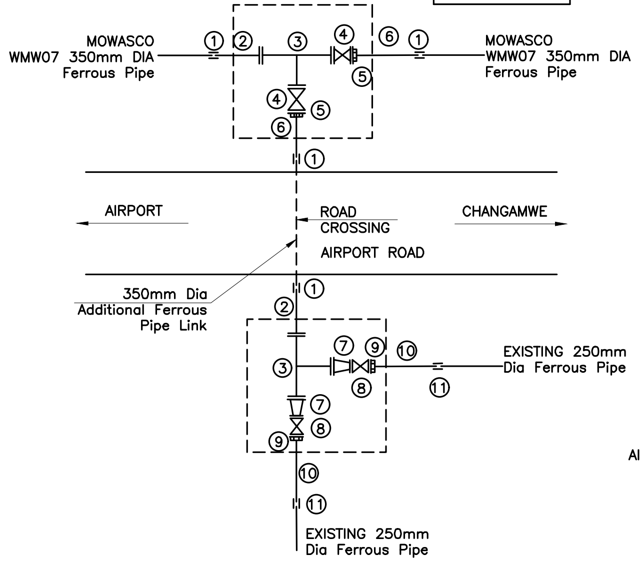
DESCRIPTION

① 2 No. 600mm COUPLINGS
② 1 No. 2.4m LONG 600mm DIA. SINGLE FLANGED PIPE WITH PADDLE FLANGE
③ 1 No. 600x500mm ALL FLANGED TEE
④ 1 No. 600mm DIA. FLANGE ADAPTOR
⑤ 1 No. 2.4m LONG 600mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE
⑥ 1 No. 2.4m LONG 500mm DIA. SINGLE FLANGED PIPE WITH PADDLE FLANGE
⑦ 1 No. 500x500mm ALL FLANGED TEE
⑧ 1 No. 1.2m LONG 250mm DIA. DOUBLE FLANGED PIPE WITH PADDLE FLANGE
⑨ 2 No. 250mm DIA. PN10 SLUICE VALVE
⑩ 2 No. 250mm DIA. FLANGE ADAPTOR
⑪ 2 No. 1.2m LONG 250mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE
⑫ 2 No. 315/250mm DIA. STEPPED COUPLINGS
⑬ 1 No. 500x400mm ALL FLANGED TEE
⑭ 1 No. 400x200mm ALL FLANGED TEE
⑮ 1 No. 200x100mm ALL FLANGED TEE
⑯ 1 No. 200x150mm ALL FLANGED CONCENTRIC REDUCER
⑰ 1 No. 150mm DIA. PN10 SLUICE VALVE
⑱ 1 No. 150mm DIA. FLANGE ADAPTOR
⑲ 1 No. 1.2m LONG 150mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE
⑳ 1 No. 160/150mm DIA. STEPPED COUPLINGS
㉑ 1 No. 100mm DIA PN10 SLUICE VALVE
㉒ 1 No. 100mm 90° ALL FLANGED BEND
㉓ 1 No. 100mm DIA FLANGED ADAPTOR
㉔ 1 No. 100mm 1.2m LONG,PLAIN ENDED PIPE WITH PADDLE FLANGE
㉕ 1 No. 110/100mm STEPPED COUPLING
㉖ 1 No. 400x350mm FLANGED CONCENTRIC REDUCER
㉗ 1 No. 350mm PN10 SLUICE VALVE
㉘ 1 No. 350mm FLANGE ADAPTOR
㉙ 2 No. 350mm 1.2m LONG,SINGLE FLANGED PIPE WITH PADDLE FLANGE
㉚ 1 No. 350mm 90° ALL FLANGED BEND
㉛ 1 No. 350mm STRAIGHT COUPLING
㉜ 1 No. 1.2m LONG 500mm DIA. DOUBLE FLANGED PIPE WITH PADDLE FLANGE
㉝ 1 No. 500x400mm REDUCING TEE
㉞ 1 No. 400mm 90° BEND
㉟ 1 No. 1.2m LONG 400mm DIA. DOUBLE FLANGED PIPE WITH PADDLE FLANGE
㊱ 1 No. 400mm DIA PN10 SLUICE VALVE
㊲ 1 No. 400mm FLANGE ADAPTOR
㊳ 1 No. 400mm 1.2m LONG,PLAIN ENDED PIPE WITH PADDLE FLANGE
㊴ 1 No. 400mm STRAIGHT COUPLING
㊵ 1 No. 400x250mm CONCENTRIC REDUCER
㊶ 1 No. 250mm 90° FLANGED BEND
㊷ 1 No. 250mm 1.2m LONG,DOUBLE FLANGED PIPE WITH PADDLE FLANGE

CHAMBER SIZE
2000x1500

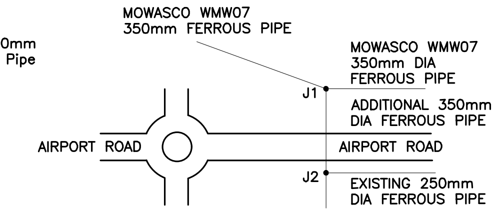
DETAIL

AIR PORT ROAD



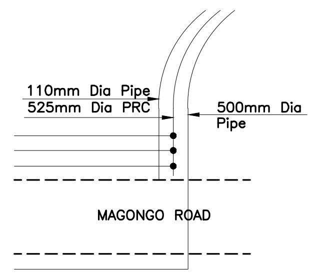
DESCRIPTION

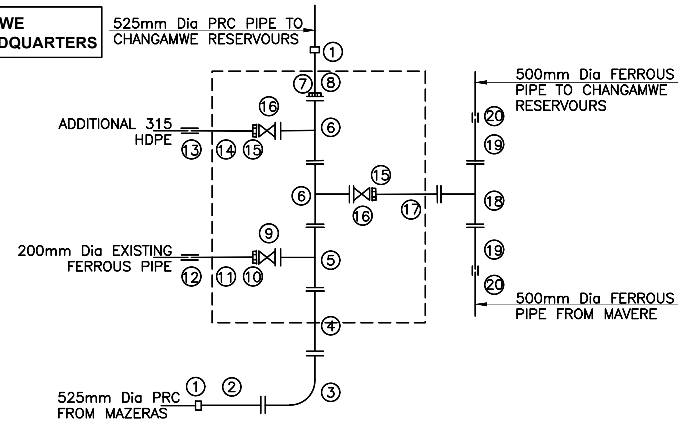
① 4 No. 350mm DIA. STRAIGHT COUPLING
② 2 No. 1.2m LONG 600mm DIA. SINGLE FLANGED PIPE PIECE WITH PADDLE FLANGE
③ 2 No. 350x350mm FLANGED TEE
④ 2 No. 350mm DIA. PN10 FLANGED SLUICE VALVE
⑤ 2 No. 350mm DIA. FLANGE ADAPTOR
⑥ 2 Nos. 1.2m LONG 350mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE
⑦ 2 No. 350x250mm DIA. FLANGED CONCENTRIC REDUCER
⑧ 2 No. 250mm DIA. PN10 SLUICE VALVE
⑨ 2 No. 250mm DIA. FLANGE ADAPTOR
⑩ 2 Nos. 1.2m LONG 250mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE
⑪ 2 No. 250mm DIA. STRAIGHT COUPLINGS



CHAMBER SIZE
3000x5500

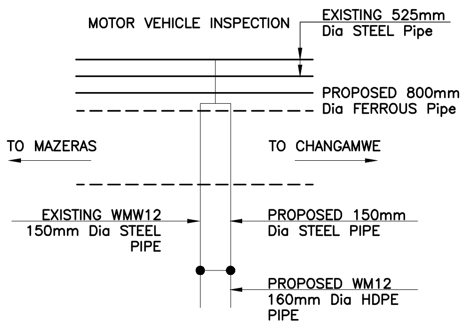
JUNCTION AT CHANGAMWE POLICE-DIVISIONAL HEADQUARTERS





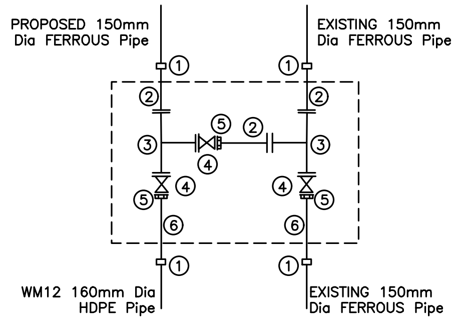
DESCRIPTION

① 2 No. 525/600mm DIA. STEPPED COUPLINGS
② 1 No. 2.4m LONG 600mm DIA. SINGLE FLANGED PIPE
③ 1 No. 600mm FLANGED 90° BEND
④ 1 No. 2.4m LONG 600mm DIA. DOUBLE FLANGED PIPE
⑤ 1 No. 600x200mm DIA. FLANGE TEE
⑥ 2 No. 600x250mm DIA. FLANGE TEE
⑦ 1 No. 600mm DIA. FLANGED ADAPTOR
⑧ 1 No. 2.4m LONG 600mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE
⑨ 1 No. 200mm DIA. PN10 SLUICE VALVE
⑩ 1 No. 200mm DIA. PN10 FLANGE ADAPTOR
⑪ 1 No. 1.2m LONG 200mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE
⑫ 1 No. 200mm DIA. STRAIGHT COUPLINGS
⑬ 2 No. 315/250mm DIA. STEPPED COUPLINGS
⑭ 1 No. 1.2m LONG 250mm DIA. PLAIN ENDED PIPE WITH PADDLE FLANGE
⑮ 2 No. 250mm DIA FLANGED ADAPTOR
⑯ 2 No. 250mm DIA. PN10 SLUICE VALVE
⑰ 1 No. 1.2m LONG 250mm DIA. SINGLE FLANGED PIPE WITH PADDLE FLANGE
⑱ 1 No. 500x250mm DIA. FLANGE TEE
⑲ 2 No. 1.2m LONG 500mm DIA. SINGLE FLANGED PIPES
⑳ 2 No. 500mm DIA. STRAIGHT COUPLINGS



CHAMBER SIZE
1200x1200

ACROSS ROAD FROM MOTOR VEHICLE ISPECTION CENTER



DESCRIPTION

① 4 No. 160/150mm DIA. STEPPED COUPLINGS
② 3 No. 1.2m LONG 150mm DIA. SINGLE FLANGED PIPE PIECE WITH PADDLE FLANGE
③ 2 No. 150x150mm FLANGED TEE
④ 3 No. 150mm DIA. PN10 FLANGED SLUICE VALVES
⑤ 3 No. 150mm DIA. FLANGE ADAPTORS
⑥ 2 Nos. 1.2m LONG 150mm DIA. PLAIN ENDED PIPE PIECE WITH PADDLE FLANGE

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS.
3. FH, WO AND AV IN THE STANDARD DRAWINGS.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING No. 6000002-W&S-WM-P-024

LEGEND:

[ ] PROPOSED CONCRETE CHAMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

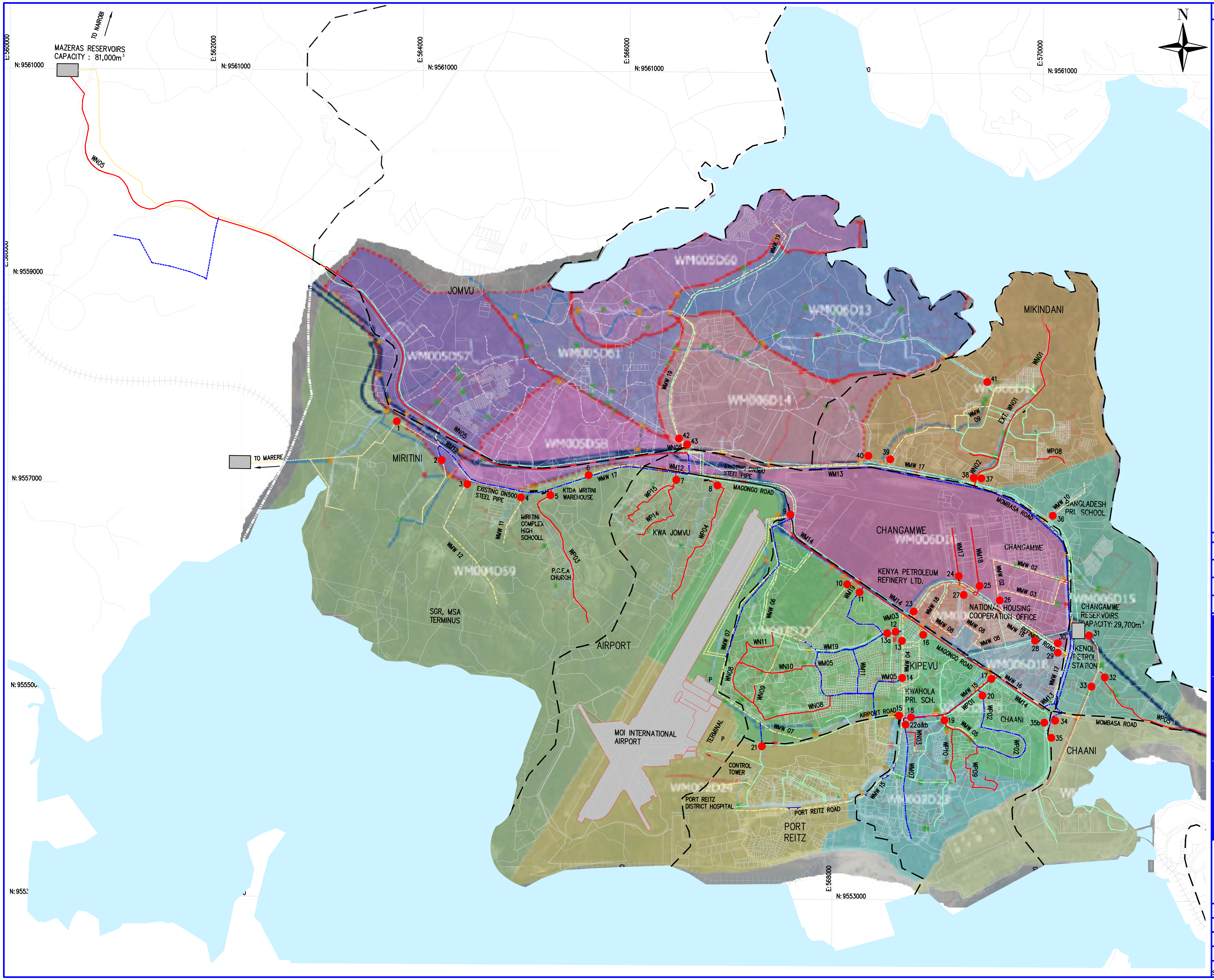
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
WEST MAINLAND
PIPE FITTINGS FOR ADDITIONAL LINES

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-WM-P-081C0
C STATUS DRAWING No. 6000002-W&S-WM-P-081	C0 REV



NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.

LEGEND:

━	PROPOSED 2030 WATER PIPELINES
━	PROPOSED 2020 WATER PIPELINES
━	EXISTING WATER LINES
━	SUB-LOCATION BOUNDARIES
━	WORKS UNDER IMPLEMENTATION BY MOWASCO
━	MOWASCO PROJECT – WSDP
━	MOWASCO PROJECT – KWSCRP
━	WASSIP
━	RAILWAY TRACK
●	BULK WATER METER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND
BULK WATER METERS – DMAs
GENERAL LAYOUT

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File:W&S-C-G-004AC0
C STATUS	DRAWING No.6000002-W&S-C-G-004A
C0 REV	

BULK WATER METERS IN WEST MAINLAND						
BWM Type	BWM Size	BWM Ref	Pipe	Pipe Dia	Pipe Material	No.
BULK WATER METERS IN WEST MAINLAND LOTS 4A & 4B						
Mechanical	75	28	Existing pipe adjacent to Africa Inland Church, off Refinery Road, Changamwe	75	Steel	1
	100	7	WP15	110	HDPE	1
		10	Existing pipe at the edge of Magongo Bomu Estate, opposite Refinery Grounds	100	Steel	1
		11	WM19	110	HDPE	1
		16	Existing pipe opposite Changamwe Police Station towards Bomu Hospital	100	Steel	1
		27	Replacement pipe opposite National Bank, off Refinery Road, Changamwe	50	Steel	1
		31	Existing pipe at the Changamwe Reservoirs	100	Steel	1
		32	WP05	110	HDPE	1
		33	Existing pipe towards Changawe Roundabout	100	Steel	1
	150	1	Existing pipe towards Miritini Original Baptist Church, Miritini	150	Steel	1
		2	Existing pipe towards Miritini Botanical Garden, Miritini	160	uPVC	1
		3	Existing pipe WMW12	150	Steel	1
		4	Existing pipe WMW11	150	Steel	1
		5	WP03	160	HDPE	1
		8	WP04	160	HDPE	1
		13a	WM03	160	HDPE	1
		13b	Existing pipe at junction of Magongo Rd & Refinery Rd towards Bomu Hospital	150	Steel	1
		18a	Existing pipe WMW16 at junction of Airport Rd & Port Reitz Rd	150	Steel	1
		19	Existing pipe WMW05 at Chaani	150	Steel	1
		20a	Existing pipe off Airport Road, parallel to proposed WP02	160	uPVC	1
		20b	WP02	160	HDPE	1
		22a	Existing pipe WMW15 along PortReitz Road	150	Steel	1
		24	WM17	160	HDPE	1
		25	WM18	160	HDPE	1
		26	Existing pipe near Kensalt Ltd, off Refinery Road	150	Steel	1
		29	Existing pipe WMW18a at junction of Refinery Rd & Mombasa Rd	150	Steel	1
		30	Existing pipe at junction of Refinery Rd & Mombasa Rd	150	Steel	1
		34	WM21	160	uPVC	1
		35a	Existing pipe at Changamwe Roundabout	150	Steel	1
		35b	Existing pipe at Changamwe Roundabout	150	Steel	1
		41	Existing pipe near Hotel Seaview from Mikindani to Miritini	150	Steel	1
		42	Existing pipe behind AO Bayusuf & Sons Ltd, off Kwa Jomvu Junction	160	uPVC	1
	200	6	WM12	200	HDPE	1
		22b	WM07	200	HDPE	1
		23	Existing pipe WMW18 at junction of Magongo Rd to Refinery Rd	200	Steel	1
		36	Existing pipe WMW10 at Bangladesh towards St. Patrick's Catholic Church	200	HDPE	1
		37	Existing pipe at Mikindani Junction	200	uPVC	1
		38	WN02	200	HDPE	1
		40	Replacement pipe at Corrugated Sheets Limited, Mikindani	75	GI	1
Electromagnetic	250	15	Existing pipe at	250	Steel	1
		43a	Existing pipe behind AO Bayusuf & Sons Ltd, off Kwa Jomvu Junction	250	Steel	1
		43b	Existing pipe behind AO Bayusuf & Sons Ltd, off Kwa Jomvu Junction	250	Steel	1
	350	9	Existing pipe	350	Steel	1
		12	Existing pipe WMW04 at junction of Magongo Rd towards Bomu Hospital	350	Steel	1
		14	WM05	315	HDPE	1
		21	Additional pipe at Airport Toll Gate towards Port Reitz Rd	350	Steel	1
		39	Existing pipe WMW09 at Transpares Kenya, Mikindani	350	Steel	1
	400	18b	WP01	355	HDPE	1
		17	Existing pipe at junction of Airport Rd & Magongo Rd	400	Steel	1
					Total Lots 4A & 4B	**49**

NOTES

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

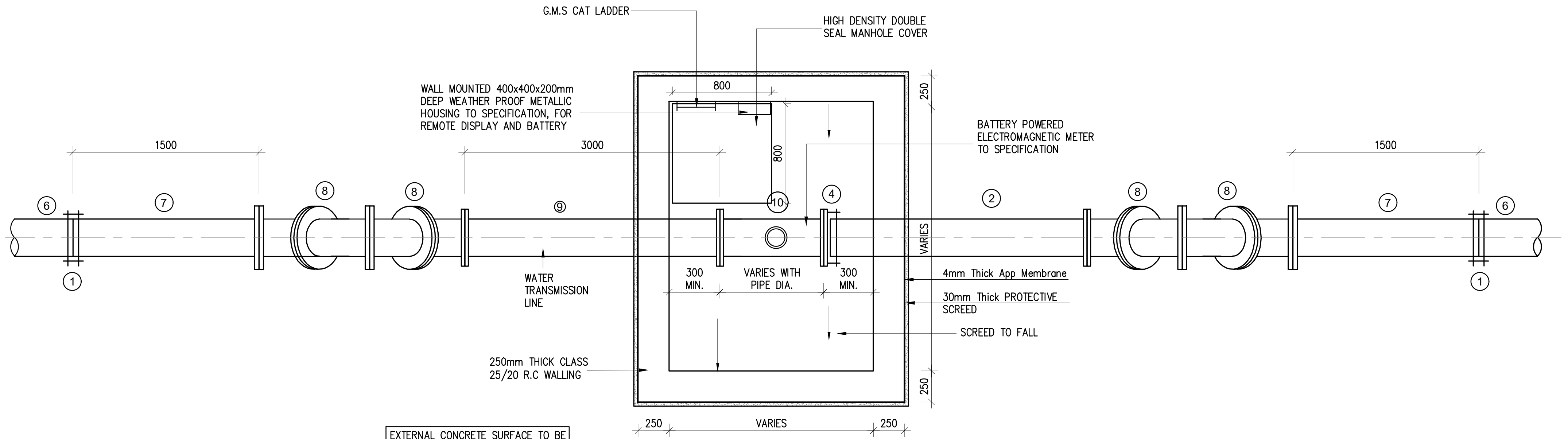
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

WEST MAINLAND
BULK WATER METER DIAMETERS
SCHEDULE

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-004BC0
C STATUS	DRAWING No.6000002-W&S-C-G-004B C0 REV

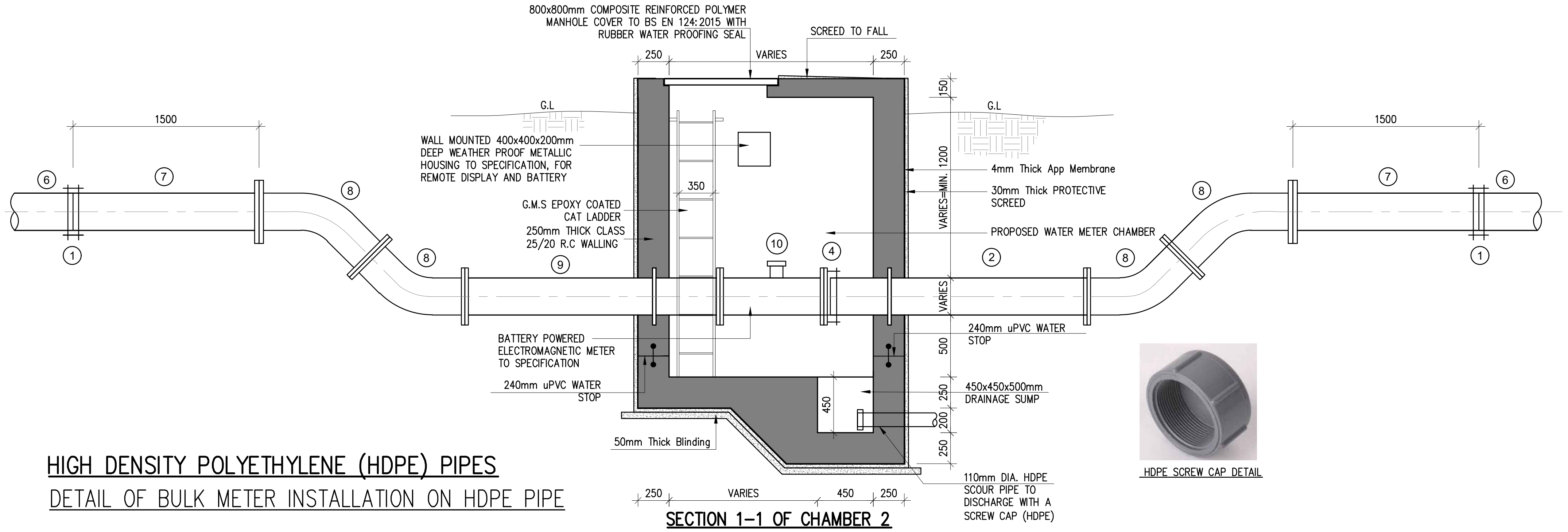


EXTERNAL CONCRETE SURFACE TO BE TANKED SHALL BE COATED WITH A BITUMINOUS PAINT/MEMBRANE,3mm MINIMUM THICKNESS

CONCRETE TO BE MIXED WITH SIKAL WATERPROOFING ADMIXTURE OR EQUALLY APPROVED

PLAN OF CHAMBER 2

SCALE 1:25

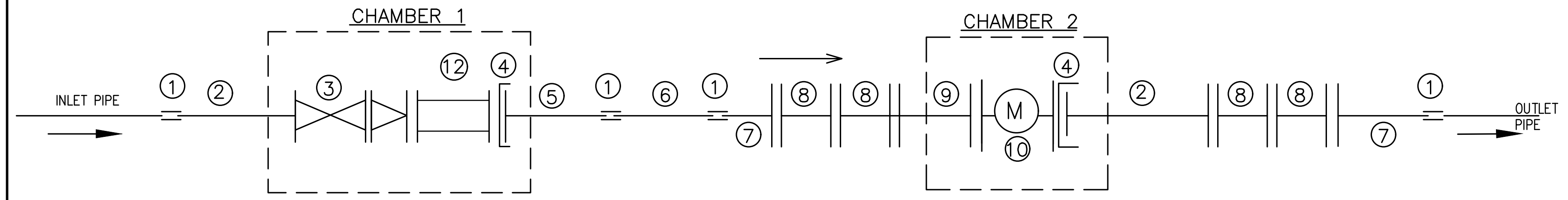


HIGH DENSITY POLYETHYLENE (HDPE) PIPES

DETAIL OF BULK METER INSTALLATION ON HDPE PIPE

SECTION 1-1 OF CHAMBER 2

SCALE 1:25



ITEM No.	DESCRIPTION	DIA.	Nr.
1.	COUPLING	D	4
2.	SINGLE FLANGED PIPE WITH PUDDLE FLANGE	D	2
3.	SLUICE VALVE PN10	D	1
4.	FLANGE ADAPTOR	D	2
5.	PLAIN ENDED PIPE WITH PUDDLE FLANGE	D	1
6.	HDPE/STEEL CONNECTOR PIPE (LENGTH 10xD)	D	1
7.	SINGLE FLANGED PIPE PIECE 1.2m LONG	D	2
8.	45° BEND ALL FLANGED	D	4
9.	1.2m LONG DOUBLE FLANGED PIPE PIECE WITH PUDDLE FLANGE	D	1
10.	ALL FLANGED SMART ENABLED WATER METER	D	1

ITEM No.	DESCRIPTION	DIA.	Nr.
11.	NON-RETURN VALVE,PN10	D	1
12.	Y STRAINER,PN10	D	1

STANDARD ELECTROMAGNETIC METER CHAMBER DIMENSIONS SCHEDULE

MAIN PIPE DIA. ø (mm)	CHAMBER 1 DIMENSIONS (mm)	CHAMBER 2 DIMENSIONS (mm)
ø800	4200 x 1800	1800 x 1800
ø700	4200 x 1800	1800 x 1800
ø600	3600 x 1800	1800 x 1800
ø500	3000 x 1500	1500 x 1500
ø450	2600 x 1500	1500 x 1500
ø400	2600 x 1500	1500 x 1500
ø350	2000 x 1200	1500 x 1500
ø300	2000 x 1200	1500 x 1500
ø250	1500 x 1200	1200 x 1200
ø200≤ø200	1200 x 1200	1200 x 1200

NOTES

1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
2. ALL PIPES AND FITTING DIAMETERS ARE NOMINAL DIAMETER
3. CONTRACTOR TO CONFIRM IN LIAISON WITH THE ENGINEER THE ACTUAL LOCATIONS AND SIZES OF EXISTING/NEW PIPES ON WHICH THE METERS ARE TO BE INSTALLED PRIOR TO PROCUREMENT OF THE METERS AND ASSOCIATED FITTINGS

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

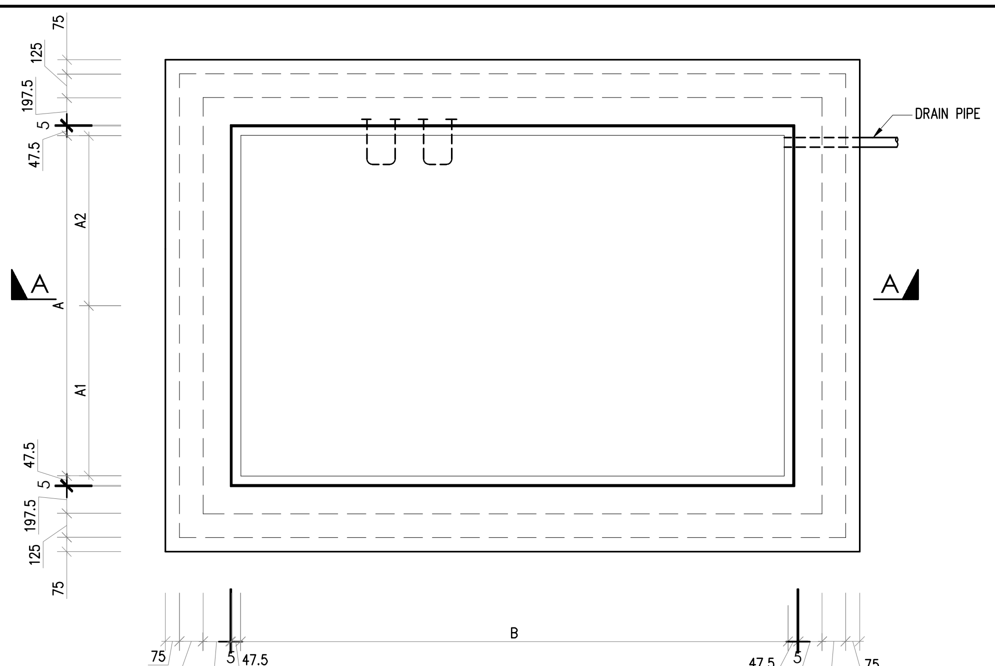
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

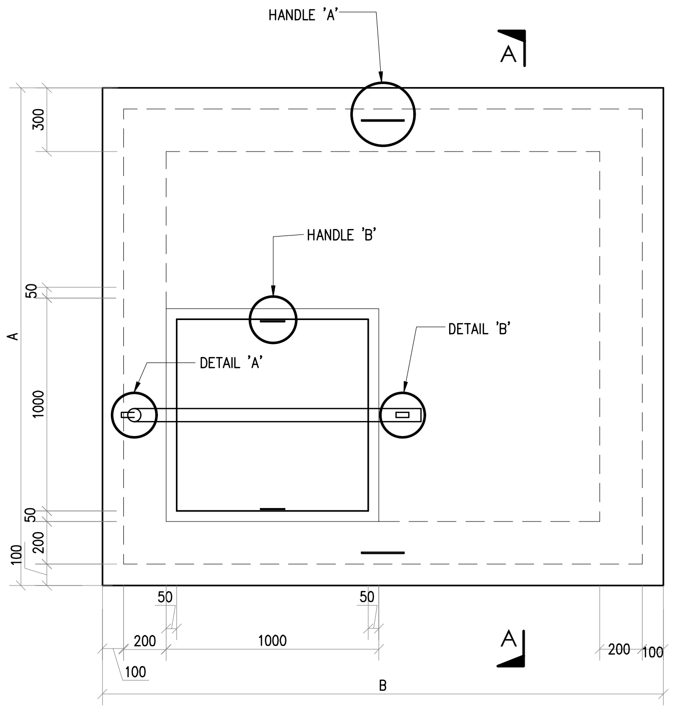
STANDARD DRAWING
ELECTRO MAGNETIC METERS CHAMBER
PLAN, ELEVATION AND PIPE FITTING DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-004C0
C STATUS	DRAWING No.6000002-W&S-C-G-004C C0 REV



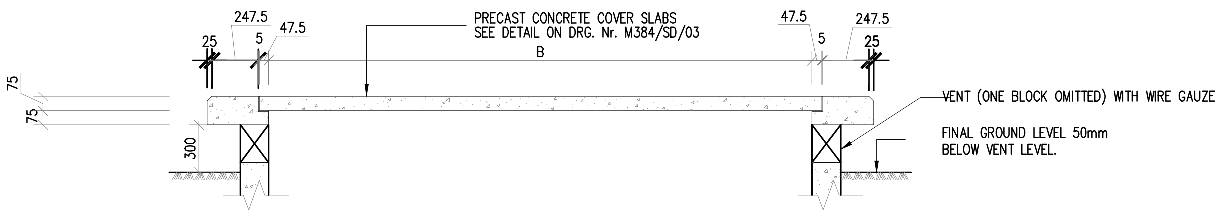
TYPE 1 COVER

SCALE 1:50



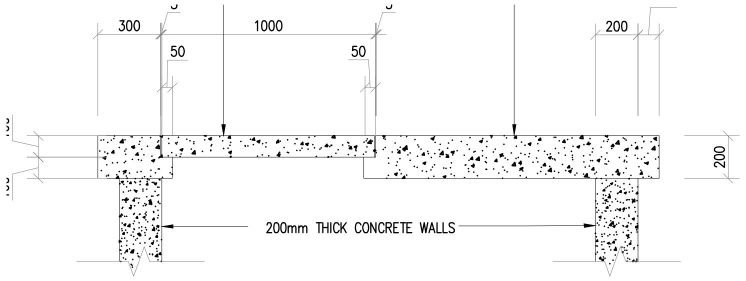
PLAN

N.T.S

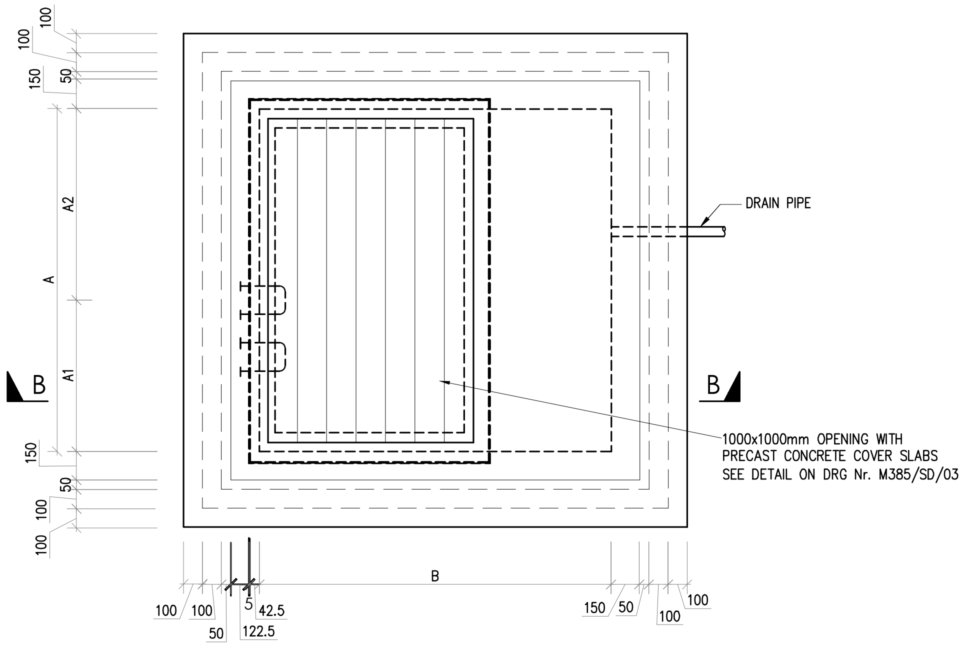


SECTION A–A

SCALE 1:50

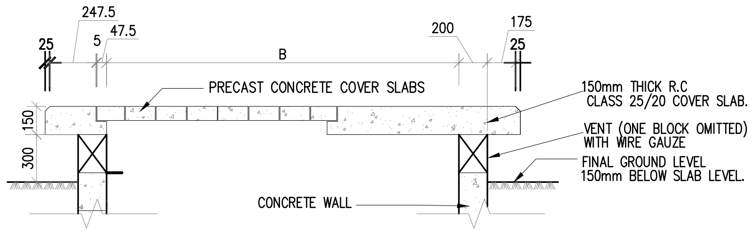


SECTION A–A



TYPE 2 COVER

SCALE 1:50



SECTION B–B

SCALE 1:50

NOTES

1. ALL DIMENSIONS ARE IN MILIMETRES UNLESS OTHERWISE STATED.

ABBREVIATIONS

P.C.C. – PRECAST CONCRETE
mm – MILLIMETRES
R.C – REINFORCED CONCRETE
M.S. – MILD STEEL
DIA. – DIAMETER
NO. – NUMBER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	R E V I S I O N S		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.

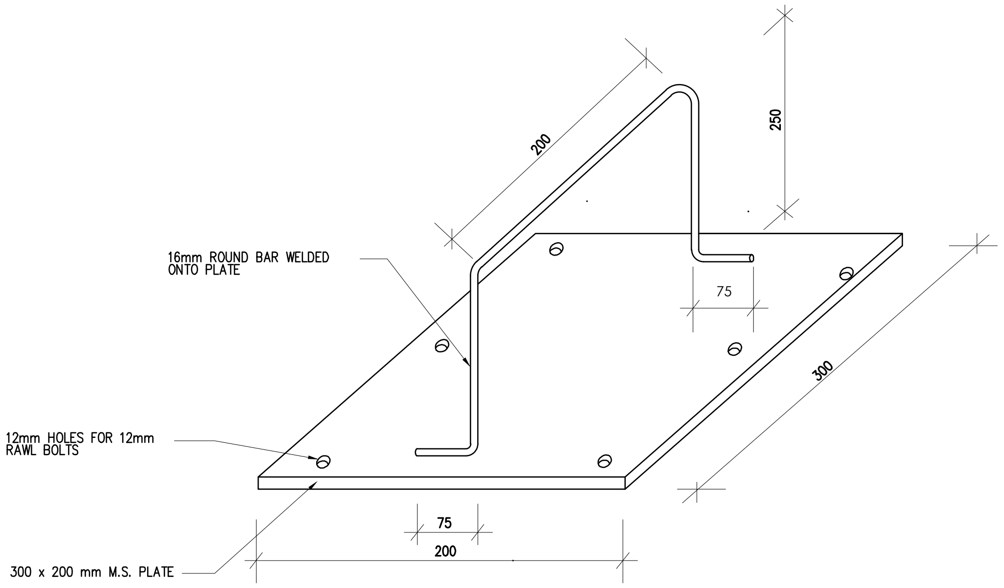
INGEROP
Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

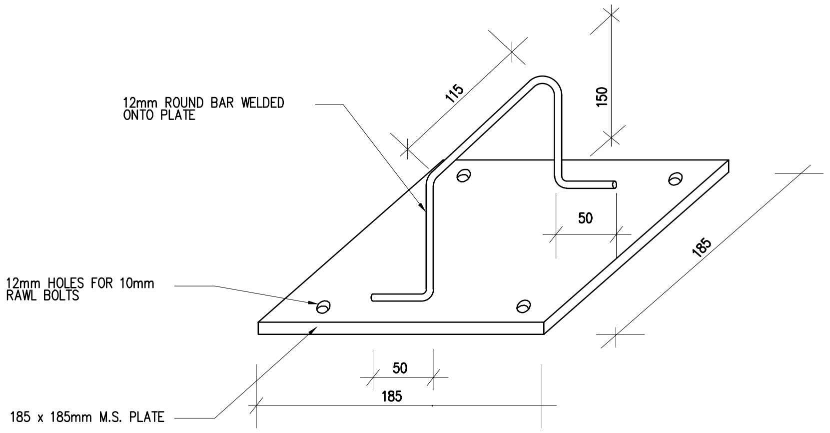
STANDARD DRAWING
CHAMBER COVER PLAN AND SECTIONS
SHEET 1 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-001C0
C STATUS	DRAWING No. 6000002-W&S-C-S-001 C0 REV



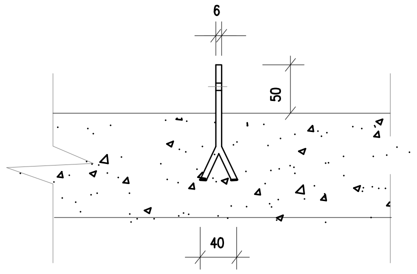
DETAIL OF HANDLE DIMENSIONS - HANDLE 'A'

NTS



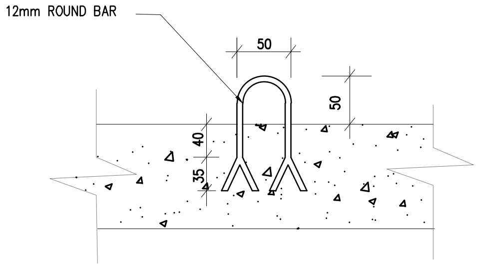
DETAIL OF HANDLE DIMENSIONS - HANDLE 'B'

NTS



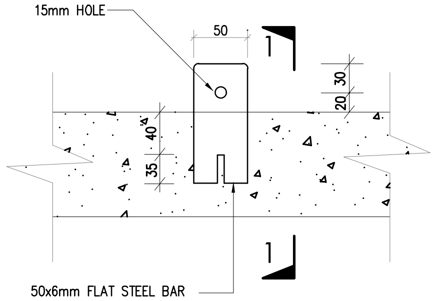
SECTION 1-1

NTS



DETAIL 'A'

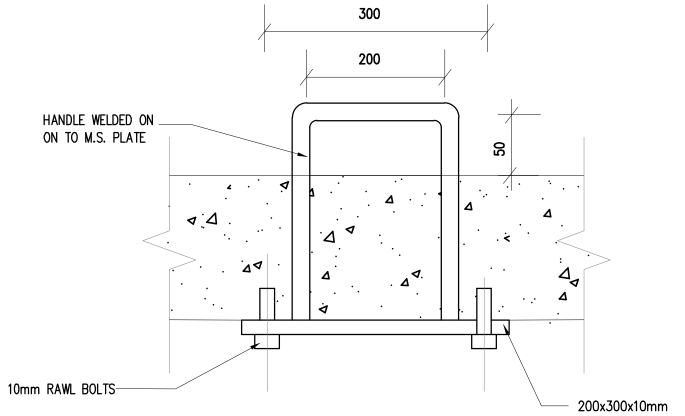
NTS



DETAIL 'B'

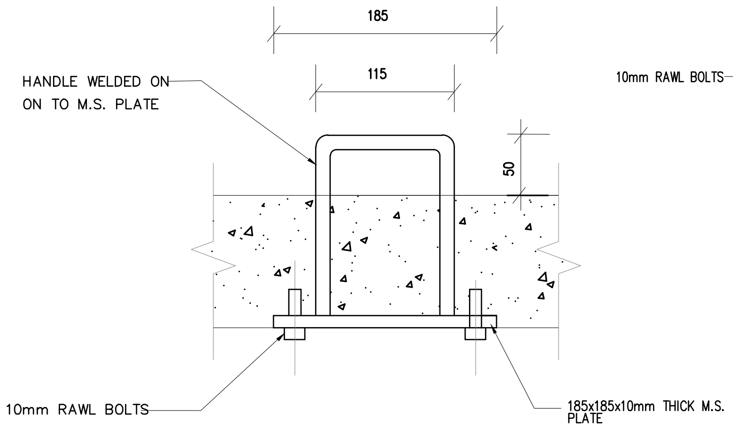
NTS

DETAILS OF LOCKING BAR - SECTIONS



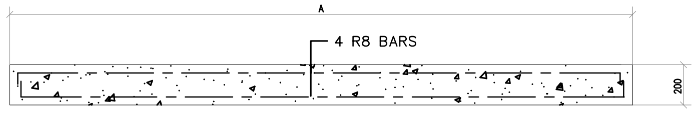
DETAIL OF HANDLE PLACEMENT HANDLE 'A'

NTS



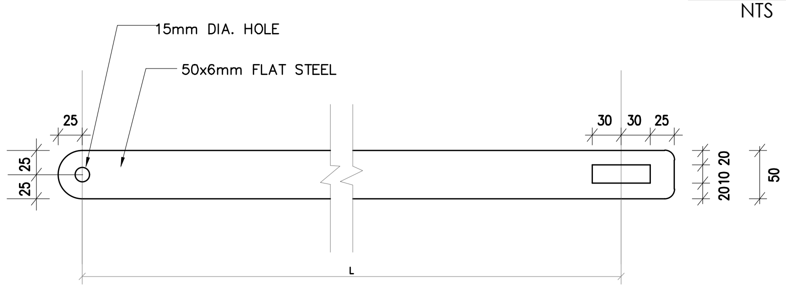
DETAIL OF HANDLE PLACEMENT HANDLE 'B'

NTS



COVER SLAB REINFORCEMENT DETAILS

NTS



DETAILS OF LOCKING BAR - PLAN

NTS

COVER SIZE SCHEDULE

CHAMBER INTERNAL DIMENSIONS (mm)	SIZE OF COVER A (mm) x B(mm)
1200 X 1200	1300 X 1300
1200 X 1200	1300 X 1300
1400 X 1200	1500 X 1500
1500 X 1200	1600 X 1300
1500 X 1200	1600 X 1300
1800 X 1200	1900 X 1300
1800 X 1200	1900 X 1300
1800 X 1400	1900 X 1500
1800 X 1400	1900 X 1500
1800 X 1500	1900 X 1600
2000 X 1800	2200 X 2000
2400 X 2100	2500 X 2300

NOTES

1. ALL DIMENSIONS ARE IN MILIMETRES UNLESS OTHERWISE STATED.

ABBREVIATIONS

P.C.C. – PRECAST CONCRETE
mm – MILLIMETRES
R.C – REINFORCED CONCRETE
M.S. – MILD STEEL
DIA. – DIAMETER
NO. – NUMBER

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

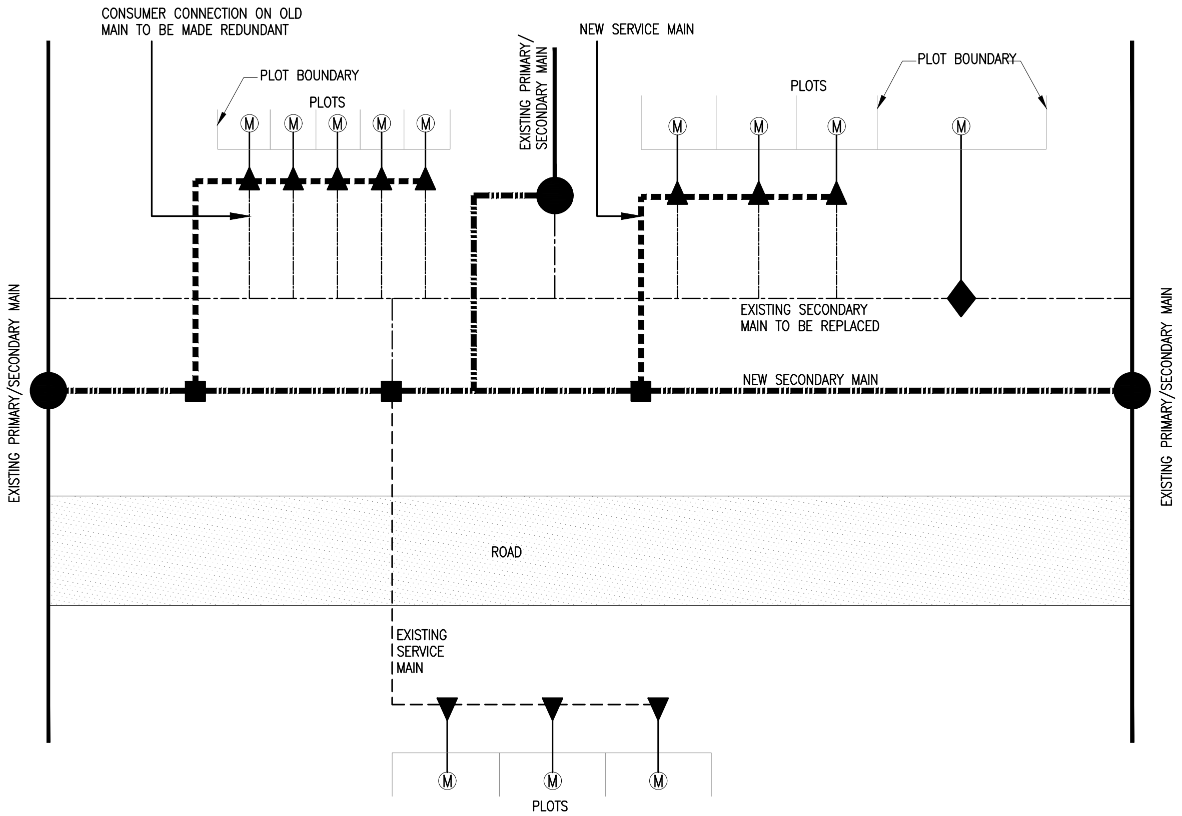
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

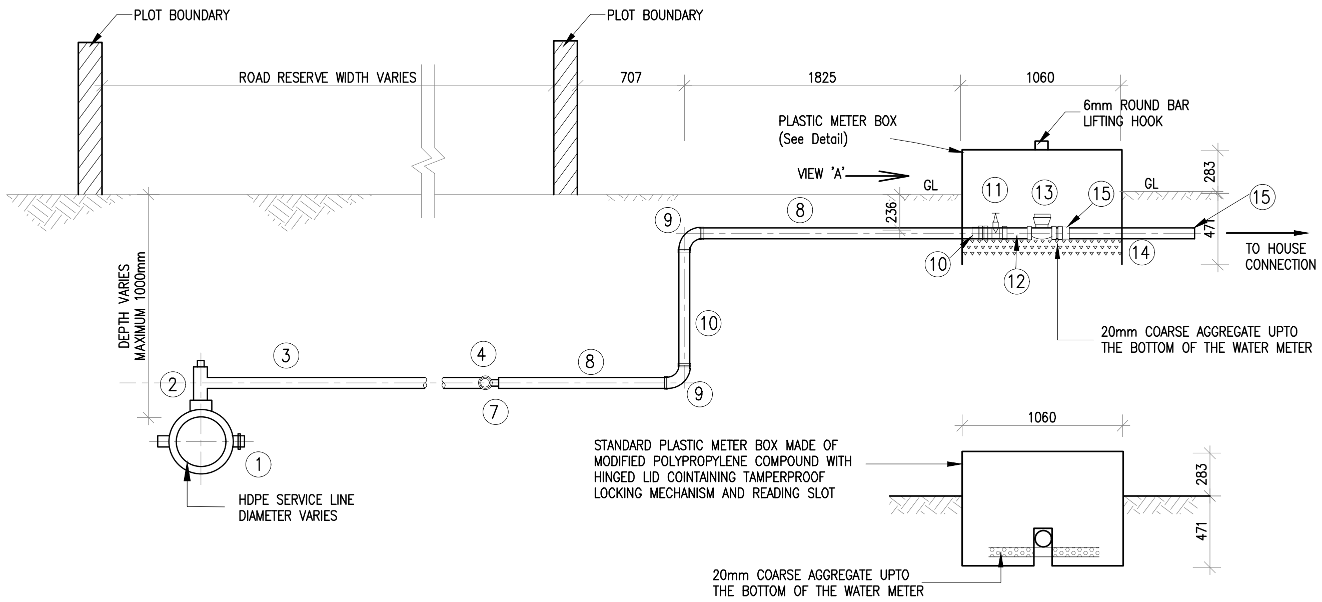
STANDARD DRAWING
CHAMBER COVER DETAILS
SHEET 2 OF 2

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-002C0
C STATUS	DRAWING No. 6000002-W&S-C-S-002 C0 REV



REINSTATING EXISTING CONSUMER CONNECTION

SCALE 1:



SCHEMATIC CONSUMER CONNECTION

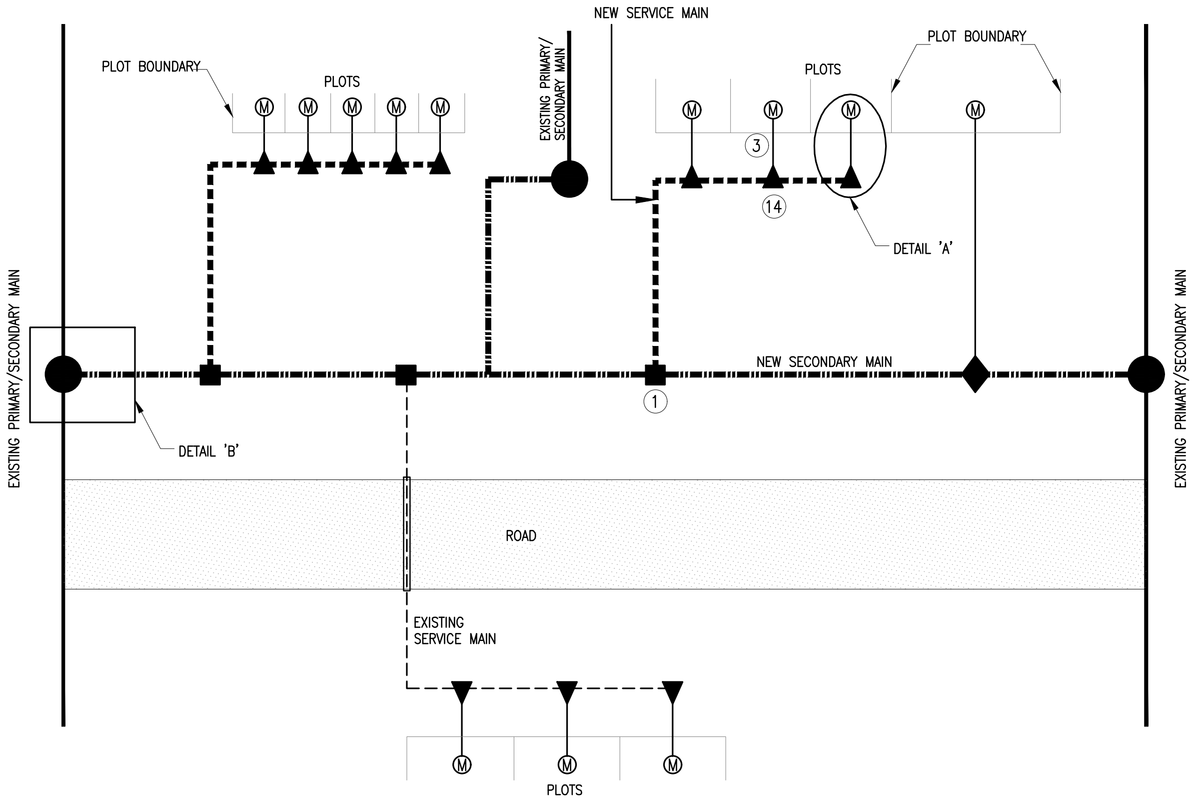
SCALE 1:25

FITTINGS SCHEDULE FOR TYPICAL HOUSE CONNECTION

ITEM No.	DESCRIPTION	QUANTITY
1	HDPE SADDLE CLAMP	1
2	32mm DIA. BRASS FERRULE	1
3	32mm DIA. HDPE PIPE LENGTH 1m (CUT TO SUIT ON SITE)	1
4	32x32mm DIA. TEE	1
5	15mm DIA. HDPE PIPE LENGTH 400m	1
6	32mm DIA. HDPE 90° ELBOW	2
7	32x15mm DIA. REDUCING COUPLER	1
8	15mm DIA. HDPE PIPE LENGTH 20m (CUT TO SUIT ON SITE)	1
9	15mm DIA. HDPE 90° ELBOW	2
10	15mm DIA. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING	2
11	15mm DIA. STOCK COCK	1
12	15mm DIA. METER LINER	1
13	15mm DIA. PLASTIC WATER METER INCLUDING STANDARD METER BOX (ELSTER KENT OR APPROVED EQUIVALENT)	1
14	15mm DIA. HDPE PIPE 1000mm LONG (CUT TO SUIT ON SITE)	1
15	15mm DIA. HDPE END CAP	1

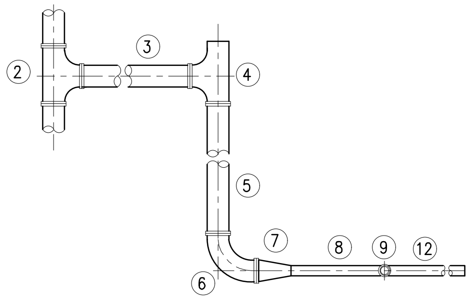
FITTINGS SCHEDULE FOR DETAIL 'B'

ITEM No.	DESCRIPTION	QUANTITY
A	HDPE TEE Dxd	1
B	SHORT LENGTH HDPE PIPE	1
C	COUPLING	1
D	STEEL SF PIPE PIECE	1
E	SLUICE VALVE	1
F	FLANGE ADAPTOR	2
G	PE PIPE	1
H	COUPLING	1



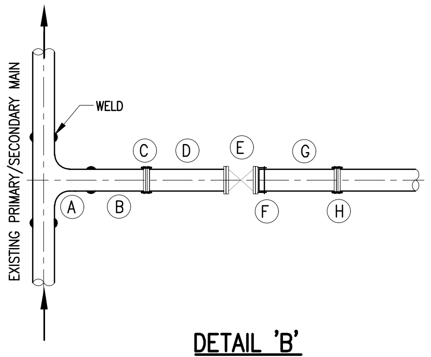
NEW CONSUMER CONNECTION

SCALE 1:



DETAIL 'A'

SCALE 1:



DETAIL 'B'

SCALE 1:

NOTES

1. ALL DIMENSIONS/LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. FINAL LOCATION TO BE DETERMINED ON SITE AND APPROVED BY THE ENGINEER.
3. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER.
4. ALL REINFORCED CONCRETE SHALL BE CLASS '30/20' FOR WATER RETAINING STRUCTURES AND OTHER REINFORCED CONCRETE. BLINDING CONCRETE SHALL BE CLASS '15/20' UNLESS OTHERWISE STATED.
5. ALL PIPES AND FITTINGS TO BE SIZED TO BS4772.
6. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
7. FLANGED INSERTS SHALL BE CAST WITH FLANGES CLEAR OF THE CONCRETE SURFACE TO ENABLE FASTENING OF BOLTS.

LEGEND

- NEW SECONDARY MAIN
- NEW TERTIARY/SERVICE MAIN
- EXISTING PRIMARY/SECONDARY MAINS
- INDIVIDUAL CONSUMER CONNECTIONS
- EXISTING SECONDARY MAIN TO BE REPLACED BY MAIN CONTRACTOR
- CONSUMER CONNECTIONS TO OLD MAIN
- EXISTING TERTIARY/SERVICE MAINS
- ▲ CONSUMER CONNECTION OFF TERTIARY/SERVICE MAIN
- ■ CONSUMER CONNECTION OFF SECONDARY MAIN
- ● CONNECTION OF NEW SECONDARY MAIN TO EXISTING NETWORK
- ◆ SECONDARY MAIN TO TERTIARY/ SERVICE MAIN CONNECTION

ABBREVIATIONS:

E.G.L	EXISTING GROUND LEVEL
F.G.L	FINISHED GROUND LEVEL
R.C	REINFORCED CONCRETE
SV	SLUICE VALVE
PF	PUDDLE FLANGE
DN	NOMINAL DIAMETER
MS	MILD STEEL
GMS	GALVANISED MILD STEEL
TWL	TOP WATER LEVEL

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

INGEROP Inventing for tomorrow

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

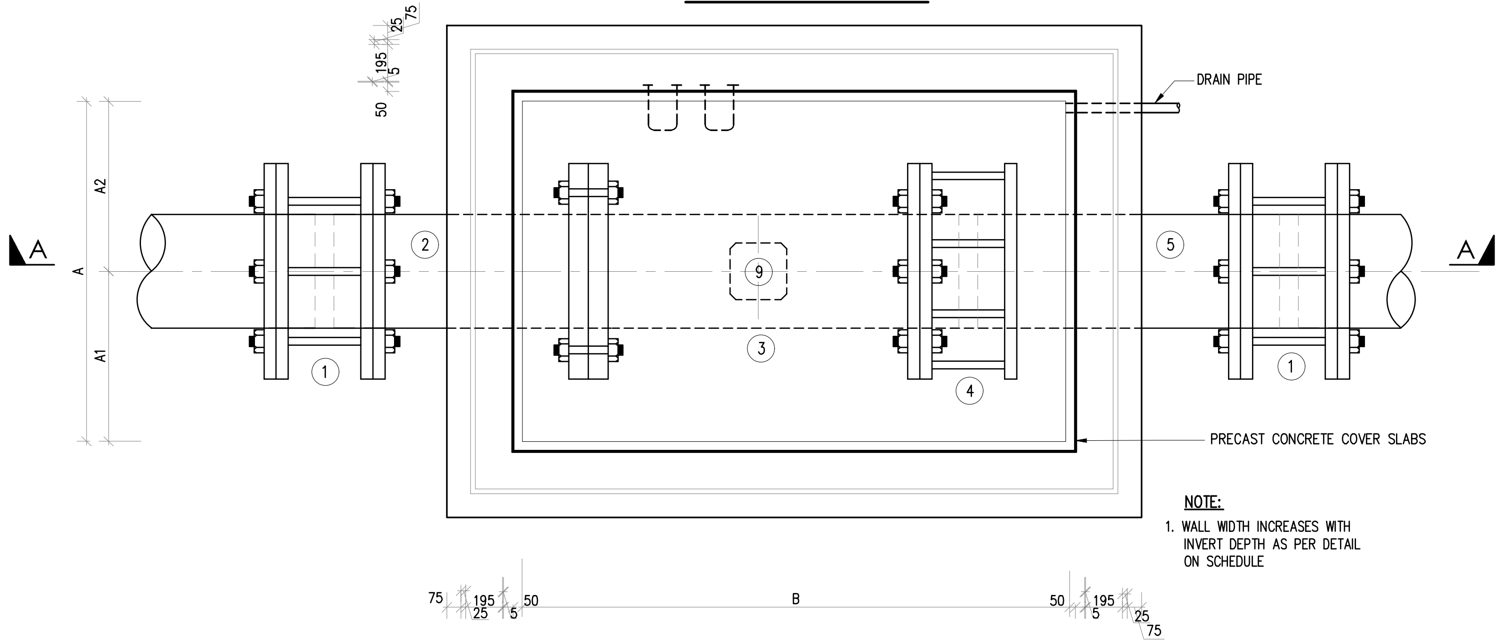
Drawing Title

CONSUMER WATER MAIN SUPPLY CONNECTION DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-003C0

C STATUS | DRAWING No. 6000002-W&S-C-S-003 | C0 REV

AIR VALVE CHAMBER



NOTE:
1. WALL WIDTH INCREASES WITH INVERT DEPTH AS PER DETAIL ON SCHEDULE

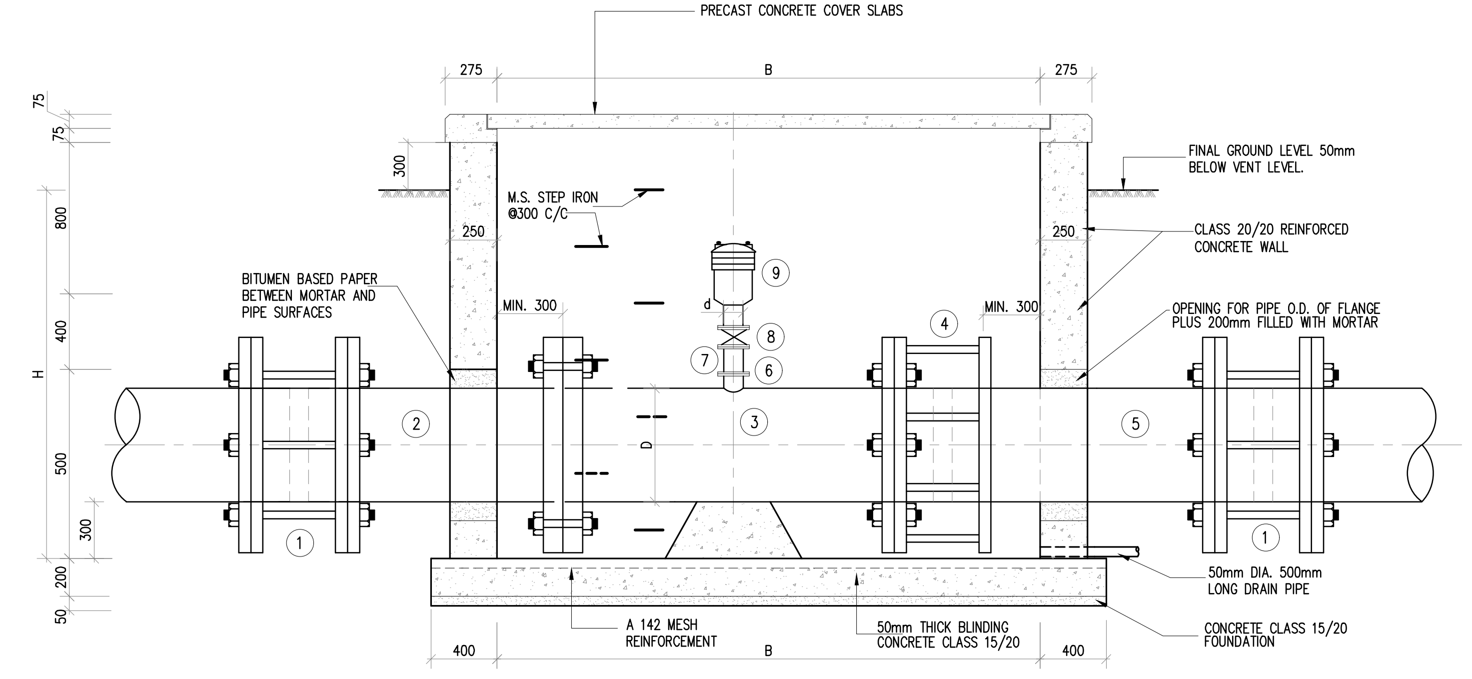
PLAN OF CHAMBER
SCALE 1:50

MAINS DIAMETER (mm) "D"	PLAN SIZE OF CHAMBER (INTERNAL DIMENSIONS) A(mm) x B(mm)
50–100	1200 x 1200
150	1200 x 1200
200	1200 x 1200
250	1200 x 1200
300	1500 x 1200
350	1500 x 1200
400	1800 x 1200
450	1800 x 1400
500	1800 x 1500
700	1800 x 1800
800	2000 x 2000

CHAMBER SIZE SCHEDULE FOR VARIOUS PIPE SIZES

INVERT DEPTHS (mm)	HEIGHT OF WALL H (mm)	WALL WIDTH (mm)
0 – 800	800	150 – CONCRETE WALL
800 – 1200	1200	200 – CONCRETE WALL
1200 – 2400	2400	200 – CONCRETE WALL
2400 – 3000	3000	250 – CONCRETE WALL
DEPTH MORE THAN 3000	–	300mm REINFORCED CONCRETE (CLASS 25/20) WALL

CHAMBER DEPTHS & WALL THICKNESS SCHEDULE

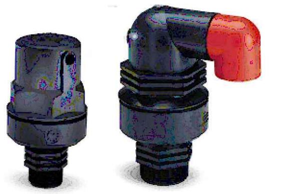


SECTION A–A
SCALE 1:50

PIPEWORK AND PIPE FITTING DETAILS
(All Epoxy Coated FBE unless otherwise stated)

ITEM No.	DESCRIPTION	Ø	QUANTITY
1.	COUPLING	D	2
2.	SINGLE FLANGED PIPE PIECE WITH PUDDLE FLANGE	D	1
3.	ALL FLANGED REDUCING TEE	Dxd	1
4.	FLANGED ADAPTOR	D	1
5.	PLAIN ENDED PIPE PIECE WITH PUDDLE FLANGE (CUT TO SUIT)	D	1
6.	HDPE THREADED FLANGE	d	1
7.	HDPE THREADED NIPPLE	d	1
8.	THREADED GATE VALVE (BRASS)	d	1
9.	COMBINATION AIR VALVE (REINFORCED POLYAMIDE)	d	1

for D	d(mm)
0<D<300	25
300<D<600	50
D>600	80



NOTES

1. DIMENSIONS ARE SHOWN IN MILIMETRES UNLESS OTHERWISE STATED

ABBREVIATIONS

P.C.C. – PRECAST CONCRETE
mm – MILLIMETRES
O.D. – OUTSIDE DIAMETER
M.S. – MILD STEEL
DIA. – DIAMETER
NO. – NUMBER
R.C – REINFORCED CONCRETE
c/c – CENTRE TO CENTRE

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

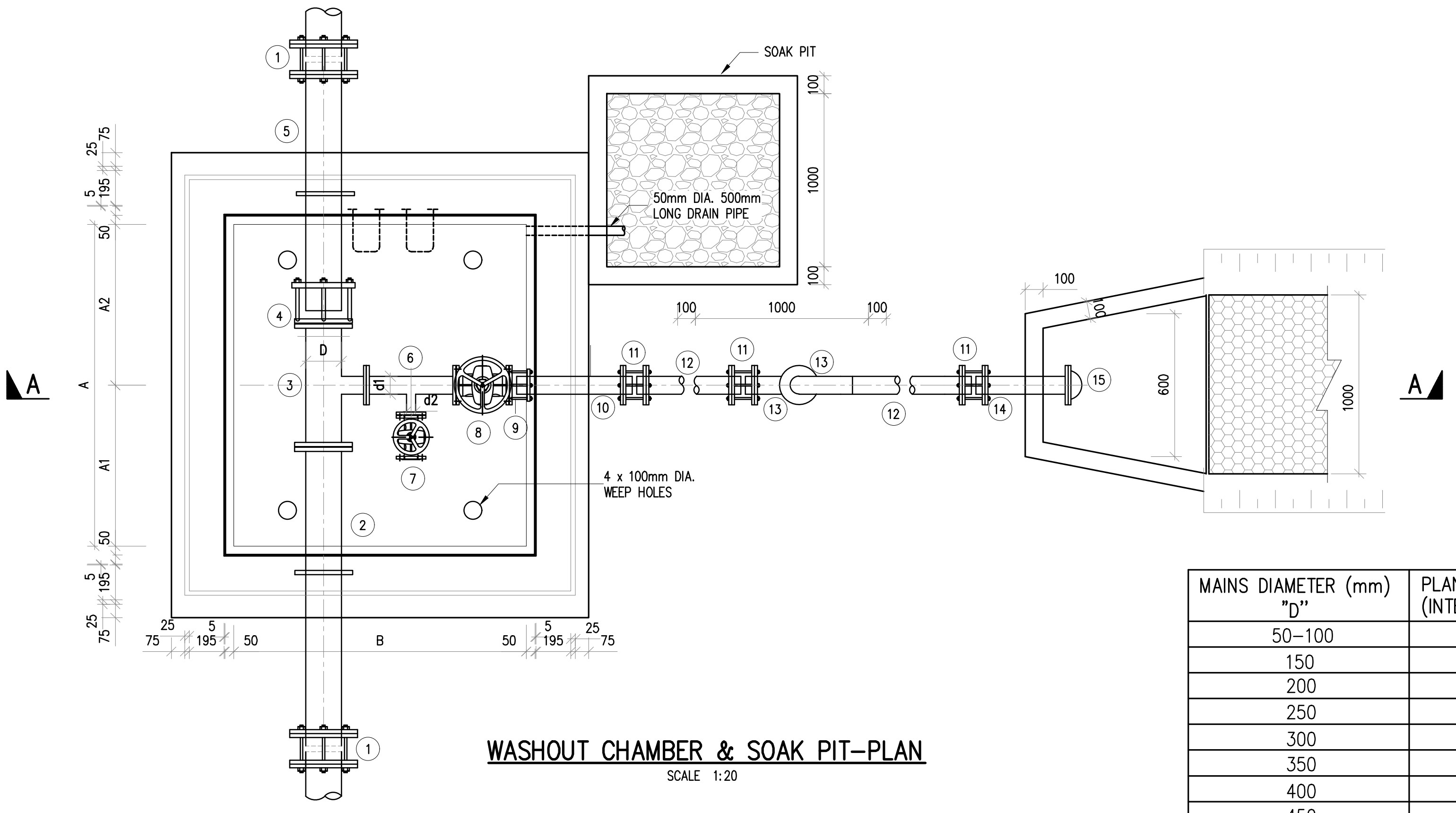
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

Supervising Consultant.
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
STANDARD DRAWING
AIR VALVE CHAMBERS
AND FITTING DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-G-004C0
C STATUS	DRAWING No. 6000002-W&S-C-S-004 C0 REV



WASHOUT CHAMBER & SOAK PIT-PLAN

SCALE 1:20

TABLE OF WASHOUT BRANCH SIZES

MAIN DIAMETER	WASHOUT BRANCH
D	0.4D –0.6D

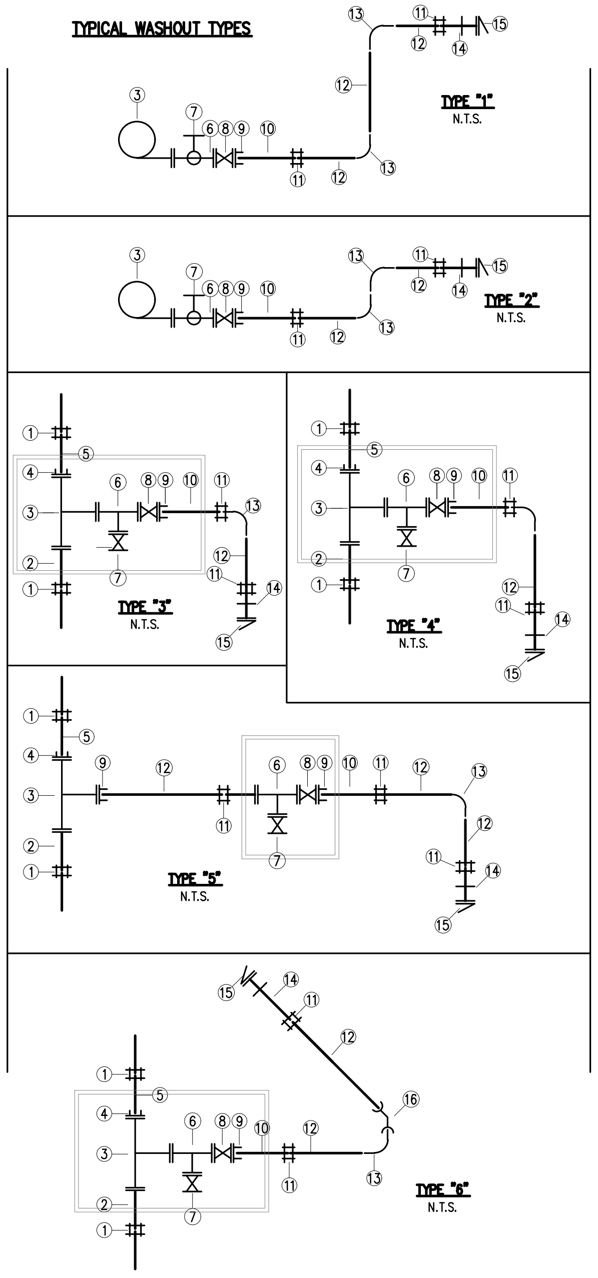
CHAMBER

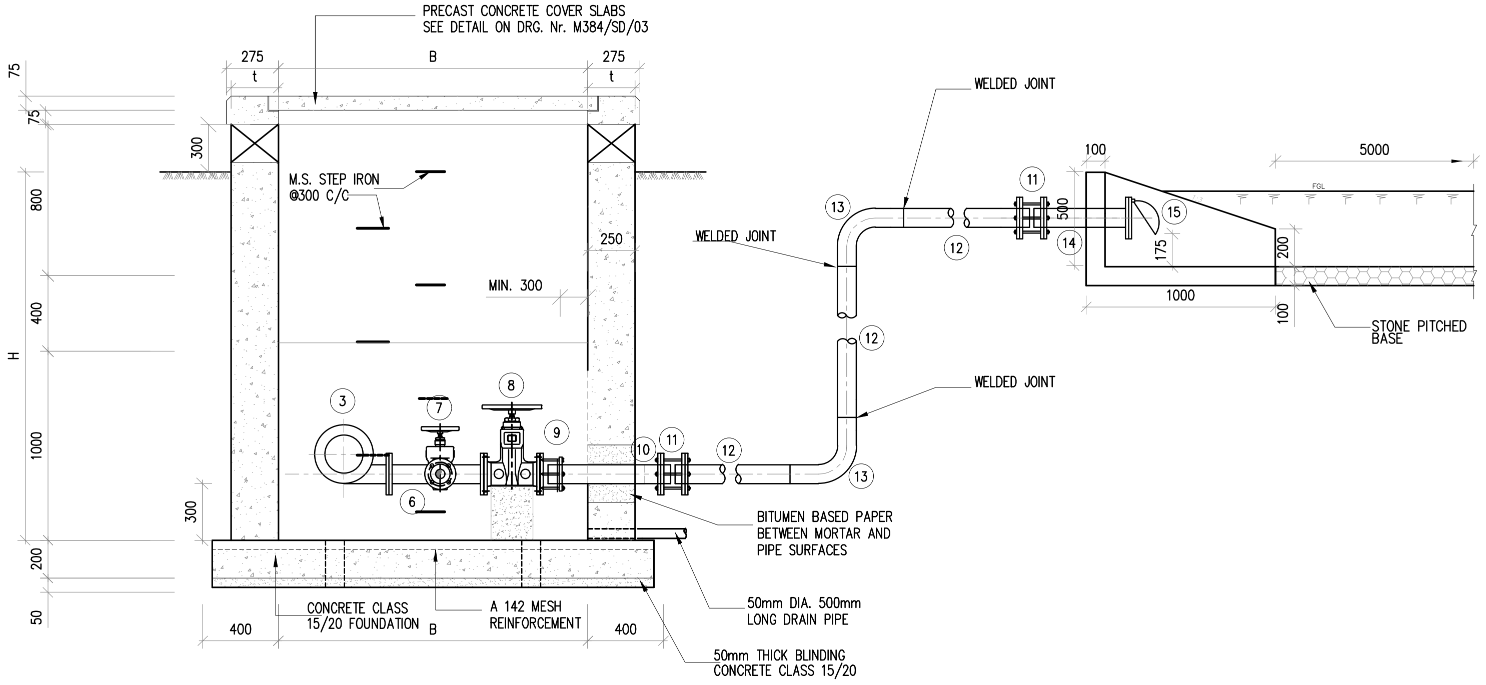
WALL THICKNESS	HEIGT OF CHAMBER
t = 200	H < 1000
t = 250	H > 1000

MAINS DIAMETER (mm) "D"	PLAN SIZE OF CHAMBER (INTERNAL DIMENSIONS) A(mm) x B(mm)
50–100	1200 x 1200
150	1200 x 1200
200	1200 x 1200
250	1200 x 1200
300	1500 x 1200
350	1500 x 1200
400	1800 x 1200
450	1800 x 1400
500	1800 x 1500
700	1800 x 1800
800	2000 x 2000

CHAMBER SIZE SCHEDULE FOR VARIOUS PIPE SIZES

ITEM	DESCRIPTION	SIZE	QUANTITY
	WATER MAIN PIPE	D	n/a
1.	COUPLING	D	2
2.	SINGLE FLANGED PIPE PIECE (With paddle flange)	D	1
3.	ALL FLANGED LEVEL INVERT TEE	D x d	1
4.	FLANGE ADAPTOR	D	1
5.	PLAIN ENDED PIPE PIECE (With paddle flange)	D	1
6.	ALL FLANGED REDUCING TEE	d x 50	1
7.	SLUICE VALVE, PN10	50	1
8.	SLUICE VALVE, PN10	d	1
9.	FLANGE ADAPTOR	d	1 (or 2)
10.	PLAIN ENDED PIPE PIECE (With paddle flange)	d	1
11.	COUPLING	d	2
12.	HDPE, PN10 PIPE PIECE (measured on site)	d	n/a
13.	HDPE 90 DEG. BEND (welded to pipe)	d	1
14.	SINGLE FLANGED PIPE WITH PUDDLE FLANGE L = 500	d	1
15.	FLAP VALVE	d	1
16.	HDPE 45 DEG. BEND (welded to pipe)	d	1(or none)





SECTION A–A

SCALE 1:20

NOTES

1. ALL DIMENSION ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
2. ALL FABRIC REINFORCEMENT SHOULD CONFIRM TO BS 4483.
3. SURFACE BOXES TO CHAMBERS TO BE OF CAST IRON.
4. ADDITIONAL RISER PIECES AND TAPERS ON WASHOUT BRANCHES TO BE USED AS REQUIRED BY THE ENGINEER REPRESENTATIVE.
5. ALL EXTERNAL EDGES TO BE CHAMFERED (25x25mm).
6. ALL PRECAST CONCRETE IS CLASS '30'.

LEGEND:

F.G.L – FINISHED GROUND LEVEL
F.C – FLEXIBLE COUPLING
F.A – FLANGE ADAPTOR
T.F –THRUST FLANGE

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

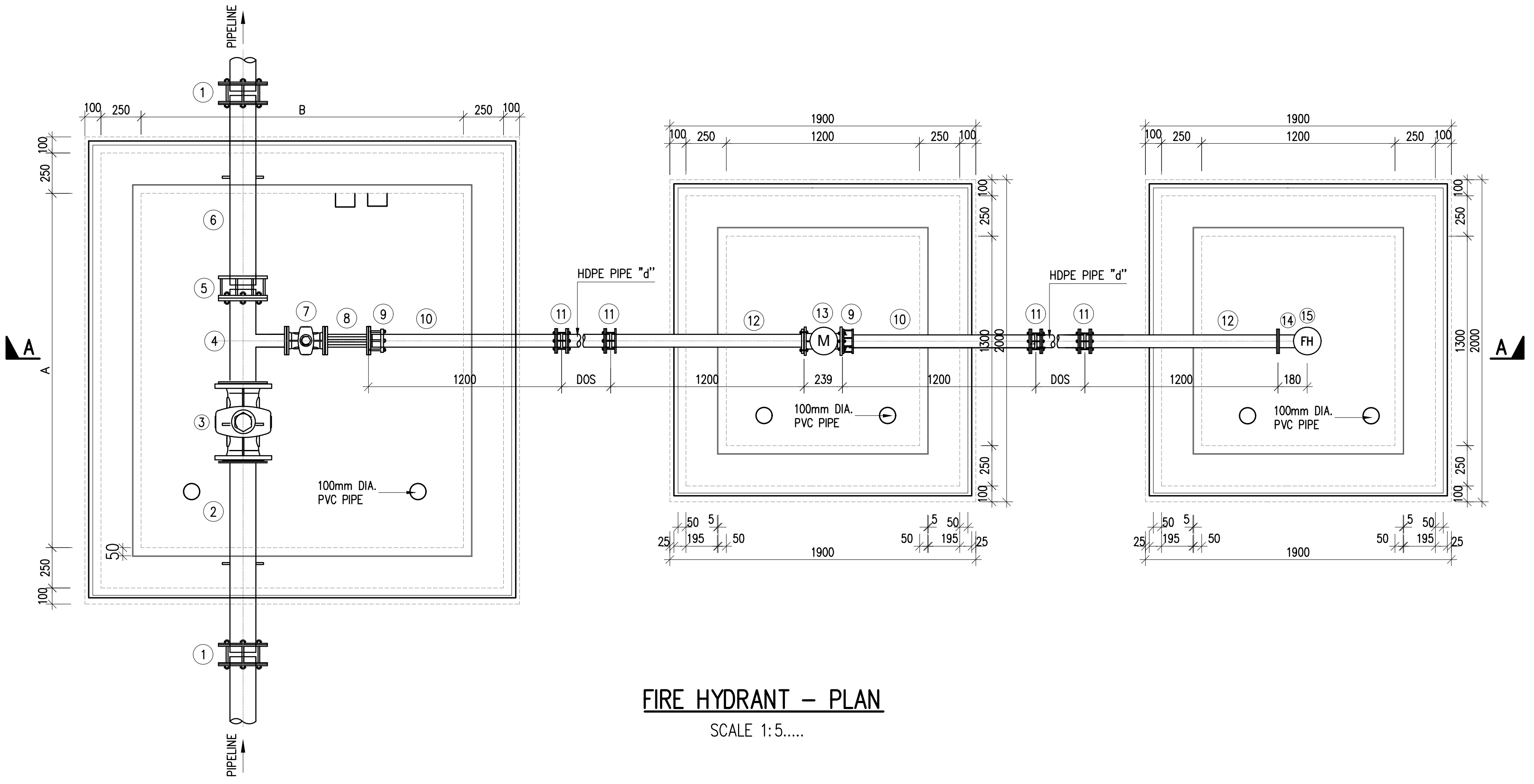
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

STANDARD DRAWING
WASHOUT CHAMBER
PIPEWORK AND PIPE FITTING DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-005C0
C STATUS	DRAWING No. 6000002-W&S-C-S-005 C0 REV



FIRE HYDRANT – PLAN

SCALE 1:5.....

PIPEWORK & PIPE FITTINGS DETAILS

(All epoxy coated fbe unless otherwise stated)

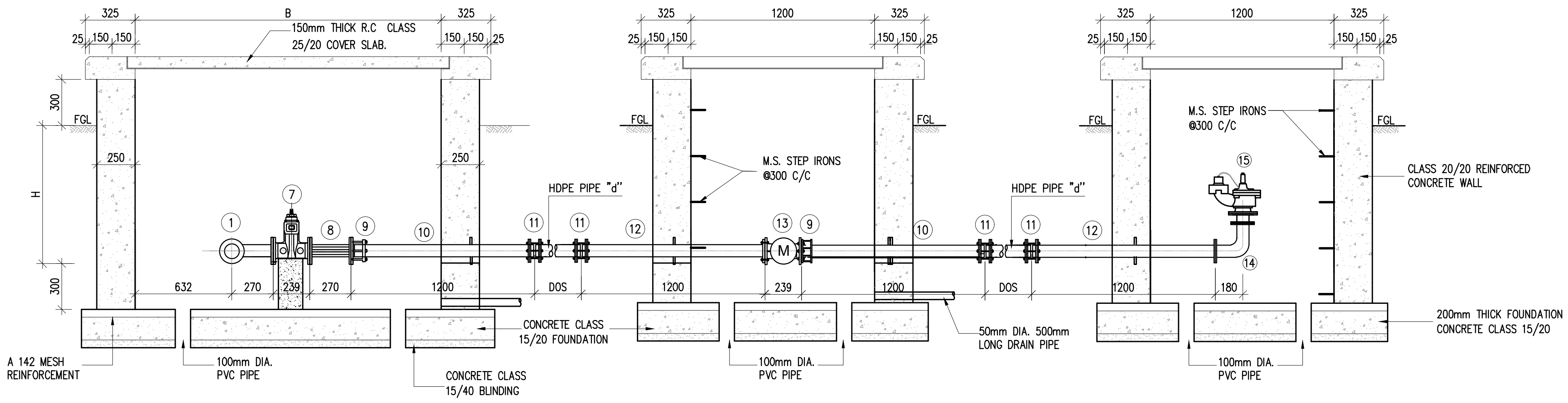
ITEM	DESCRIPTION	SIZE(mm)	QUANTITY
1.	COUPLING	D	2
2.	SINGLE FLANGED PIPE PIECE WITH PUDDLE FLANGE	D	1
3.	SLUICE VALVE PN10	D	1
4.	ALL FLANGED REDUCING TEE	Dx80	1
5.	FLANGE ADAPTOR	D	1
6.	PLAIN ENDED PIPE WITH PUDDLE FLANGE (CUT TO SUIT)	D	1
7.	SLUICE VALVE PN10	80	1
8.	Y TYPE STRAINER PN10	80	1
9.	FLANGE ADAPTOR	80	2
10.	PLAIN ENDED PIPE WITH PUDDLE FLANGE	80	2
11.	COUPLING	80	4
12.	SINGLE FLANGED PIPE PIECE WITH PUDDLE FLANGE	80	2
13.	BULK WATER METER	80	1
14.	PLAIN ENDED 90° BEND	80	1
15.	FLANGED FIRE HYDRANT	80	1

INVERT DEPTHS (mm)	HEIGHT OF WALL H (mm)	WALL WIDTH (mm)
0 – 800	800	150 – CONCRETE WALL
800 – 1200	1200	200 – CONCRETE WALL
1200 – 2400	2400	200 – CONCRETE WALL
2400 – 3000	3000	250 – CONCRETE WALL
DEPTH MORE THAN 3000	–	300mm REINFORCED CONCRETE (CLASS 25/20) WALL

CHAMBER DEPTHS & WALL THICKNESS SCHEDULE

MAINS DIAMETER (mm) "D"	PLAN SIZE OF CHAMBER (INTERNAL DIMENSIONS) A(mm) x B(mm)
50–100	1200 x 1200
150	1200 x 1200
200	1200 x 1200
250	1200 x 1200
300	1500 x 1200
350	1500 x 1200
400	1800 x 1200
450	1800 x 1400
500	1800 x 1500
700	1800 x 1800
800	2000 x 2000

CHAMBER SIZE SCHEDULE FOR VARIOUS PIPE SIZES



SECTION A–A

SCALE 1:5.....

NOTES

1. ALL DIMENSION ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL FABRIC REINFORCEMENT SHOULD CONFIRM TO BS 4483
3. ADDITIONAL RISER PIECES AND TAPERS ON WASHUOT BRANCHES TO BE USED AS REQUIRED BY THE ENGINEER REPRESENTATIVE.
4. ALL EXTERNAL EDGES TO BE CHAMFERED (25x25mm)

LEGEND:

F.G.L – FINISHED GROUN LEVEL
F.C – FLEXIBLE COUPLING
F.A – FLANGE ADAPTOR
P.F – PUDDLE FLANGE

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
CO	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

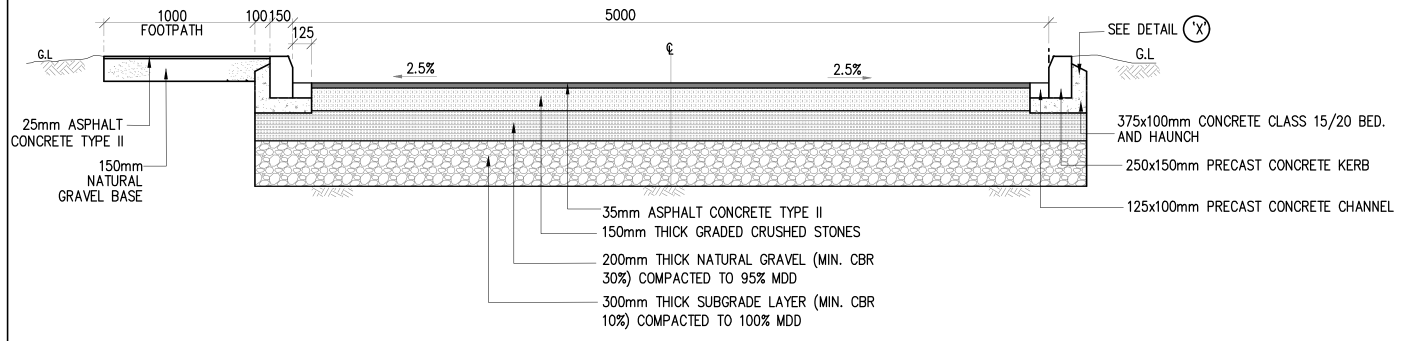
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

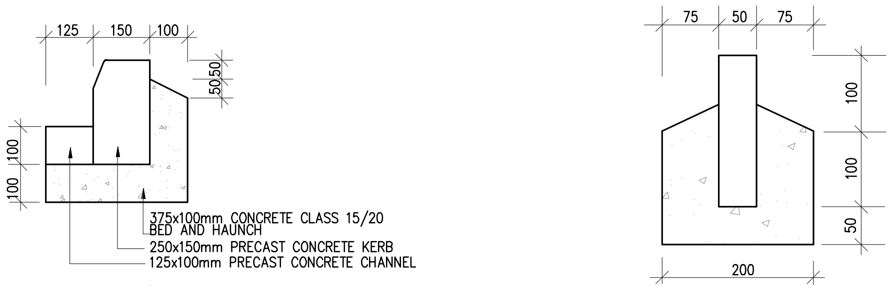
STANDARD DRAWING
FIRE HYDRANT DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-006C0
C STATUS	DRAWING No. 6000002-W&S-C-S-006 CO REV



TYPICAL SECTION OF BITUMINOUS ROAD

SCALE 1:50



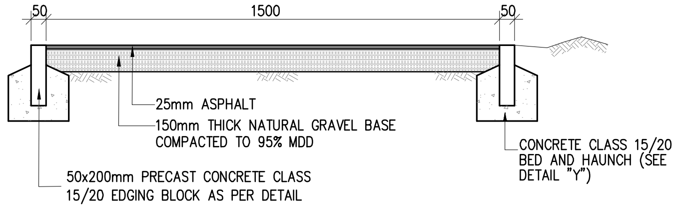
DETAIL 'X'

SCALE 1:20

DETAIL 'Y'

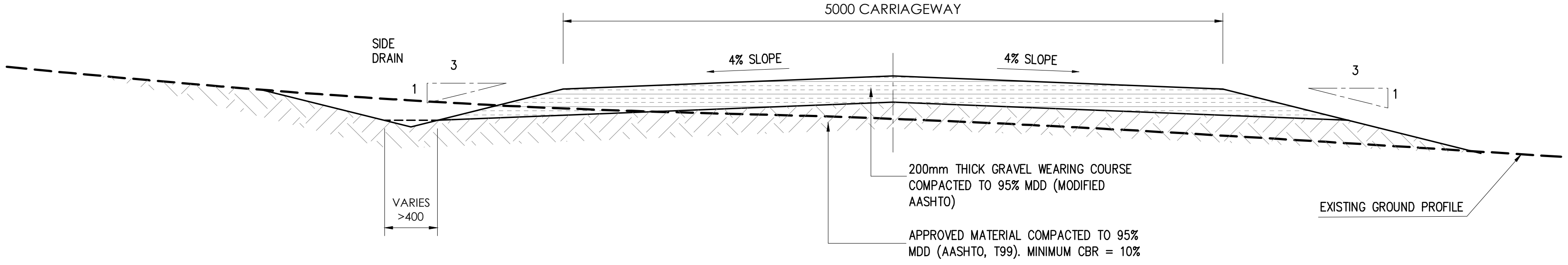
SCALE 1:10

TYPICAL CONCRETE BLOCK SURFACE ROAD DETAILS



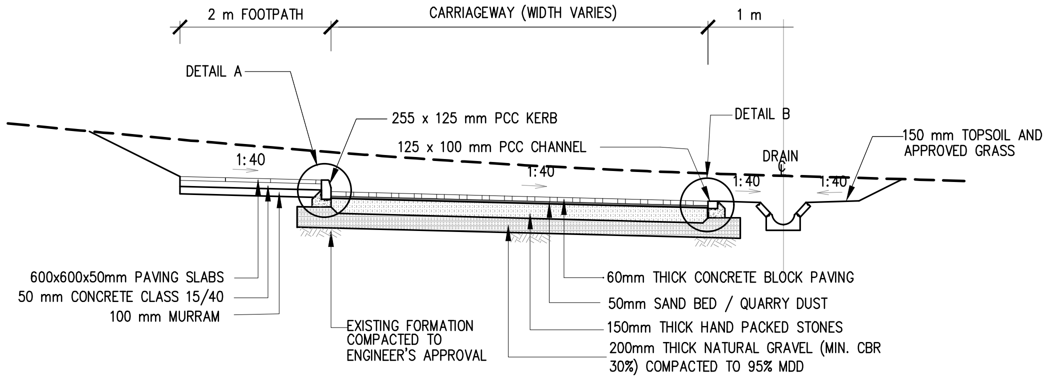
TYPICAL SECTION OF FOOTPATH

SCALE 1:25



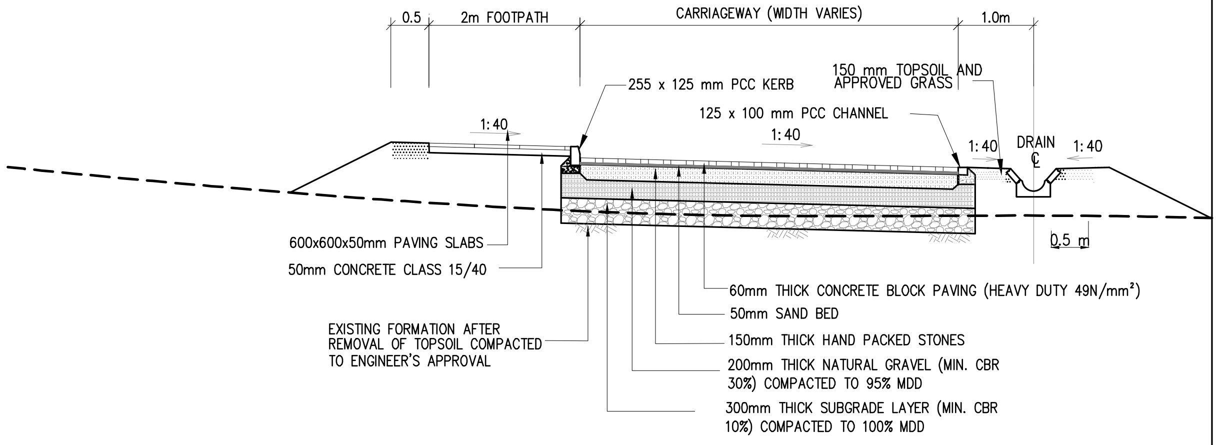
TYPICAL GRAVEL ROAD CROSS SECTION

SCALE 1:50



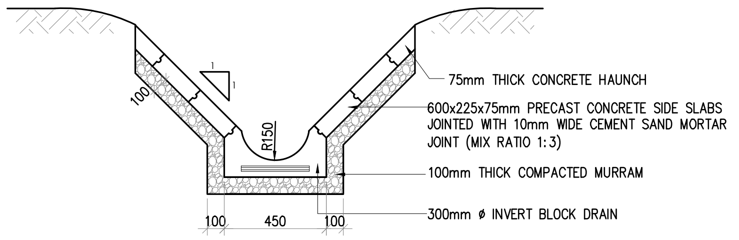
TYPICAL CROSS SECTION FOR CARRIAGEWAY IN CUT

SCALE 1:100



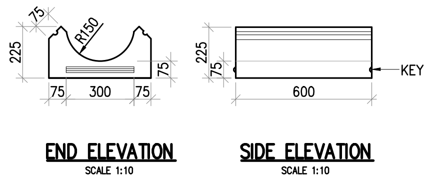
TYPICAL CROSS SECTION FOR CARRIAGEWAY IN FILL

SCALE 1:100



INVERT BLOCK DRAIN ASSEMBLY DETAIL

SCALE 1:10



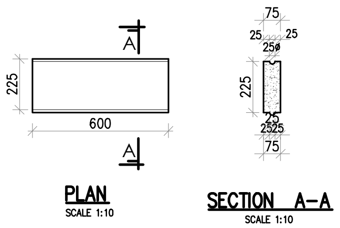
END ELEVATION

SCALE 1:10

SIDE ELEVATION

SCALE 1:10

PRECAST CONCRETE INVERT BLOCK DRAIN



PLAN

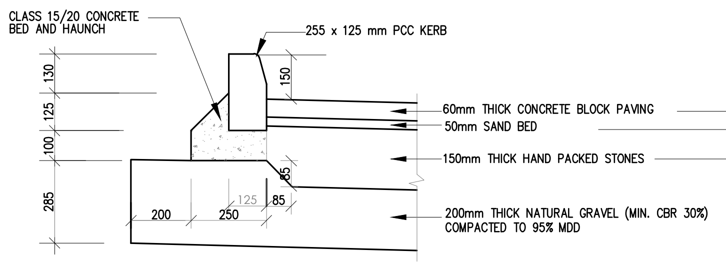
SCALE 1:10

SECTION A–A

SCALE 1:10

SIDE SLAB FOR INVERT BLOCK DRAIN

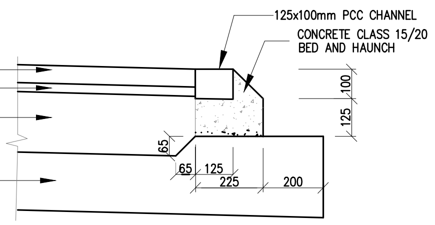
DETAIL A



DETAIL OF KERB

SCALE 1:25

DETAIL B



DETAIL OF CHANNEL

SCALE 1:25

NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.

ABBREVIATIONS

℄ – CENTRE LINE
mm – MILIMETER
G.L. – GROUND LEVEL
m – METER
PCC – PRECAST CEMENT CONCRETE

ISSUED FOR CONSTRUCTION
Signed: SLM/DOO__________

REV	REVISIONS	SIGN	DATE	APPROVED
		BY		
		CHECKED		
		BY		
		CHECKED		
		BY		
		CHECKED		
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22
		CHECKED		

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

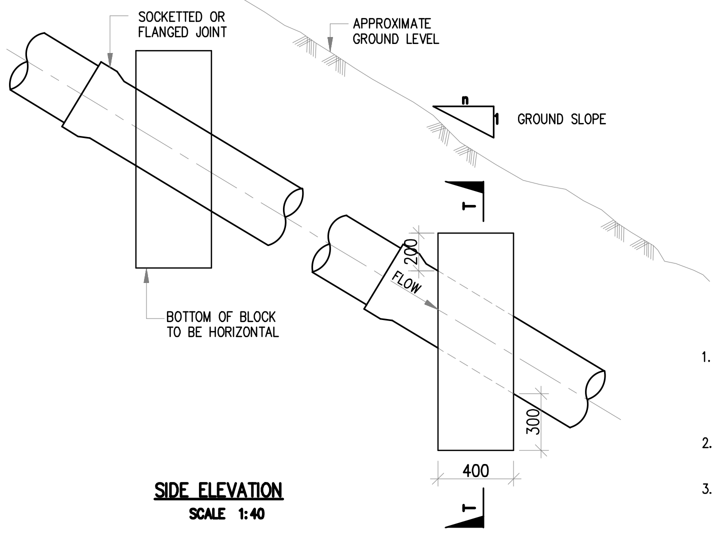
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION
PIPELINES AND SANITATION FACILITIES
IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

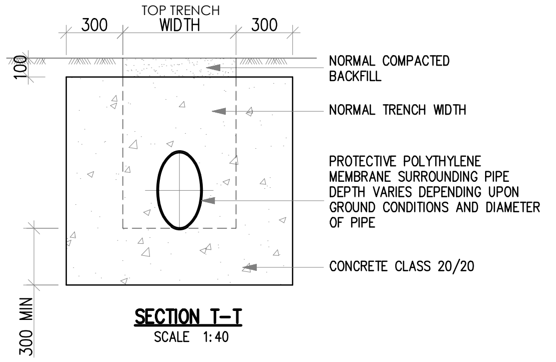
Drawing Title
TYPICAL ROAD SECTION DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-007C0
C STATUS	DRAWING No. 6000002-W&S-C-S-007 C0 REV



SIDE ELEVATION
SCALE 1:40

RANGE OF GROUND SLOPE (1:n)	MAXIMUM DISTANCE BETWEEN ANCHOR BLOCKS (m)
1:6 – 1:5	24
1:5 – 1:4	18
1:4 – 1:2	12
>1:2	EVERY PIPE LENGTH TO BE ANCHORED (BASED ON PIPE LENGTH OF 6m)

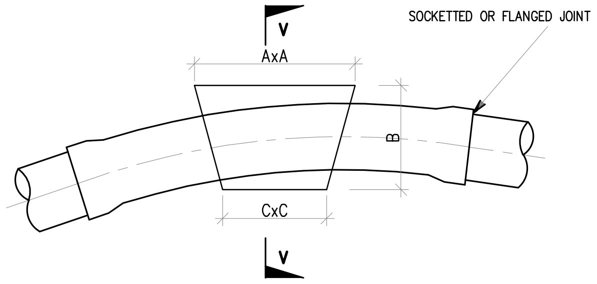


SECTION T–T
SCALE 1:40

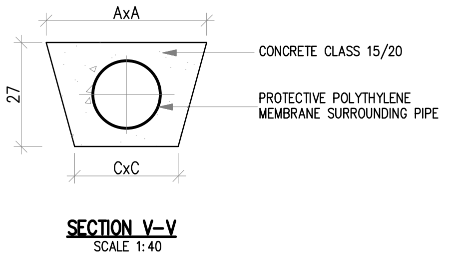
NOTES

1. SAME ARRANGEMENT CAN BE USED AS SUPPORTS FOR PIPES LAID IN VERY SOFT GROUND BUT BLOCKS TO BE CAST ON SOUND ROCK OR HARD STRATUM
2. SOCKETTED JOINT TO BE LAID WITH SOCKET FACING UPSTREAM OF GRADE
3. ANCHOR BLOCK TO BE CONSTRUCTED ON LOWER SIDE OF JOINT

ANCHOR BLOCK FOR STEEP GRADIENTS (SLOPES>1:6)

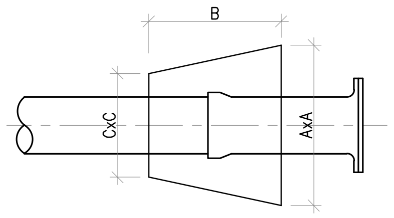


ELEVATION
SCALE 1:40



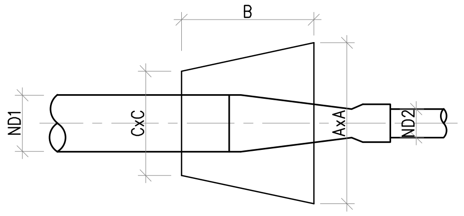
SECTION V–V
SCALE 1:40

THRUST BLOCKS ON VERTICAL BENDS (UP–THRUST)



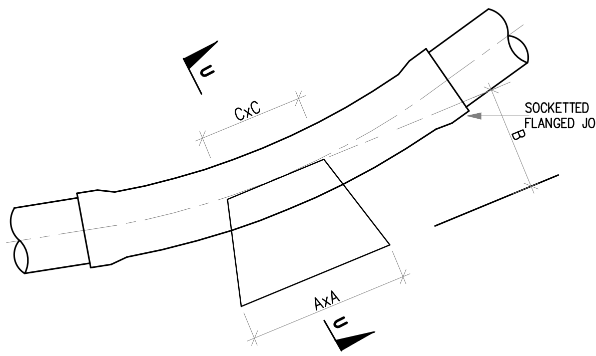
THRUST BLOCK AT CAPPED ENDS

SCALE 1:40

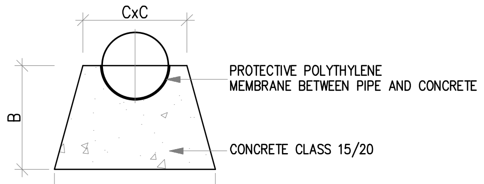


THRUST BLOCK AT REDUCER

SCALE 1:40

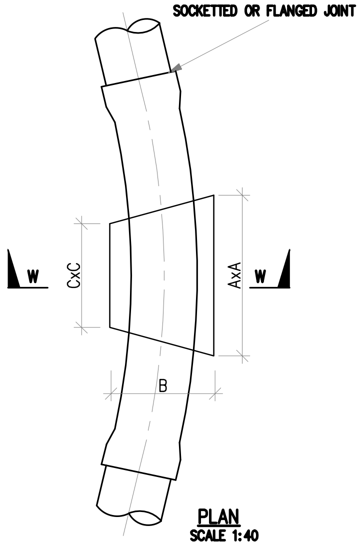


ELEVATION
SCALE 1:40

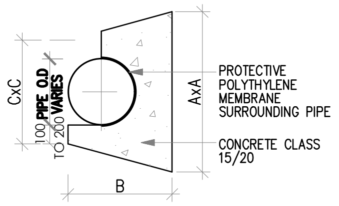


SECTION U–U
SCALE 1:40

THRUST BLOCKS ON VERTICAL BENDS (DOWN–THRUST)



PLAN
SCALE 1:40



SECTION W–W
SCALE 1:40

THRUST BLOCK ON HORIZONTAL BENDS AND TEES

(ND) NOMINAL DIAMETER (mm)	THRUST BLOCK DIMENSIONS AxBxC(m), CONCRETE VOLUME (m^3)						
	11 ^{1}/4° BENDS	22 ^{1}/2° BENDS	30°BENDS	45°BENDS	CAPPED ENDS & 90°TEES	90°BENDS	REDUCERS ND= $\sqrt{ND1^2-ND2^2}$
80	0.2x0.2x0.2 (0.01m^3)	0.25x0.2x0.2 (0.01m^3)	0.25x0.2x0.2 (0.01m^3)	0.3x0.2x0.2 (0.02m^3)	0.35x0.2x0.2 (0.02m^3)	0.4x0.2x0.2 (0.02m^3)	0.35x0.2x0.2 (0.02m^3)
100	0.2x0.2x0.2 (0.01m^3)	0.3x0.2x0.2 (0.02m^3)	0.35x0.2x0.2 (0.02m^3)	0.4x0.2x0.2 (0.02m^3)	0.45x0.25x0.25 (0.04m^3)	0.55x0.3x0.3 (0.06m^3)	0.45x0.25x0.25 (0.04m^3)
150	0.3x0.25x0.25 (0.02m^3)	0.4x0.25x0.25 (0.03m^3)	0.5x0.3x0.3 (0.05m^3)	0.55x0.3x0.3 (0.06m^3)	0.65x0.35x0.35 (0.10m^3)	0.8x0.4x0.35 (0.16m^3)	0.65x0.35x0.35 (0.10m^3)
200	0.4x0.3x0.3 (0.04m^3)	0.55x0.35x0.35 (0.08m^3)	0.6x0.4x0.4 (0.11m^3)	0.75x0.4x0.4 (0.15m^3)	0.85x0.45x0.4 (0.20m^3)	1.0x0.5x0.4 (0.29m^3)	0.85x0.45x0.4 (0.20m^3)
250	0.5x0.35x0.35 (0.07m^3)	0.65x0.4x0.4 (0.12m^3)	0.75x0.45x0.45 (0.18m^3)	0.9x0.45x0.45 (0.23m^3)	1.1x0.55x0.45 (0.39m^3)	1.2x0.6x0.45 (0.50m^3)	1.1x0.55x0.45 (0.39m^3)
300	0.55x0.45x0.45 (0.12m^3)	0.8x0.5x0.5 (0.23m^3)	0.9x0.5x0.5 (0.27m^3)	1.1x0.6x0.5 (0.44m^3)	1.25x0.65x0.5 (0.59m^3)	1.5x0.75x0.5 (0.94m^3)	1.25x0.65x0.5 (0.59m^3)
350	0.6x0.5x0.5 (0.16m^3)	0.85x0.55x0.55 (0.29m^3)	1.0x0.55x0.55 (0.36m^3)	1.2x0.6x0.55 (0.53m^3)	1.4x0.7x0.55 (0.80m^3)	1.6x0.8x0.55 (1.20m^3)	1.4x0.7x0.55 (0.80m^3)
400	0.7x0.6x0.6 (0.26m^3)	0.95x0.6x0.6 (0.38m^3)	1.1x0.6x0.6 (0.47m^3)	1.3x0.65x0.6 (0.67m^3)	1.6x0.8x0.6 (1.20m^3)	1.8x0.9x0.6 (1.60m^3)	1.6x0.8x0.6 (1.20m^3)
450	0.8x0.65x0.65 (0.35m^3)	1.1x0.65x0.65 (0.53m^3)	1.3x0.65x0.65 (0.69m^3)	1.5x0.75x0.65 (1.0m^3)	1.8x0.9x0.65 (1.7m^3)	2.0x1.0x0.65 (2.2m^3)	1.8x0.9x0.65 (1.7m^3)
500	0.9x0.7x0.7 (0.46m^3)	1.2x0.7x0.7 (0.68m^3)	1.4x0.7x0.7 (0.86m^3)	1.7x0.85x0.7 (1.5m^3)	2.0x1.0x0.7 (2.3m^3)	2.3x1.2x0.7 (3.5m^3)	2.0x1.0x0.7 (2.3m^3)
600–800	1.1x0.8x0.8 (0.74m^3)	1.5x0.8x0.8 (1.2m^3)	1.7x0.9x0.8 (1.6m^3)	2.0x1.0x0.8 (2.3m^3)	2.3x1.2x0.8 (3.6m^3)	2.7x1.4x0.8 (5.6m^3)	2.3x1.2x0.8 (3.6m^3)

NOTE:– THE ABOVE VALUES APPLY FOR SOCKETTED uPVC AND FLANGED OR COUPLED LINED STEEL PIPES SUBJECT TO A WORKING PRESSURE HEAD OF 12 BAR

NOTES

1. ALL CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED ON AND AGAINST FIRM GROUND DIRECTLY. THE THRUST OR ANCHOR BLOCKS SHALL NOT BE CAST AGAINST BLACK COTTON SOIL AND REFERENCE SHALL BE MADE TO THE ENGINEER'S REPRESENTATIVE.
2. THE CONCRETE THRUST BLOCKS ARE DESIGNED TO BEAR ON THE ORIGINAL EARTH SURFACE WITH SAFE BEARING PRESSURE OF 120KN/m^2.
3. CONCRETE TO BE CLASS '15' UNLESS OTHERWISE STATED.
4. CONCRETE IN THRUST AND ANCHOR BLOCKS MUST BE CAST CLEAR OF JOINTS.
5. DIMENSION 'W' FOR THRUST BLOCKS ON HORIZONTAL BENDS TO SUIT THE SIZE OF BEND AND CLEARANCE REQUIRED FOR JOINTS.
6. THE THRUST BLOCKS DIMENSIONS IN THE TABLES GIVEN HEREON ARE FOR A TEST PRESSURE OF 12 BARS.
7. IN AREAS WHERE THE TEST PRESSURE EXCEEDS 12 BARS THRUST BLOCKS WILL BE INDIVIDUALLY DESIGNED TO SUIT THE ACTUAL TEST PRESSURE AT EACH LOCATION.
8. FOR DETAILS OF ANCHOR BLOCK IN TABLES 1 AND 2, REFER TO TABLE 4.

LEGEND:

DN – NOMINAL DIAMETER

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

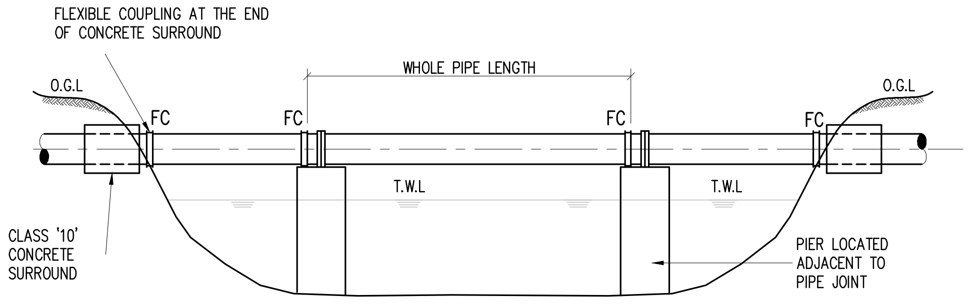
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.: CWWDA/AFD/W2/2022

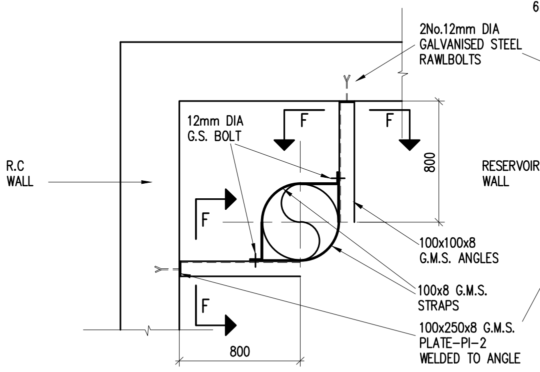
Supervising Consultant.
INGEROP
Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
STANDARD DRAWING
THRUST & ANCHOR BLOCKS FOR
HORIZONTAL,SLUICE VALVES, TEES & TAPERS

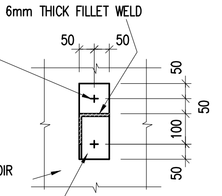
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-008C0
C STATUS	DRAWING No. 6000002-W&S-C-S-008 C0 REV



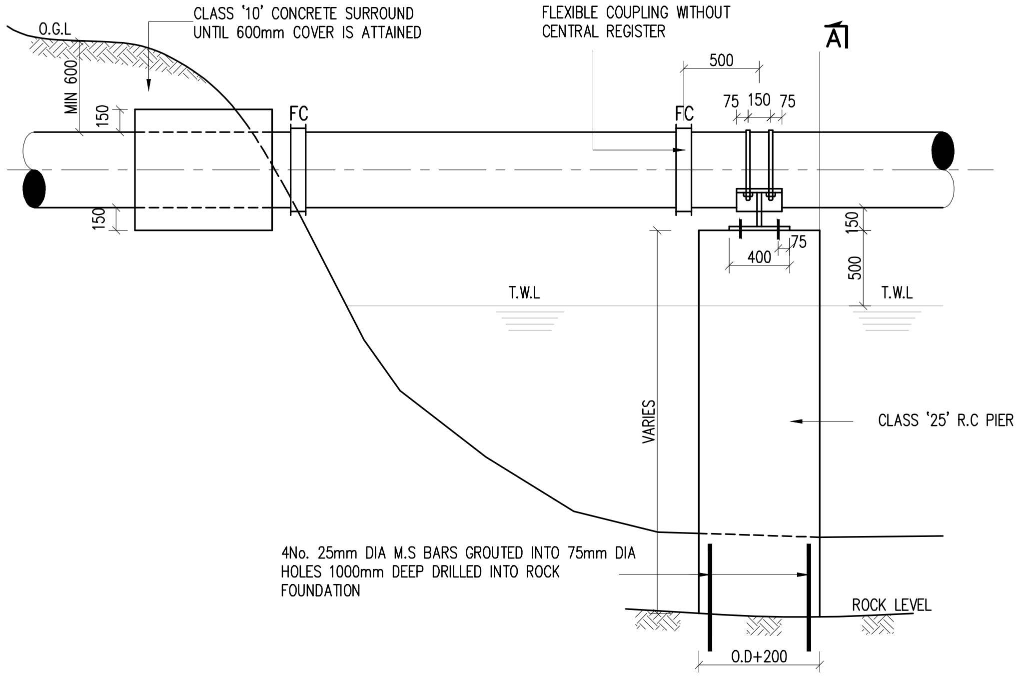
TYPICAL OVERCROSSING
N.T.S



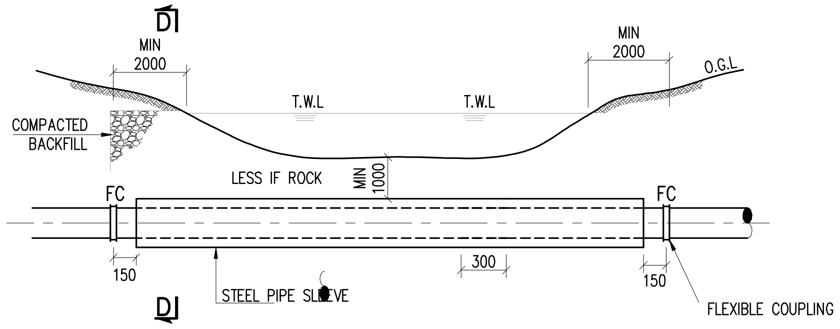
DETAIL OF PIPE ANCHOR BRACKET ON R.C WALL
N.T.S



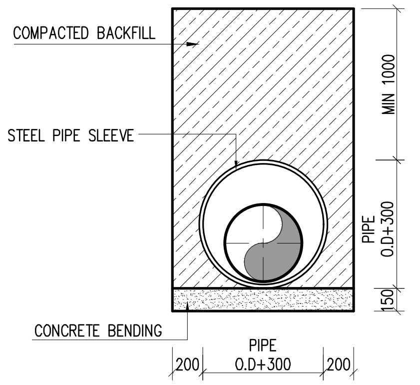
SECTION F–F
SCALE 1:25



TYPICAL OVERCROSSING – DETAILS
N.T.S

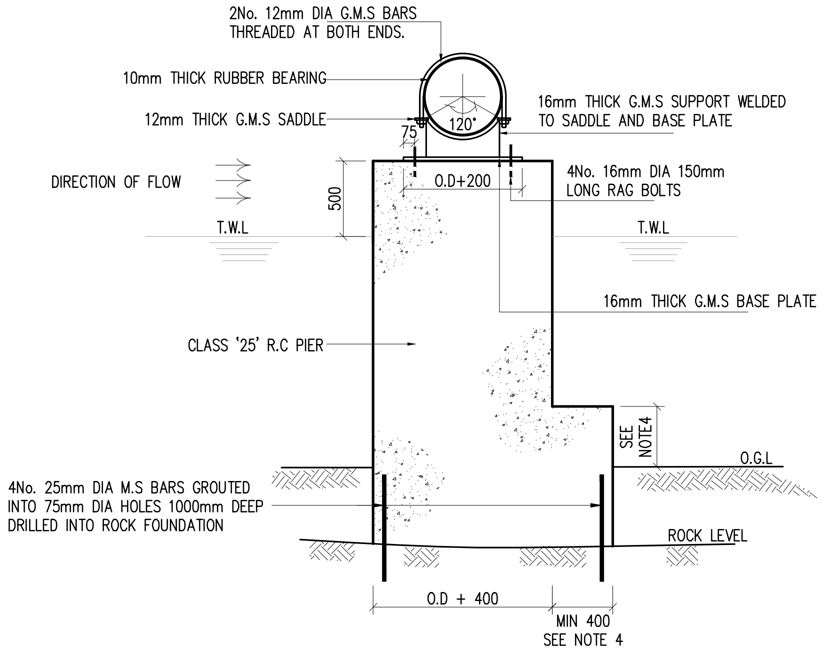


TYPICAL UNDERCROSSING
N.T.S

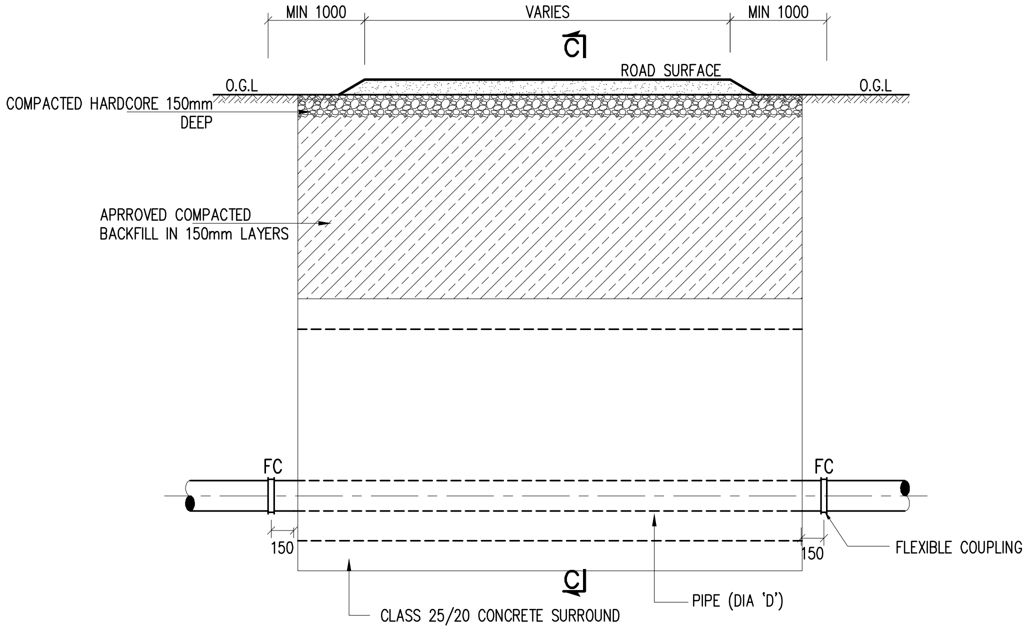


SECTION D–D (OPEN CUT)

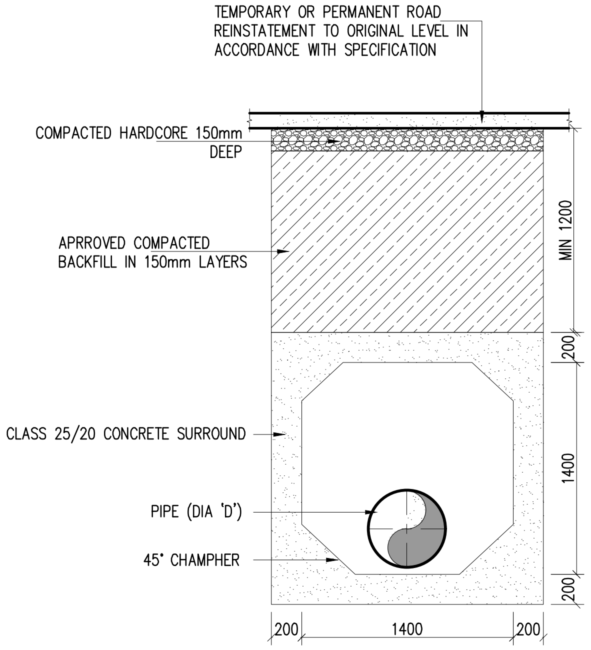
UPTO DIA 400



SECTION A–A
N.T.S



TYPICAL ROAD CROSSING TRENCHLESS TUNNELED UNDER ROAD
N.T.S
PIPE DIA 400≤ D ≤ 800



SECTIONC–C
N.T.S

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL RAILWAY CROSSINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF KENYA RAILW
3. RIVER OVER CROSSING DETAILS ARE APPLICABLE TO PIP DN 300 AND ABOVE. DETAILS FOR SMALLER PIPES ARE AND WILL BE FINALIZED BY THE ENGINEER'S REPRESENTA
4. DIMENSIONS OF CONCRETE PIERS TO BE FINALIZED BY T ENGINEER'S REPRESENTATIVE AFTER A DETAILED SURVEY
5. SLIP ANCHORS TO BE PROVIDED WHERE:–
   (A) THE LONGITUDINAL SLOPE EXCEEDS 1:6
   (B) THE CROSS FALL EXCEEDS 1:3.
   ONE SLIP ANCHOR TO BE PROVIDED PER LENGTH OF
6. PIPE WRAP SHALL BE REMOVED UNDER THE CONCRETE SLIP ANCHORS ARE PROVIDED.
7. CLASS '10' CONCRETE PIPE SURROUND SHALL BE PROVID UNDER CROSSING OF LARGE OPEN DRAINS IN ACCORDAN THE DETAILS FOR RIVER UNDER CROSSINGS.
8. MAXIMUM FLOOD LEVEL IS TO BE DETERMINED BY THE ENGINEER'S REPRESENTATIVE.
9. FOR RIVER OVER CROSSINGS, A 10mm GAP SHALL BE L BETWEEN PIPES AT FLEXIBLE COUPLING TO PERMIT EXPANSION.
10 FINAL DRAWINGS FOR CALCULATIONS FROM THE SPECIALIS CONTRACTOR TO BE SUBMITED TO THE ENGINEER FOR RE APPROVALS

LEGEND:

O.G.L	–ORIGINAL GROUND LEVEL
F.C	–FLEXIBLE COUPLING
O.D	–OUTSIDE DIAMETER
DN	–NOMINAL DIAMETER
T.W.L	–TOP WATER LEVEL
R.C	– REINFORCED CONCRETE

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:
THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

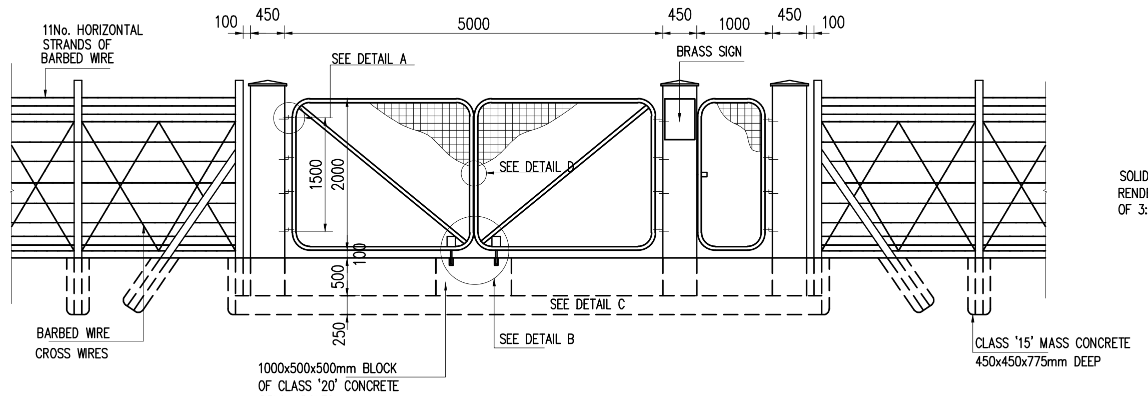
Program & Project Title.
CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

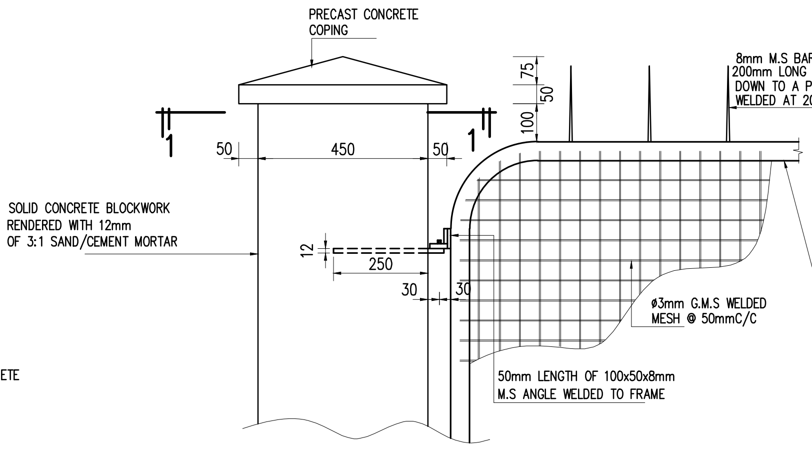
Drawing Title
STANDARD DRAWING
TYPICAL CROSSING DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-009C0
C STATUS	DRAWING No. 6000002-W&S-C-S-009 C0 REV



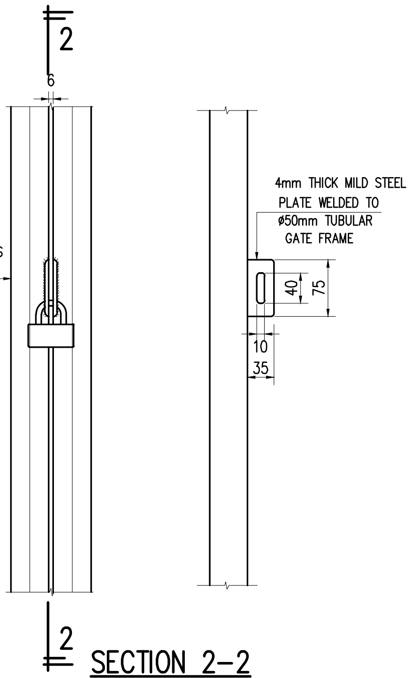
ELEVATION

SCALE; 1:50



FRONT ELEVATION

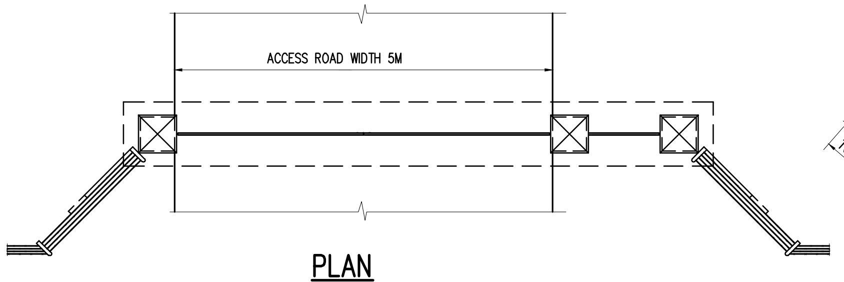
SCALE; 1:10



SECTION 2–2

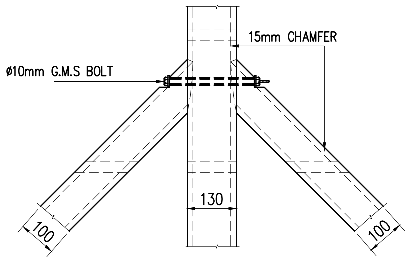
MAIN GATE DETAIL D

SCALE; 1:5



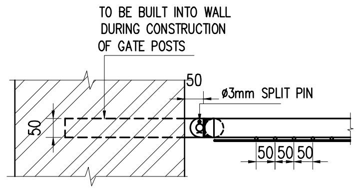
PLAN

SCALE; 1:50



DETAIL F

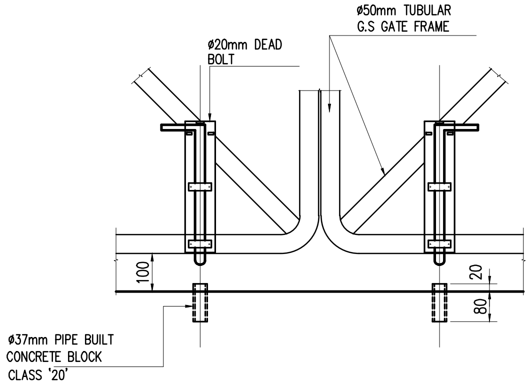
SCALE; 1:10



SECTION 1–1

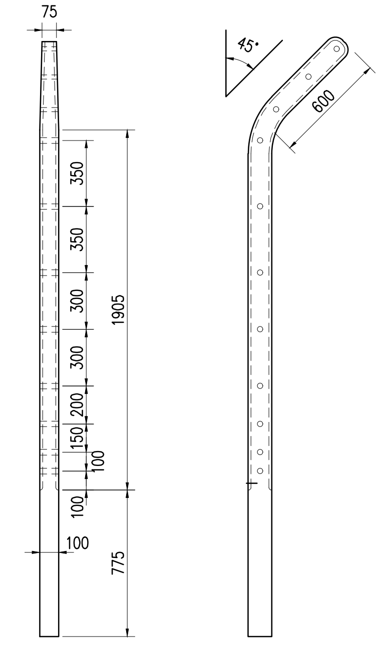
GATE HINGE DETAIL A

SCALE; 1:10



MAIN GATE BOLTING DETAILB

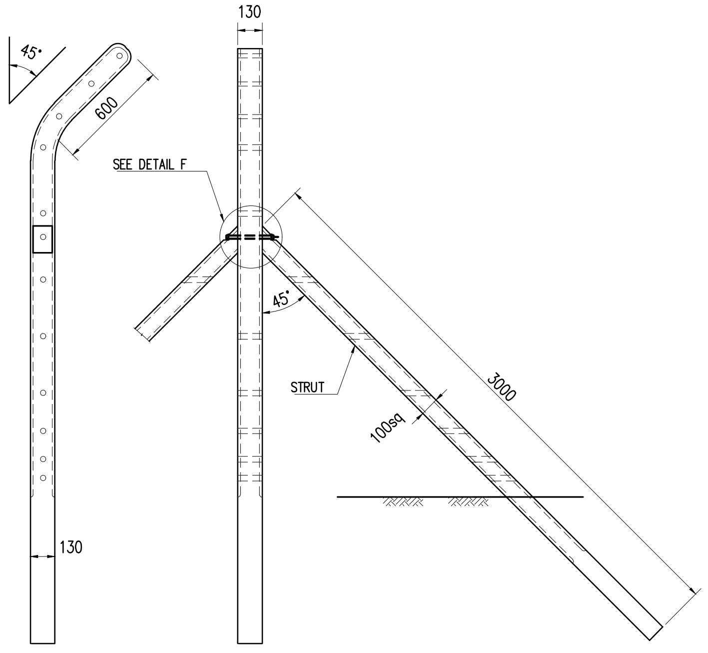
SCALE; 1:10



FRONT SIDE

INTERMEDIATE POST

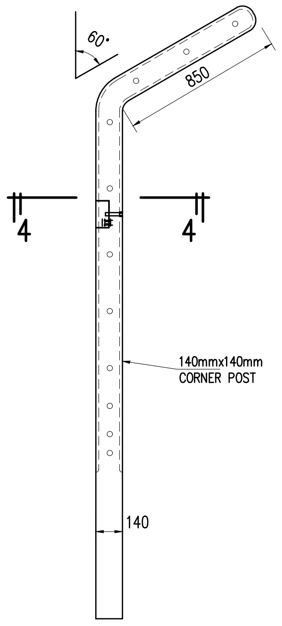
SCALE; 1:20



SIDE FRONT

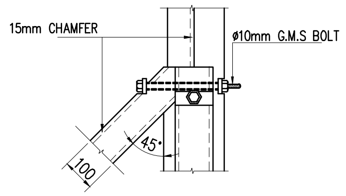
STRAINING POST

SCALE; 1:20



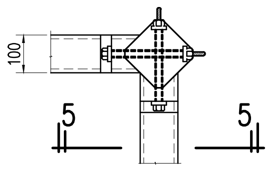
SIDE

SCALE; 1:20



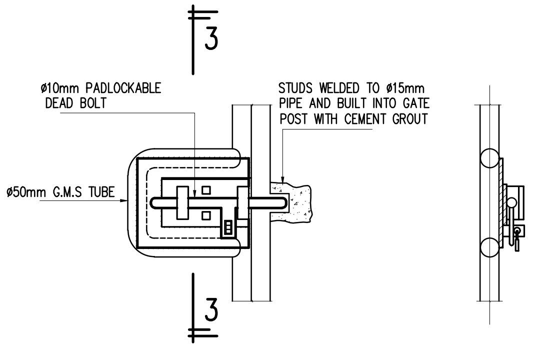
SECTION 5–5

SCALE; 1:10



SECTION 4–4

SCALE; 1:10



FRONT ELEVATION SECTION 3–3

DETAIL C

SIDE GATE LOCKING

SCALE; 1:10

NOTES

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

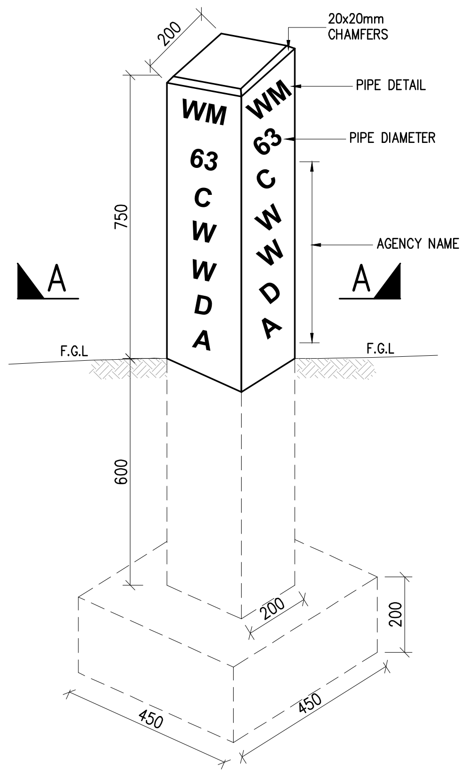
Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

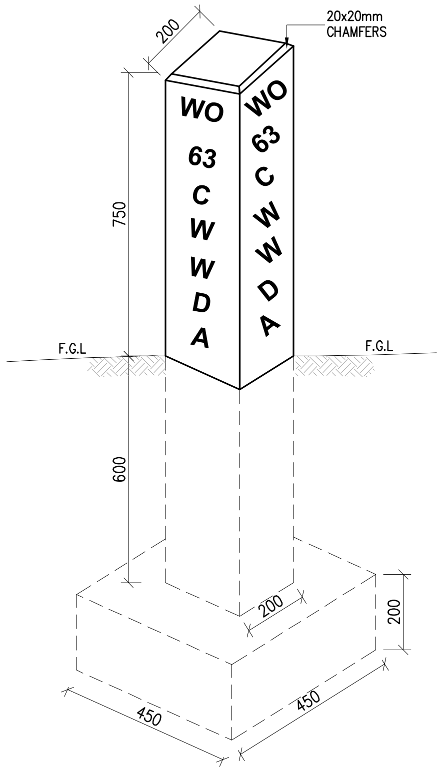
Drawing Title

STANDARD DRAWING
GATE AND FENCE DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-010C0
C STATUS	DRAWING No. 6000002-W&S-C-S-010 C0 REV



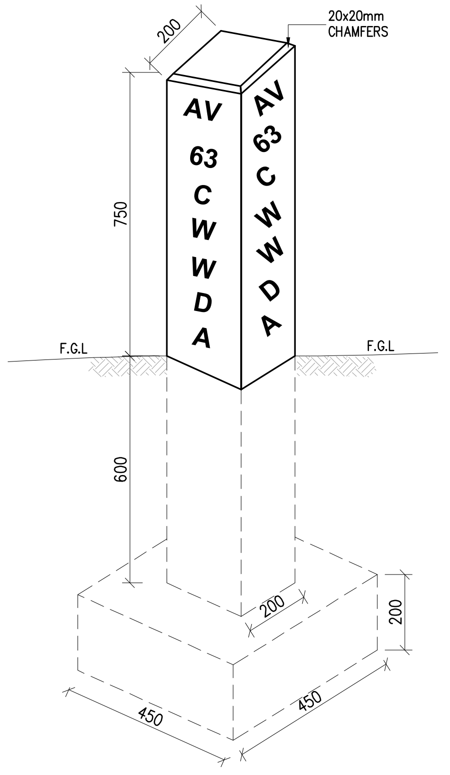
PIPELINE MARKER POST LETTERING
N.T.S



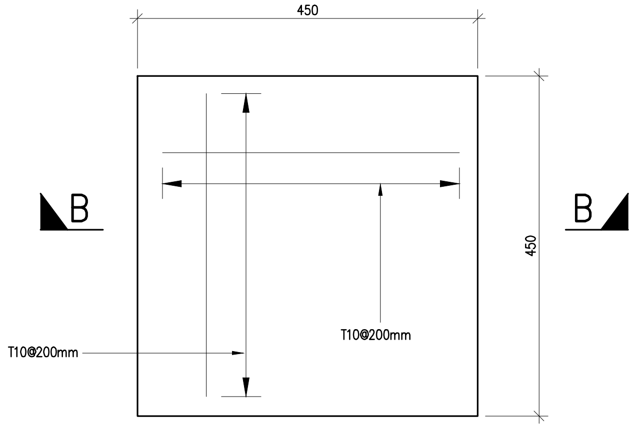
WASHOUT MARKER POST LETTERING
N.T.S

FITTINGS DETAILS

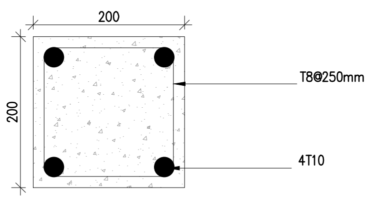
DETAILS	PIPE DIAMETERS		
1. PIPELINE – WM	50	110	
2. AIR VALVE – AV	63	160	
3. SLUICE VALVE – SV	75	200	
4. WASHOUT – WO	90	225	
5. FIRE HYDRANT – FH			



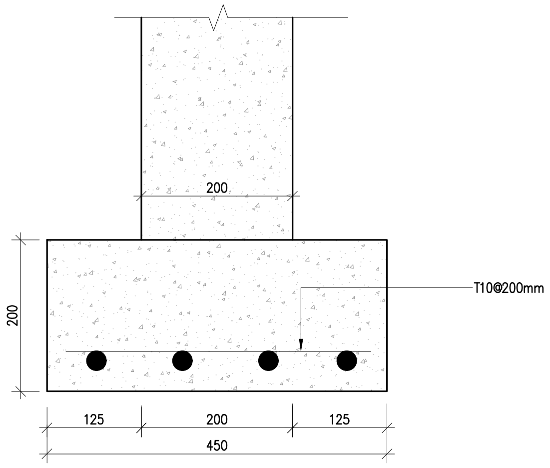
AIR VALVE MARKER POST LETTERING
N.T.S



FOUNDATION DETAILS



SECTION A–A



SECTION B–B

NOTES

1. GRID VALUES ARE IN METERS AT 2000 METER INTERVALS.
2. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT.
3. RELOCATED LINES : NM23 & NM24

CONSTRUCTION ISSUE
Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
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Project Implementing Agency:
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COAST WATER WORKS
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MOMBASA, KENYA

Program & Project Title.
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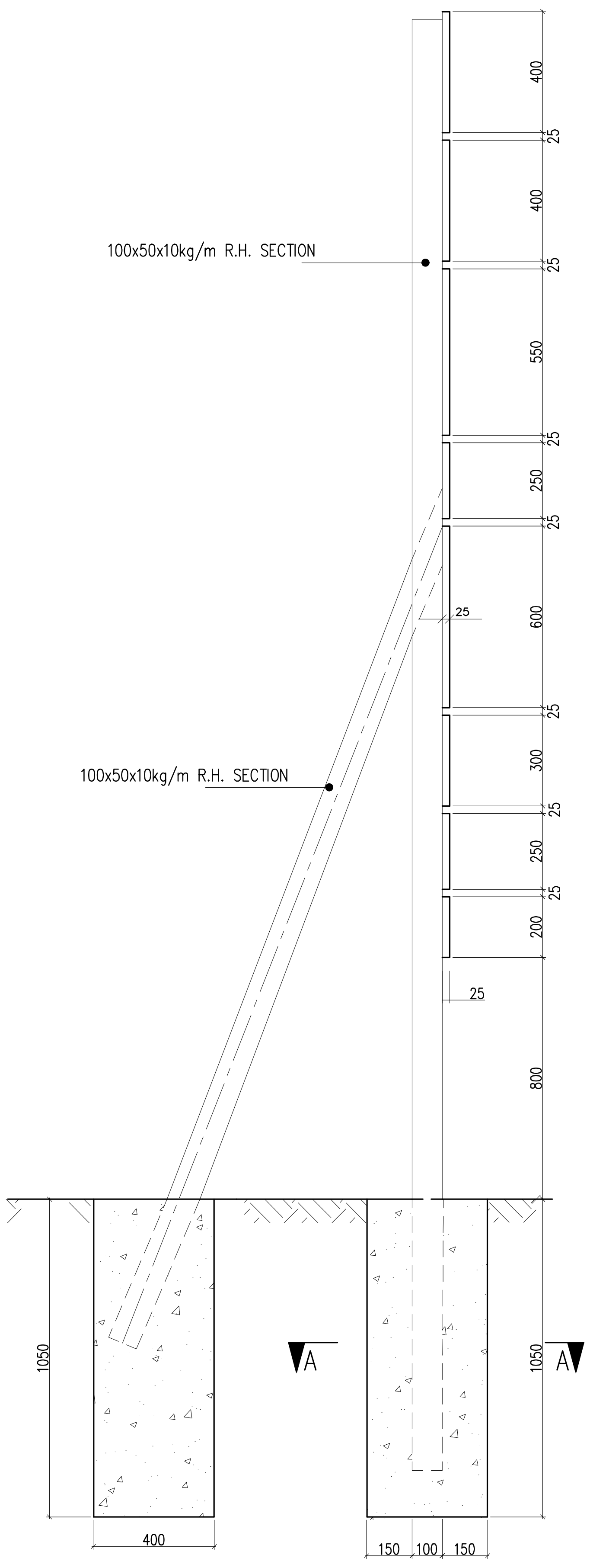
CONTRACT No.: CWWDA/AFD/W2/2022

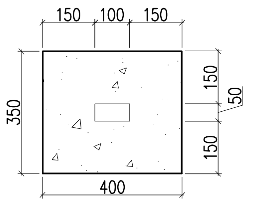
Supervising Consultant.
INGEROP Inventing for tomorrow
Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title
MARKER POST DETAILS

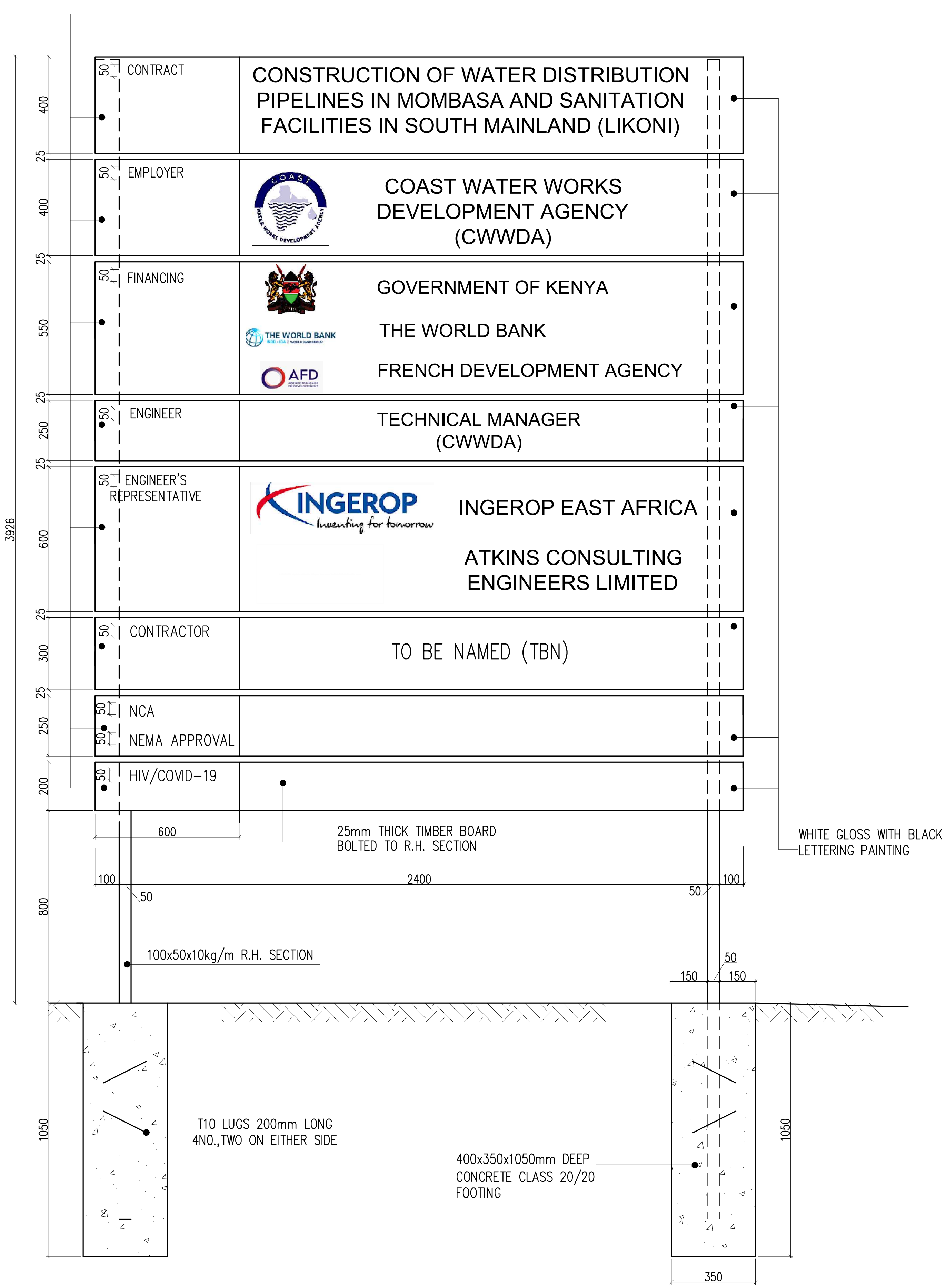
Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-011C0
C STATUS	DRAWING No. 6000002-W&S-C-S-011 C0 REV



SIDE ELEVATION



SECTION A – A



FRONT ELEVATION

NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
2. FINAL WORDING ON THE SIGNBOARD AS APPROVED BY THE EMPLOYER
3. THE EXACT LOCATION OF THE SIGNBOARD ERECTION TO BE APPROVED BY THE ENGINEER ON SITE

LEGEND

R.H – RECTANGULAR HOLLOW

CONSTRUCTION ISSUE

Signed: SLM/DOO ....

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
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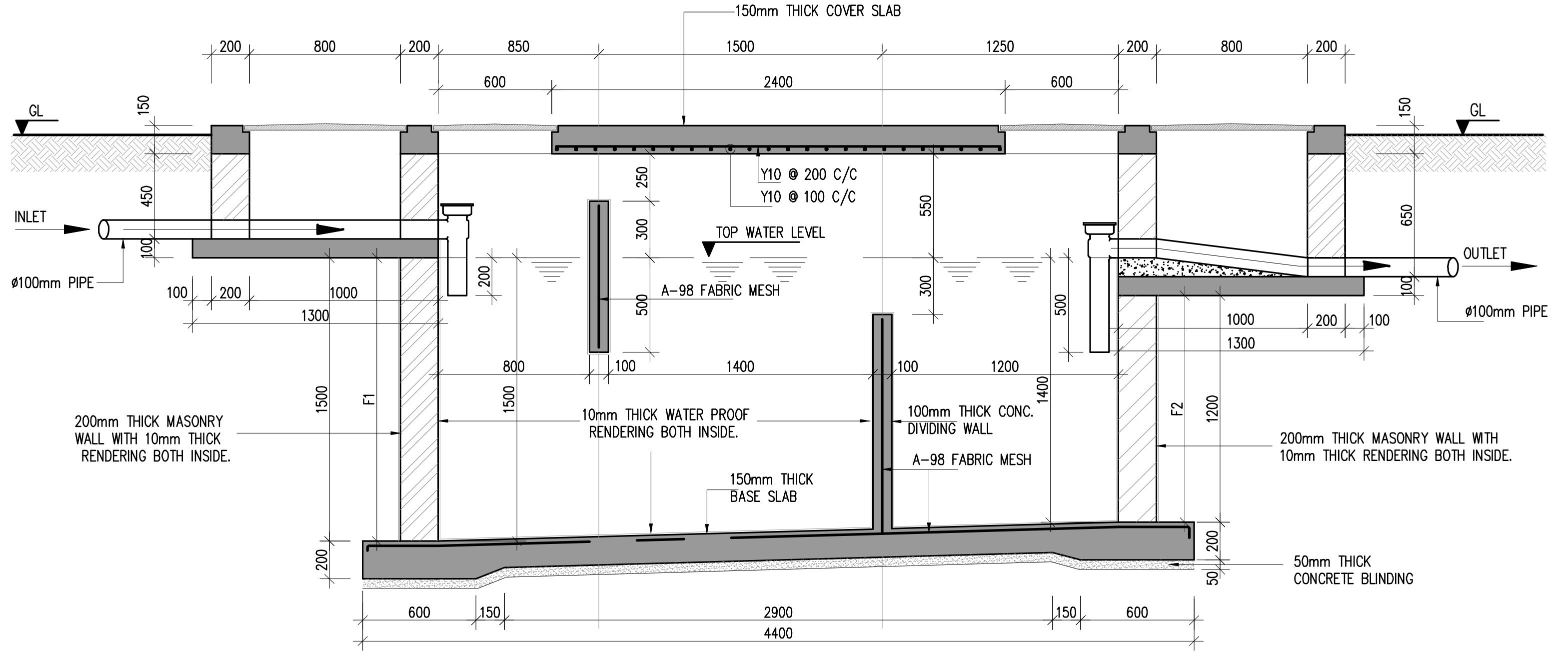
Crossway Road
Westlands
Nairobi.

Drawing Title

STANDARD DRAWING
PROJECT SIGNBOARD DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S–C–S–012C0

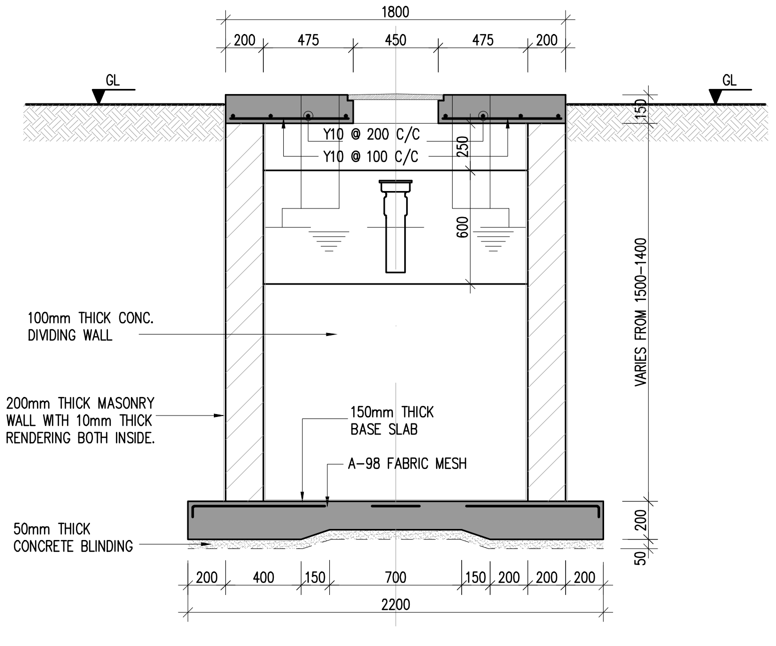
C STATUS | DRAWING No. 6000002–W&S–C–S–012 | C0 REV



SECTION A–A

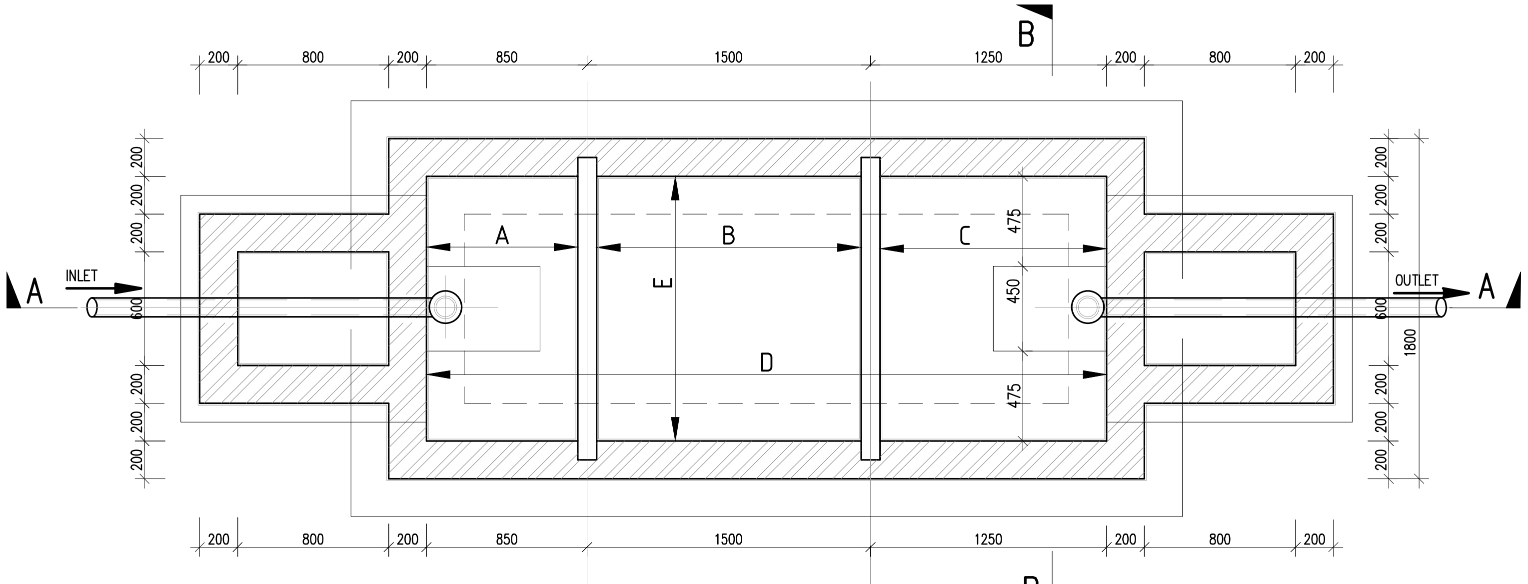
SCALE 1:20

(DIMENSION FOR 6000mm LITRE CAPACITY SEPTIC TANK)



SECTION B–B

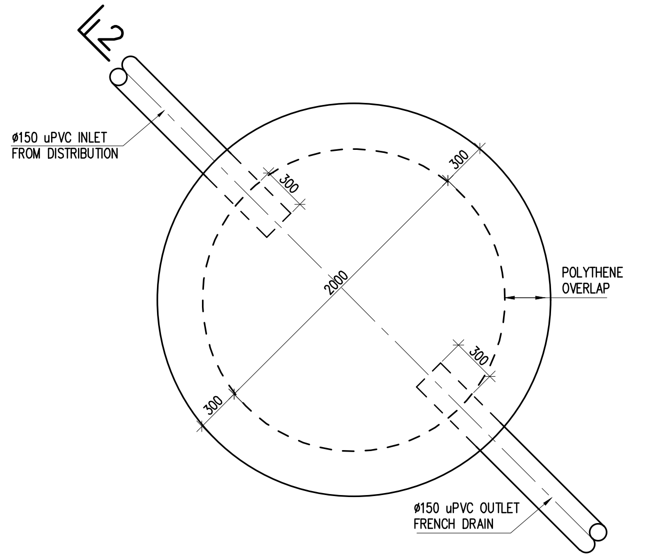
SCALE 1:20



PLAN

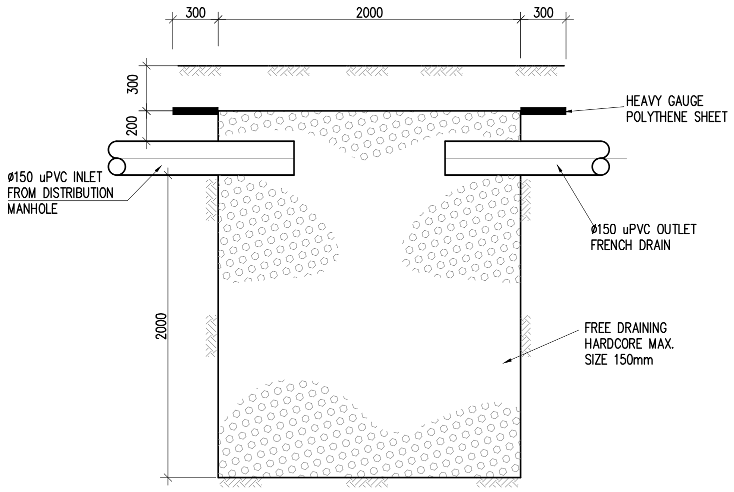
SCALE 1:20

(DIMENSION FOR 6000mm LITRE CAPACITY SEPTIC TANK)



SOAKAGE PIT PLAN

SCALE 1:25



SECTION 2 – 2

SCALE 1:25

CAPACITY IN LITRES	NO. OF PERSONS	DESLUDGING INTERVAL YEARS	DIMENSION IN mm						
			A	B	C	D	E	F1	F2
3000	10	2	800	1000	1000	3000	800	1500	1400
6000	20	2	800	1400	1200	3600	1400	1500	1400
9000	30	2	800	1400	1200	3600	1800	1500	1300
12000	40	2	800	1600	1400	4000	2000	1500	1300
15000	50	2	800	1600	1400	4000	2400	1500	1300

NOTES:

1. Cover slab to be reinforced with Y10 @ 100 C/C B1 and Y10 @ 200 B2 (Conc. 20/20 mix 1.2.4)
2. Base slab to be concrete class 15 (mix 1.3.6)
3. Outlet and inlet pipes to be ø100mm cast iron.
4. Scum buffle to be in 100mm thick reinforced with 2Nø10mm bars @ both ends (Conc. 20/20 mix 1.2.4)
5. Dividing walls to be i–100mm thick conc. class (Conc. 20/20 mix 1.2.4) reinforced with mesh No. A–98.

NOTES

[All dimensions given are in millimetres]

1: All dimensions to be checked on site, written dimensions to be followed in preference to scaled dimensions.
2 : Depth of foundations to be determined on the site but not less than 1200 deep.
3 : RC foundations to structural engineers detail.
4 : All floor slabs to be reinforced with BRC mesh A142
5 : All walls less than 200 thick to be reinforced with hoop iron at every alternate courses.
6 : All reinforced concrete work to be in accordance with Structural Engineers details
7 : All sanitary work to be in accordance with M.O.H. rules and regulations.

LEGEND

dpc – DAMP PROOF COURSE
dpm – DAMP PROOF MEMBRANE
FGL – FINISHED FROUND LEVEL
FGL – FINISHED FROUND LEVEL
MH – MANHOLE
gt – GULLY TRAP
PV – PERMANENT VENTILLATION

CONSTRUCTION ISSUE

Signed: SLM/DOO___________

REV	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
C0	CONSTRUCTION ISSUE	BY	BAO	FEB,22	
		CHECKED			

Project Implementing Agency:

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

Program & Project Title.

CONSTRUCTION OF WATER DISTRIBUTION PIPELINES AND SANITATION FACILITIES IN MOMBASA

CONTRACT No.:CWWDA/AFD/W2/2022

Supervising Consultant.

Ingerop East Africa
5th Floor, Devan Plaza
Crossway Road
Westlands
Nairobi.

Drawing Title

SOUTH MAINLAND
SEPTIC TANK & SOAK PIT DETAILS

Designed by FNO	Drawn by BAO
Checked by	Approved by
Scale AS SHOWN (A1)	Date NOVEMBER, 2021
Job No. 6000002	ACAD File: W&S-C-S-013C0
C STATUS	DRAWING No. **6000002-W&S-C-S-013** C0 REV