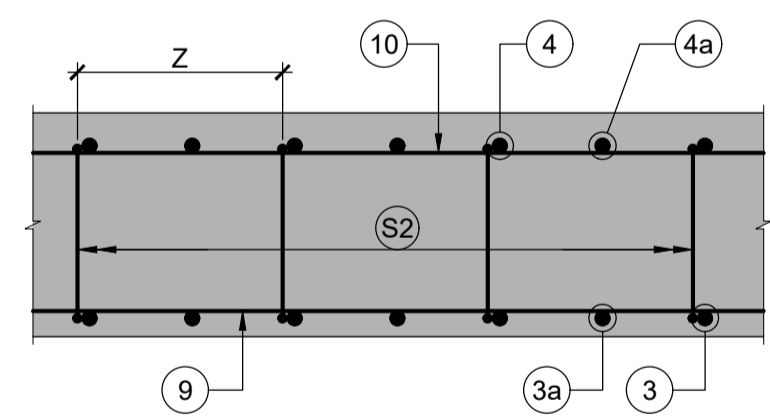
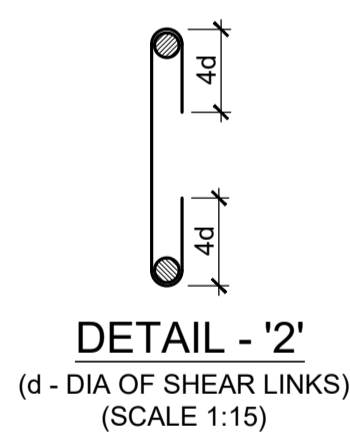


RC DETAILS OF EMBANKMENT RETAINING WALL  
(SCALE 1:15)

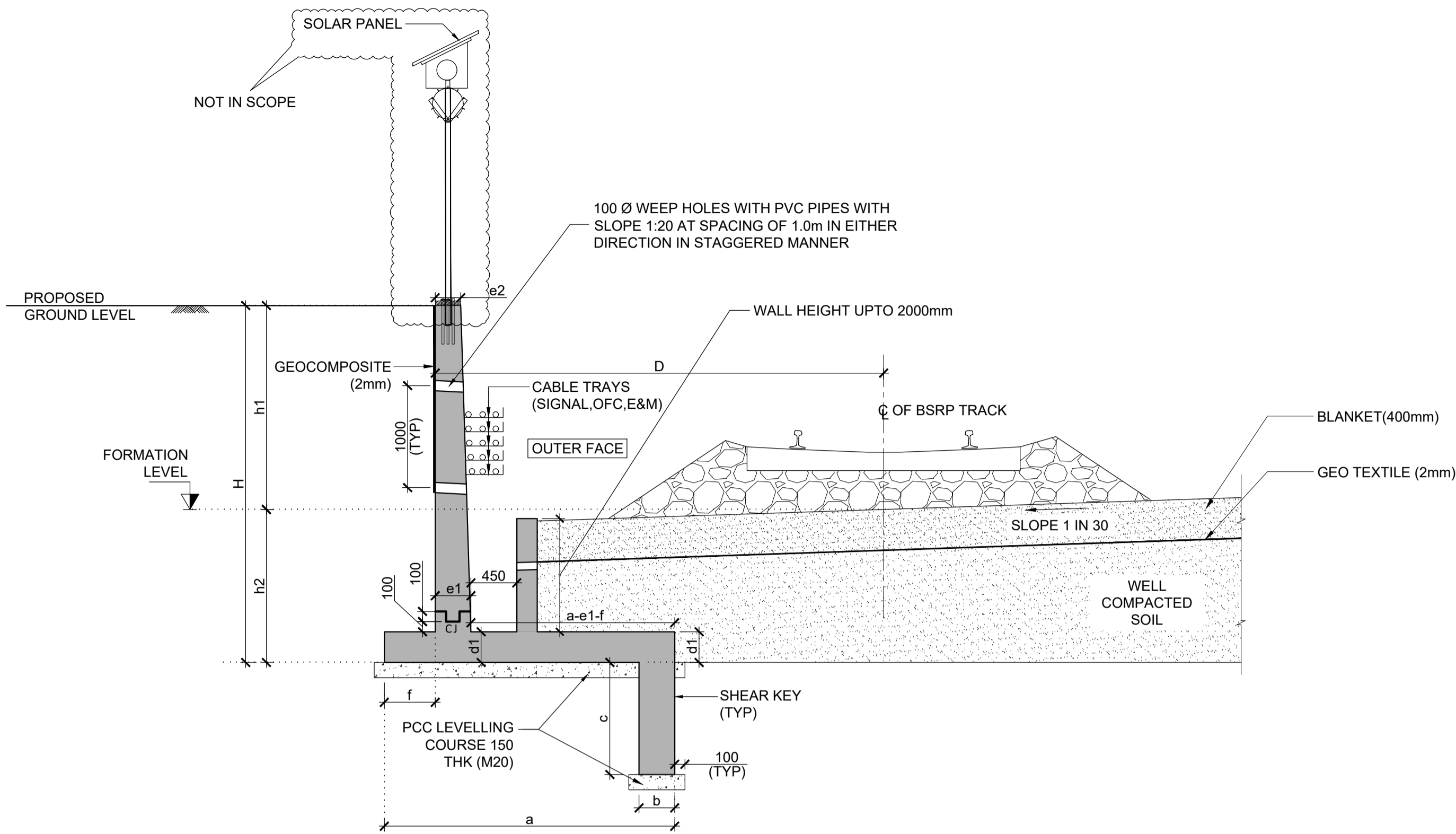


SECTION A-A  
(SCALE 1:15)



DETAIL - '2'  
(SCALE 1:15)

ABBREVIATIONS :  
C - CENTER LINE  
TYP - TYPICAL  
THK - THICKNESS  
DN - DOWN




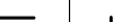

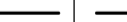

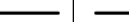








DETAILS OF EMBANKMENT RETAINING WALL  
(SCALE 1:40)

#### SCHEDULE OF DIMENSIONS FOR RETAINING WALL

SL.NO	TOTAL HEIGHT (H) (m)	GEOMETRIC PROPERTY													MAXIMUM BASE PRESSURE t/m <sup>2</sup>
		h1	h2	a	b	c	d1	e1	e2	f	D	L1	L2	L3	
1	2.00 TO 2.50	1000	1500	1700	250	650	300	300	250	500	4400	-	-	-	14.23
2	2.51 TO 3.00	1500	1500	2100	250	800	350	350	250	500	4400	-	-	-	13.37
3	3.01 TO 3.50	2000	1500	2500	350	1000	350	400	250	500	4400	-	-	-	13.14

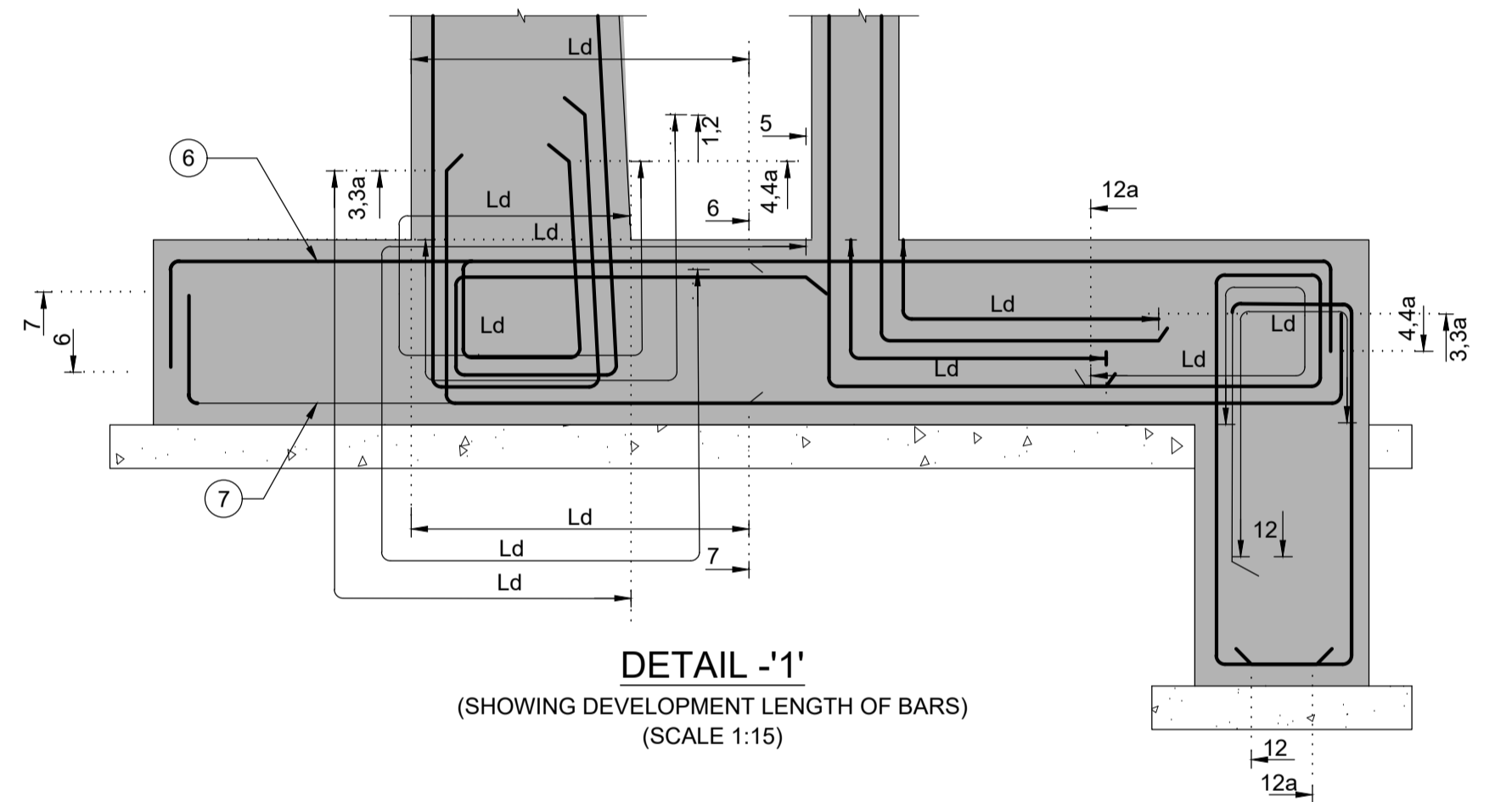
#### SCHEDULE OF REINFORCEMENT FOR RETAINING WALL

S.NO	TOTAL HEIGHT (H) (m)	REINFORCEMENT DETAILS																					
		①	②	③	③a	④	④a	⑤	⑥	⑦	⑧	⑧a	⑨	⑩	⑪	⑪a	⑫	⑫a	⑬	⑭	Ⓢ1 Y x Z	Ⓢ2 X x Z	Ⓢ3 Y x Z
1	2.00 TO 2.50	Y16 AT 230	-	Y12 AT 230	-	Y10 AT 230	-	Y10 AT 230	Y12 AT 230	Y10 AT 230	Y10 AT 240	Y8 AT 240	Y10 AT 240	Y8 AT 240	Y10 AT 240	Y8 AT 240	Y12 AT 230	Y10 AT 230	Y10 AT 240	Y8 AT 240	-	-	-
2	2.51 TO 3.00	Y16 AT 180	-	Y12 AT 180	-	Y10 AT 180	-	Y10 AT 180	Y12 AT 180	Y10 AT 180	Y10 AT 220	Y8 AT 220	Y10 AT 220	Y8 AT 220	Y10 AT 240	Y8 AT 240	Y12 AT 180	Y10 AT 180	Y10 AT 220	Y8 AT 220	-	-	-
3	3.01 TO 3.50	Y16 AT 160	-	Y16 AT 160	-	Y10 AT 160	-	Y10 AT 160	Y12 AT 160	Y10 AT 160	Y10 AT 190	Y8 AT 190	Y10 AT 190	Y8 AT 190	Y10 AT 220	Y8 AT 220	Y12 AT 160	Y10 AT 160	Y10 AT 220	Y8 AT 220	-	-	-
SHAPE OF BARS																							

Y10 BAR IS USED FOR WALL HEIGHT UPTO 1000  
Y12 BAR IS USED FOR WALL HEIGHT FROM 1001 TO 2000

#### ADDITIONAL NOTES:

- DEVELOPMENT LENGTH  $L_d = 46 \text{ TIMES DIA OF BAR}$ .
- LAP LENGTH SHALL BE 64 TIMES DIA OF BAR. NOT MORE THAN 50% OF BARS ARE LAPPED IN SAME PLACE.
- 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.
- 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.
- HEIGHT 'h2' NEED TO BE MAINTAINED IN FRONT OF RETAINING WALL FOR ITS INTENDED LIFE AND FOR CONSIDERATION OF PASSIVE PRESSURE.
- SOIL WITH INTERNAL FRICTION  $\phi 30^\circ$  IS CONSIDERED IN DESIGN.
- 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.
- THE COMPACTION FACTOR OF 0.95 OR ABOVE HAS TO BE ENSURED AT THE BASE OF PCC.
- 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.
- ALL RCC SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COAL TAR OF APPROVED QUALITY @ 1.46kg/sqm.
- IF ANY AMBIGUITY IS FOUND IN DRAWINGS OR AT SITE SAME SHALL BE BROUGHT TO DESIGNERS' ENGINEERS NOTICE BEFORE EXECUTION.
- EXPANSION JOINT SHALL BE PROVIDED AT MAXIMUM INTERVAL OF 20m. EXPANSION JOINT TO BE FILLED WITH BITUMINOUS IMPREGNATED FIBRE BOARD.
- SBC CONSIDERED IN THE DESIGN IS 20 t/m<sup>2</sup>.



DETAIL - '1'  
(SHOWING DEVELOPMENT LENGTH OF BARS)  
(SCALE 1:15)

GOOD FOR CONSTRUCTION

<b>NOTES :</b> 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.		<b>NOTES :</b> 5. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50mm. 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 - $\gamma = 20 \text{ kN/m}^3$		<b>LEGEND :</b>		<b>REFERENCE DRAWINGS :</b> 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= 2000mm to 6000mm, h2 = 2000mm) DRAWING NO: 022077-BSRP-CR2-C-AG-ERS-30-1355		<b>REFERENCE DOCUMENTS :</b> 1. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITH SLOPE (h1= 2000 TO 6000 mm, h2=2000mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-30-1148 2. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITH SLOPE (h1= 1000 TO 2000 mm, h2=1500mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-30-1149 3. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITHOUT SLOPE (h1= 1000 TO 2000 mm, h2=1500mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-30-1150 4. DESIGN NOTE OF EMBANKMENT RETAINING WALL WITHOUT SLOPE (h1= 2000 TO 6000 mm, h2=2000mm) DOCUMENT NO: DOC-BSRP-CR2-AG-DGN-GEN-30-1153		<b>KEY PLAN</b> 		<b>STATION BOX KEY PLAN</b>			
<b>REVISIONS</b> REV   DATE   BRIEF DESCRIPTION 0   09.08.2024   GOOD FOR CONSTRUCTION-REVISED AS PER GCS LETTER NO 2761 DATED 01.08.2024 B   17.07.2024   GOOD FOR CONSTRUCTION BASED ON PDC LETTER NO 2618 DATED 10.07.2024 A   26.06.2024   FOR APPROVAL		<b>CONTRACTOR :</b>  TRANSPORTATION INFRASTRUCTURE IC EDCR-SPECIAL BRIDGES		<b>QUALITY ASSURANCE</b> 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.		<b>GENERAL CONSULTANTS</b> CHECKED & APPROVED   COUNTER SIGN NAME   SIGN   PROJECT DIRECTOR		<b>EMPLOYER :</b>  RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED		<b>PROJECT :</b> BENGALURU SUBURBAN RAILWAY PROJECT (BSRP) K-RIDE CORRIDOR - 2					
		<b>DETAILED DESIGN CONSULTANT (DDC) :</b>  STUP Consultants Pvt. Ltd. J1 & Dair Jambukeshwar Arcade # 65, 66 Floor Manna Road, Bangalore-56002 Tel : 080-4037979 Email : bangalore@stupsystems.com www.stupsystems.com		<b>PROOF CONSULTANT (PC) :</b>  Indian Institute of Technology Madras IT P.O., Chennai 600 036 INDIA		<b>DDC</b> SIGN   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		<b>K RIDE</b> DESIGNATION   SIGN   DATE CIVIL/GAD   CIVIL/ALIGNMENT   CIVIL/STRUCTURAL   GM/CIVIL/DESIGN		<b>GENERAL CONSULTANTS :</b>  AECOM   egis   WSP   AECOM-EGIS-WSP		<b>DRAWING TITLE :</b> TYPICAL DETAILS OF EMBANKMENT RETAINING WALL IN CUTTING PORTION WITHOUT SLOPED EARTH (h1-1000mm TO 2000mm)			
										<b>DRAWING NO. :</b> 022077-BSRP-CR2-C-AG-ERS-30-1352		<b>REVISION</b> 0		<b>DWG STATUS</b> C	
										<b>SCALE :</b> PRELIMINARY DWG (P), DEFINITIVE DWG (D), CONSTRUCTION DWG (C), AS BUILT DWG (B), SHOP DWG (S), MANUFACTURED DWG (M)		<b>DATE :</b> 09.08.2024		<b>SHEET SIZE :</b> A1	