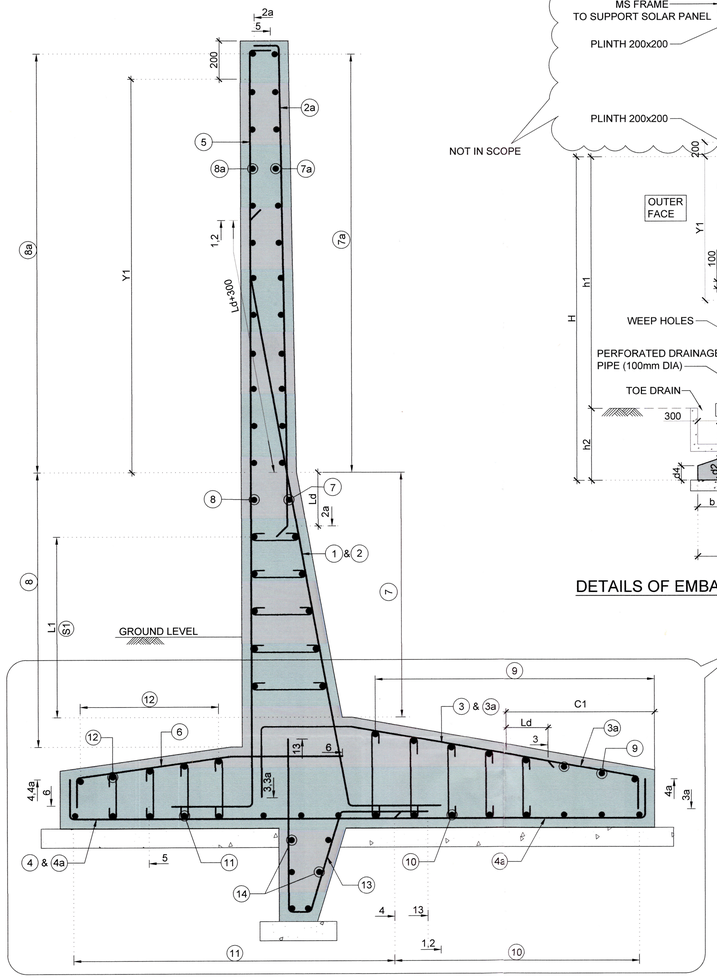
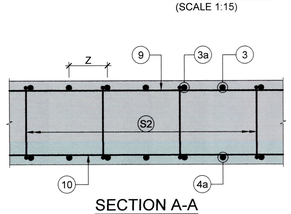


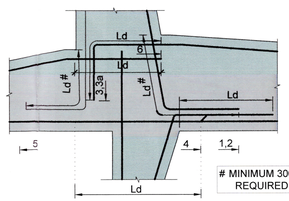
RC DETAILS EMBANKMENT RETAINING WALL

(SCALE 1:15)



SECTION A-A

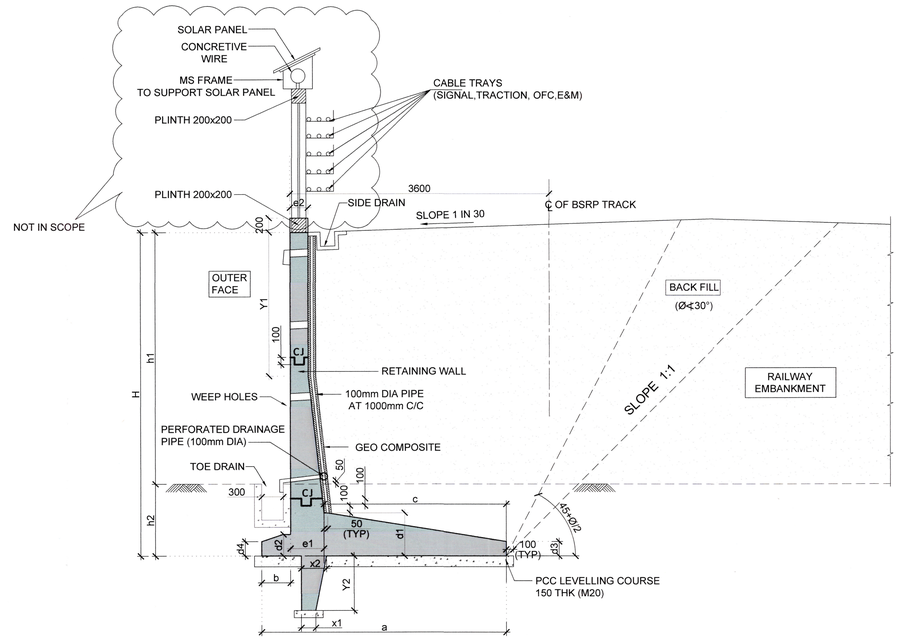
(SCALE 1:15)



MINIMUM 300mm LENGTH IS REQUIRED AT BOTTOM FACE.

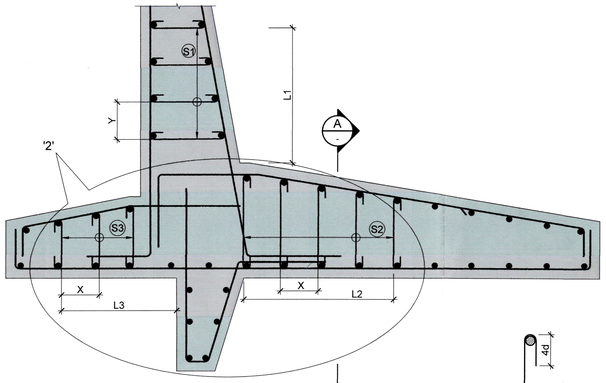
DETAIL -'2'

(SHOWING DEVELOPMENT LENGTH OF BARS)
(SCALE 1:15)



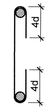
DETAILS OF EMBANKMENT RETAINING WALL (WITHOUT SLOPE)

(SCALE 1:40)



DETAIL -'1'

(SHEAR LINKS (S1,S2,S3)
(SCALE 1:15)



DETAIL - '3'

(d - DIA OF SHEAR LINKS)
(SCALE 1:15)

ADDITIONAL NOTES:

7. DEVELOPMENT LENGTH Ld = 46TIMES 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 'h2' NEED TO BE MAINTAINED IN FRONT OF RETAINING WALL FOR ITS INTENDED LIFE.
12. SOIL WITH INTERNAL FRICTION Φ 30° IS CONSIDERED IN DESIGN.
13. BACKFILL MATERIAL SHALL CONSIST OF GRANULAR MATERIAL OF GW, GP,SW, GROUPS AS PER IS:1498-1970.
14. IF REQUIRED, DURING CONSTRUCTION ADDITIONAL LINKS TO BE PROVIDED TO PLACE THE VERTICAL BARS IN POSITION.
15. THE COMPACTION FACTOR OF 0.95 OR ABOVE HAS TO BE ENSURED AT THE BASE OF PCC.
16. 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.
17. ALL RCC SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COAL TAR OF APPROVED QUALITY @ 1.46kg/sqm.
18. IF ANY AMBIGUITY IS FOUND IN DRAWINGS OR AT SITE, THE SAME SHALL BE BROUGHT TO DESIGNER'S ENGINEER'S NOTICE BEFORE EXECUTION.
19. EXPANSION JOINT SHALL BE PROVIDED AT MAXIMUM INTERVAL OF 20m. EXPANSION JOINT TO BE FILLED WITH BITUMINOUS IMPREGNATED FIBRE BOARD.
20. SBC CONSIDERED IN THE DESIGN FOR h1 = 5.5 to 7.5m IS 30 t/m²
21. SBC CONSIDERED IN THE DESIGN FOR h1 = 8.0 to 8.5m IS 35 t/m²
22. SBC CONSIDERED IN THE DESIGN FOR h1 = 9.0 to 10m IS 40 t/m²

SCHEDULE OF DIMENSIONS FOR RETAINING WALL

SL.NO	TOTAL HEIGHT (H) (m)	GEOMETRIC PROPERTY																				MAXIMUM BASE PRESSURE t/m²
		h1	h2	a	b	c	d1	d2	d3	d4	e1	e2	D	Y1	Y2	X1	X2	L1	L2	L3	C1	
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
1	6.51 TO 7.00	5500	1500	4500	400	3300	750	300	200	200	800	250	3600	2000	-	-	-	-	-	-	1410	25.97
2	7.01 TO 7.50	6000	1500	5000	400	3750	800	300	200	200	850	250	3600	2000	-	-	-	-	-	-	1530	26.91
3	7.51 TO 8.00	6500	1500	5500	400	4100	950	300	200	200	1000	250	3600	2000	-	-	-	-	-	-	1640	28.11
4	8.01 TO 8.50	7000	1500	6200	400	4750	950	300	200	200	1050	250	3600	2000	-	-	-	-	-	-	1800	28.45
5	8.51 TO 9.00	7500	1500	6650	400	5150	1000	300	200	200	1100	250	3600	2000	-	-	-	-	-	-	1640	29.86
6	9.01 TO 10.00	8000	2000	7500	400	5900	1200	300	200	200	1200	250	3600	2000	-	-	-	-	-	-	1470	32.86
7	10.01 TO 10.50	8500	2000	8000	400	6300	1350	300	200	200	1300	250	3600	2000	-	-	-	-	4650	-	1700	34.14
8	10.51 TO 11.00	9000	2000	8400	400	6600	1450	300	200	200	1400	250	3600	2000	-	-	-	1600	5000	-	1650	35.72
9	11.01 TO 11.50	9500	2000	8800	400	6950	1500	300	250	200	1450	250	3600	2000	-	-	-	1800	5400	-	1450	37.29
10	11.51 TO 12.00	10000	2000	9200	400	7300	1600	300	300	200	1500	250	3600	2000	-	-	-	2100	5650	-	1530	38.87

SCHEDULE OF REINFORCEMENT FOR RETAINING WALL

S.NO	TOTAL HEIGHT (H) (m)	REINFORCEMENT DETAILS																					
		①	②	②a	③	③a	④	④a	⑤	⑥	⑦	⑦a	⑧	⑧a	⑨	⑩	⑪	⑫	⑬	⑭	S1 Y x Z	S2 X x Z	S3 X x Z
1	6.51 TO 7.00	Y16 AT 240	Y25 AT 240	Y16 AT 240	Y20 AT 240	Y25 AT 240	-	Y16 AT 240	Y12 AT 240	Y10 AT 240	Y16 AT 220	Y8 AT 200	Y12 AT 220	Y8 AT 200	Y16 AT 240	Y12 AT 240	Y8 AT 160	Y8 AT 160	-	-	-	-	-
2	7.01 TO 7.50	Y16 AT 220	Y25 AT 220	Y16 AT 220	Y20 AT 220	Y25 AT 220	-	Y16 AT 220	Y12 AT 220	Y10 AT 220	Y16 AT 200	Y8 AT 200	Y12 AT 200	Y8 AT 200	Y16 AT 220	Y12 AT 220	Y8 AT 160	Y8 AT 160	-	-	-	-	-
3	7.51 TO 8.00	Y25 AT 280	Y25 AT 280	Y25 AT 280	Y25 AT 280	Y32 AT 280	-	Y16 AT 280	Y16 AT 280	Y10 AT 280	Y16 AT 170	Y8 AT 200	Y12 AT 170	Y8 AT 200	Y16 AT 180	Y12 AT 180	Y8 AT 160	Y8 AT 160	-	-	-	-	-
4	8.01 TO 8.50	Y25 AT 260	Y25 AT 260	Y25 AT 260	Y25 AT 260	Y32 AT 260	-	Y16 AT 260	Y16 AT 260	Y10 AT 260	Y16 AT 160	Y8 AT 200	Y12 AT 160	Y8 AT 200	Y16 AT 180	Y12 AT 180	Y8 AT 160	Y8 AT 160	-	-	-	-	-
5	8.51 TO 9.00	Y25 AT 280	Y32 AT 280	Y25 AT 280	Y32 AT 280	Y32 AT 280	-	Y16 AT 280	Y16 AT 280	Y10 AT 280	Y16 AT 150	Y8 AT 200	Y12 AT 150	Y8 AT 200	Y16 AT 160	Y12 AT 160	Y8 AT 160	Y8 AT 160	-	-	-	-	-
6	9.01 TO 10.00	Y25 AT 270	Y36 AT 270	Y25 AT 270	Y32 AT 270	Y36 AT 270	-	Y16 AT 270	Y16 AT 270	Y10 AT 270	Y16 AT 140	Y8 AT 200	Y12 AT 140	Y8 AT 200	Y16 AT 140	Y12 AT 140	Y8 AT 160	Y8 AT 160	-	-	-	-	-
7	10.01 TO 10.50	Y25 AT 260	Y36 AT 260	Y25 AT 260	Y32 AT 260	Y36 AT 260	-	Y16 AT 260	Y16 AT 260	Y10 AT 260	Y20 AT 200	Y8 AT 200	Y16 AT 200	Y8 AT 200	Y20 AT 200	Y16 AT 200	Y10 AT 250	Y8 AT 250	-	-	-	Y8 AT 200x260	-
8	10.51 TO 11.00	Y25 AT 250	Y36 AT 250	Y25 AT 250	Y32 AT 250	Y36 AT 250	-	Y20 AT 250	Y16 AT 250	Y10 AT 250	Y20 AT 180	Y8 AT 200	Y16 AT 180	Y8 AT 200	Y20 AT 180	Y16 AT 180	Y10 AT 250	Y8 AT 250	-	-	Y8 AT 180x250	Y8 AT 180x250	-
9	11.01 TO 11.50	Y32 AT 270	Y36 AT 270	Y32 AT 270	Y36 AT 270	Y36 AT 270	-	Y20 AT 270	Y20 AT 270	Y10 AT 270	Y20 AT 180	Y8 AT 200	Y16 AT 180	Y8 AT 200	Y20 AT 170	Y16 AT 170	Y10 AT 250	Y8 AT 250	-	-	Y8 AT 180x270	Y8 AT 170x270	-
10	11.51 TO 12.00	Y32 AT 260	Y36 AT 260	Y32 AT 260	Y36 AT 260	Y36 AT 260	-	Y20 AT 260	Y20 AT 260	Y10 AT 260	Y20 AT 180	Y8 AT 200	Y16 AT 180	Y8 AT 200	Y20 AT 170	Y16 AT 170	Y10 AT 250	Y8 AT 250	-	-	Y8 AT 180x260	Y8 AT 170x260	-
	SHAPE OF BARS																				VARIES	VARIES 3' VARIES	VARIES

Structural Design Proof - Checked and Found Satisfactory

Dr. A. MEHER PRASAD
Professor
Department of Civil Engineering
Indian Institute of Technology Madras
Chennai - 600 036, India

GOOD FOR CONSTRUCTION

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. CONCRETE GRADE SHALL BE M35
4. REINFORCEMENT GRADE SHALL BE Fe500.

NOTES :

5. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50mm.
6. PARAMETERS CONSIDERED FOR DESIGN:-
   a) ANGLE OF INTERNAL BACKFILL - Ø = 30°
   b) COHESION OF BACKFILL - C = 0
   c) WALL FRICTION ANGLE - δ = 10°
   d) SATURATED DENSITY OF BACKFILL - γ = 20kN/m²

LEGEND :

REFERENCE DRAWINGS :

1. TYPICAL DETAILS OF EMBANKMENT RETAINING WALL WITHOUT SLOPE - (h1-1000mm TO 5000mm, h2=1500mm) DRAWING NO: O22077-BSRP-CR2-C-AG-ERS-30-1343

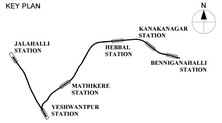
REFERENCE DOCUMENTS :

DESIGN NOTE OF EMBANKMENT RETAINING WALL FOR FILLING PORTION WITHOUT SLOPE
1. (h1-1000mm TO 5000mm) DOC-BSRP-CR2AG-DGN-GEN-30-1141
2. (h1-5500mm TO 10000mm) DOC-BSRP-CR2AG-DGN-GEN-30-1142

ABBREVIATIONS :

℄	-	CENTER LINE
TYP	-	TYPICAL
THK.	-	THICKNESS
DN	-	DOWN

KEY PLAN



STATION BOX KEY PLAN

L&T Ltd no.: 3255

REV	DATE	BRIEF DESCRIPTION
0	09.08.2024	GOOD FOR CONSTRUCTION-REVISED AS PER GC'S LETTER NO 2773 DATED 02.08.2024
B	04.06.2024	GOOD FOR CONSTRUCTION BASED ON PDC LETTER NO 1858 DATED 30.03.2024
A	05.03.2024	FOR APPROVAL AS PER CROSS - SECTION RECEIVED FROM GC

CONTRACTOR : TRANSPORTATION INFRASTRUCTURE IC EDRC-SPECIAL BRIDGES

DETAILED DESIGN CONSULTANT (DDC) : STUP Consultants Pvt. Ltd. JP & Devi Jambulokeshwar Arcade # 66, 4th Floor, Millers Road, Bengaluru-560052. Phone: 080-41128000 Email: bangalore@assystem.com www.assystem.com

L&T CONSTRUCTION EDRC-SPECIAL BRIDGES - TIC

PROOF CONSULTANT (PC) : Indian Institute of Technology Madras IIT P.O, Chennai 603 036 INDIA

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.

	DDC			PC	Contractor
SIGN	Devendra	NBabu	GGowth		
DATE	09.08.2024	09.08.2024	09.08.2024		09.08.2024
NAME	DEVENDRA	BABU NS	GOWTHAM		K.V.MAHADEV
	PREPARED BY	CHECKED BY	APPROVED BY	APPROVED BY	ISSUED BY

GENERAL CONSULTANTS

	CHECKED & APPROVED		COUNTER SIGN
	NAME	SIGN	PROJECT DIRECTOR
CIVIL:GAD			SIGN
CIVIL:ALIGNMENT			NAME M KUMAR
CIVIL:STRUCTURAL	S k		DATE 16/09/24
CIVIL:GEOTECH			

K RIDE

	DESIGNATION	SIGN	DATE
CIVIL:GAD			
CIVIL:ALIGNMENT			
CIVIL:STRUCTURAL	GM/CIVIL/DESIGN		17/09/24

EMPLOYER : RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED

GENERAL CONSULTANTS : AECOM egis WSP AECOM-EGIS-WSP

PROJECT : **BENGALURU SUBURBAN RAILWAY PROJECT (BSRP) K-RIDE CORRIDOR - 2**

DRAWING TITLE : TYPICAL DETAILS OF EMBANKMENT RETAINING WALL FOR FILLING PORTION WITHOUT SLOPE - (h1-5500 TO 10000mm)

DRAWING NO. : O22077-BSRP-CR2-C-AG-ERS-30-1344

REVISION : 0

DWG STATUS : C

SCALE : SCALE

DATE : 09.08.2024

PRELIMINARY DWG (P, DEFINITIVE DWG (D), CONSTRUCTION DWG (C), AS BUILT DWG (B), SHOP DWG (S), MANUFACTURED DWG (M)

SHEET SIZE - A1

FILENAME