

Appendices

APPENDIX

Table A.1 Details of soil and water conservation measures carried out in Olanthichira watershed

Sl.No	Type of Work	Construction material	Dimensions
1	Stone pitched contour bund Type I (without conveyance)	Earth filling and stone pitched using quarried stones, granite, dry rubble, laterite boulders	Top width- 50 cm Bottom width- 140 cm Height- 1m Stone pitched for thickness- 20 cm Total length- 5000 m
2	Stone pitched contour bund Type II (with conveyance)	Earth filling and stone pitched using quarried stones, granite, dry rubble, laterite boulders	Top width- 50 cm Bottom width- 140 cm Height- 1m Stone pitched for thickness- 20 cm Total length- 1500 m
3	Earthen collar bund	Earth fillings	Top width- 45 cm Bottom width- 105 cm Height- 60 cm Total length- 39536 m
4	Agrostological measures	Napier grass, Guinea grass grown on bunds	Total length-21922 m
5	Roof water harvesting structure	Rigid PVC pipes, fittings/accessories-reducer, joint, PVC moulded tank, GI clamp for gutter pipe with clamp, Filter medium-charcoal, Net layer, gravel stones, dry rubble	PVC pipe Diameter- 150 mm, 75 mm Filtering tank- 500 litre capacity With layer thickness of 10mm baby metal, charcoal 20mm, Net layer then 20mm baby metal
6	Retaining wall Type-I (1.5 m height)	Dry rubble masonry using blasted rubble for foundation and superstructure Cement concrete 1:3:6 for top of retaining wall	Foundation: Width- 100 cm Height- 50 cm Superstructure/Wall: Height-1.5 m Bottom width- 80 cm Top width- 50 cm Top of retaining wall: Height/ thickness- 10 cm Width- 50 cm Total length-1188.50 m

Sl.No	Type of Work	Construction material	Dimensions
7	Retaining wall Type-II (2 m height)	Dry rubble masonry using blasted rubble for foundation and superstructure Cement concrete 1:3:6 for top of retaining wall	Foundation: Width- 120 cm Height- 50 cm Superstructure/Wall: Height-2m Bottom width- 100 cm Top width- 50 cm Top of retaining wall: Height/ thickness- 10 cm Width- 50 cm Total length-1363.10 m
8	Dry rubble check dam Type-I (with wing wall)	Dry rubble masonry without concrete for check dam, wing wall and rough stone dry packing for aprons, cement concrete 1:3:6 using 20 mm broken stone for top of check dam and apron	Length-4m Foundation: Width-130 mm Height- 40 mm Check dam: Bottom width- 110 mm Top width- 75 mm Height- 50 mm Top of check dam: Thickness- 10 mm Apron: Width- 90 mm Height-30 mm
9	Dry rubble check dam Type-II (without wing wall)	Dry rubble masonry without concrete for check dam and rough stone dry packing for aprons, cement concrete 1:3:6 using 20 mm broken stone for top of check dam and apron	Length-4m Foundation: Width-130 mm Height- 40 mm Check dam: Bottom width- 110 mm Top width- 75 mm Height- 50 mm Top of check dam: Thickness- 10 mm Apron: Width- 90 mm Height-30 mm
10	Cross check Type-I (Length- 7m)	Dry rubble masonry using blasted rubble for check bunds and cement concrete 1:3:6 using 20 mm stone for top of check bunds	Check bund: Foundation depth/ height-50 cm Width- 75 cm Length- 7 m Cross check (above GL) Height- 10 cm

Sl.No	Type of Work	Construction material	Dimensions
11	Cross check Type-II (Length-6m)	Dry rubble masonry using blasted rubble for check bunds and cement concrete 1:3:6 using 20 mm stone for top of check bunds	Check bund: Foundation depth/ height-50 cm Width- 50 cm Length- 6 m Cross check (above GL) Height- 10 cm
12	Concrete check dam	Cement concrete 1:4:8 using 40 mm broken stone for abutment, wingwall and check dam foundation and superstructure, Dry packing for apron upstream and downstream with cement concrete 1:3:6, Cement concrete 1:2:4 for curtain wall, weir foundation and transverse sill	Abutment: Top width- 50 cm Bottom width- 60 cm Height- 200 cm Length- 680 cm Check dam-Body wall: Top width- 75 cm+150 cm+75 cm Bottom width- 600 cm Thickness- 50 cm Height- 120 cm At weir, Height- 60 cm Weir (two): Width-150 cm Depth- 60 cm Thickness- 90 cm Foundation: Length- 600 cm width- 150 cm Depth- 50 cm Apron: Length- 600 cm Upstream Width- 280 cm Depth- 30 cm Downstream width- 250 cm Depth- 30 cm Dry rubble pitching (before and after apron section) Length- 600 cm Width- 300 cm Depth-30 cm Transverse sill: Height- 20 cm Width- 15cm, Length- 600 cm Curtain wall: Depth- 80 cm Width-15cm, Length- 600 cm

Table A.2 Groundwater level data (m) of three observation wells from 2015 to 2023

Well 1

Year	Jan	Apr	Aug	Oct
2015	13.32	14.4	11.76	11.84
2016	13.38	14.73	12.32	13.7
2017	14.84	15.01	11.74	11.84
2018	9.88	14.64	12.23	12.99
2019	13.97	14.39	11.7	12.73
2020	13.14	14.05	12.13	12.72
2021	13.47	14.41	11.56	12.51
2022	12.2	14.2	11.34	12.31
2023	10.45	14.31	11.66	11.66

Well 2

Year	Jan	Apr	Aug	Oct
2015	7.8	8.5	7	6.6
2016	7.1	8.1	7.1	7.65
2017	7.65	8.73	6.48	6.66
2018	7.4	7.84	6.8	6.94
2019	7.38	8.19	3.33	6.41
2020	7.3	7.8	7.5	6.85
2021	7.38	7.54	5.61	6.83
2022	7.5	7.1	6.75	7.01
2023	7.25	6.3	6.6	7.13

Well 3

Year	Jan	Apr	Aug	Oct
2015	5	4.89	3	3.8
2016	2.4	4.95	4.8	5.6
2017	6.2	5.87	2.94	3.01
2018	4.82	4.88	4.15	4.61
2019	4.29	4.72	2.55	3.18
2020	4.87	4.4	3.75	4.4
2021	4.72	4.51	2.74	3.94
2022	3.77	4.5	1.69	4.45
2023	4.73	4.5	1.69	3.01

Table A.3 Average monthly rainfall (mm) recorded at Manjari station from 2015 to 2023

Year	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
2015	0	0	5	145	289	401	273	213	200.5	231	185.1	50
2016	0	0	0	2	57.2	542.8	419.8	181.5	64	26.1	13	6.4
2017	0	0	6	11.2	138.7	435	394.8	429.8	505.4	248.9	65.2	4.4
2018	0	2.1	2	82.2	287.8	735.9	957.3	911.9	109.5	201.1	222.4	0
2019	0	0	0	57.4	29.6	332.8	497.1	1150.2	292.7	615	78.3	41.4
2020	0	0	15	81	79.6	456.3	400.5	387.6	496.2	67.7	77.9	20.5
2021	83.3	24.2	2	33	326	329.7	464.4	306.9	290.3	451.3	208	19
2022	0	0	5	59	187.5	175.1	669.5	285.3	230	132.3	170.2	31.3
2023	0	0	0	6	17	88.5	512.7	25.5	390.4	343	164.5	19