


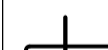











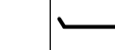






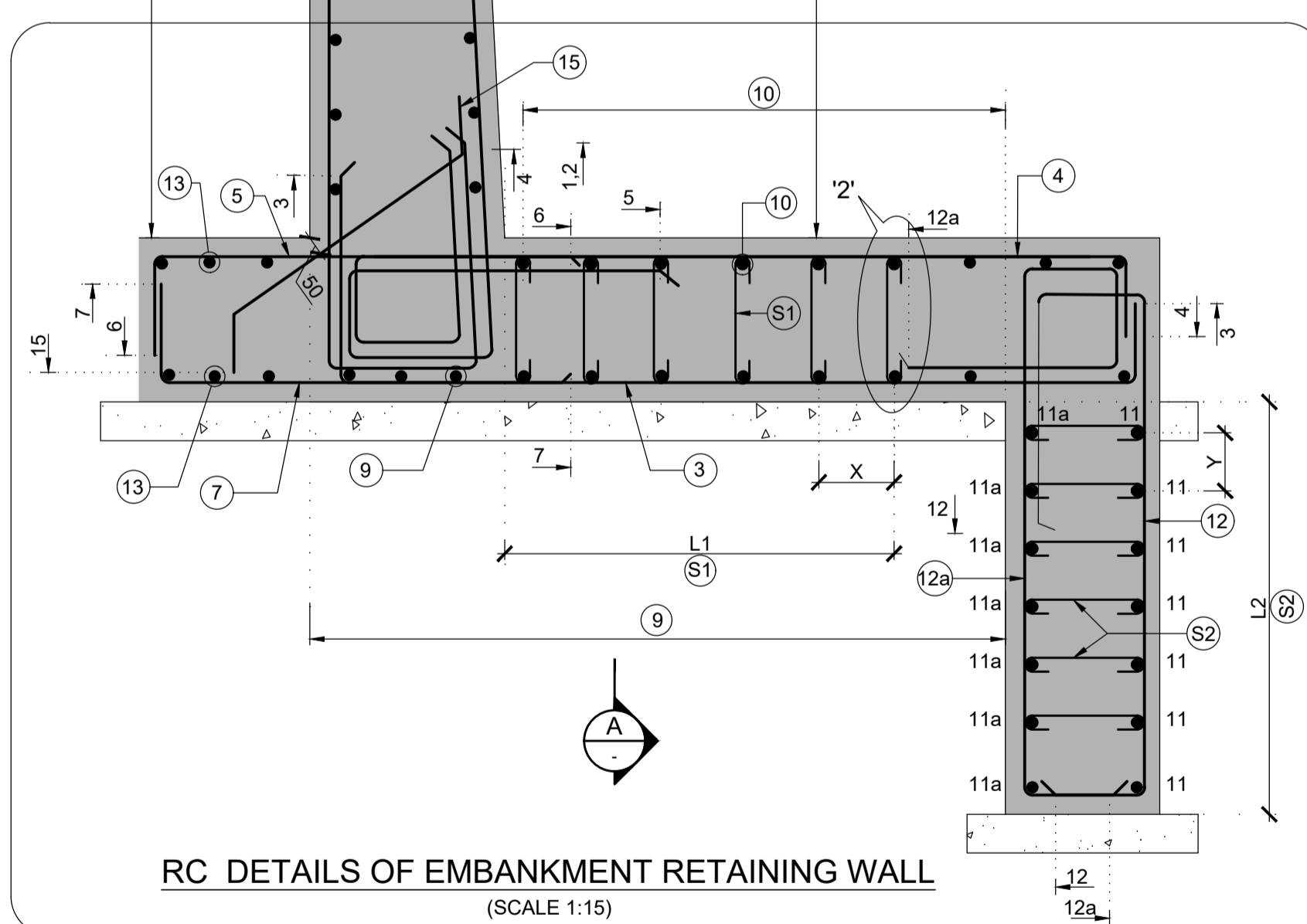
- ## ADDITIONAL NOTES:
7. DEVELOPMENT LENGTH  $L_d = 4 \times \text{TIMES DIA OF BAR}$ .
  8. LAP LENGTH SHALL BE 64 TIMES DIA OF BAR. NOT MORE THAN 50% OF BARS ARE LAPPED IN SAME PLACE.
  9. SAFE BEARING CAPACITY AT BOTTOM OF BASE SLAB SHALL BE CONFIRMED BY DOING PLATE LOAD TEST AND SBC CONFIRMED SHALL BE GREATER THAN THE BEARING PRESSURE.
  10. IN CASE OF ANY EXCAVATION TO BE CARRIED OUT IN THE FRONT SIDE OF RETAINING WALL AT/NEAR TOE SLAB, PRIOR APPROVAL/CONSENT SHALL BE OBTAINED FROM RELEVANT AUTHORITY AND WALL STABILITY NEED TO BE RECHECKED.
  11. HEIGHT 'h'2 NEED TO BE MAINTAINED IN FRONT OF RETAINING WALL. FOR ITS INTENDED LIFE AND FOR CONSIDERATION OF PASSIVE PRESSURE.
  12. SOIL WITH INTERNAL FRICTION  $\phi \geq 30^\circ$  IS CONSIDERED IN DESIGN.
  13. BACKFILL MATERIAL SHALL CONSIST OF GRANULAR MATERIAL OF GW, GP, SW, GROUPS AS PER IS: 1498-1970. IF REQUIRED, DURING CONSTRUCTION ADDITIONAL LINKS TO BE PROVIDED TO PLACE THE VERTICAL BARS IN POSITION.
  14. THE COMPACTION FACTOR OF 0.95 OR ABOVE HAS TO BE ENSURED AT THE BASE OF PCC.
  15. STRICTLY, FOR THE FULL DEVELOPMENT OF PASSIVE EARTH PRESSURE, IT IS NECESSARY THAT DURING THE CONSTRUCTION OF THE WALL, THERE SHOULD BE NO DISTURBANCE TO THE SOIL AGAINST WHICH THE CONCRETE IN THE TOE SLAB IS PLACED.
  16. ALL RCC SURFACES COMING IN CONTACT WITH SOIL SHOULD BEPAINTED WITH BITUMEN OR COAL TAR OF APPROVED QUALITY @ 1.46kg/sqm.
  17. IF ANY AMBIGUITY IS FOUND IN DRAWINGS OR AT SITE SAME SHALL BE REFERRED TO DESIGNERS ENGINEERS NOTICE BEFORE EXECUTION.
  18. EXPANSION JOINT SHALL BE PROVIDED AT MAXIMUM INTERVAL OF 20m. EXPANSION JOINT TO BE FILLED WITH BITUMINOUS IMPREGNATED FIBRE BOARD.
  19. SBC CONSIDERED IN THE DESIGN IS  $20 \text{ t/m}^2$

### SCHEDULE OF DIMENSIONS FOR RETAINING WALL

		GEOMETRIC PROPERTY												
SL.NO	TOTAL HEIGHT (H) (m)	h1	h2	a	b	c	d1	e1	e2	f	D	L1	L2	MAXIMUM BASE PRESSURE t/m <sup>2</sup>
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
1	4.01 TO 4.50	2500	2000	3550	350	1400	450	450	250	500	4400	-	1400	13.42
2	4.51 TO 5.00	3000	2000	4000	400	1550	500	500	250	500	4400	-	1550	13.47
3	5.01 TO 5.50	3500	2000	4300	450	1650	550	550	250	500	4400	-	1650	14.16
4	5.50 TO 6.00	4000	2000	4800	450	1800	600	600	250	500	4400	-	1800	14.00
5	6.01 TO 6.50	4500	2000	5200	500	1950	650	600	250	500	4400	-	1950	14.31
6	6.50 TO 7.00	5000	2000	5550	550	2000	750	650	250	500	4400	-	2000	14.78
7	7.01 TO 7.50	5500	2000	6000	600	2150	800	700	250	500	4400	2400	2150	14.89
8	7.51 TO 8.00	6000	2000	6450	700	2300	900	750	250	500	4400	2600	2300	15.05

### SCHEDULE OF REINFORCEMENT FOR RETAINING WALL

S.NO		TOTAL HEIGHT (H) (m)	REINFORCEMENT DETAILS																		
			①	②	③	④	⑤	⑥	⑦	⑧	8a	⑨	⑩	⑪	11a	⑫	12a	⑬	⑭	⑮	S1 X x Z
1	4.01 TO 4.50	Y20 AT 170	-	Y20 AT 170	Y12 AT 170	Y12 AT 170	Y16 AT 170	Y12 AT 170	Y10 AT 160	Y8 AT 160	Y10 AT 160	Y8 AT 160	Y10 AT 200	Y8 AT 200	Y20 AT 170	Y10 AT 170	Y10 AT 160	Y8 AT 160	Y10 AT 170	-	Y8 AT 200X170
2	4.51 TO 5.00	Y20 AT 160	-	Y20 AT 160	Y12 AT 160	Y12 AT 160	Y16 AT 160	Y12 AT 160	Y12 AT 200	Y10 AT 200	Y12 AT 200	Y10 AT 200	Y10 AT 180	Y8 AT 180	Y20 AT 160	Y10 AT 160	Y12 AT 200	Y10 AT 200	Y10 AT 160	-	Y8 AT 180X160
3	5.01 TO 5.50	Y20 AT 140	-	Y20 AT 140	Y12 AT 140	Y12 AT 140	Y16 AT 140	Y12 AT 140	Y12 AT 190	Y10 AT 190	Y12 AT 190	Y10 AT 190	Y10 AT 160	Y8 AT 160	Y20 AT 140	Y10 AT 140	Y12 AT 190	Y10 AT 190	Y10 AT 140	-	Y8 AT 160X140
4	5.50 TO 6.00	Y25 AT 180	-	Y25 AT 180	Y16 AT 180	Y16 AT 180	Y16 AT 180	Y16 AT 180	Y12 AT 170	Y10 AT 170	Y12 AT 170	Y10 AT 170	Y12 AT 200	Y10 AT 200	Y25 AT 180	Y12 AT 180	Y12 AT 170	Y10 AT 170	Y10 AT 180	-	Y10 AT 200X180
5	6.01 TO 6.50	Y25 AT 150	-	Y25 AT 150	Y16 AT 150	Y16 AT 150	Y16 AT 150	Y16 AT 150	Y12 AT 170	Y10 AT 170	Y12 AT 170	Y10 AT 160	Y12 AT 190	Y10 AT 190	Y25 AT 150	Y12 AT 150	Y12 AT 150	Y10 AT 150	Y10 AT 150	-	Y10 AT 190X150
6	6.50 TO 7.00	Y25 AT 155	-	Y25 AT 155	Y16 AT 155	Y16 AT 155	Y20 AT 155	Y16 AT 155	Y12 AT 160	Y10 AT 160	Y16 AT 160	Y12 AT 240	Y12 AT 170	Y10 AT 170	Y25 AT 155	Y12 AT 155	Y16 AT 240	Y12 AT 240	Y10 AT 155	-	Y10 AT 170X155
7	7.01 TO 7.50	Y25 AT 140	-	Y25 AT 140	Y16 AT 140	Y16 AT 140	Y20 AT 140	Y16 AT 140	Y12 AT 140	Y10 AT 140	Y16 AT 200	Y12 AT 200	Y12 AT 170	Y10 AT 170	Y25 AT 140	Y12 AT 140	Y16 AT 220	Y12 AT 220	Y10 AT 140	Y8 AT 200X140	Y10 AT 170X140
8	7.51 TO 8.00	Y25 AT 130	-	Y25 AT 130	Y16 AT 130	Y16 AT 130	Y20 AT 130	Y16 AT 130	Y12 AT 135	Y10 AT 135	Y16 AT 190	Y12 AT 190	Y12 AT 140	Y10 AT 140	Y25 AT 130	Y12 AT 130	Y16 AT 190	Y12 AT 190	Y10 AT 130	Y8 AT 190X130	Y10 AT 140X130
	SHAPE OF BARS																				



FOR APPROVAL

NOTES :			NOTES :			NOTES :			LEGEND :			REFERENCE DRAWINGS :			REFERENCE DOCUMENTS :			KEY PLAN			STATION BOX KEY PLAN																																																																																																																																																																																																																																																																				
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.			6. PARAMETERS CONSIDERED FOR DESIGN:- a) ANGLE OF INTERNAL BACKFILL - $\phi = 30^{\circ}$ b) COHESION OF BACKFILL - $c = 0$ c) WALL FRICTION ANGLE - $\delta = 10^{\circ}$ d) SATURATED DENSITY OF BACKFILL - $\gamma = 20kN/m^3$									1.TYPICAL DETAILS OF EMBANKMENT RETAINING WALL IN CUTTING PORTION WITH SLOPED EARTH - (h1= 2000mm to 6000mm, h2 = 2000mm) DRAWING NO: 022077-BSRP-CR2-C-AG-ERS-30-1350 2.TYPICAL DETAILS OF EMBANKMENT RETAINING WALL IN CUTTING PORTION WITH SLOPED EARTH - (h1= 1000 to 2000mm, h2 = 1500mm) DRAWING NO: 022077-BSRP-CR2-C-AG-ERS-30-1351 3.TYPICAL DETAILS OF EMBANKMENT RETAINING WALL IN CUTTING PORTION WITHOUT SLOPED EARTH (h1-1000mm TO 2000mm) DRAWING NO: 022077-BSRP-CR2-C-AG-ERS-30-1352			1. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITH SLOPE (h1= 2000 to 6000 mm, h2=2000mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-20-1148 2. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITH SLOPE (h1= 1000 TO 2000 mm, h2=1500mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-20-1149 3. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITHOUT SLOPE (h1= 1000 TO 2000 mm, h2=1500mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-20-1150 4. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITHOUT SLOPE (h1= 2000 TO 6000 mm, h2=2000mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-20-1153																																																																																																																																																																																																																																																																										
REV	DATE	BRIEF DESCRIPTION	CONTRACTOR : 			QUALITY ASSURANCE The responsibility of control, check and verification of accuracy, correctness, completeness, integration and full compliance of Contract provisions in respect of design analysis and drawing rests with Design & Build Contractor.			GENERAL CONSULTANTS			EMPLOYER :  RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED  GENERAL CONSULTANTS :  AECOM @egis wsp AECOM-EGIS-WSP			PROJECT : <b>BENGALURU SUBURBAN RAILWAY PROJECT (BSRP)</b> <b>K-RIDE CORRIDOR - 2</b>  DRAWING TITLE : TYPICAL DETAILS OF EMBANKMENT RETAINING WALL IN CUTTING PORTION WITHOUT SLOPED EARTH (h1-2000mm TO 6000mm)																																																																																																																																																																																																																																																																										
			DETAILED DESIGN CONSULTANT (DDC):  STUP Consultants Pvt. Ltd. G/F & Dev. Jambhulkar Arcade Mall Road, Bengaluru-560052 Tel: 080-40337979 Email: bangalore@stupsystem.com www.stupsystem.com			PROOF CONSULTANT (PC):  Indian Institute of Technology Madras IT P.O., Chennai 600 036 INDIA			SIGN									NAME			SIGN			PROJECT DIRECTOR			K RIDE			DESIGNATION			SIGN			DATE																																																																																																																																																																																																																																																					
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