

DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
2376.95	2376.95	2357.99	1.00	2376.95		
2376.58	2376.58	2356.63	1.00	2376.58		
2376.24	2376.24	2355.47	0.99	2376.24		
2375.89	2375.89	2354.31	1.00	2375.89		
2375.53	2375.53	2353.16	1.00	2375.53		
2375.18	2375.18	2352.02	1.00	2375.18		
2374.83	2374.83	2350.87	1.00	2374.83		
2374.47	2374.47	2349.74	1.00	2374.47		
2374.12	2374.12	2348.61	1.00	2374.12		
2373.77	2373.77	2347.49	1.00	2373.77		
2373.41	2373.41	2346.38	1.00	2373.41		
2373.06	2373.06	2345.28	1.00	2373.06		

TETU AGUTHI WATER PROJECT  
SCALE: HOR 1:2000 VERT 1:1000

LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

NOTES

- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
- COORDINATES ARE BASED ON UTM.
- LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
- GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
- ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.


LEGEND:

- - - - - PROPOSED PIPELINE
- EXISTING GROUND PROFILE
- PIPE INVERT PROFILE
- EXISTING ROAD
- ◇ AIR VALVE
- DAV DOUBLE AIR VALVE
- ▽ WASHOUT
- WO1 WASHOUT TYPE 1
- WO2 WASHOUT TYPE 2
- DN NOMINAL DIAMETER
- PN NOMINAL PRESSURE
- VB VERTICAL BEND
- HB HORIZONTAL BEND
- ▨ EXISTING STRUCTURE
- ER EARTH ROAD
- GR GRAVEL ROAD
- CUT

FOR CONSTRUCTION  
signed OMS

REV	REVISIONS	SIGN	DATE	APPROVED
REV-1	BY			
REV-2	CHECKED			
REV-3	BY			
REV-4	CHECKED			
REV-5	BY			
REV-6	CHECKED			
REV-7	ISSUED FOR CONSTRUCTION	BY		
REV-8	CHECKED			

CLIENT



THE CHIEF EXECUTIVE OFFICER  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100  
NYERI

PROJECT  
DESIGN FOR TETU AGUTHI WATER SUPPLY PROJECT

Civil/Structural Engineers



CHIEF MANAGER TECHNICAL SERVICES  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100  
NYERI

Drawing Title  
TETU-AGUTHI RAW WATER MAIN LINE FROM  
CH.16+140-16+373  
SHEET 12 OF 12  
PLAN AND PROFILE DRAWINGS

Designed by K.N.G	Drawn by S.W.W
Checked by J.M.M	Approved by D.N.M
Scale 1:4050	Date JANUARY-2024
Job No. 1.0	ACAD File: ACADFILENAME
PD STATUS	DRAWING No. TWWDA/TAWP/L1 REV

**NOTES**

1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
2. COORDINATES ARE BASED ON UTM.
3. LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M, WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 4.3.1.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.


**LEGEND:**

- - - - PROPOSED PIPELINE
  - - - - EXISTING GROUND PROFILE
  - - - - PIPE INVERT PROFILE
  - - - - EXISTING ROAD
- 
- ⬆️ AIR VALVE
  - ⬆️ DAV - DOUBLE AIR VALVE
  - ⬆️ WASHOUT
  - W01 - WASHOUT TYPE 1
  - W02 - WASHOUT TYPE 2
  - DN - NOMINAL DIAMETER
  - PN - NOMINAL PRESSURE
  - VB - VERTICAL BEND
  - HB - HORIZONTAL BEND
  - [Hatched Box] - EXISTING STRUCTURE
  - ER - EARTH ROAD
  - GR - GRAVEL ROAD
  - [Dashed Box] - CUT

**SIGNED FOR CONSTRUCTION**

Signed: C.M.S.

REV.	REVISIONS	SIGN.	DATE	APPROVED
REV. 1	BY			
REV. 2	CHECKED			
REV. 3	BY			
REV. 4	CHECKED			
REV. 5	CHECKED			
REV. 6	ISSUED FOR CONSTRUCTION	BY		
		CHECKED		

**CLIENT**  

**THE CHIEF EXECUTIVE OFFICER**  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

**PROJECT**  
 DESIGN FOR TETU-AGUTHI WATER SUPPLY PROJECT

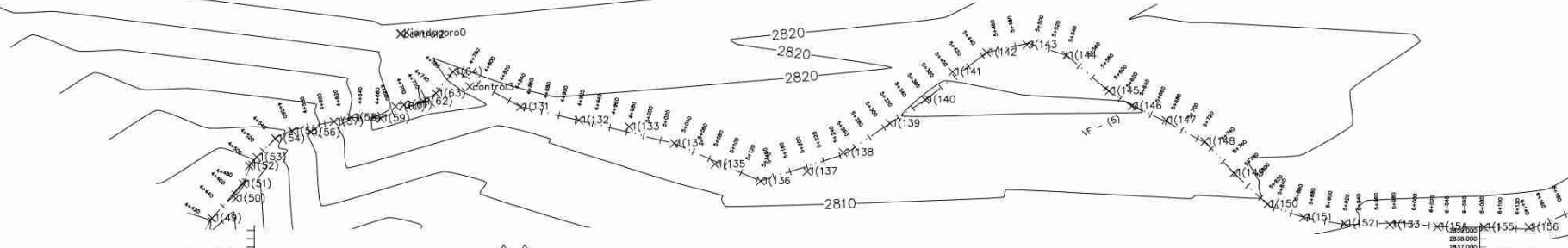
Civil/Structural Engineers  

**CHIEF MANAGER TECHNICAL SERVICES**  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

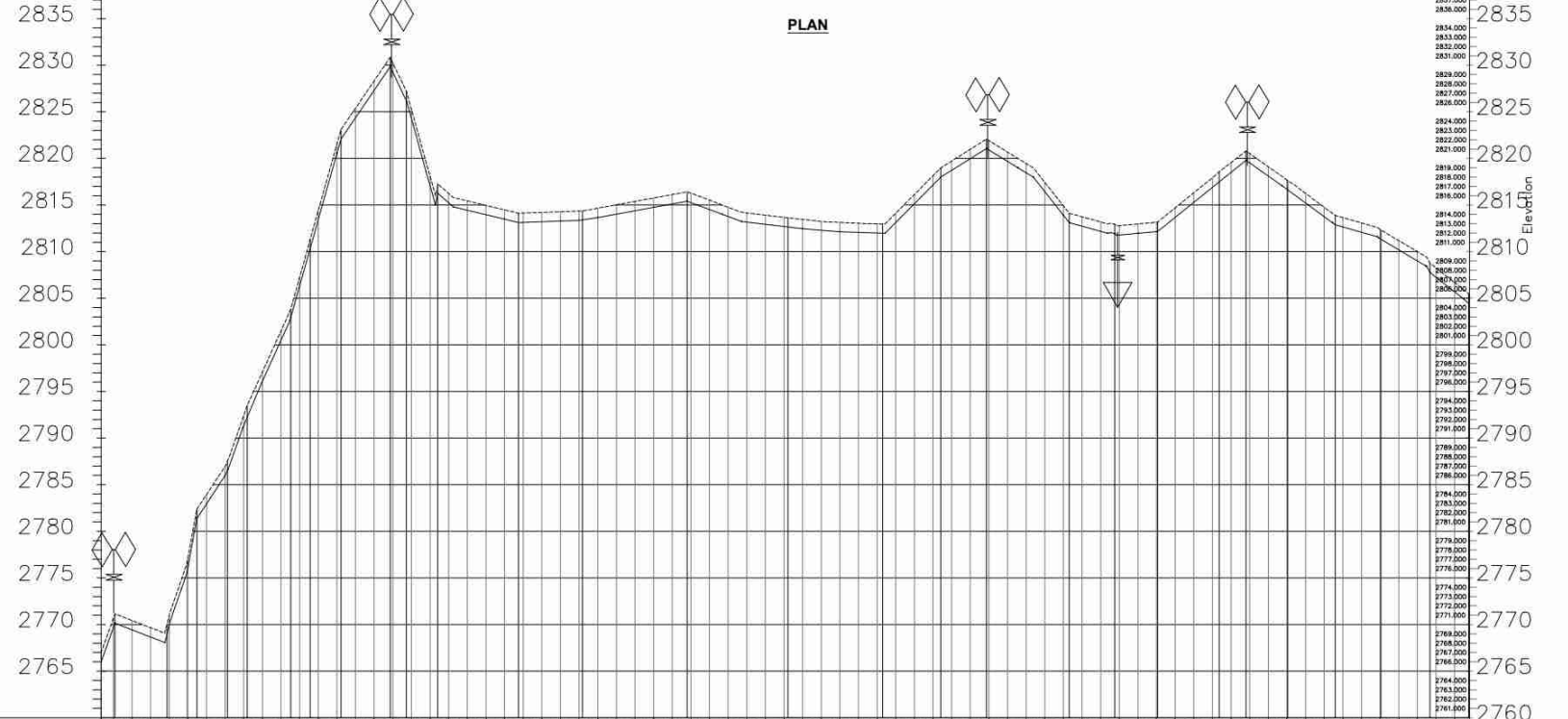
Drawing Title  
**TETU-AGUTHI RAW WATER MAIN LINE FROM**

**CH.4+420.00-5+880**  
**SHEET 4 OF 12**  
**PLAN AND PROFILE DRAWINGS**

Designed by K.N.G	Drawn by S.W.W
Checked by J.M.M	Approved by D.N.M
Scale 1:4050	Date JANUARY-2024
Job No. 1.0	ACAD File: ACADFILENAME
PD STATUS: DRAWING No. TWWDA/TAWP/L1	REV REV:



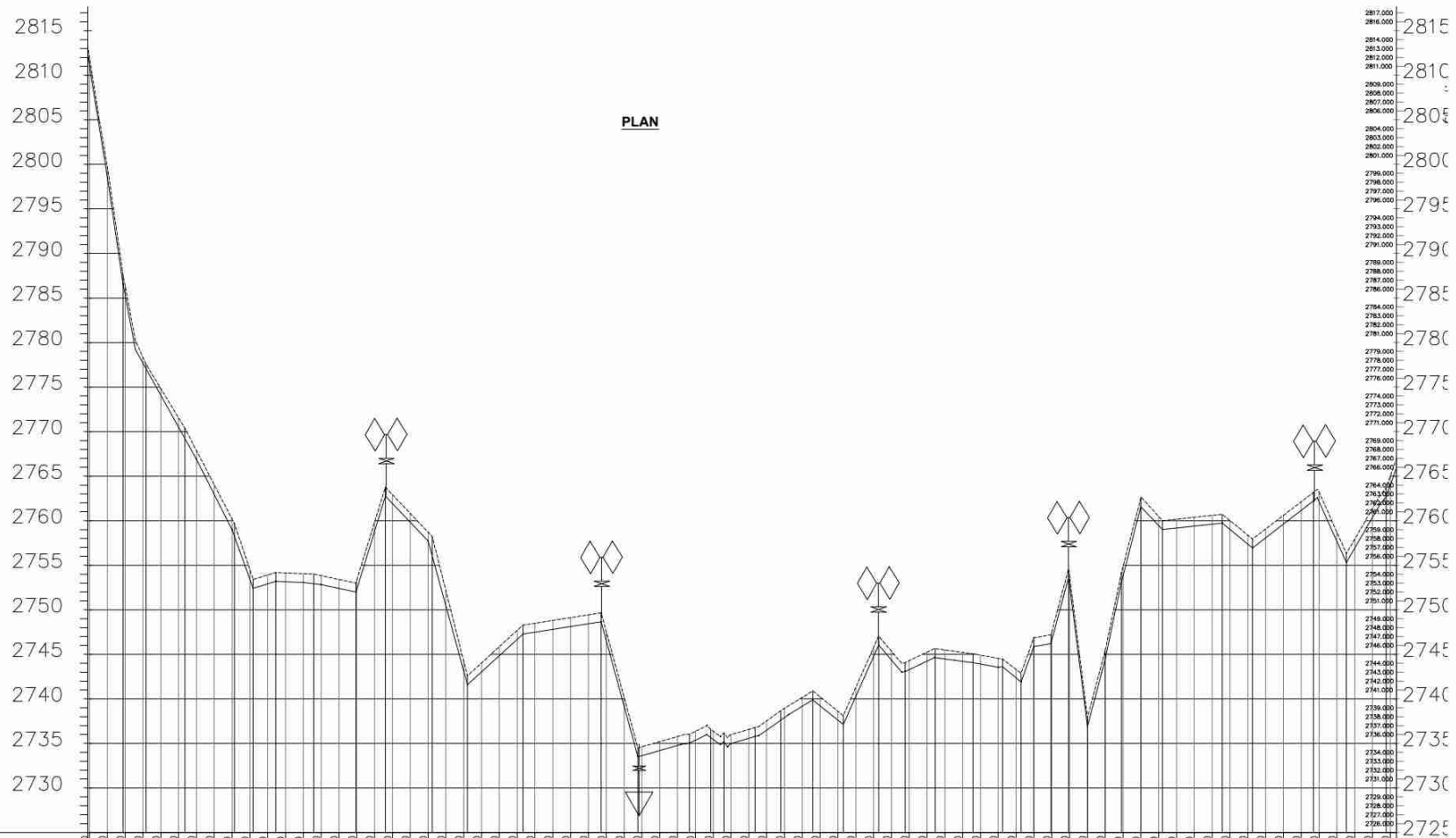
**PLAN**



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
0+000	2765.98	2765.98	0.00	2765.98		
0+100	2770.00	2770.00	0.00	2770.00		
0+200	2780.00	2780.00	0.00	2780.00		
0+300	2785.00	2785.00	0.00	2785.00		
0+400	2790.00	2790.00	0.00	2790.00		
0+500	2795.00	2795.00	0.00	2795.00		
0+600	2800.00	2800.00	0.00	2800.00		
0+700	2805.00	2805.00	0.00	2805.00		
0+800	2810.00	2810.00	0.00	2810.00		
0+900	2815.00	2815.00	0.00	2815.00		
1+000	2820.00	2820.00	0.00	2820.00		
1+100	2825.00	2825.00	0.00	2825.00		
1+200	2830.00	2830.00	0.00	2830.00		
1+300	2835.00	2835.00	0.00	2835.00		
1+400	2830.00	2830.00	0.00	2830.00		
1+500	2825.00	2825.00	0.00	2825.00		
1+600	2820.00	2820.00	0.00	2820.00		
1+700	2815.00	2815.00	0.00	2815.00		
1+800	2810.00	2810.00	0.00	2810.00		
1+900	2805.00	2805.00	0.00	2805.00		
2+000	2800.00	2800.00	0.00	2800.00		
2+100	2795.00	2795.00	0.00	2795.00		
2+200	2790.00	2790.00	0.00	2790.00		
2+300	2785.00	2785.00	0.00	2785.00		
2+400	2780.00	2780.00	0.00	2780.00		
2+500	2775.00	2775.00	0.00	2775.00		
2+600	2770.00	2770.00	0.00	2770.00		
2+700	2765.00	2765.00	0.00	2765.00		
2+800	2760.00	2760.00	0.00	2760.00		
2+900	2755.00	2755.00	0.00	2755.00		
3+000	2750.00	2750.00	0.00	2750.00		
3+100	2745.00	2745.00	0.00	2745.00		
3+200	2740.00	2740.00	0.00	2740.00		
3+300	2735.00	2735.00	0.00	2735.00		
3+400	2730.00	2730.00	0.00	2730.00		
3+500	2725.00	2725.00	0.00	2725.00		
3+600	2720.00	2720.00	0.00	2720.00		
3+700	2715.00	2715.00	0.00	2715.00		
3+800	2710.00	2710.00	0.00	2710.00		
3+900	2705.00	2705.00	0.00	2705.00		
4+000	2700.00	2700.00	0.00	2700.00		
4+100	2695.00	2695.00	0.00	2695.00		
4+200	2690.00	2690.00	0.00	2690.00		
4+300	2685.00	2685.00	0.00	2685.00		
4+400	2680.00	2680.00	0.00	2680.00		
4+500	2675.00	2675.00	0.00	2675.00		
4+600	2670.00	2670.00	0.00	2670.00		
4+700	2665.00	2665.00	0.00	2665.00		
4+800	2660.00	2660.00	0.00	2660.00		
4+900	2655.00	2655.00	0.00	2655.00		
5+000	2650.00	2650.00	0.00	2650.00		

**TETU AGUTHI WATER PROJECT**  
**SCALE: HOR 1:2000 VERT 1:1000**

**LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE**



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS (m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL (m)	FLOW DATA	TYPE OF PIPE AND SIZE
2887.48	2808.00	2779.00	28.00	2779.00		
2887.19	2798.68	2779.68	19.00	2779.68		
2886.92	2795.35	2779.35	16.00	2779.35		
2886.64	2777.83	2779.00	21.16	2779.00		
2886.37	2774.84	2779.00	24.16	2779.00		
2886.10	2770.54	2779.00	28.90	2779.00		
2885.83	2766.85	2779.00	32.17	2779.00		
2885.56	2762.04	2779.00	36.44	2779.00		
2885.29	2759.00	2779.00	39.71	2779.00		
2885.02	2754.52	2779.00	44.48	2779.00		
2884.75	2753.91	2779.00	45.09	2779.00		
2884.48	2754.14	2779.00	44.52	2779.00		
2884.21	2754.08	2779.00	44.79	2779.00		
2883.94	2753.83	2779.00	45.06	2779.00		
2883.67	2752.40	2779.00	46.33	2779.00		
2883.40	2752.35	2779.00	46.60	2779.00		
2883.13	2751.92	2779.00	47.07	2779.00		
2882.86	2751.92	2779.00	47.07	2779.00		
2882.59	2750.82	2779.00	48.41	2779.00		
2882.32	2750.77	2779.00	48.68	2779.00		
2882.05	2749.78	2779.00	49.22	2779.00		
2881.78	2749.13	2779.00	49.87	2779.00		
2881.51	2748.04	2779.00	50.49	2779.00		
2881.24	2746.86	2779.00	52.14	2779.00		
2880.97	2746.69	2779.00	52.03	2779.00		
2880.70	2747.48	2779.00	51.28	2779.00		
2880.43	2747.81	2779.00	51.17	2779.00		
2880.16	2747.12	2779.00	51.84	2779.00		
2879.89	2746.44	2779.00	52.11	2779.00		
2879.62	2746.59	2779.00	52.38	2779.00		
2879.35	2746.20	2779.00	52.65	2779.00		
2879.08	2745.63	2779.00	53.32	2779.00		
2878.81	2745.20	2779.00	53.19	2779.00		
2878.54	2744.75	2779.00	54.25	2779.00		
2878.27	2744.59	2779.00	54.41	2779.00		
2878.00	2744.29	2779.00	54.71	2779.00		
2877.73	2744.22	2779.00	54.78	2779.00		
2877.46	2743.91	2779.00	55.09	2779.00		
2877.19	2743.77	2779.00	55.23	2779.00		
2876.92	2743.59	2779.00	55.41	2779.00		
2876.65	2743.40	2779.00	55.60	2779.00		
2876.38	2743.23	2779.00	55.77	2779.00		
2876.11	2743.08	2779.00	55.92	2779.00		
2875.84	2742.94	2779.00	56.06	2779.00		
2875.57	2742.81	2779.00	56.19	2779.00		
2875.30	2742.69	2779.00	56.31	2779.00		
2875.03	2742.58	2779.00	56.42	2779.00		
2874.76	2742.48	2779.00	56.52	2779.00		
2874.49	2742.39	2779.00	56.61	2779.00		
2874.22	2742.31	2779.00	56.69	2779.00		
2873.95	2742.24	2779.00	56.75	2779.00		
2873.68	2742.18	2779.00	56.82	2779.00		
2873.41	2742.13	2779.00	56.88	2779.00		
2873.14	2742.08	2779.00	56.94	2779.00		
2872.87	2742.04	2779.00	57.00	2779.00		
2872.60	2742.00	2779.00	57.06	2779.00		
2872.33	2741.97	2779.00	57.12	2779.00		
2872.06	2741.94	2779.00	57.16	2779.00		
2871.79	2741.91	2779.00	57.21	2779.00		
2871.52	2741.88	2779.00	57.26	2779.00		
2871.25	2741.85	2779.00	57.31	2779.00		
2870.98	2741.82	2779.00	57.36	2779.00		
2870.71	2741.79	2779.00	57.41	2779.00		
2870.44	2741.76	2779.00	57.46	2779.00		
2870.17	2741.73	2779.00	57.51	2779.00		
2869.90	2741.70	2779.00	57.56	2779.00		
2869.63	2741.67	2779.00	57.61	2779.00		
2869.36	2741.64	2779.00	57.66	2779.00		
2869.09	2741.61	2779.00	57.71	2779.00		
2868.82	2741.58	2779.00	57.76	2779.00		
2868.55	2741.55	2779.00	57.81	2779.00		
2868.28	2741.52	2779.00	57.86	2779.00		
2868.01	2741.49	2779.00	57.91	2779.00		
2867.74	2741.46	2779.00	57.96	2779.00		
2867.47	2741.43	2779.00	58.01	2779.00		
2867.20	2741.40	2779.00	58.06	2779.00		
2866.93	2741.37	2779.00	58.11	2779.00		
2866.66	2741.34	2779.00	58.16	2779.00		
2866.39	2741.31	2779.00	58.21	2779.00		
2866.12	2741.28	2779.00	58.26	2779.00		
2865.85	2741.25	2779.00	58.31	2779.00		
2865.58	2741.22	2779.00	58.36	2779.00		
2865.31	2741.19	2779.00	58.41	2779.00		
2865.04	2741.16	2779.00	58.46	2779.00		
2864.77	2741.13	2779.00	58.51	2779.00		
2864.50	2741.10	2779.00	58.56	2779.00		
2864.23	2741.07	2779.00	58.61	2779.00		
2863.96	2741.04	2779.00	58.66	2779.00		
2863.69	2741.01	2779.00	58.71	2779.00		
2863.42	2740.98	2779.00	58.76	2779.00		
2863.15	2740.95	2779.00	58.81	2779.00		
2862.88	2740.92	2779.00	58.86	2779.00		
2862.61	2740.89	2779.00	58.91	2779.00		
2862.34	2740.86	2779.00	58.96	2779.00		
2862.07	2740.83	2779.00	59.01	2779.00		
2861.80	2740.80	2779.00	59.06	2779.00		
2861.53	2740.77	2779.00	59.11	2779.00		
2861.26	2740.74	2779.00	59.16	2779.00		
2860.99	2740.71	2779.00	59.21	2779.00		
2860.72	2740.68	2779.00	59.26	2779.00		
2860.45	2740.65	2779.00	59.31	2779.00		
2860.18	2740.62	2779.00	59.36	2779.00		
2859.91	2740.59	2779.00	59.41	2779.00		
2859.64	2740.56	2779.00	59.46	2779.00		
2859.37	2740.53	2779.00	59.51	2779.00		
2859.10	2740.50	2779.00	59.56	2779.00		
2858.83	2740.47	2779.00	59.61	2779.00		
2858.56	2740.44	2779.00	59.66	2779.00		
2858.29	2740.41	2779.00	59.71	2779.00		
2858.02	2740.38	2779.00	59.76	2779.00		
2857.75	2740.35	2779.00	59.81	2779.00		
2857.48	2740.32	2779.00	59.86	2779.00		
2857.21	2740.29	2779.00	59.91	2779.00		
2856.94	2740.26	2779.00	59.96	2779.00		
2856.67	2740.23	2779.00	60.01	2779.00		
2856.40	2740.20	2779.00	60.06	2779.00		
2856.13	2740.17	2779.00	60.11	2779.00		
2855.86	2740.14	2779.00	60.16	2779.00		
2855.59	2740.11	2779.00	60.21	2779.00		
2855.32	2740.08	2779.00	60.26	2779.00		
2855.05	2740.05	2779.00	60.31	2779.00		
2854.78	2740.02	2779.00	60.36	2779.00		
2854.51	2740.00	2779.00	60.41	2779.00		
2854.24	2740.00	2779.00	60.46	2779.00		
2853.97	2740.00	2779.00	60.51	2779.00		
2853.70	2740.00	2779.00	60.56	2779.00		
2853.43	2740.00	2779.00	60.61	2779.00		
2853.16	2740.00	2779.00	60.66	2779.00		
2852.89	2740.00	2779.00	60.71	2779.00		
2852.62	2740.00	2779.00	60.76	2779.00		
2852.35	2740.00	2779.00	60.81	2779.00		
2852.08	2740.00	2779.00	60.86	2779.00		
2851.81	2740.00	2779.00	60.91	2779.00		
2851.54	2740.00	2779.00	60.96	2779.00		
2851.27	2740.00	2779.00	61.01	2779.00		
2851.00	2740.00	2779.00	61.06	2779.00		

— 1.954m<sup>3</sup>/d —  
 DN 355 PN 10 HDPE PIPE

TETU AGUTHI WATER PROJECT  
 SCALE: HOR 1:2000 VERT 1:1000

LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

- ### NOTES
- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  - COORDINATES ARE BASED ON UTM.
  - LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  - GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M, WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  - ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  - IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

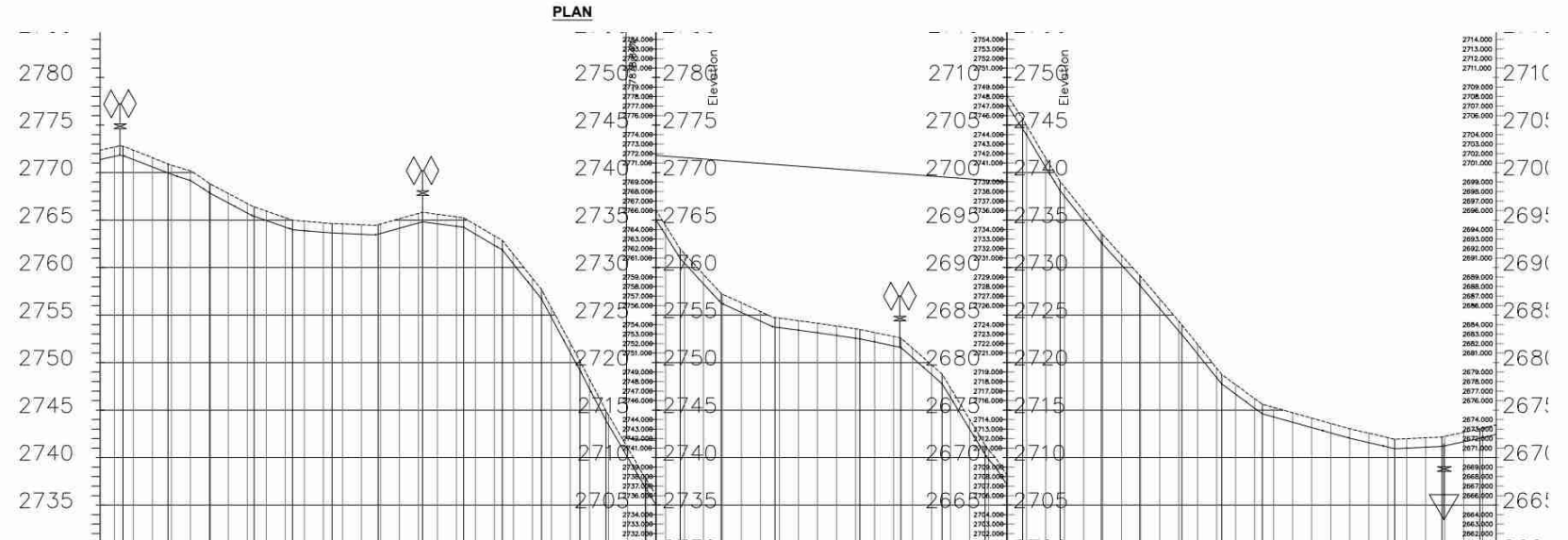
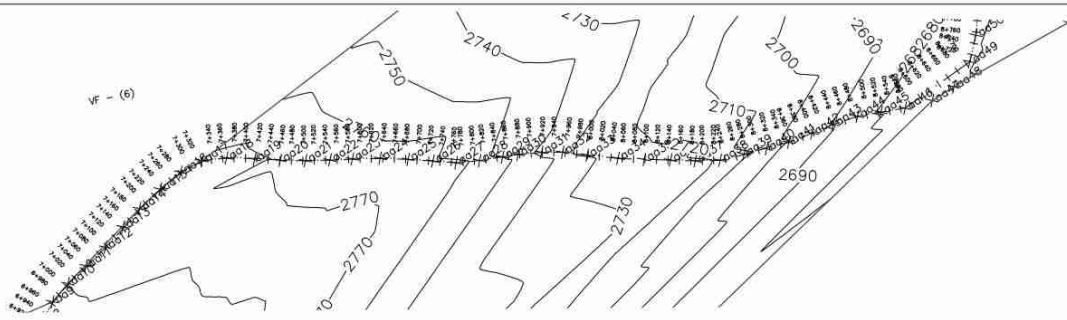
- ### LEGEND:
- PROPOSED PIPELINE
  - - - - - EXISTING GROUND PROFILE
  - - - - - PIPE INVERT PROFILE
  - EXISTING ROAD
  - ◇ AIR VALVE
  - ◇↑ DAV - DOUBLE AIR VALVE
  - ▽ WASHOUT
  - WO1 - WASHOUT TYPE 1
  - WO2 - WASHOUT TYPE 2
  - DN - NOMINAL DIAMETER
  - PN - NOMINAL PRESSURE
  - VB - VERTICAL BEND
  - HB - HORIZONTAL BEND
  - ▨ EXISTING STRUCTURE
  - ER - EARTH ROAD
  - GR - GRAVEL ROAD
  - CUT

### FOR CONSTRUCTION

signed CMTS

REV	REVISIONS	SIGN	DATE	APPROVED
REV	BY			
REV	CHECKED			
REV	BY			
REV	CHECKED			
REV	BY			
REV	CHECKED			
REV	ISSUED FOR CONSTRUCTION	BY		
REV	CHECKED			

CLIENT



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
0.99 2771.37	2827.64	2771.37	0.99	2771.37	← 1.757m <sup>3</sup> /d →	← DN 355 PN 10 HDPE PIPE →
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		
1.00 2771.37	2827.64	2771.37	1.00	2771.37		

TETU AGUTHI WATER PROJECT      TETU AGUTHI WATER PROJECT      TETU AGUTHI WATER PROJECT  
 SCALE: HOR 1:2000 VERT 1:1000      SCALE: HOR 1:2000 VERT 1:1000      SCALE: HOR 1:2000 VERT 1:1000

**LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE**

**NOTES**

- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
- COORDINATES ARE BASED ON UTM.
- LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
- GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M, WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
- ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 4.3.1.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

**LEGEND:**

- PROPOSED PIPELINE
- - - EXISTING GROUND PROFILE
- PIPE INVERT PROFILE
- - - EXISTING ROAD
- ◇ AIR VALVE
- ◇◇ DOUBLE AIR VALVE
- ▽ WASHOUT
- WO1 WASHOUT TYPE 1
- WO2 WASHOUT TYPE 2
- DN NOMINAL DIAMETER
- PN NOMINAL PRESSURE
- VB VERTICAL BEND
- HB HORIZONTAL BEND
- ▨ EXISTING STRUCTURE
- ER EARTH ROAD
- GR GRAVEL ROAD
- ▭ CUT

FOR CONSTRUCTION  
signed GMS

REV.	REVISIONS	SIGN.	DATE	APPROVED
REV-1	BY CHECKED			
REV-2	BY CHECKED			
REV-3	BY CHECKED			
REV-4	ISSUED FOR CONSTRUCTION	BY CHECKED		

CLIENT  
 THE CHIEF EXECUTIVE OFFICER  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

PROJECT  
 DESIGN FOR TETU-AGUTHI WATER SUPPLY PROJECT

Civil/Structural Engineers  
 CHIEF MANAGER TECHNICAL SERVICES  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

Drawing Title  
 TETU-AGUTHI RAW WATER MAIN LINE FROM

CH.7+3400.00-8+830  
 SHEET 6 OF 12  
 PLAN AND PROFILE DRAWINGS

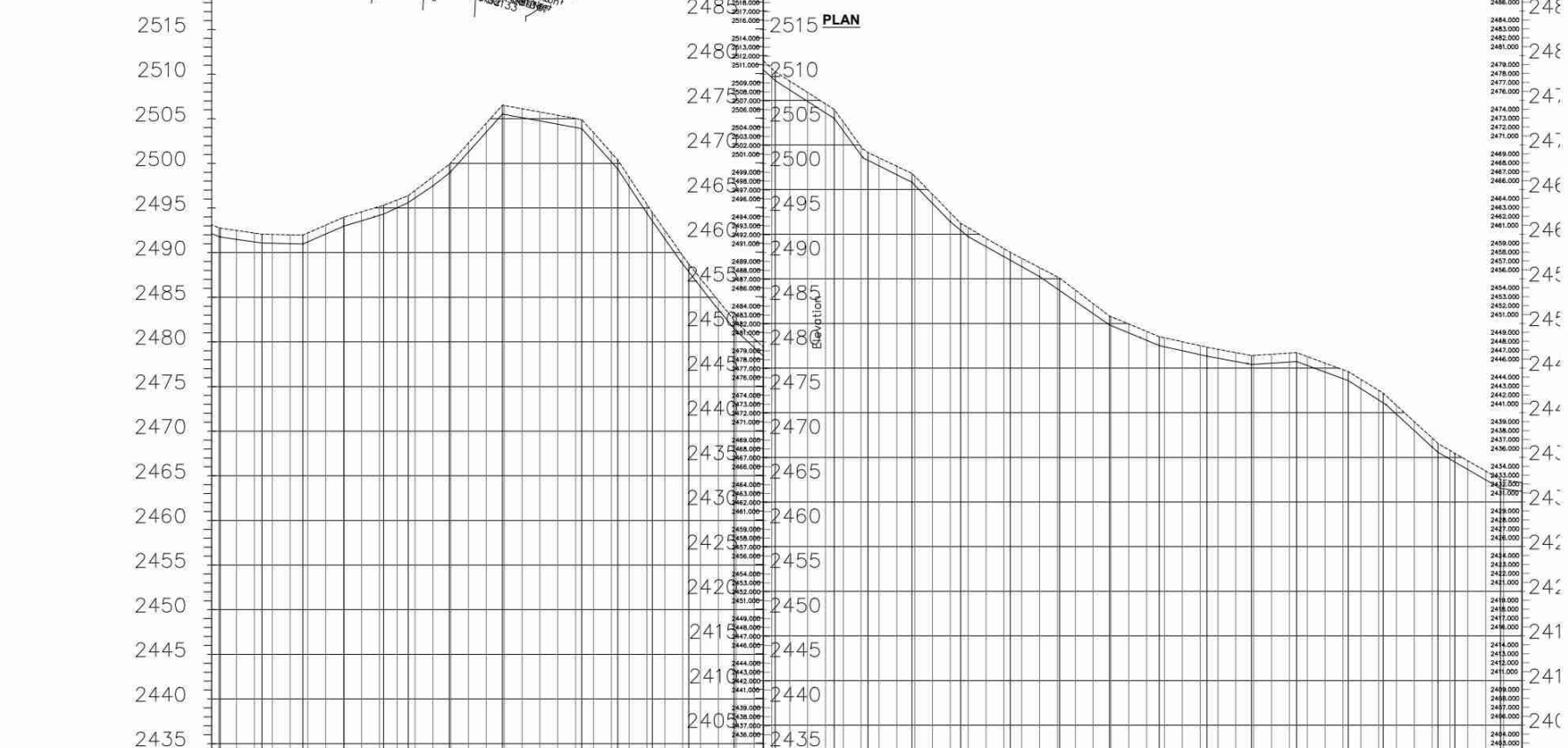
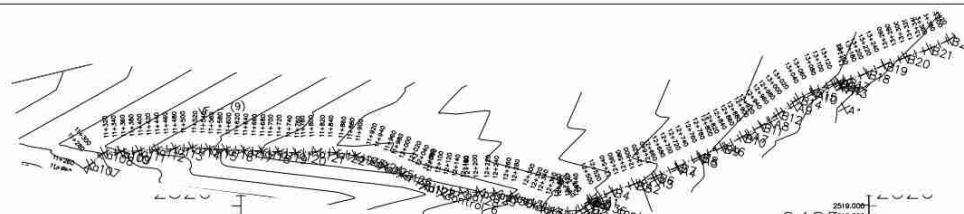
Designed by K.N.G      Drawn by S.W.W

Checked by J.M.M      Approved by D.N.M

Scale 1:4050      Date JANUARY-2024

Job No. 1.0      ACAD FILE: ACADFILENAME

PD STATUS      DRAWING No. TWWDA/TAWP/L1      REV



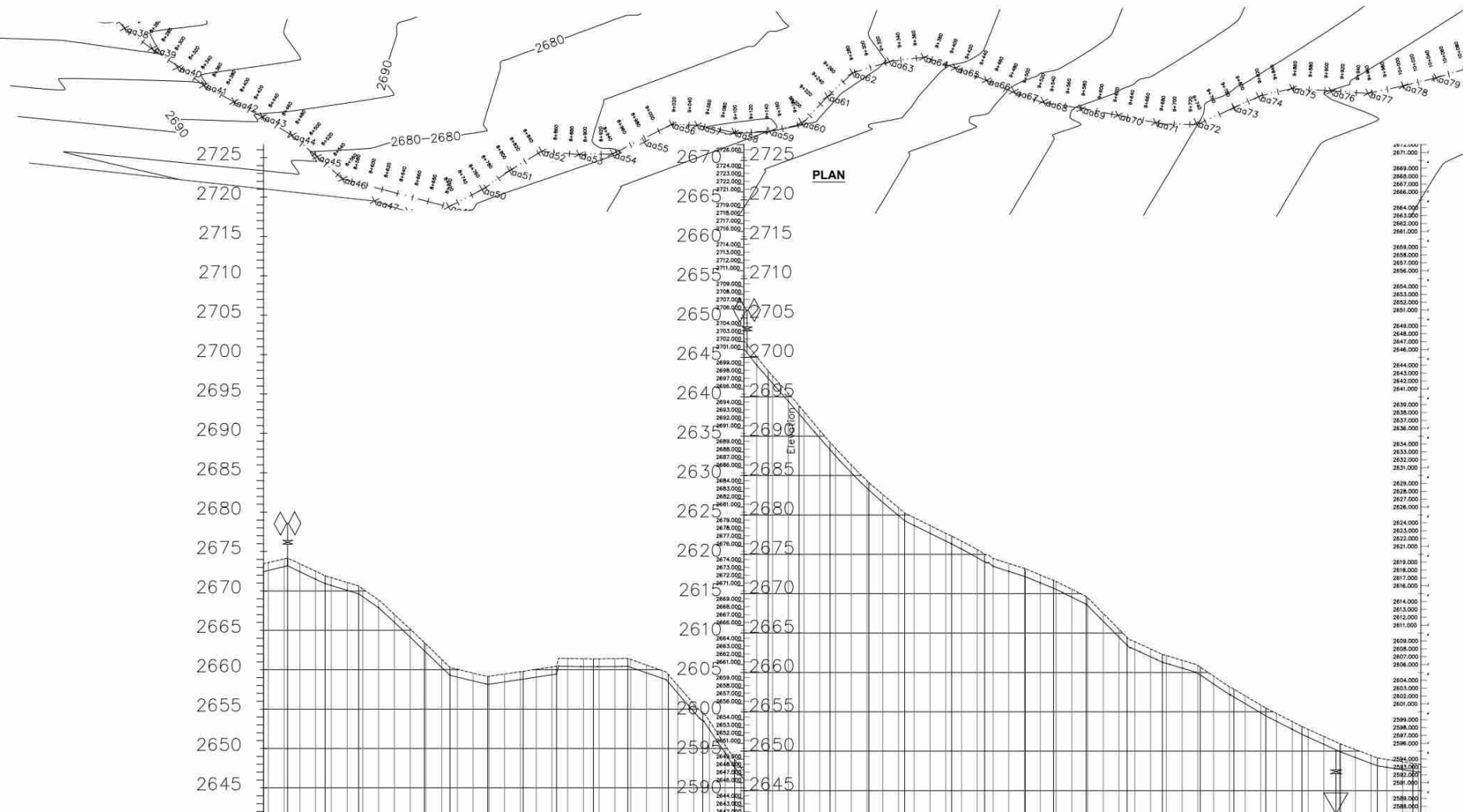
DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
2432.00	2492.00	2492.00	0.00	2492.00		DN 355 PN 10 HDPE PIPE
2433.00	2491.50	2491.50	0.00	2491.50		DN 355 PN 10 HDPE PIPE
2434.00	2491.00	2491.00	0.00	2491.00		DN 355 PN 10 HDPE PIPE
2435.00	2490.50	2490.50	0.00	2490.50		DN 355 PN 10 HDPE PIPE
2436.00	2490.00	2490.00	0.00	2490.00		DN 355 PN 10 HDPE PIPE
2437.00	2489.50	2489.50	0.00	2489.50		DN 355 PN 10 HDPE PIPE
2438.00	2489.00	2489.00	0.00	2489.00		DN 355 PN 10 HDPE PIPE
2439.00	2488.50	2488.50	0.00	2488.50		DN 355 PN 10 HDPE PIPE
2440.00	2488.00	2488.00	0.00	2488.00		DN 355 PN 10 HDPE PIPE
2441.00	2487.50	2487.50	0.00	2487.50		DN 355 PN 10 HDPE PIPE
2442.00	2487.00	2487.00	0.00	2487.00		DN 355 PN 10 HDPE PIPE
2443.00	2486.50	2486.50	0.00	2486.50		DN 355 PN 10 HDPE PIPE
2444.00	2486.00	2486.00	0.00	2486.00		DN 355 PN 10 HDPE PIPE
2445.00	2485.50	2485.50	0.00	2485.50		DN 355 PN 10 HDPE PIPE
2446.00	2485.00	2485.00	0.00	2485.00		DN 355 PN 10 HDPE PIPE
2447.00	2484.50	2484.50	0.00	2484.50		DN 355 PN 10 HDPE PIPE
2448.00	2484.00	2484.00	0.00	2484.00		DN 355 PN 10 HDPE PIPE
2449.00	2483.50	2483.50	0.00	2483.50		DN 355 PN 10 HDPE PIPE
2450.00	2483.00	2483.00	0.00	2483.00		DN 355 PN 10 HDPE PIPE
2451.00	2482.50	2482.50	0.00	2482.50		DN 355 PN 10 HDPE PIPE
2452.00	2482.00	2482.00	0.00	2482.00		DN 355 PN 10 HDPE PIPE
2453.00	2481.50	2481.50	0.00	2481.50		DN 355 PN 10 HDPE PIPE
2454.00	2481.00	2481.00	0.00	2481.00		DN 355 PN 10 HDPE PIPE
2455.00	2480.50	2480.50	0.00	2480.50		DN 355 PN 10 HDPE PIPE
2456.00	2480.00	2480.00	0.00	2480.00		DN 355 PN 10 HDPE PIPE
2457.00	2479.50	2479.50	0.00	2479.50		DN 355 PN 10 HDPE PIPE
2458.00	2479.00	2479.00	0.00	2479.00		DN 355 PN 10 HDPE PIPE
2459.00	2478.50	2478.50	0.00	2478.50		DN 355 PN 10 HDPE PIPE
2460.00	2478.00	2478.00	0.00	2478.00		DN 355 PN 10 HDPE PIPE
2461.00	2477.50	2477.50	0.00	2477.50		DN 355 PN 10 HDPE PIPE
2462.00	2477.00	2477.00	0.00	2477.00		DN 355 PN 10 HDPE PIPE
2463.00	2476.50	2476.50	0.00	2476.50		DN 355 PN 10 HDPE PIPE
2464.00	2476.00	2476.00	0.00	2476.00		DN 355 PN 10 HDPE PIPE
2465.00	2475.50	2475.50	0.00	2475.50		DN 355 PN 10 HDPE PIPE
2466.00	2475.00	2475.00	0.00	2475.00		DN 355 PN 10 HDPE PIPE
2467.00	2474.50	2474.50	0.00	2474.50		DN 355 PN 10 HDPE PIPE
2468.00	2474.00	2474.00	0.00	2474.00		DN 355 PN 10 HDPE PIPE
2469.00	2473.50	2473.50	0.00	2473.50		DN 355 PN 10 HDPE PIPE
2470.00	2473.00	2473.00	0.00	2473.00		DN 355 PN 10 HDPE PIPE
2471.00	2472.50	2472.50	0.00	2472.50		DN 355 PN 10 HDPE PIPE
2472.00	2472.00	2472.00	0.00	2472.00		DN 355 PN 10 HDPE PIPE
2473.00	2471.50	2471.50	0.00	2471.50		DN 355 PN 10 HDPE PIPE
2474.00	2471.00	2471.00	0.00	2471.00		DN 355 PN 10 HDPE PIPE
2475.00	2470.50	2470.50	0.00	2470.50		DN 355 PN 10 HDPE PIPE
2476.00	2470.00	2470.00	0.00	2470.00		DN 355 PN 10 HDPE PIPE
2477.00	2469.50	2469.50	0.00	2469.50		DN 355 PN 10 HDPE PIPE
2478.00	2469.00	2469.00	0.00	2469.00		DN 355 PN 10 HDPE PIPE
2479.00	2468.50	2468.50	0.00	2468.50		DN 355 PN 10 HDPE PIPE
2480.00	2468.00	2468.00	0.00	2468.00		DN 355 PN 10 HDPE PIPE
2481.00	2467.50	2467.50	0.00	2467.50		DN 355 PN 10 HDPE PIPE
2482.00	2467.00	2467.00	0.00	2467.00		DN 355 PN 10 HDPE PIPE
2483.00	2466.50	2466.50	0.00	2466.50		DN 355 PN 10 HDPE PIPE
2484.00	2466.00	2466.00	0.00	2466.00		DN 355 PN 10 HDPE PIPE
2485.00	2465.50	2465.50	0.00	2465.50		DN 355 PN 10 HDPE PIPE
2486.00	2465.00	2465.00	0.00	2465.00		DN 355 PN 10 HDPE PIPE
2487.00	2464.50	2464.50	0.00	2464.50		DN 355 PN 10 HDPE PIPE
2488.00	2464.00	2464.00	0.00	2464.00		DN 355 PN 10 HDPE PIPE
2489.00	2463.50	2463.50	0.00	2463.50		DN 355 PN 10 HDPE PIPE
2490.00	2463.00	2463.00	0.00	2463.00		DN 355 PN 10 HDPE PIPE
2491.00	2462.50	2462.50	0.00	2462.50		DN 355 PN 10 HDPE PIPE
2492.00	2462.00	2462.00	0.00	2462.00		DN 355 PN 10 HDPE PIPE
2493.00	2461.50	2461.50	0.00	2461.50		DN 355 PN 10 HDPE PIPE
2494.00	2461.00	2461.00	0.00	2461.00		DN 355 PN 10 HDPE PIPE
2495.00	2460.50	2460.50	0.00	2460.50		DN 355 PN 10 HDPE PIPE
2496.00	2460.00	2460.00	0.00	2460.00		DN 355 PN 10 HDPE PIPE
2497.00	2459.50	2459.50	0.00	2459.50		DN 355 PN 10 HDPE PIPE
2498.00	2459.00	2459.00	0.00	2459.00		DN 355 PN 10 HDPE PIPE
2499.00	2458.50	2458.50	0.00	2458.50		DN 355 PN 10 HDPE PIPE
2500.00	2458.00	2458.00	0.00	2458.00		DN 355 PN 10 HDPE PIPE
2501.00	2457.50	2457.50	0.00	2457.50		DN 355 PN 10 HDPE PIPE
2502.00	2457.00	2457.00	0.00	2457.00		DN 355 PN 10 HDPE PIPE
2503.00	2456.50	2456.50	0.00	2456.50		DN 355 PN 10 HDPE PIPE
2504.00	2456.00	2456.00	0.00	2456.00		DN 355 PN 10 HDPE PIPE
2505.00	2455.50	2455.50	0.00	2455.50		DN 355 PN 10 HDPE PIPE
2506.00	2455.00	2455.00	0.00	2455.00		DN 355 PN 10 HDPE PIPE
2507.00	2454.50	2454.50	0.00	2454.50		DN 355 PN 10 HDPE PIPE
2508.00	2454.00	2454.00	0.00	2454.00		DN 355 PN 10 HDPE PIPE
2509.00	2453.50	2453.50	0.00	2453.50		DN 355 PN 10 HDPE PIPE
2510.00	2453.00	2453.00	0.00	2453.00		DN 355 PN 10 HDPE PIPE
2511.00	2452.50	2452.50	0.00	2452.50		DN 355 PN 10 HDPE PIPE
2512.00	2452.00	2452.00	0.00	2452.00		DN 355 PN 10 HDPE PIPE
2513.00	2451.50	2451.50	0.00	2451.50		DN 355 PN 10 HDPE PIPE
2514.00	2451.00	2451.00	0.00	2451.00		DN 355 PN 10 HDPE PIPE
2515.00	2450.50	2450.50	0.00	2450.50		DN 355 PN 10 HDPE PIPE
2516.00	2450.00	2450.00	0.00	2450.00		DN 355 PN 10 HDPE PIPE
2517.00	2449.50	2449.50	0.00	2449.50		DN 355 PN 10 HDPE PIPE
2518.00	2449.00	2449.00	0.00	2449.00		DN 355 PN 10 HDPE PIPE
2519.00	2448.50	2448.50	0.00	2448.50		DN 355 PN 10 HDPE PIPE
2520.00	2448.00	2448.00	0.00	2448.00		DN 355 PN 10 HDPE PIPE
2521.00	2447.50	2447.50	0.00	2447.50		DN 355 PN 10 HDPE PIPE
2522.00	2447.00	2447.00	0.00	2447.00		DN 355 PN 10 HDPE PIPE
2523.00	2446.50	2446.50	0.00	2446.50		DN 355 PN 10 HDPE PIPE
2524.00	2446.00	2446.00	0.00	2446.00		DN 355 PN 10 HDPE PIPE
2525.00	2445.50	2445.50	0.00	2445.50		DN 355 PN 10 HDPE PIPE
2526.00	2445.00	2445.00	0.00	2445.00		DN 355 PN 10 HDPE PIPE
2527.00	2444.50	2444.50	0.00	2444.50		DN 355 PN 10 HDPE PIPE
2528.00	2444.00	2444.00	0.00	2444.00		DN 355 PN 10 HDPE PIPE
2529.00	2443.50	2443.50	0.00	2443.50		DN 355 PN 10 HDPE PIPE
2530.00	2443.00	2443.00	0.00	2443.00		DN 355 PN 10 HDPE PIPE
2531.00	2442.50	2442.50	0.00	2442.50		DN 355 PN 10 HDPE PIPE
2532.00	2442.00	2442.00	0.00	2442.00		DN 355 PN 10 HDPE PIPE
2533.00	2441.50	2441.50	0.00	2441.50		DN 355 PN 10 HDPE PIPE
2534.00	2441.00	2441.00	0.00	2441.00		DN 355 PN 10 HDPE PIPE
2535.00	2440.50	2440.50	0.00	2440.50		DN 355 PN 10 HDPE PIPE
2536.00	2440.00	2440.00	0.00	2440.00		DN 355 PN 10 HDPE PIPE
2537.00	2439.50	2439.50	0.00	2439.50		DN 355 PN 10 HDPE PIPE
2538.00	2439.00	2439.00	0.00	2439.00		DN 355 PN 10 HDPE PIPE
2539.00	2438.50	2438.50	0.00	2438.50		DN 355 PN 10 HDPE PIPE
2540.00	2438.00	2438.00	0.00	2438.00		DN 355 PN 10 HDPE PIPE
2541.00	2437.50	2437.50	0.00	2437.50		DN 355 PN 10 HDPE PIPE
2542.00	2437.00	2437.00	0.00	2437.00		DN 355 PN 10 HDPE PIPE
2543.00	2436.50	2436.50	0.00	2436.50		DN 355 PN 10 HDPE PIPE
2544.00	2436.00	2436.00	0.00	2436.00		DN 355 PN 10 HDPE PIPE
2545.00	2435.50	2435.50	0.00	2435.50		DN 355 PN 10 HDPE PIPE
2546.00	2435.00	2435.00	0.00	2435.00		DN 355 PN 10 HDPE PIPE
2547.00	2434.50	2434.50	0.00	2434.50		DN 355 PN 10 HDPE PIPE
2548.00	2434.00	2434.00	0.00	2434.00		DN 355 PN 10 HDPE PIPE
2549.00	2433.50	2433.50	0.00	2433.50		DN 355 PN 10 HDPE PIPE
2550.00	2433.00	2433.00	0.00	2433.00		DN 355 PN 10 HDPE PIPE
2551.00	2432.50	2432.50	0.00	2432.50		DN 355 PN 10 HDPE PIPE
2552.00	2432.00	2432.00	0.00	2432.00		DN 355 PN 10 HDPE PIPE
2553.00	2431.50	2431.50	0.00	2431.50		DN 355 PN 10 HDPE PIPE
2554.00	2431.00	2431.00	0.00	2431.00		DN 355 PN 10 HDPE PIPE
2555.00	2430.50	2430.50	0.00	2430.50		DN 355 PN 10 HDPE PIPE
2556.00	2430.00	2430.00	0.00	2430.00		DN 355 PN 10 HDPE PIPE
2557.00	2429.50	2429.50	0.00	2429.50		DN 355 PN 10 HDPE PIPE
2558.00	2429.00	2429.00	0.00	2429.00		DN 355 PN 10 HDPE PIPE
2559.00	2428.50	2428.50	0.00	2428.50		DN 355 PN 10 HDPE PIPE
2560.00	2428.00	2428.00	0.00	2428.00		DN 355 PN 10 HDPE PIPE
2561.00	2427.50	2427.50	0.00	2427.50		DN 355 PN 10 HDPE PIPE
2562.00	2427.00	2427.00	0.00	2427.00		DN 355 PN 10 HDPE PIPE
2563.00	2426.50	2426.50	0.00	2426.50		DN 355 PN 10 HDPE PIPE
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2565.00	2425.50	2425.50	0.00	2425.50		DN 355 PN 10 HDPE PIPE
2566.00	2425.00	2425.00	0.00	2425.00		DN 355 PN 10 HDPE PIPE
2567.00	2424.50	2424.50	0.00	2424.50		DN 355 PN 10 HDPE PIPE
2568.00	2424.00	2424.00	0.00	2424.00		DN 355 PN 10 HDPE PIPE
2569.00	2423.50	2423.50	0.00	2423.50		DN 355 PN 10 HDPE PIPE
2570.00	2423.00	2423.00	0.00	2423.00		DN 355 PN 10 HDPE PIPE

TETU AGUTHI WATER PROJECT TETU AGUTHI WATER PROJECT TETU AGUTHI WATER PROJECT  
 SCALE: HOR 1:2000 VERT 1:1000 SCALE: HOR 1:2000 VERT 1:1000 SCALE: HOR 1:2000 VERT 1:1000  
 LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

- NOTES**
1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  2. COORDINATES ARE BASED ON UTM.
  3. LOCATION OF AIR VALVES, WASHOUTS BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS, AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

**LEGEND:**

- - - - - PROPOSED PIPELINE



- NOTES**
1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  2. COORDINATES ARE BASED ON UTM.
  3. LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M, WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

- LEGEND:**
- - - PROPOSED PIPELINE
  - - - EXISTING GROUND PROFILE
  - - - PIPE INVERT PROFILE
  - - - EXISTING ROAD
- ◇ AIR VALVE
  - DAV DOUBLE AIR VALVE
  - ▽ WASHOUT
  - WO1 WASHOUT TYPE 1
  - WO2 WASHOUT TYPE 2
  - DN NOMINAL DIAMETER
  - PN NOMINAL PRESSURE
  - VB VERTICAL BEND
  - HB HORIZONTAL BEND
  - ▨ EXISTING STRUCTURE
  - ER EARTH ROAD
  - GR GRAVEL ROAD
  - CUT

**FOR CONSTRUCTION**  
Signed CMTS

REV	REVISIONS	SIGN	DATE	APPROVED
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	ISSUED FOR CONSTRUCTION	BY	CHECKED	

**CLIENT**

THE CHIEF EXECUTIVE OFFICER  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100 NYERI

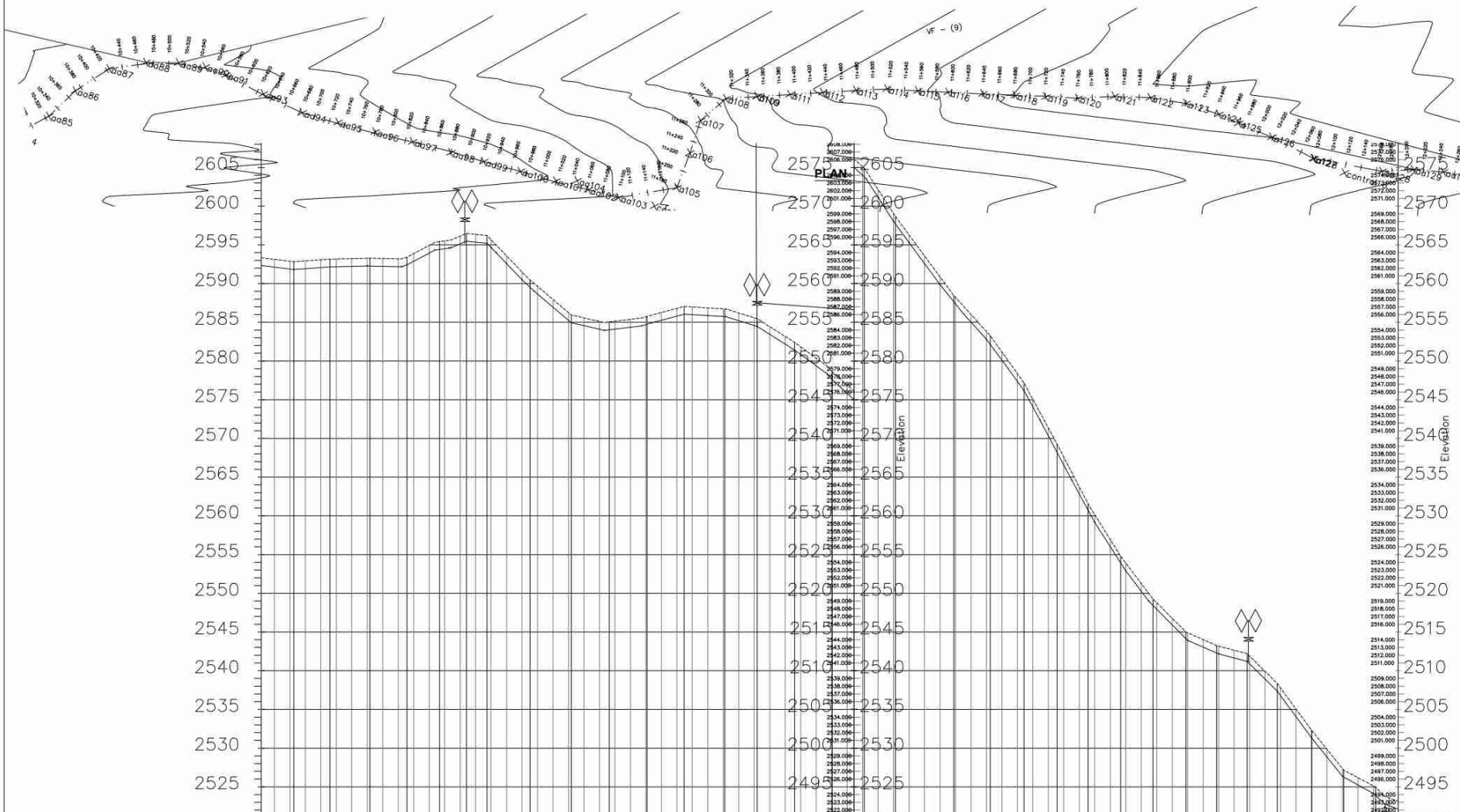
**PROJECT**

DESIGN FOR TETU-AGUTHI WATER SUPPLY PROJECT

Civil/Structural Engineers  
CHIEF MANAGER TECHNICAL SERVICES  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100 NYERI

Drawing Title TETU-AGUTHI RAW WATER MAIN LINE FROM	
CH.8+820.00-10+280	
SHEET 7 OF 12	
PLAN AND PROFILE DRAWINGS	
Designed by K.N.G	Drawn by S.W.W
Checked by J.M.M	Approved by D.N.M
Scale 1:4050	Date JANUARY-2024
Job No. 1.0	ACAD File: ACADFILENAME
PD STATUS	DRAWING No. TWWDA/TAWP/L1 REV

DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
2672.45	2673.00	2673.00	0.00	2673.00	1.618m <sup>3</sup> /d	DN 355 PN 10 HDPE PIPE
2673.00	2673.50	2673.50	0.50	2673.50		DN 355 PN 12.5 HDPE PIPE
2673.50	2674.00	2674.00	0.50	2674.00		DN 355 PN 16 HDPE PIPE
2674.00	2674.50	2674.50	0.50	2674.50		DN 355 PN 16 HDPE PIPE
2674.50	2675.00	2675.00	0.50	2675.00		DN 355 PN 16 HDPE PIPE
2675.00	2675.50	2675.50	0.50	2675.50		DN 355 PN 16 HDPE PIPE
2675.50	2676.00	2676.00	0.50	2676.00		DN 355 PN 16 HDPE PIPE
2676.00	2676.50	2676.50	0.50	2676.50		DN 355 PN 16 HDPE PIPE
2676.50	2677.00	2677.00	0.50	2677.00		DN 355 PN 16 HDPE PIPE
2677.00	2677.50	2677.50	0.50	2677.50		DN 355 PN 16 HDPE PIPE
2677.50	2678.00	2678.00	0.50	2678.00		DN 355 PN 16 HDPE PIPE
2678.00	2678.50	2678.50	0.50	2678.50		DN 355 PN 16 HDPE PIPE
2678.50	2679.00	2679.00	0.50	2679.00		DN 355 PN 16 HDPE PIPE
2679.00	2679.50	2679.50	0.50	2679.50		DN 355 PN 16 HDPE PIPE
2679.50	2680.00	2680.00	0.50	2680.00		DN 355 PN 16 HDPE PIPE
2680.00	2680.50	2680.50	0.50	2680.50		DN 355 PN 16 HDPE PIPE
2680.50	2681.00	2681.00	0.50	2681.00		DN 355 PN 16 HDPE PIPE
2681.00	2681.50	2681.50	0.50	2681.50		DN 355 PN 16 HDPE PIPE
2681.50	2682.00	2682.00	0.50	2682.00		DN 355 PN 16 HDPE PIPE
2682.00	2682.50	2682.50	0.50	2682.50		DN 355 PN 16 HDPE PIPE
2682.50	2683.00	2683.00	0.50	2683.00		DN 355 PN 16 HDPE PIPE
2683.00	2683.50	2683.50	0.50	2683.50		DN 355 PN 16 HDPE PIPE
2683.50	2684.00	2684.00	0.50	2684.00		DN 355 PN 16 HDPE PIPE
2684.00	2684.50	2684.50	0.50	2684.50		DN 355 PN 16 HDPE PIPE
2684.50	2685.00	2685.00	0.50	2685.00		DN 355 PN 16 HDPE PIPE
2685.00	2685.50	2685.50	0.50	2685.50		DN 355 PN 16 HDPE PIPE
2685.50	2686.00	2686.00	0.50	2686.00		DN 355 PN 16 HDPE PIPE
2686.00	2686.50	2686.50	0.50	2686.50		DN 355 PN 16 HDPE PIPE
2686.50	2687.00	2687.00	0.50	2687.00		DN 355 PN 16 HDPE PIPE
2687.00	2687.50	2687.50	0.50	2687.50		DN 355 PN 16 HDPE PIPE
2687.50	2688.00	2688.00	0.50	2688.00		DN 355 PN 16 HDPE PIPE
2688.00	2688.50	2688.50	0.50	2688.50		DN 355 PN 16 HDPE PIPE
2688.50	2689.00	2689.00	0.50	2689.00		DN 355 PN 16 HDPE PIPE
2689.00	2689.50	2689.50	0.50	2689.50		DN 355 PN 16 HDPE PIPE
2689.50	2690.00	2690.00	0.50	2690.00		DN 355 PN 16 HDPE PIPE
2690.00	2690.50	2690.50	0.50	2690.50		DN 355 PN 16 HDPE PIPE
2690.50	2691.00	2691.00	0.50	2691.00		DN 355 PN 16 HDPE PIPE
2691.00	2691.50	2691.50	0.50	2691.50		DN 355 PN 16 HDPE PIPE
2691.50	2692.00	2692.00	0.50	2692.00		DN 355 PN 16 HDPE PIPE
2692.00	2692.50	2692.50	0.50	2692.50		DN 355 PN 16 HDPE PIPE
2692.50	2693.00	2693.00	0.50	2693.00		DN 355 PN 16 HDPE PIPE
2693.00	2693.50	2693.50	0.50	2693.50		DN 355 PN 16 HDPE PIPE
2693.50	2694.00	2694.00	0.50	2694.00		DN 355 PN 16 HDPE PIPE
2694.00	2694.50	2694.50	0.50	2694.50		DN 355 PN 16 HDPE PIPE
2694.50	2695.00	2695.00	0.50	2695.00		DN 355 PN 16 HDPE PIPE
2695.00	2695.50	2695.50	0.50	2695.50		DN 355 PN 16 HDPE PIPE
2695.50	2696.00	2696.00	0.50	2696.00		DN 355 PN 16 HDPE PIPE
2696.00	2696.50	2696.50	0.50	2696.50		DN 355 PN 16 HDPE PIPE
2696.50	2697.00	2697.00	0.50	2697.00		DN 355 PN 16 HDPE PIPE
2697.00	2697.50	2697.50	0.50	2697.50		DN 355 PN 16 HDPE PIPE
2697.50	2698.00	2698.00	0.50	2698.00		DN 355 PN 16 HDPE PIPE
2698.00	2698.50	2698.50	0.50	2698.50		DN 355 PN 16 HDPE PIPE
2698.50	2699.00	2699.00	0.50	2699.00		DN 355 PN 16 HDPE PIPE
2699.00	2699.50	2699.50	0.50	2699.50		DN 355 PN 16 HDPE PIPE
2699.50	2700.00	2700.00	0.50	2700.00		DN 355 PN 16 HDPE PIPE
2700.00	2700.50	2700.50	0.50	2700.50		DN 355 PN 16 HDPE PIPE
2700.50	2701.00	2701.00	0.50	2701.00		DN 355 PN 16 HDPE PIPE
2701.00	2701.50	2701.50	0.50	2701.50		DN 355 PN 16 HDPE PIPE
2701.50	2702.00	2702.00	0.50	2702.00		DN 355 PN 16 HDPE PIPE
2702.00	2702.50	2702.50	0.50	2702.50		DN 355 PN 16 HDPE PIPE
2702.50	2703.00	2703.00	0.50	2703.00		DN 355 PN 16 HDPE PIPE
2703.00	2703.50	2703.50	0.50	2703.50		DN 355 PN 16 HDPE PIPE
2703.50	2704.00	2704.00	0.50	2704.00		DN 355 PN 16 HDPE PIPE
2704.00	2704.50	2704.50	0.50	2704.50		DN 355 PN 16 HDPE PIPE
2704.50	2705.00	2705.00	0.50	2705.00		DN 355 PN 16 HDPE PIPE
2705.00	2705.50	2705.50	0.50	2705.50		DN 355 PN 16 HDPE PIPE
2705.50	2706.00	2706.00	0.50	2706.00		DN 355 PN 16 HDPE PIPE
2706.00	2706.50	2706.50	0.50	2706.50		DN 355 PN 16 HDPE PIPE
2706.50	2707.00	2707.00	0.50	2707.00		DN 355 PN 16 HDPE PIPE
2707.00	2707.50	2707.50	0.50	2707.50		DN 355 PN 16 HDPE PIPE
2707.50	2708.00	2708.00	0.50	2708.00		DN 355 PN 16 HDPE PIPE
2708.00	2708.50	2708.50	0.50	2708.50		DN 355 PN 16 HDPE PIPE
2708.50	2709.00	2709.00	0.50	2709.00		DN 355 PN 16 HDPE PIPE
2709.00	2709.50	2709.50	0.50	2709.50		DN 355 PN 16 HDPE PIPE
2709.50	2710.00	2710.00	0.50	2710.00		DN 355 PN 16 HDPE PIPE
2710.00	2710.50	2710.50	0.50	2710.50		DN 355 PN 16 HDPE PIPE
2710.50	2711.00	2711.00	0.50	2711.00		DN 355 PN 16 HDPE PIPE
2711.00	2711.50	2711.50	0.50	2711.50		DN 355 PN 16 HDPE PIPE
2711.50	2712.00	2712.00	0.50	2712.00		DN 355 PN 16 HDPE PIPE
2712.00	2712.50	2712.50	0.50	2712.50		DN 355 PN 16 HDPE PIPE
2712.50	2713.00	2713.00	0.50	2713.00		DN 355 PN 16 HDPE PIPE
2713.00	2713.50	2713.50	0.50	2713.50		DN 355 PN 16 HDPE PIPE
2713.50	2714.00	2714.00	0.50	2714.00		DN 355 PN 16 HDPE PIPE
2714.00	2714.50	2714.50	0.50	2714.50		DN 355 PN 16 HDPE PIPE
2714.50	2715.00	2715.00	0.50	2715.00		DN 355 PN 16 HDPE PIPE
2715.00	2715.50	2715.50	0.50	2715.50		DN 355 PN 16 HDPE PIPE
2715.50	2716.00	2716.00	0.50	2716.00		DN 355 PN 16 HDPE PIPE
2716.00	2716.50	2716.50	0.50	2716.50		DN 355 PN 16 HDPE PIPE
2716.50	2717.00	2717.00	0.50	2717.00		DN 355 PN 16 HDPE PIPE
2717.00	2717.50	2717.50	0.50	2717.50		DN 355 PN 16 HDPE PIPE
2717.50	2718.00	2718.00	0.50	2718.00		DN 355 PN 16 HDPE PIPE
2718.00	2718.50	2718.50	0.50	2718.50		DN 355 PN 16 HDPE PIPE
2718.50	2719.00	2719.00	0.50	2719.00		DN 355 PN 16 HDPE PIPE
2719.00	2719.50	2719.50	0.50	2719.50		DN 355 PN 16 HDPE PIPE
2719.50	2720.00	2720.00	0.50	2720.00		DN 355 PN 16 HDPE PIPE
2720.00	2720.50	2720.50	0.50	2720.50		DN 355 PN 16 HDPE PIPE
2720.50	2721.00	2721.00	0.50	2721.00		DN 355 PN 16 HDPE PIPE
2721.00	2721.50	2721.50	0.50	2721.50		DN 355 PN 16 HDPE PIPE
2721.50	2722.00	2722.00	0.50	2722.00		DN 355 PN 16 HDPE PIPE
2722.00	2722.50	2722.50	0.50	2722.50		DN 355 PN 16 HDPE PIPE
2722.50	2723.00	2723.00	0.50	2723.00		DN 355 PN 16 HDPE PIPE
2723.00	2723.50	2723.50	0.50	2723.50		DN 355 PN 16 HDPE PIPE
2723.50	2724.00	2724.00	0.50	2724.00		DN 355 PN 16 HDPE PIPE
2724.00	2724.50	2724.50	0.50	2724.50		DN 355 PN 16 HDPE PIPE
2724.50	2725.00	2725.00	0.50	2725.00		DN 355 PN 16 HDPE PIPE
2725.00	2725.50	2725.50	0.50	2725.50		DN 355 PN 16 HDPE PIPE
2725.50	2726.00	2726.00	0.50	2726.00		DN 355 PN 16 HDPE PIPE
2726.00	2726.50	2726.50	0.50	2726.50		DN 355 PN 16 HDPE PIPE
2726.50	2727.00	2727.00	0.50	2727.00		DN 355 PN 16 HDPE PIPE
2727.00	2727.50	2727.50	0.50	2727.50		DN 355 PN 16 HDPE PIPE
2727.50	2728.00	2728.00	0.50	2728.00		DN 355 PN 16 HDPE PIPE
2728.00	2728.50	2728.50	0.50	2728.50		DN 355 PN 16 HDPE PIPE
2728.50	2729.00	2729.00	0.50	2729.00		DN 355 PN 16 HDPE PIPE
2729.00	2729.50	2729.50	0.50	2729.50		DN 355 PN 16 HDPE PIPE
2729.50	2730.00	2730.00	0.50	2730.00		DN 355 PN 16 HDPE PIPE
2730.00	2730.50	2730.50	0.50	2730.50		DN



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
1.00	2592.33					
2724.10	2592.12	2593.12	0.00+300.00			
2723.96	2591.85	2592.84	0.10+320.00			
2723.81	2591.58	2592.57	0.10+340.00			
2723.66	2591.31	2592.30	0.70+360.00			
2723.51	2591.04	2592.03	0.70+380.00			
2723.36	2590.77	2591.76	0.40+400.00			
2723.21	2590.50	2591.49	0.40+420.00			
2723.06	2590.23	2591.22	0.40+440.00			
2722.91	2589.96	2590.95	0.40+460.00			
2722.76	2589.69	2590.68	0.40+480.00			
2722.61	2589.42	2590.41	0.40+500.00			
2722.46	2589.15	2590.14	0.40+520.00			
2722.31	2588.88	2589.87	0.40+540.00			
2722.16	2588.61	2589.60	0.40+560.00			
2722.02	2588.34	2589.33	0.40+580.00			
2721.87	2588.07	2589.06	0.40+600.00			
2721.72	2587.80	2588.79	0.40+620.00			
2721.57	2587.53	2588.52	0.40+640.00			
2721.42	2587.26	2588.25	0.40+660.00			
2720.82	2586.26	2587.25	0.40+720.00			
2720.67	2586.00	2587.00	0.40+740.00			
2720.52	2585.74	2586.74	0.40+760.00			
2720.37	2585.48	2586.48	0.40+780.00			
2720.22	2585.22	2586.22	0.40+800.00			
2720.07	2584.96	2585.96	0.40+820.00			
2719.92	2584.70	2585.70	0.40+840.00			
2719.78	2584.44	2585.44	0.40+860.00			
2719.63	2584.18	2585.18	0.40+880.00			
2719.48	2583.92	2584.92	0.40+900.00			
2587.34	2583.66	2584.66	0.40+920.00			
2587.25	2583.40	2584.40	0.40+940.00			
2587.11	2583.14	2584.14	0.40+960.00			
2586.96	2582.88	2583.88	0.40+980.00			
2586.82	2582.62	2583.62	0.40+1000.00			
2586.68	2582.36	2583.36	0.40+1020.00			
2586.54	2582.10	2583.10	0.40+1040.00			
2586.40	2581.84	2582.84	0.40+1060.00			
2586.26	2581.58	2582.58	0.40+1080.00			
2586.12	2581.32	2582.32	0.40+1100.00			
2585.98	2581.06	2582.06	0.40+1120.00			
2585.84	2580.80	2581.80	0.40+1140.00			
2585.70	2580.54	2581.54	0.40+1160.00			
2585.56	2580.28	2581.28	0.40+1180.00			
2585.42	2580.02	2581.02	0.40+1200.00			
2585.28	2579.76	2580.76	0.40+1220.00			
2585.14	2579.50	2580.50	0.40+1240.00			
2585.00	2579.24	2580.24	0.40+1260.00			
2584.86	2578.98	2579.98	0.40+1280.00			
2584.72	2578.72	2579.72	0.40+1300.00			
2584.58	2578.46	2579.46	0.40+1320.00			
2584.44	2578.20	2579.20	0.40+1340.00			
2584.30	2577.94	2578.94	0.40+1360.00			
2584.16	2577.68	2578.68	0.40+1380.00			
2584.02	2577.42	2578.42	0.40+1400.00			
2583.88	2577.16	2578.16	0.40+1420.00			
2583.74	2576.90	2577.90	0.40+1440.00			
2583.60	2576.64	2577.64	0.40+1460.00			
2583.46	2576.38	2577.38	0.40+1480.00			
2583.32	2576.12	2577.12	0.40+1500.00			
2583.18	2575.86	2576.86	0.40+1520.00			
2583.04	2575.60	2576.60	0.40+1540.00			
2582.90	2575.34	2576.34	0.40+1560.00			
2582.76	2575.08	2576.08	0.40+1580.00			
2582.62	2574.82	2575.82	0.40+1600.00			
2582.48	2574.56	2575.56	0.40+1620.00			
2582.34	2574.30	2575.30	0.40+1640.00			
2582.20	2574.04	2575.04	0.40+1660.00			
2582.06	2573.78	2574.78	0.40+1680.00			
2581.92	2573.52	2574.52	0.40+1700.00			
2581.78	2573.26	2574.26	0.40+1720.00			
2581.64	2573.00	2574.00	0.40+1740.00			
2581.50	2572.74	2573.74	0.40+1760.00			
2581.36	2572.48	2573.48	0.40+1780.00			
2581.22	2572.22	2573.22	0.40+1800.00			
2581.08	2571.96	2572.96	0.40+1820.00			
2580.94	2571.70	2572.70	0.40+1840.00			
2580.80	2571.44	2572.44	0.40+1860.00			
2580.66	2571.18	2572.18	0.40+1880.00			
2580.52	2570.92	2571.92	0.40+1900.00			
2580.38	2570.66	2571.66	0.40+1920.00			
2580.24	2570.40	2571.40	0.40+1940.00			
2580.10	2570.14	2571.14	0.40+1960.00			
2580.00	2570.00	2571.00	0.40+1980.00			
2580.00	2570.00	2571.00	0.40+2000.00			

TETU AGUTHI WATER PROJECT TETU AGUTHI WATER PROJECT TETU AGUTHI WATER PROJECT  
 SCALE: HOR 1:2000 VERT 1:1000 SCALE: HOR 1:2000 VERT 1:1000 SCALE: HOR 1:2000 VERT 1:1000

LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

NOTES


- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
- COORDINATES ARE BASED ON UTM.
- LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
- GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
- ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

LEGEND:

- PROPOSED PIPELINE
- EXISTING GROUND PROFILE
- PIPE INVERT PROFILE
- EXISTING ROAD
- ◇ AIR VALVE
- ◇◇ DOUBLE AIR VALVE
- ▽ WASHOUT
- WO1 WASHOUT TYPE 1
- WO2 WASHOUT TYPE 2
- DN NOMINAL DIAMETER
- PN NOMINAL PRESSURE
- VB VERTICAL BEND
- HB HORIZONTAL BEND
- ER EXISTING STRUCTURE
- ER EARTH ROAD
- GR GRAVEL ROAD
- CUT

FOR CONSTRUCTION  
 signed GMS

REV	REVISIONS	SIGN	DATE	APPROVED
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	ISSUED FOR CONSTRUCTION	BY		
		CHECKED		

CLIENT  
 THE CHIEF EXECUTIVE OFFICER  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

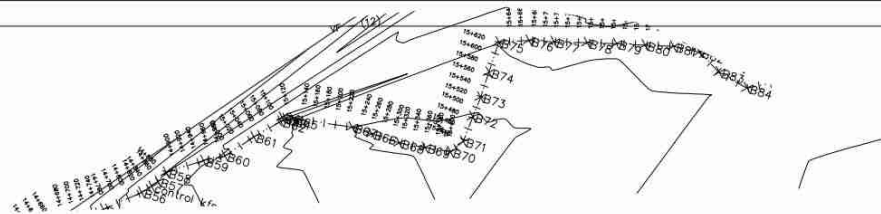
PROJECT  
 DESIGN FOR TETU-AGUTHI RAW WATER MAIN LINE SUPPLY PROJECT

Civil/Structural Engineers  
 CHIEF MANAGER TECHNICAL SERVICES  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

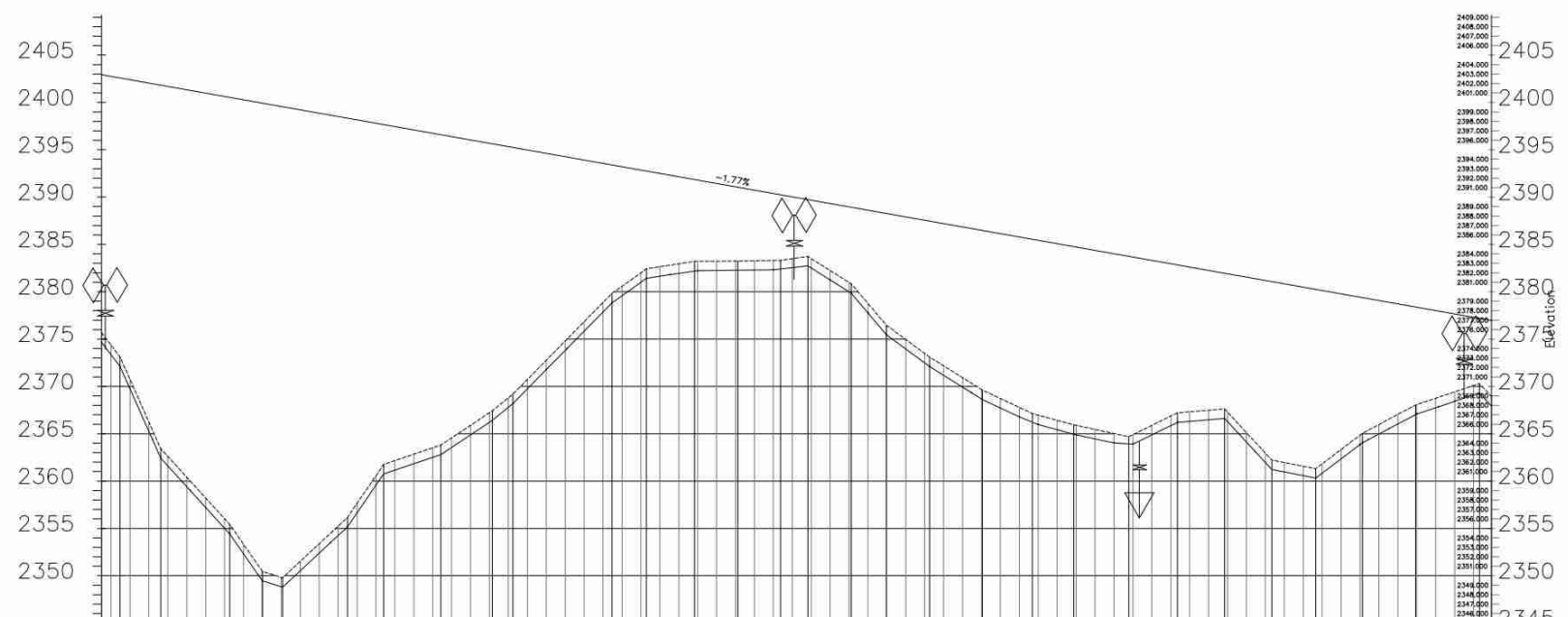
Drawing Title  
 TETU-AGUTHI RAW WATER MAIN LINE FROM  
 CH.10+280.00-11+740  
 SHEET 8 OF 12  
 PLAN AND PROFILE DRAWINGS  
 Designed by K.N.G Drawn by S.W.W  
 Checked by J.M.M Approved by D.N.M  
 Scale 1:4050 Date JANUARY-2024  
 Job No. 1.0 ACAD File: ACADFILENAME  
 PD STATUS: DRAWING No. TWWDA/TAWP/L1 REV







PLAN



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
2400.00	2377.65	2377.65	0.00	2377.65	1.757m <sup>3</sup> /d	DN 355 PN 10 HDPE PIPE
2401.00	2377.65	2377.65	0.00	2377.65		
2402.00	2377.65	2377.65	0.00	2377.65		
2403.00	2377.65	2377.65	0.00	2377.65		
2404.00	2377.65	2377.65	0.00	2377.65		
2405.00	2377.65	2377.65	0.00	2377.65		
2406.00	2377.65	2377.65	0.00	2377.65		
2407.00	2377.65	2377.65	0.00	2377.65		
2408.00	2377.65	2377.65	0.00	2377.65		
2409.00	2377.65	2377.65	0.00	2377.65		
2410.00	2377.65	2377.65	0.00	2377.65		
2411.00	2377.65	2377.65	0.00	2377.65		
2412.00	2377.65	2377.65	0.00	2377.65		
2413.00	2377.65	2377.65	0.00	2377.65		
2414.00	2377.65	2377.65	0.00	2377.65		
2415.00	2377.65	2377.65	0.00	2377.65		
2416.00	2377.65	2377.65	0.00	2377.65		
2417.00	2377.65	2377.65	0.00	2377.65		
2418.00	2377.65	2377.65	0.00	2377.65		
2419.00	2377.65	2377.65	0.00	2377.65		
2420.00	2377.65	2377.65	0.00	2377.65		
2421.00	2377.65	2377.65	0.00	2377.65		
2422.00	2377.65	2377.65	0.00	2377.65		
2423.00	2377.65	2377.65	0.00	2377.65		
2424.00	2377.65	2377.65	0.00	2377.65		
2425.00	2377.65	2377.65	0.00	2377.65		
2426.00	2377.65	2377.65	0.00	2377.65		
2427.00	2377.65	2377.65	0.00	2377.65		
2428.00	2377.65	2377.65	0.00	2377.65		
2429.00	2377.65	2377.65	0.00	2377.65		
2430.00	2377.65	2377.65	0.00	2377.65		
2431.00	2377.65	2377.65	0.00	2377.65		
2432.00	2377.65	2377.65	0.00	2377.65		
2433.00	2377.65	2377.65	0.00	2377.65		
2434.00	2377.65	2377.65	0.00	2377.65		
2435.00	2377.65	2377.65	0.00	2377.65		
2436.00	2377.65	2377.65	0.00	2377.65		
2437.00	2377.65	2377.65	0.00	2377.65		
2437.91	2377.65	2377.65	0.00	2377.65		

TETU AGUTHI WATER PROJECT  
SCALE: HOR 1:2000 VERT 1:1000  
LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

- NOTES
- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  - COORDINATES ARE BASED ON UTM.
  - LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  - GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M, WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  - ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  - IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.11 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

- LEGEND:
- PROPOSED PIPELINE
  - - - EXISTING GROUND PROFILE
  - PIPE INVERT PROFILE
  - EXISTING ROAD
  - ◇ AIR VALVE
  - ◇↑ DAV
  - ◇↑↑ DOUBLE AIR VALVE
  - ▽ WASHOUT
  - ▽↑ WASHOUT TYPE 1
  - ▽↑↑ WASHOUT TYPE 2
  - DN NOMINAL DIAMETER
  - PN NOMINAL PRESSURE
  - VB VERTICAL BEND
  - HB HORIZONTAL BEND
  - ▨ EXISTING STRUCTURE
  - ER EARTH ROAD
  - GR GRAVEL ROAD
  - ▭ CUT

FOR CONSTRUCTION  
Signed: CMTS

REV	REVISIONS	SIGN	DATE	APPROVED
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	ISSUED FOR CONSTRUCTION	BY		
REV		CHECKED		

CLIENT  
THE CHIEF EXECUTIVE OFFICER  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100  
NYERI

PROJECT  
DESIGN FOR TETU-AGUTHI RAW WATER SUPPLY PROJECT

Civil/Structural Engineers  
CHIEF MANAGER TECHNICAL SERVICES  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100  
NYERI

Drawing Title  
TETU-AGUTHI RAW WATER MAIN LINE FROM  
CH.14+680-16+140  
SHEET 11 OF 12  
PLAN AND PROFILE DRAWINGS

Designed by K.N.G	Drawn by S.W.W
Checked by J.M.M	Approved by D.N.M
Scale 1:4050	Date JANUARY-2024
Job No. 1.0	ACAD File: ACADFILENAME
PD STATUS	DRAWING No. TWWDA/TAWP/L1 REV

**NOTES**

1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
2. COORDINATES ARE BASED ON UTM.
3. LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.


**LEGEND:**

- — — — — PROPOSED PIPELINE
- — — — — EXISTING GROUND PROFILE
- — — — — PIPE INVERT PROFILE
- — — — — EXISTING ROAD
- ◇ — AIR VALVE
- ◇ — DOUBLE AIR VALVE
- ▽ — WASHOUT
- WO1 — WASHOUT TYPE 1
- WO2 — WASHOUT TYPE 2
- DN — NOMINAL DIAMETER
- PN — NOMINAL PRESSURE
- VB — VERTICAL BEND
- HB — HORIZONTAL BEND
- ▨ — EXISTING STRUCTURE
- ER — EARTH ROAD
- GR — GRAVEL ROAD
- ▧ — CUT

FOR CONSTRUCTION

Signed: GMS

REV.	REVISIONS	SIGN.	DATE	APPROVED
REV. 1	BY	CHECKED		
REV. 2	BY	CHECKED		
REV. 3	BY	CHECKED		
REV. 4	BY	CHECKED		
REV. 5	ISSUED FOR CONSTRUCTION BY	CHECKED		

CLIENT  
 THE CHIEF EXECUTIVE OFFICER  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

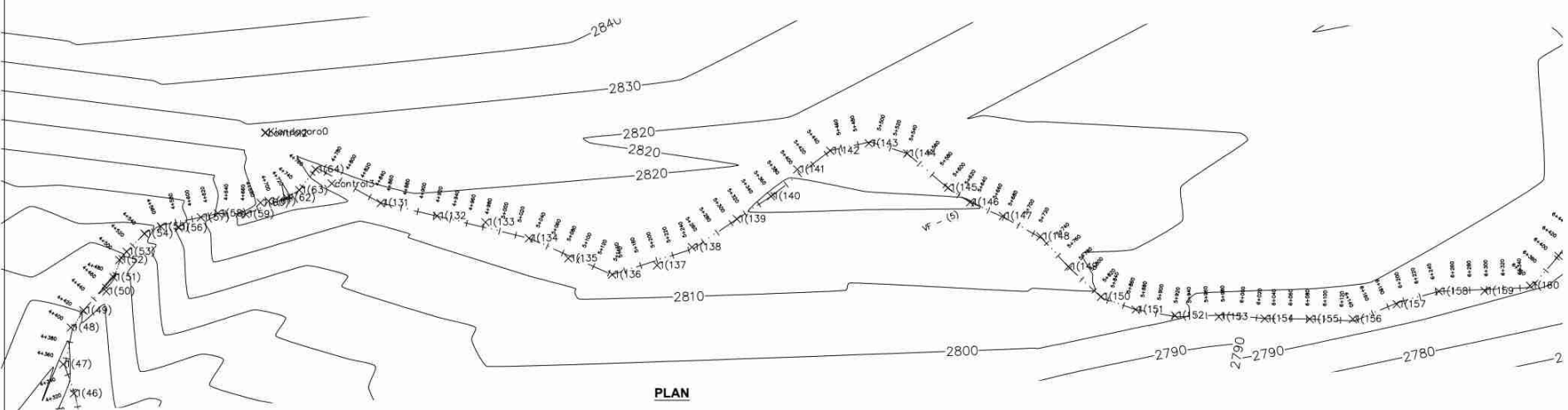
PROJECT  
 DESIGN FOR TETU-AGUTHI WATER SUPPLY PROJECT

Civil/Structural Engineers  
 CHIEF MANAGER TECHNICAL SERVICES  
 TANA WATER WORKS DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100 NYERI

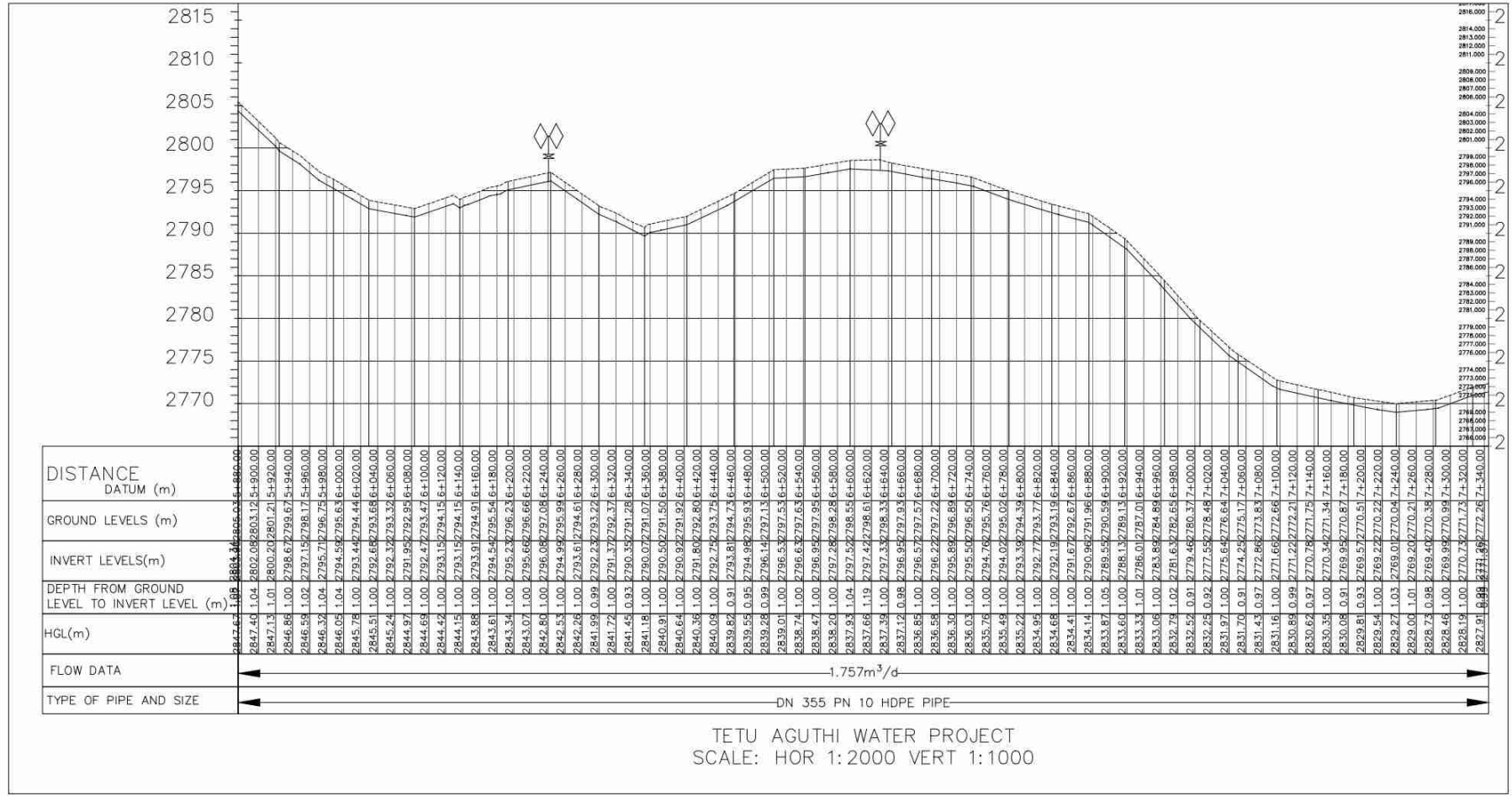
Drawing Title  
 TETU-AGUTHI RAW WATER MAIN LINE FROM

CH. 5+880.00-7+340  
 SHEET 5 OF 12  
 PLAN AND PROFILE DRAWINGS

Designed by J.K.N.G	Drawn by S.W.W
Checked by J.M.M	Approved by D.N.M
Scale 1:4050	Date JANUARY-2024
Job No. 1.0	ACAD File: ACADFILENAME
PD STATUS	DRAWING No. TWWDA/TAWP/L1 REV

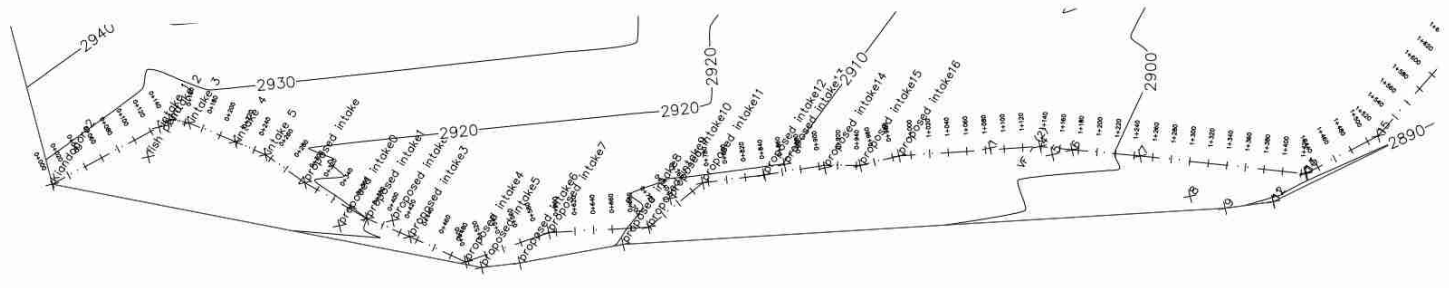


PLAN



LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

TETU AGUTHI WATER PROJECT  
 SCALE: HOR 1:2000 VERT 1:1000

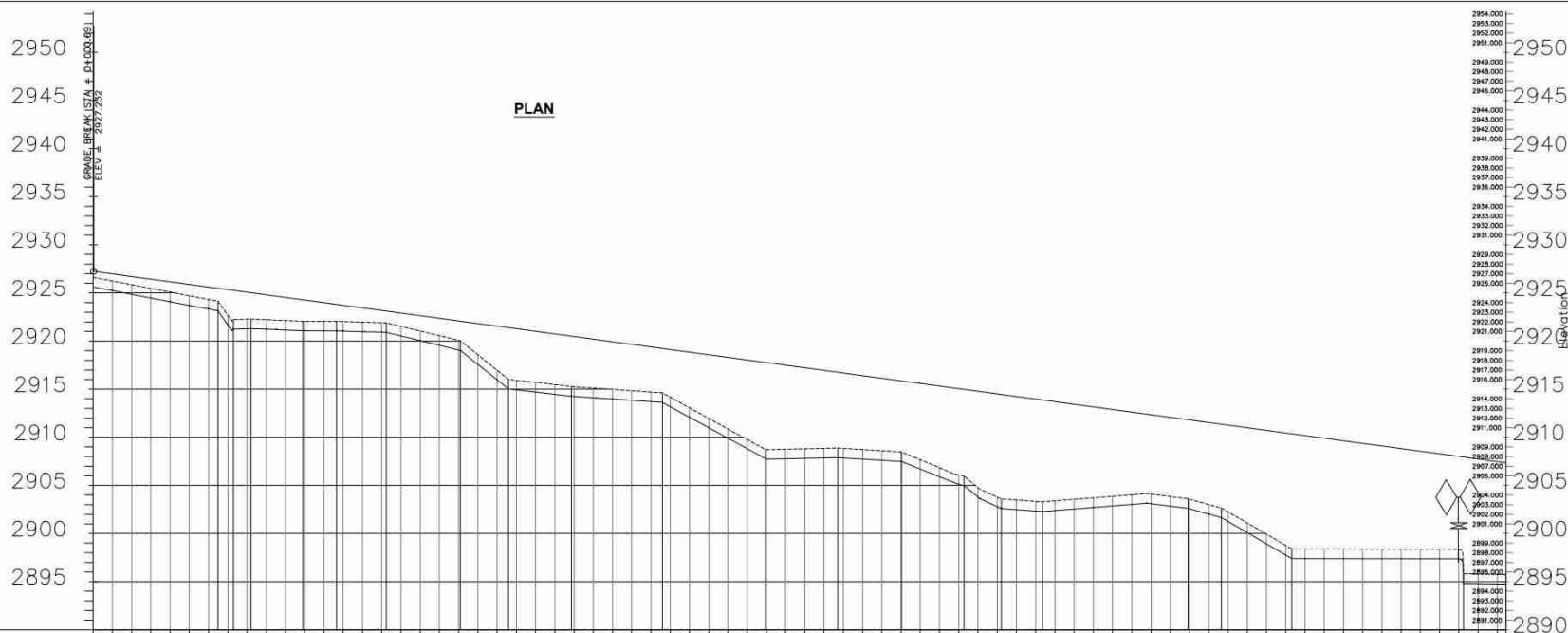


- NOTES**
1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  2. COORDINATES ARE BASED ON UTM.
  3. LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 4.30.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

- LEGEND:**
- PROPOSED PIPELINE
  - - - EXISTING GROUND PROFILE
  - PIPE INVERT PROFILE
  - EXISTING ROAD
  - ◇ AIR VALVE
  - DAV DOUBLE AIR VALVE
  - ▽ WASHOUT
  - WO1 WASHOUT TYPE 1
  - WO2 WASHOUT TYPE 2
  - DN NOMINAL DIAMETER
  - PN NOMINAL PRESSURE
  - VB VERTICAL BEND
  - HB HORIZONTAL BEND
  - EXISTING STRUCTURE
  - ER EARTH ROAD
  - GR GRAVEL ROAD
  - CUT

**FOR CONSTRUCTION**  
Signed CMTS

REV	REVISIONS	SIGN	DATE	APPROVED
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	BY	CHECKED		
REV	ISSUED FOR CONSTRUCTION	BY	CHECKED	



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
0+020.00	2925.24	2925.62	1.00	2926.62	1.1m <sup>3</sup> /d	DN 355 PN 16 HDPE PIPE
0+040.00	2925.85	2926.70	1.00	2927.70		
0+060.00	2925.47	2926.43	1.00	2927.43		
0+080.00	2924.94	2925.16	1.00	2926.16		
0+100.00	2924.71	2925.88	1.00	2926.59		
0+120.00	2924.32	2925.64	1.00	2926.36		
0+140.00	2924.28	2925.35	1.00	2926.33		
0+160.00	2924.22	2924.81	1.00	2926.03		
0+180.00	2924.14	2924.53	1.00	2925.67		
0+200.00	2924.07	2924.26	1.00	2925.33		
0+220.00	2923.92	2924.01	1.00	2925.93		
0+240.00	2923.82	2923.72	1.00	2925.54		
0+260.00	2923.72	2923.45	1.00	2925.17		
0+280.00	2923.61	2923.18	1.00	2924.80		
0+300.00	2923.51	2922.91	1.00	2924.42		
0+320.00	2923.41	2922.64	1.00	2924.05		
0+340.00	2923.31	2922.37	1.00	2923.68		
0+360.00	2923.21	2922.10	1.00	2923.31		
0+380.00	2923.11	2921.83	1.00	2922.94		
0+400.00	2923.01	2921.56	1.00	2922.57		
0+420.00	2922.91	2921.29	1.00	2922.20		
0+440.00	2922.81	2921.02	1.00	2921.83		
0+460.00	2922.71	2920.75	1.00	2921.46		
0+480.00	2922.61	2920.47	1.00	2921.09		
0+500.00	2922.51	2920.20	1.00	2920.72		
0+520.00	2922.41	2920.00	1.00	2920.52		
0+540.00	2922.31	2919.93	1.00	2920.45		
0+560.00	2922.21	2919.86	1.00	2920.38		
0+580.00	2922.11	2919.79	1.00	2920.31		
0+600.00	2922.01	2919.72	1.00	2920.24		
0+620.00	2921.91	2919.65	1.00	2920.17		
0+640.00	2921.81	2919.58	1.00	2920.10		
0+660.00	2921.71	2919.51	1.00	2920.03		
0+680.00	2921.61	2919.44	1.00	2919.96		
0+700.00	2921.51	2919.37	1.00	2919.89		
0+720.00	2921.41	2919.30	1.00	2919.82		
0+740.00	2921.31	2919.23	1.00	2919.75		
0+760.00	2921.21	2919.16	1.00	2919.68		
0+780.00	2921.11	2919.09	1.00	2919.61		
0+800.00	2921.01	2919.02	1.00	2919.54		
0+820.00	2920.91	2918.95	1.00	2919.47		
0+840.00	2920.81	2918.88	1.00	2919.40		
0+860.00	2920.71	2918.81	1.00	2919.33		
0+880.00	2920.61	2918.74	1.00	2919.26		
0+900.00	2920.51	2918.67	1.00	2919.19		
0+920.00	2920.41	2918.60	1.00	2919.12		
0+940.00	2920.31	2918.53	1.00	2919.05		
0+960.00	2920.21	2918.46	1.00	2918.98		
0+980.00	2920.11	2918.39	1.00	2918.91		
0+1000.00	2920.01	2918.32	1.00	2918.84		
0+1020.00	2919.91	2918.25	1.00	2918.77		
0+1040.00	2919.81	2918.18	1.00	2918.70		
0+1060.00	2919.71	2918.11	1.00	2918.63		
0+1080.00	2919.61	2918.04	1.00	2918.56		
0+1100.00	2919.51	2917.97	1.00	2918.49		
0+1120.00	2919.41	2917.90	1.00	2918.42		
0+1140.00	2919.31	2917.83	1.00	2918.35		
0+1160.00	2919.21	2917.76	1.00	2918.28		
0+1180.00	2919.11	2917.69	1.00	2918.21		
0+1200.00	2919.01	2917.62	1.00	2918.14		
0+1220.00	2918.91	2917.55	1.00	2918.07		
0+1240.00	2918.81	2917.48	1.00	2918.00		
0+1260.00	2918.71	2917.41	1.00	2917.93		
0+1280.00	2918.61	2917.34	1.00	2917.86		
0+1300.00	2918.51	2917.27	1.00	2917.79		
0+1320.00	2918.41	2917.20	1.00	2917.72		
0+1340.00	2918.31	2917.13	1.00	2917.65		
0+1360.00	2918.21	2917.06	1.00	2917.58		
0+1380.00	2918.11	2916.99	1.00	2917.51		
0+1400.00	2918.01	2916.92	1.00	2917.44		
0+1420.00	2917.91	2916.85	1.00	2917.37		
0+1440.00	2917.81	2916.78	1.00	2917.30		
0+1460.00	2917.71	2916.71	1.00	2917.23		

TETU AGUTHI WATER PROJECT  
SCALE: HOR 1:2000 VERT 1:1000

LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

**CLIENT**  
THE CHIEF EXECUTIVE OFFICER  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100 NYERI

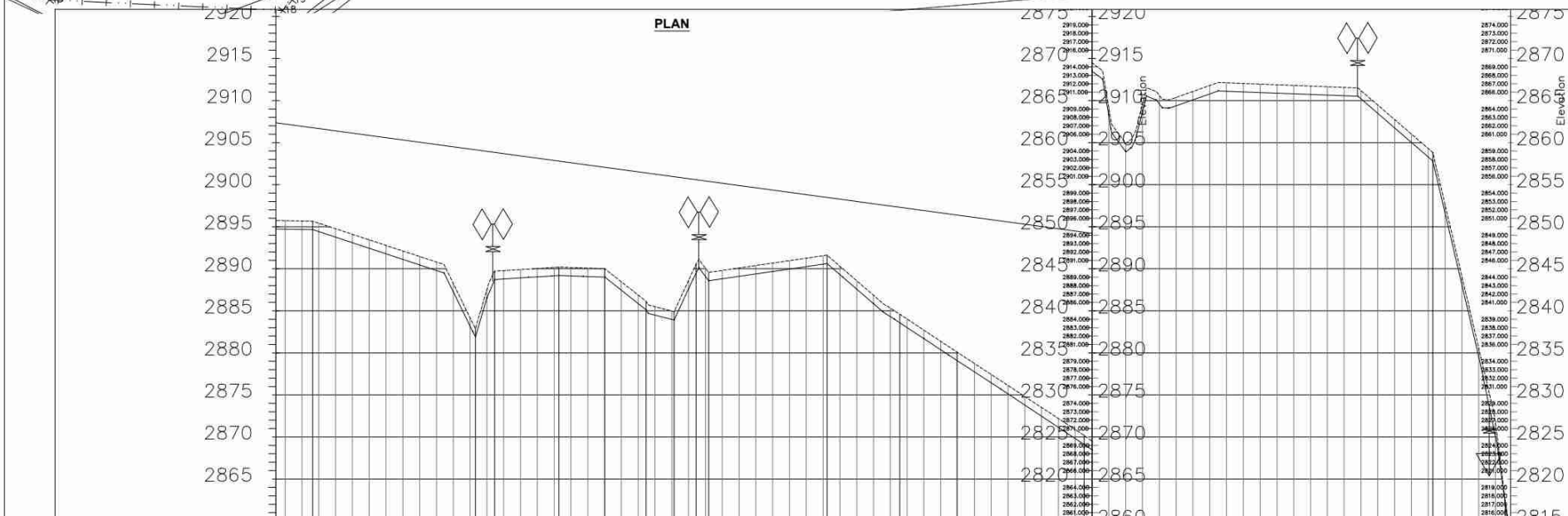
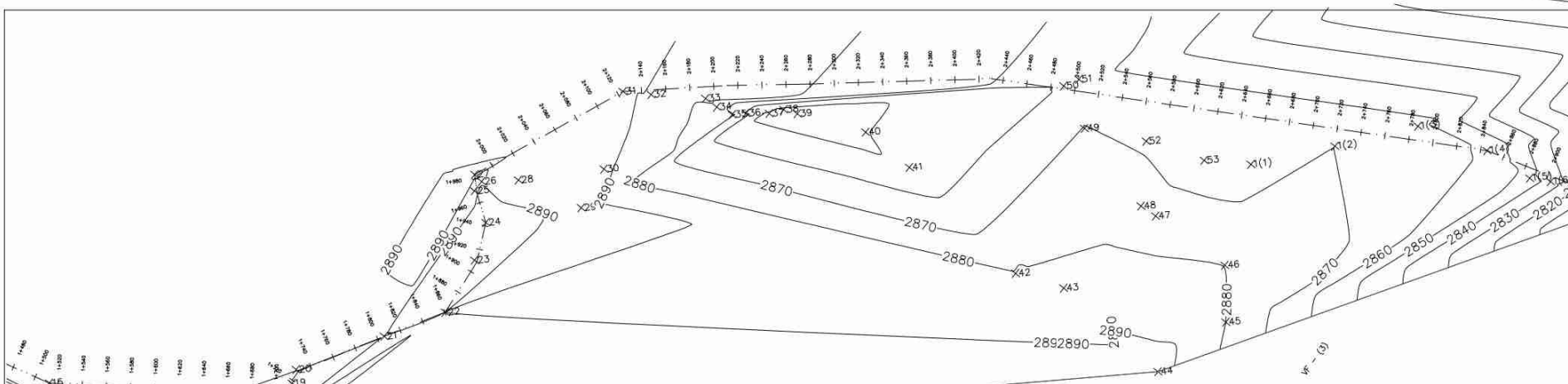
**PROJECT**  
DESIGN FOR TETU AGUTHI WATER SUPPLY PROJECT

**Civil/Structural Engineers**  
CHIEF MANAGER TECHNICAL SERVICES  
TANA WATER WORKS DEVELOPMENT AGENCY  
P. O. BOX 1292-10100 NYERI

Drawing Title  
TETU-AGUTHI RAW WATER MAIN LINE FROM

CH.0+000.00  
SHEET 1 OF 12  
PLAN AND PROFILE DRAWINGS

Designed by K.N.G | Drawn by S.W.W  
Checked by J.M.M | Approved by D.N.M  
Scale 1:4050 | Date JANUARY-2024  
Job No. 1.0 | ACAD File: ACADFILENAME  
PD STATUS | DRAWING No. TWWDA/TAWP/L1 | REV



DISTANCE DATUM (m)	GROUND LEVELS (m)	INVERT LEVELS(m)	DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m)	HGL(m)	FLOW DATA	TYPE OF PIPE AND SIZE
2907.21	2894.74	2887.72	1.00	2887.74	1.757m <sup>3</sup> /d	DN 355 PN 10 HDPE PIPE
2906.94	2894.68	2887.72	1.00	2887.74		
2906.67	2894.42	2887.72	1.00	2887.74		
2906.40	2893.32	2887.72	1.00	2887.74		
2906.13	2893.10	2887.72	1.00	2887.74		
2905.86	2892.44	2887.72	1.00	2887.74		
2905.59	2891.79	2887.72	1.00	2887.74		
2905.32	2891.12	2887.72	1.00	2887.74		
2905.05	2890.46	2887.72	1.00	2887.74		
2904.78	2889.80	2887.72	1.00	2887.74		
2904.51	2889.14	2887.72	1.00	2887.74		
2904.24	2888.48	2887.72	1.00	2887.74		
2903.97	2887.82	2887.72	1.00	2887.74		
2903.70	2887.16	2887.72	1.00	2887.74		
2903.43	2886.50	2887.72	1.00	2887.74		
2903.16	2885.84	2887.72	1.00	2887.74		
2902.89	2885.18	2887.72	1.00	2887.74		
2902.62	2884.52	2887.72	1.00	2887.74		
2902.35	2883.86	2887.72	1.00	2887.74		
2902.08	2883.20	2887.72	1.00	2887.74		
2901.81	2882.54	2887.72	1.00	2887.74		
2901.54	2881.88	2887.72	1.00	2887.74		
2901.27	2881.22	2887.72	1.00	2887.74		
2901.00	2880.56	2887.72	1.00	2887.74		
2900.73	2879.90	2887.72	1.00	2887.74		
2900.46	2879.24	2887.72	1.00	2887.74		
2900.19	2878.58	2887.72	1.00	2887.74		
2900.00	2878.00	2887.72	1.00	2887.74		
2900.18	2878.00	2887.72	1.00	2887.74		
2899.91	2878.00	2887.72	1.00	2887.74		
2899.64	2878.00	2887.72	1.00	2887.74		
2899.38	2878.00	2887.72	1.00	2887.74		
2899.09	2878.00	2887.72	1.00	2887.74		
2898.82	2878.00	2887.72	1.00	2887.74		
2898.55	2878.00	2887.72	1.00	2887.74		
2898.28	2878.00	2887.72	1.00	2887.74		
2898.01	2878.00	2887.72	1.00	2887.74		
2897.74	2878.00	2887.72	1.00	2887.74		
2897.47	2878.00	2887.72	1.00	2887.74		
2897.20	2878.00	2887.72	1.00	2887.74		
2896.93	2878.00	2887.72	1.00	2887.74		
2896.66	2878.00	2887.72	1.00	2887.74		
2896.39	2878.00	2887.72	1.00	2887.74		
2896.12	2878.00	2887.72	1.00	2887.74		
2895.85	2878.00	2887.72	1.00	2887.74		
2895.58	2878.00	2887.72	1.00	2887.74		
2895.31	2878.00	2887.72	1.00	2887.74		
2895.04	2878.00	2887.72	1.00	2887.74		
2894.77	2878.00	2887.72	1.00	2887.74		
2894.50	2878.00	2887.72	1.00	2887.74		
2894.23	2878.00	2887.72	1.00	2887.74		
2893.96	2878.00	2887.72	1.00	2887.74		
2893.69	2878.00	2887.72	1.00	2887.74		
2893.42	2878.00	2887.72	1.00	2887.74		
2893.15	2878.00	2887.72	1.00	2887.74		
2892.88	2878.00	2887.72	1.00	2887.74		
2892.61	2878.00	2887.72	1.00	2887.74		
2892.34	2878.00	2887.72	1.00	2887.74		
2892.07	2878.00	2887.72	1.00	2887.74		
2891.80	2878.00	2887.72	1.00	2887.74		
2891.53	2878.00	2887.72	1.00	2887.74		
2891.26	2878.00	2887.72	1.00	2887.74		
2891.00	2878.00	2887.72	1.00	2887.74		
2890.73	2878.00	2887.72	1.00	2887.74		
2890.46	2878.00	2887.72	1.00	2887.74		
2890.19	2878.00	2887.72	1.00	2887.74		
2890.00	2878.00	2887.72	1.00	2887.74		

TETU AGUTHI WATER PROJECT  
 SCALE: HOR 1:2000 VERT 1:1000  
 LONGITUDINAL SECTION OF TETU-AGUTHI RAW WATER MAIN LINE

- NOTES**
- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  - COORDINATES ARE BASED ON UTM.
  - LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  - GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  - ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  - IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.11 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

- LEGEND:**
- PROPOSED PIPELINE
  - EXISTING GROUND PROFILE
  - PIPE INVERT PROFILE
  - EXISTING ROAD
  - AIR VALVE
  - DOUBLE AIR VALVE
  - WASHOUT
  - WASHOUT TYPE 1
  - WASHOUT TYPE 2
  - NOMINAL DIAMETER
  - NOMINAL PRESSURE
  - VERTICAL BEND
  - HORIZONTAL BEND
  - EXISTING STRUCTURE
  - EARTH ROAD
  - GRAVEL ROAD
  - CUT

**FOR CONSTRUCTION**  
 Signed CMTS

REV	REVISIONS	SIGN	DATE	APPROVED
REV-1	BY	CHECKED		
REV-2	BY	CHECKED		
REV-3	BY	CHECKED		
REV-4	BY	CHECKED		
REV-5	ISSUED FOR CONSTRUCTION	BY		
		CHECKED		

CLIENT  
 THE CHIEF EXECUTIVE OFFICER  
 TANA WATER WORKS  
 DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100  
 NYERI

PROJECT  
 DESIGN FOR TETU-AGUTHI WATER SUPPLY PROJECT

Civil/Structural Engineers  
 CHIEF MANAGER TECHNICAL SERVICES  
 TANA WATER WORKS  
 DEVELOPMENT AGENCY  
 P. O. BOX 1292-10100  
 NYERI

Drawing Title  
 TETU-AGUTHI RAW WATER MAIN LINE FROM  
 CH.1+480.00-2+940  
 SHEET 2 OF 12  
 PLAN AND PROFILE DRAWINGS  
 Designed by K.N.G Drawn by S.W.W  
 Checked by J.M.M Approved by D.N.M  
 Scale 1:4050 Date JANUARY-2024  
 Job No. 1.0 ACAD File: ACADFILENAME  
 PD STATUS: DRAWING No. TTWDA/TAWP/L1 REV REV