



DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

LEGEND	
NALAH - - - - -	BOX CULVERT
HUT - - - - -	HP CULVERT
BUILDING - - - - -	TRAVERS STATION -
EXISTING ROAD EDGE - - - - -	PROPOSED ROAD CENTER - - - - -
PROPOSED PAVEMENT EDGE - - - - -	PROPOSED SHOULDER - - - - -
DESIGN ROW - - - - -	EXISTING ROW - - - - -
PROPOSED RETAINING WALL - - - - -	PROPOSED BREAST WALL - - - - -
PROPOSED CHAINAGE - - - - -	EXISTING CHAINAGE - - - - -

**CLIENT:**  
  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001  
MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA

**Manager (NHIDCL)**  
Gangtok, Sikkim

**General Manager (NHIDCL)**  
Gangtok, Sikkim

**CONSULTANT:**  
  
**CM ENGINEERING & SOLUTION**  
MARUTI VIHAR, HOUSE NO. 1473A, GURGAON, HARYANA -122002  
Email - cmesconsultancy@gmail.com  
Phone: 9811406386, 9911052266, 01244255138

**SM**  
DEALT

**ASK**  
CHECKED

**DK**  
APPROVED

**PROJECT:**  
CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH, WEST SIKKIM

**TITLE**  
DETAILED PROJECT REPORT  
TUNNEL - CH:33+320  
LOCATION PLAN

**STATUS:** DPR DRAWING

**DATE:** 06.04.20

**SCALE:**

**HR 1:2000 VR 1:1000**

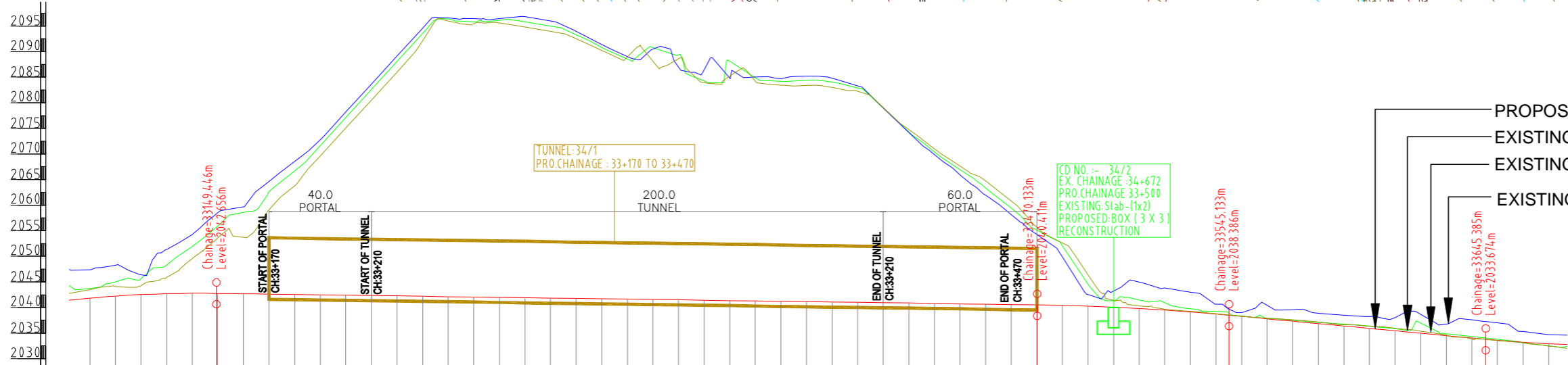
**A3**

**REV. SHEET**

**R0 1 of 1**


















**CMES/NHIDCL/SK/NH510/ TU/01**

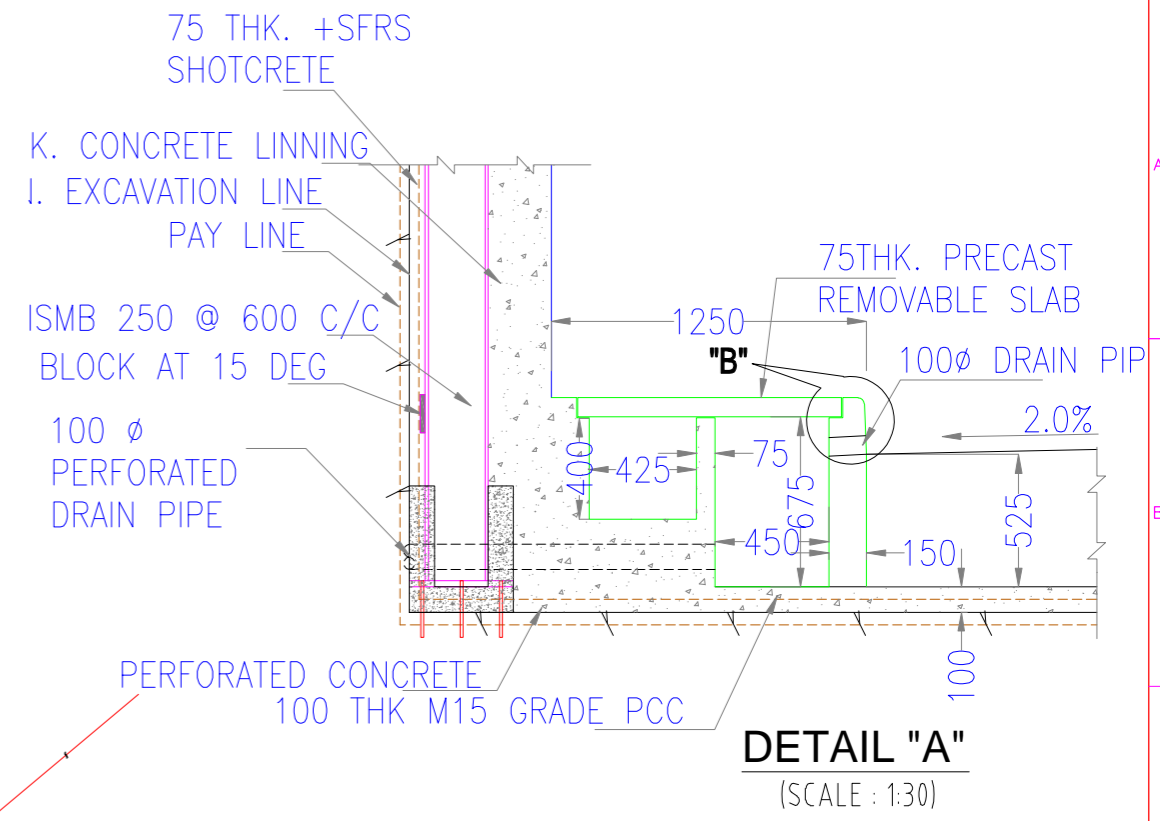
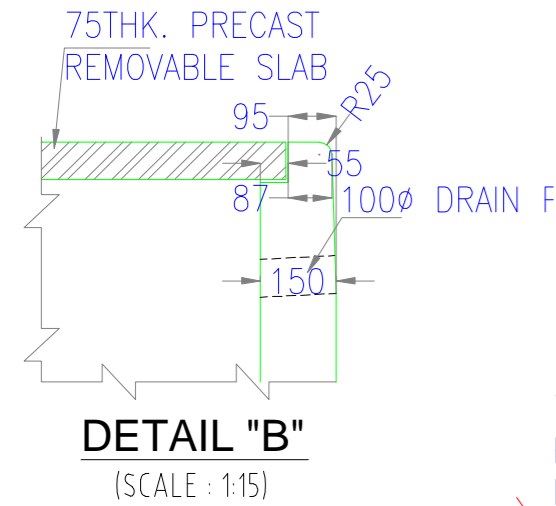
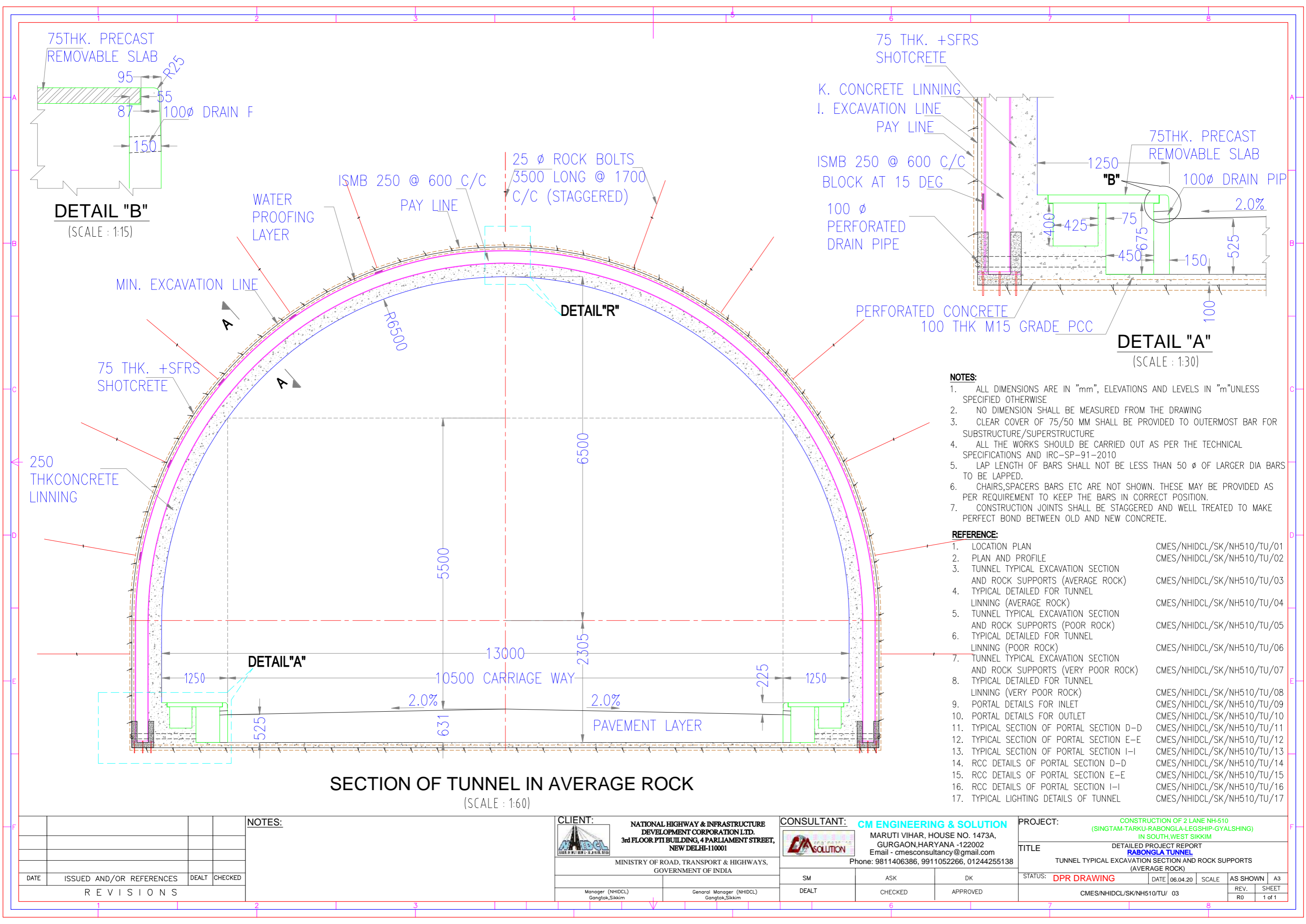
GYALSHING >>>



- PROPOSED FORMATION LEVEL
- EXISTING GROUND LEVEL
- EXISTING G.L. RIGHT
- EXISTING G.L. LEFT

CHAINAGE	SUPERELEVATION	WIDENING	VERTICAL	HORIZONTAL	CUT/FILL	EXISTING GROUND LEVEL	GRADIENT	DESIGN LEVEL
33+100	Q=4.630	3.500	L=65.000m R=-964.392m	L=15 m	-1896	2043.631	4.946	2041734
33+110	Q=4.630	4.700			-2758	2044.884	3.909	2042.105
33+120	Q=4.630	4.700			-3152	2045.565	2.872	2042.412
33+130	Q=4.630	4.700	L=320.687m G=-0.700	R=-60.000m L=47.916m	-5.612	2048.208	1.835	2042.596
33+140	Q=4.630				-9.140	2051.815	0.798	2042.676
33+150	Q=4.630				-13.147	2055.799	0.237	2042.652
33+160	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-15.903	2058.485	0.700	2042.582
33+170	Q=4.630	4.700			-19.937	2062.448	0.700	2042.512
33+180	Q=4.630	3.500			-24.158	2066.600	0.700	2042.442
33+190	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-29.149	2071.520	0.700	2042.372
33+200	Q=4.630	4.700			-34.705	2077.007	0.700	2042.302
33+210	Q=4.630	3.500			-40.262	2082.494	0.700	2042.232
33+220	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-45.819	2087.980	0.700	2042.162
33+230	Q=4.630	4.700			-51.376	2093.467	0.700	2042.092
33+240	Q=4.630	3.500			-54.230	2096.251	0.700	2042.022
33+250	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-53.772	2095.723	0.700	2041.952
33+260	Q=4.630	4.700			-54.175	2096.057	0.700	2041.882
33+270	Q=4.630	3.500			-53.877	2095.688	0.700	2041.812
33+280	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-53.126	2094.867	0.700	2041.742
33+290	Q=4.630	4.700			-51.483	2093.154	0.700	2041.672
33+300	Q=4.630	3.500			-49.126	2090.728	0.700	2041.602
33+310	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-46.912	2088.443	0.700	2041.532
33+320	Q=4.630	4.700			-49.244	2090.705	0.700	2041.462
33+330	Q=4.630	3.500			-47.864	2089.255	0.700	2041.392
33+340	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-42.825	2084.147	0.700	2041.322
33+350	Q=4.630	4.700			-46.807	2088.058	0.700	2041.252
33+360	Q=4.630	3.500			-43.642	2084.824	0.700	2041.182
33+370	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-42.973	2084.085	0.700	2041.112
33+380	Q=4.630	4.700			-43.254	2084.296	0.700	2041.042
33+390	Q=4.630	3.500			-42.958	2083.930	0.700	2040.972
33+400	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-41.883	2082.784	0.700	2040.902
33+410	Q=4.630	4.700			-38.057	2078.889	0.700	2040.832
33+420	Q=4.630	3.500			-33.420	2074.181	0.700	2040.762
33+430	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-29.599	2070.291	0.700	2040.692
33+440	Q=4.630	4.700			-26.249	2066.871	0.700	2040.622
33+450	Q=4.630	3.500			-22.705	2063.256	0.700	2040.552
33+460	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-18.796	2059.277	0.700	2040.482
33+470	Q=4.630	4.700			-14.594	2055.006	0.700	2040.412
33+480	Q=4.630	3.500			-11.620	2051.936	0.960	2040.316
33+490	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-4.373	2044.480	1.493	2040.167
33+500	Q=4.630	4.700			-1.280	2041.245	2.026	2039.964
33+510	Q=4.630	3.500			-1.619	2041.327	2.560	2039.708
33+520	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-1.1428	2040.827	3.093	2039.399
33+530	Q=4.630	4.700			-0.633	2039.669	3.626	2039.036
33+540	Q=4.630	3.500			-0.527	2039.148	4.160	2038.620
33+550	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-0.067	2038.225	4.630	2038.151
33+560	Q=4.630	4.700			-0.074	2037.761	4.700	2037.687
33+570	Q=4.630	3.500			-0.189	2037.146	4.700	2037.217
33+580	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-0.207	2036.954	4.700	2036.747
33+590	Q=4.630	4.700			-0.378	2036.655	4.700	2036.277
33+600	Q=4.630	3.500			-0.455	2036.262	4.700	2035.607
33+610	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-0.398	2035.735	4.700	2035.337
33+620	Q=4.630	4.700			-1.956	2036.823	4.700	2034.867
33+630	Q=4.630	3.500			-0.392	2034.790	4.700	2034.397
33+640	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	-0.318	2034.246	4.700	2033.927
33+650	Q=4.630	4.700			-0.207	2033.675	4.596	2033.468
33+660	Q=4.630	3.500			0.081	2033.011	3.764	2033.091
33+670	Q=4.630	3.500	L=320.687m G=-0.700	L=15 m	0.385	2032.427	2.791	2032.812

				<b>LEGEND</b>				 <b>CLIENT:</b> NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 3rd FLOOR, PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001 MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA				 <b>CONSULTANT:</b> <b>CM ENGINEERING &amp; SOLUTION</b> MARUTI VIHAR, HOUSE NO. 1473A, GURGAON, HARYANA -122002 Email - cmesconsultancy@gmail.com Phone: 9811406386, 9911052266, 01244255138				<b>PROJECT:</b> CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH, WEST SIKKIM			
				NALAH -----  HUT-----  BOX CULVERT  BUILDING-----  HP CULVERT  TRAVERS STATION----- 				EXISTING ROAD EDGE ---  PROPOSED ROAD CENTER---  PROPOSED PAVEMENT EDGE---  PROPOSED SHOULDER ---  DESIGN ROW -----  EXISTING ROW -----  PROPOSED RETAINING WALL---  PROPOSED BREAST WALL---  PROPOSED CHAINAGE-----  0+000 EXISTING CHAINAGE-----  0+000				SM ASK DK DEALT CHECKED APPROVED				TITLE DETAILED PROJECT REPORT TUNNEL - CH:33+320 PLAN & PROFILE STATUS: <b>DPR DRAWING</b> DATE 06.04.20 SCALE HR 1:2000 VR 1:1000 A3 REV. SHEET RO 1 of 1			
DATE ISSUED AND/OR REFERENCES DEALT CHECKED				REVISIONS								CMES/NHIDCL/SK/NH510/ TU/02							



- NOTES:**
- 1. ALL DIMENSIONS ARE IN "mm", ELEVATIONS AND LEVELS IN "m" UNLESS SPECIFIED OTHERWISE
  - 2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWING
  - 3. CLEAR COVER OF 75/50 MM SHALL BE PROVIDED TO OUTERMOST BAR FOR SUBSTRUCTURE/SUPERSTRUCTURE
  - 4. ALL THE WORKS SHOULD BE CARRIED OUT AS PER THE TECHNICAL SPECIFICATIONS AND IRC-SP-91-2010
  - 5. LAP LENGTH OF BARS SHALL NOT BE LESS THAN 50 Ø OF LARGER DIA BARS TO BE LAPPED.
  - 6. CHAIRS, SPACERS BARS ETC ARE NOT SHOWN. THESE MAY BE PROVIDED AS PER REQUIREMENT TO KEEP THE BARS IN CORRECT POSITION.
  - 7. CONSTRUCTION JOINTS SHALL BE STAGGERED AND WELL TREATED TO MAKE PERFECT BOND BETWEEN OLD AND NEW CONCRETE.

- REFERENCE:**
- |   |                            |
|---|----------------------------|
| 1. LOCATION PLAN  | CMES/NHIDCL/SK/NH510/TU/01 |
| 2. PLAN AND PROFILE   | CMES/NHIDCL/SK/NH510/TU/02 |
| 3. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK)   | CMES/NHIDCL/SK/NH510/TU/03 |
| 4. TYPICAL DETAILED FOR TUNNEL LINNING (AVERAGE ROCK)                   | CMES/NHIDCL/SK/NH510/TU/04 |
| 5. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (POOR ROCK)      | CMES/NHIDCL/SK/NH510/TU/05 |
| 6. TYPICAL DETAILED FOR TUNNEL LINNING (POOR ROCK)                      | CMES/NHIDCL/SK/NH510/TU/06 |
| 7. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK) | CMES/NHIDCL/SK/NH510/TU/07 |
| 8. TYPICAL DETAILED FOR TUNNEL LINNING (VERY POOR ROCK)                 | CMES/NHIDCL/SK/NH510/TU/08 |
| 9. PORTAL DETAILS FOR INLET   | CMES/NHIDCL/SK/NH510/TU/09 |
| 10. PORTAL DETAILS FOR OUTLET   | CMES/NHIDCL/SK/NH510/TU/10 |
| 11. TYPICAL SECTION OF PORTAL SECTION D-D                               | CMES/NHIDCL/SK/NH510/TU/11 |
| 12. TYPICAL SECTION OF PORTAL SECTION E-E                               | CMES/NHIDCL/SK/NH510/TU/12 |
| 13. TYPICAL SECTION OF PORTAL SECTION I-I                               | CMES/NHIDCL/SK/NH510/TU/13 |
| 14. RCC DETAILS OF PORTAL SECTION D-D                                   | CMES/NHIDCL/SK/NH510/TU/14 |
| 15. RCC DETAILS OF PORTAL SECTION E-E                                   | CMES/NHIDCL/SK/NH510/TU/15 |
| 16. RCC DETAILS OF PORTAL SECTION I-I                                   | CMES/NHIDCL/SK/NH510/TU/16 |
| 17. TYPICAL LIGHTING DETAILS OF TUNNEL                                  | CMES/NHIDCL/SK/NH510/TU/17 |

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

NOTES:

**CLIENT:**

**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001

MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA

Manager (NHIDCL) Gangtok, Sikkim      General Manager (NHIDCL) Gangtok, Sikkim

**CONSULTANT:** **CM ENGINEERING & SOLUTION**

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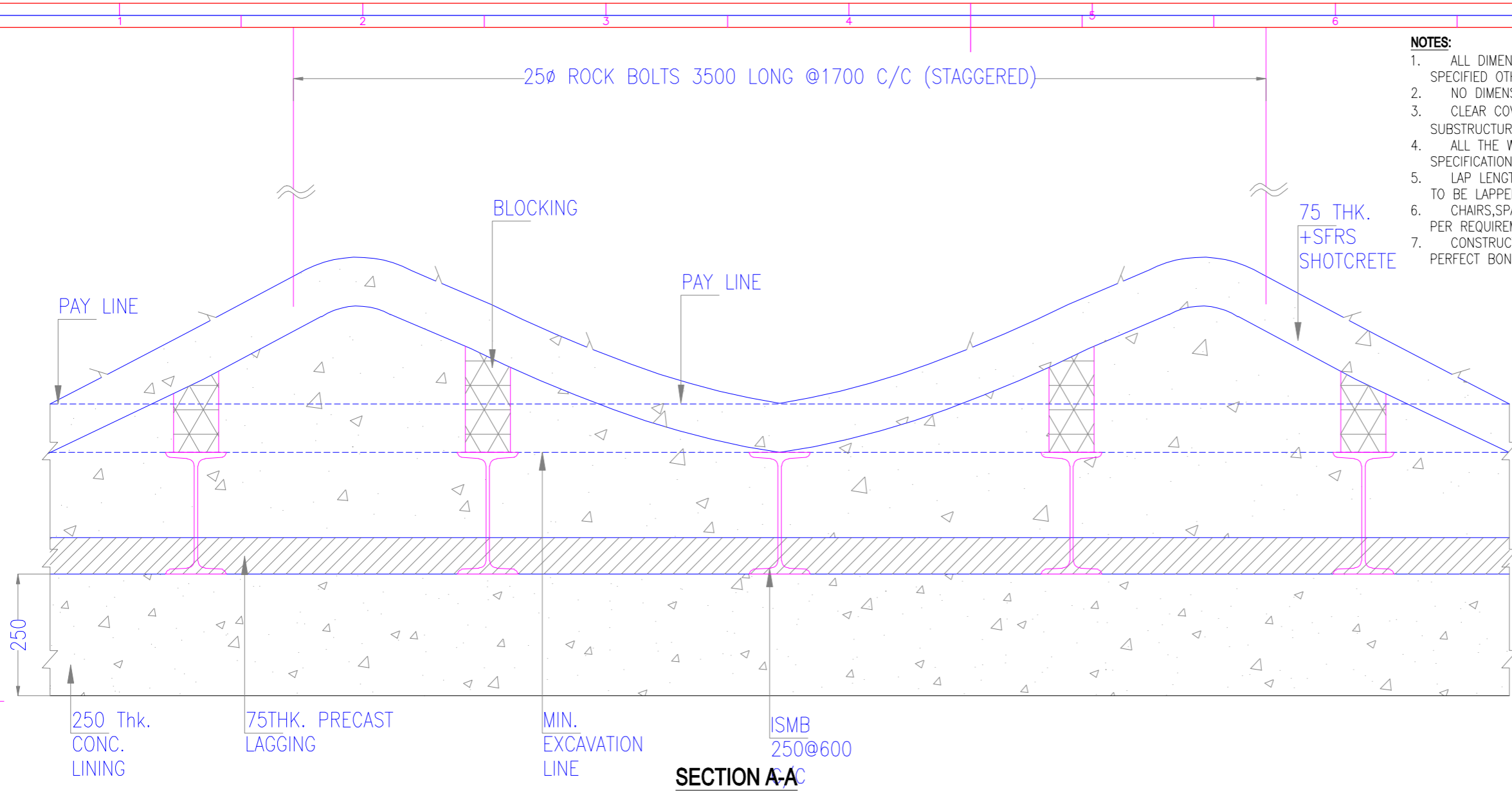
SM	ASK	DK
DEALT	CHECKED	APPROVED

**PROJECT:** CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM

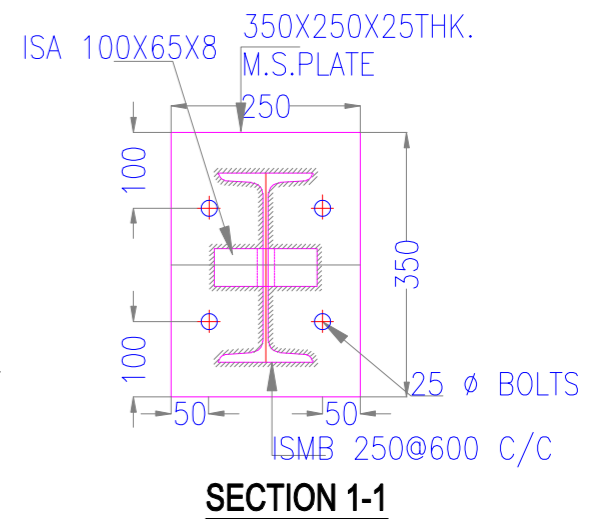
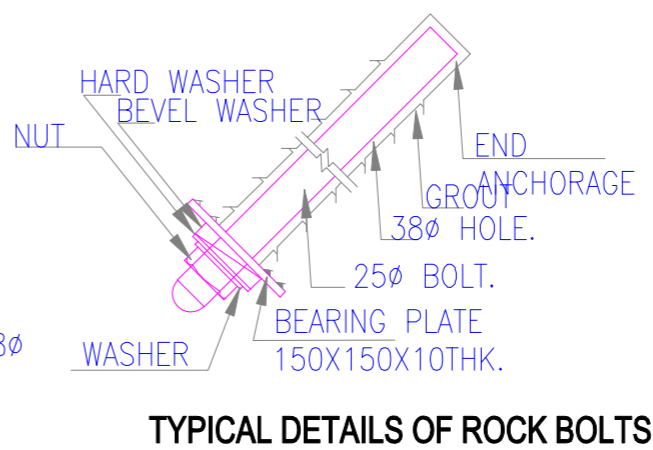
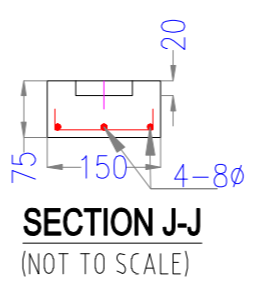
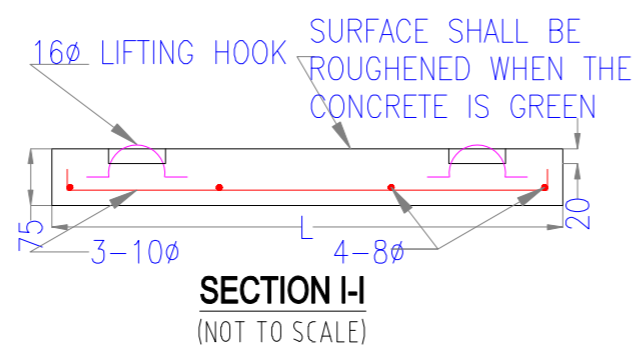
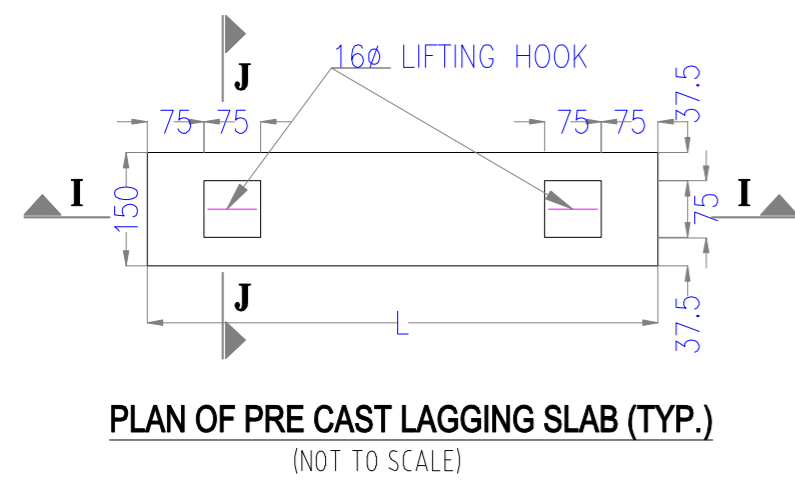
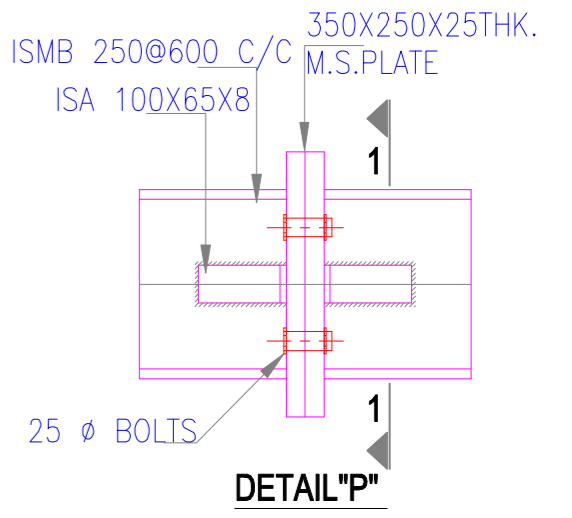
**TITLE:** DETAILED PROJECT REPORT **RABONGLA TUNNEL**  
TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK)

**STATUS:** DPR DRAWING      **DATE:** 06.04.20      **SCALE:**      **AS SHOWN:** A3      **REV.:** R0      **SHEET:** 1 of 1

CMES/NHIDCL/SK/NH510/TU/ 03



- NOTES:**
1. ALL DIMENSIONS ARE IN "mm", ELEVATIONS AND LEVELS IN "m"UNLESS SPECIFIED OTHERWISE
  2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWING
  3. CLEAR COVER OF 75/50 MM SHALL BE PROVIDED TO OUTERMOST BAR FOR SUBSTRUCTURE/SUPERSTRUCTURE
  4. ALL THE WORKS SHOULD BE CARRIED OUT AS PER THE TECHNICAL SPECIFICATIONS AND IRC-SP-91-2010
  5. LAP LENGTH OF BARS SHALL NOT BE LESS THAN 50  $\phi$  OF LARGER DIA BARS TO BE LAPPED.
  6. CHAIRS,SPACERS BARS ETC ARE NOT SHOWN. THESE MAY BE PROVIDED AS PER REQUIREMENT TO KEEP THE BARS IN CORRECT POSITION.
  7. CONSTRUCTION JOINTS SHALL BE STAGGERED AND WELL TREATED TO MAKE PERFECT BOND BETWEEN OLD AND NEW CONCRETE.



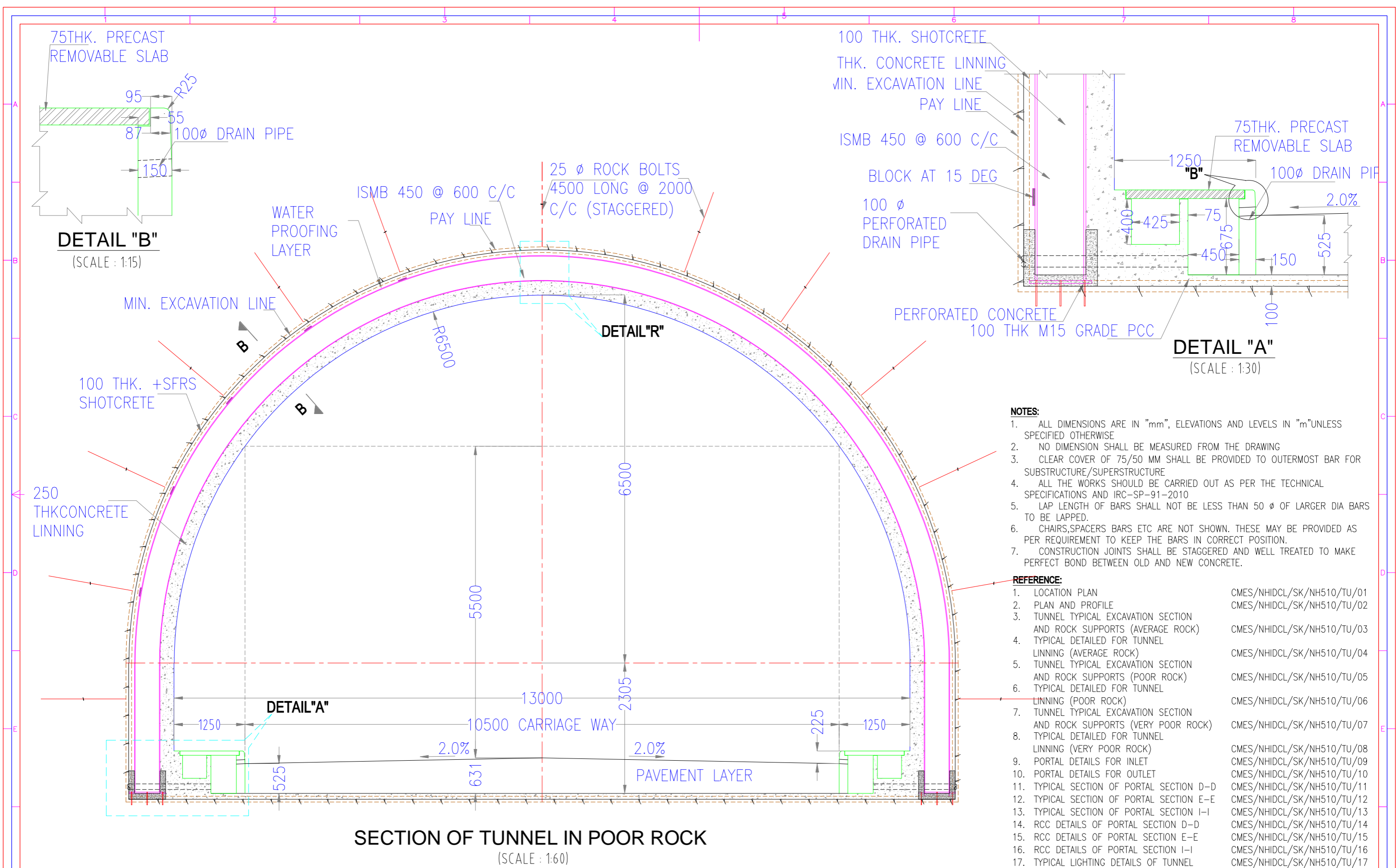
DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
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Phone: 9811406386, 9911052266, 01244255138  
SM ASK DK  
DEALT CHECKED APPROVED

**PROJECT:**  
CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM  
**TITLE**  
DETAILED PROJECT REPORT  
RABONGLA TUNNEL  
TYPICAL DETAILED FOR TUNNEL LINING (AVERAGE ROCK)  
**STATUS:** DPR DRAWING  
DATE: 06.04.20  
SCALE: AS SHOWN  
REV. SHEET  
R0 1 of 1



SECTION OF TUNNEL IN POOR ROCK  
(SCALE : 1:60)

- NOTES:**
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- REFERENCE:**
- |   |                            |
|---|----------------------------|
| 1. LOCATION PLAN  | CMES/NHIDCL/SK/NH510/TU/01 |
| 2. PLAN AND PROFILE   | CMES/NHIDCL/SK/NH510/TU/02 |
| 3. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK)   | CMES/NHIDCL/SK/NH510/TU/03 |
| 4. TYPICAL DETAILED FOR TUNNEL LINING (AVERAGE ROCK)                    | CMES/NHIDCL/SK/NH510/TU/04 |
| 5. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (POOR ROCK)      | CMES/NHIDCL/SK/NH510/TU/05 |
| 6. TYPICAL DETAILED FOR TUNNEL LINING (POOR ROCK)                       | CMES/NHIDCL/SK/NH510/TU/06 |
| 7. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK) | CMES/NHIDCL/SK/NH510/TU/07 |
| 8. TYPICAL DETAILED FOR TUNNEL LINING (VERY POOR ROCK)                  | CMES/NHIDCL/SK/NH510/TU/08 |
| 9. PORTAL DETAILS FOR INLET   | CMES/NHIDCL/SK/NH510/TU/09 |
| 10. PORTAL DETAILS FOR OUTLET   | CMES/NHIDCL/SK/NH510/TU/10 |
| 11. TYPICAL SECTION OF PORTAL SECTION D-D                               | CMES/NHIDCL/SK/NH510/TU/11 |
| 12. TYPICAL SECTION OF PORTAL SECTION E-E                               | CMES/NHIDCL/SK/NH510/TU/12 |
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| 15. RCC DETAILS OF PORTAL SECTION E-E                                   | CMES/NHIDCL/SK/NH510/TU/15 |
| 16. RCC DETAILS OF PORTAL SECTION I-I                                   | CMES/NHIDCL/SK/NH510/TU/16 |
| 17. TYPICAL LIGHTING DETAILS OF TUNNEL                                  | CMES/NHIDCL/SK/NH510/TU/17 |

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
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NOTES:			

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DK

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**PROJECT:**

CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM

**TITLE**

DETAILED PROJECT REPORT  
RABONGLA TUNNEL  
TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (POOR ROCK)

STATUS: DPR DRAWING

DATE: 06.04.20

SCALE

AS SHOWN

A3

REV.

SHEET

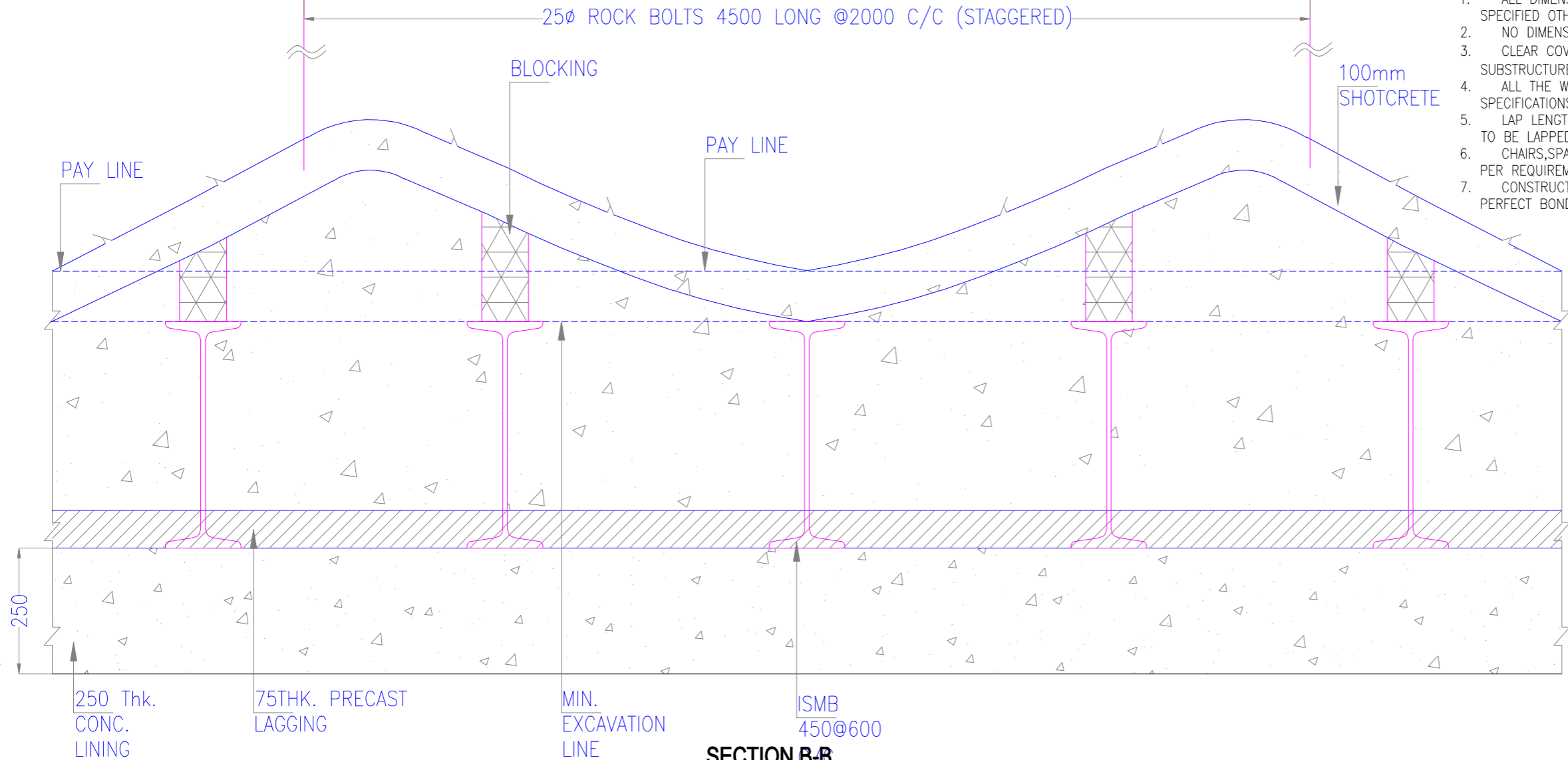
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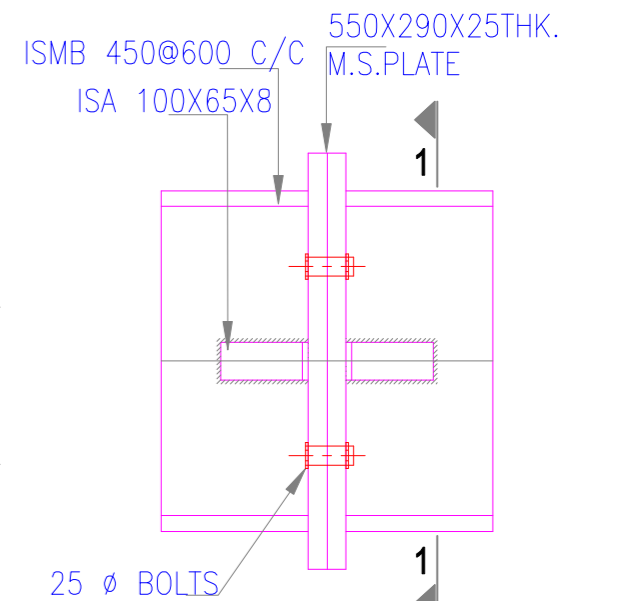
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(SCALE : 1:30)

DETAIL "B"  
(SCALE : 1:15)

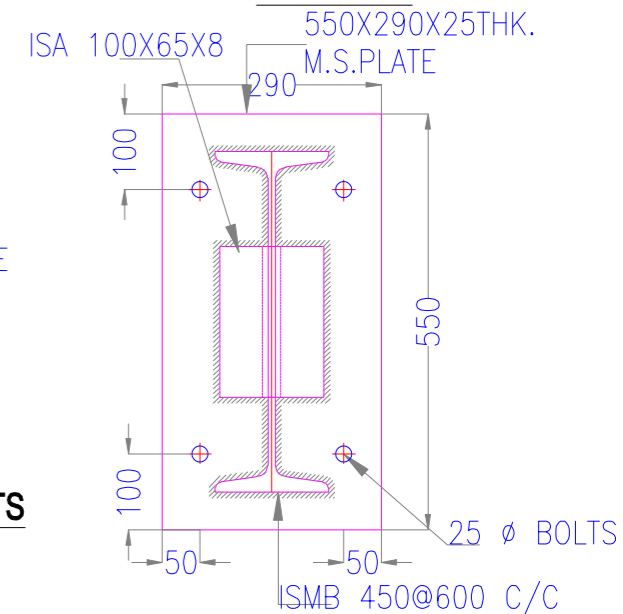
DETAIL "R"



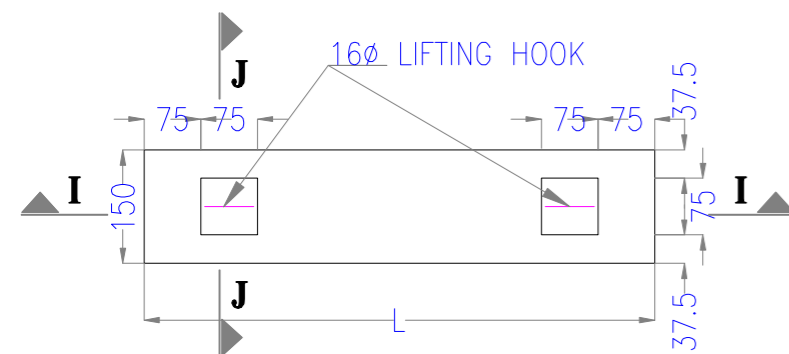
- NOTES:**
1. ALL DIMENSIONS ARE IN "mm", ELEVATIONS AND LEVELS IN "m"UNLESS SPECIFIED OTHERWISE
  2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWING
  3. CLEAR COVER OF 75/50 MM SHALL BE PROVIDED TO OUTERMOST BAR FOR SUBSTRUCTURE/SUPERSTRUCTURE
  4. ALL THE WORKS SHOULD BE CARRIED OUT AS PER THE TECHNICAL SPECIFICATIONS AND IRC-SP-91-2010
  5. LAP LENGTH OF BARS SHALL NOT BE LESS THAN 50  $\phi$  OF LARGER DIA BARS TO BE LAPPED.
  6. CHAIRS, SPACERS BARS ETC ARE NOT SHOWN. THESE MAY BE PROVIDED AS PER REQUIREMENT TO KEEP THE BARS IN CORRECT POSITION.
  7. CONSTRUCTION JOINTS SHALL BE STAGGERED AND WELL TREATED TO MAKE PERFECT BOND BETWEEN OLD AND NEW CONCRETE.



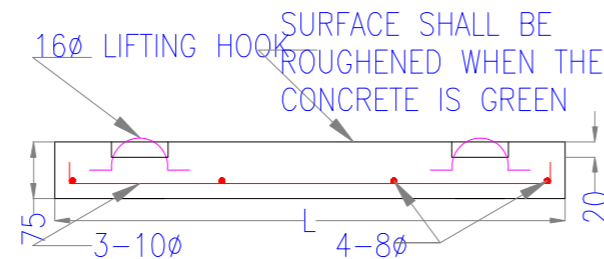
DETAIL "Q"



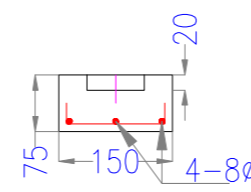
SECTION 1-1



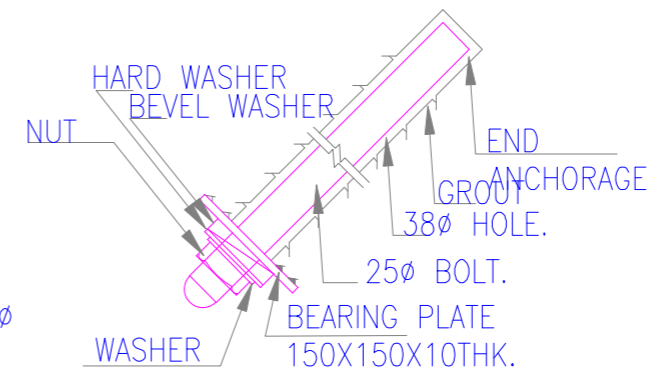
(NOT TO SCALE)



(NOT TO SCALE)



(NOT TO SCALE)



TYPICAL DETAILS OF ROCK BOLTS

NOTES:

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

CLIENT:



NATIONAL HIGHWAY & INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET,  
NEW DELHI-110001

MINISTRY OF ROAD, TRANSPORT & HIGHWAYS,  
GOVERNMENT OF INDIA

Manager (NHIDCL)  
Gangtok, Sikkim

General Manager (NHIDCL)  
Gangtok, Sikkim

CONSULTANT:



CM ENGINEERING & SOLUTION  
MARUTI VIHAR, HOUSE NO. 1473A,  
GURGAON, HARYANA -122002  
Email - cmesconsultancy@gmail.com  
Phone: 9811406386, 9911052266, 01244255138

SM

ASK

DK

DEALT

CHECKED

APPROVED

PROJECT:

CONSTRUCTION OF 2 LANE NH-510  
(SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING)  
IN SOUTH WEST SIKKIM

TITLE

DETAILED PROJECT REPORT  
RABONGLA TUNNEL  
TYPICAL DETAILED FOR TUNNEL LINING  
(POOR ROCK)

STATUS: DPR DRAWING

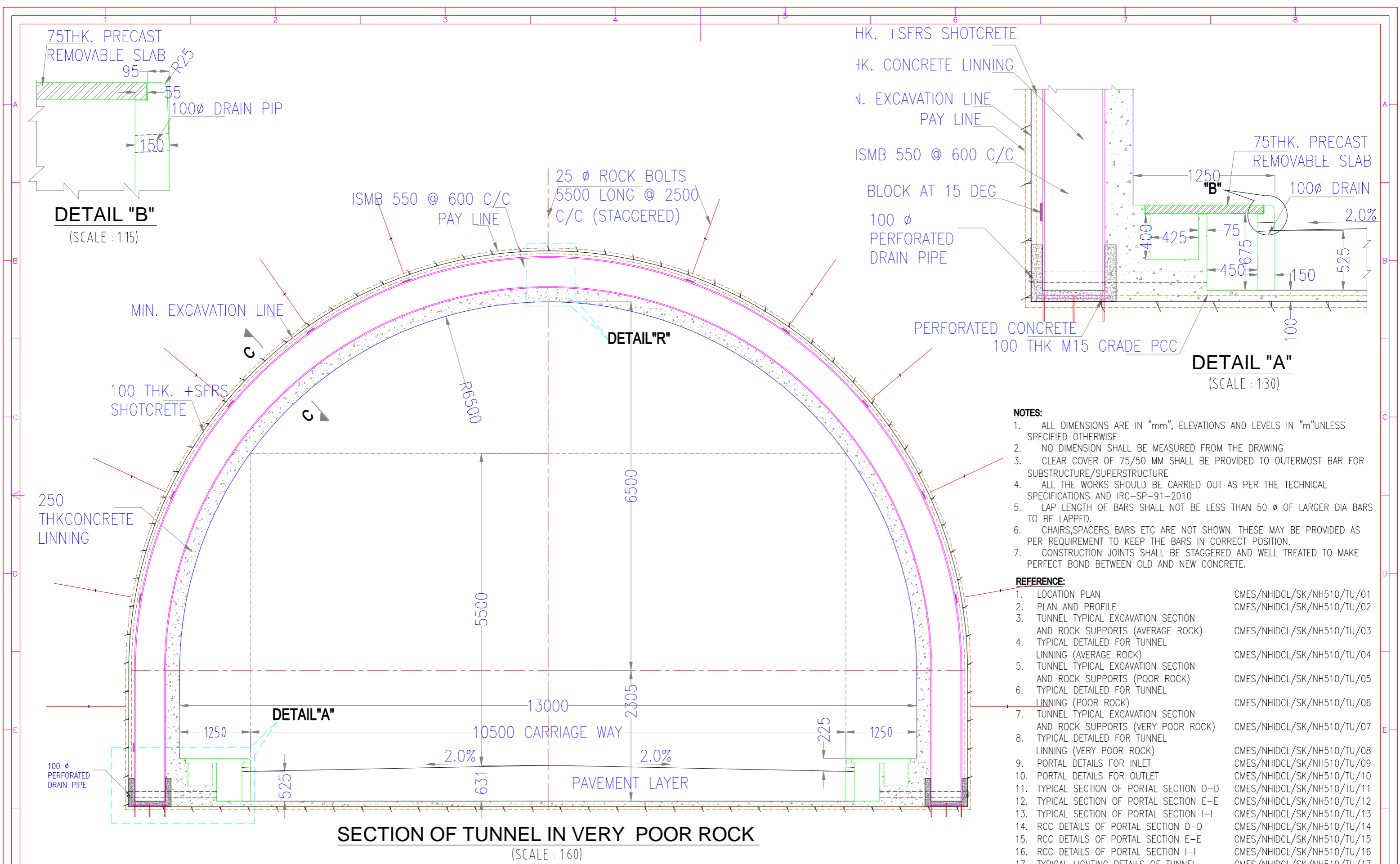
DATE: 06.04.20

SCALE

AS SHOWN A3

CMES/NHIDCL/SK/NH510/TU/ 06

REV. SHEET  
R0 1 of 1

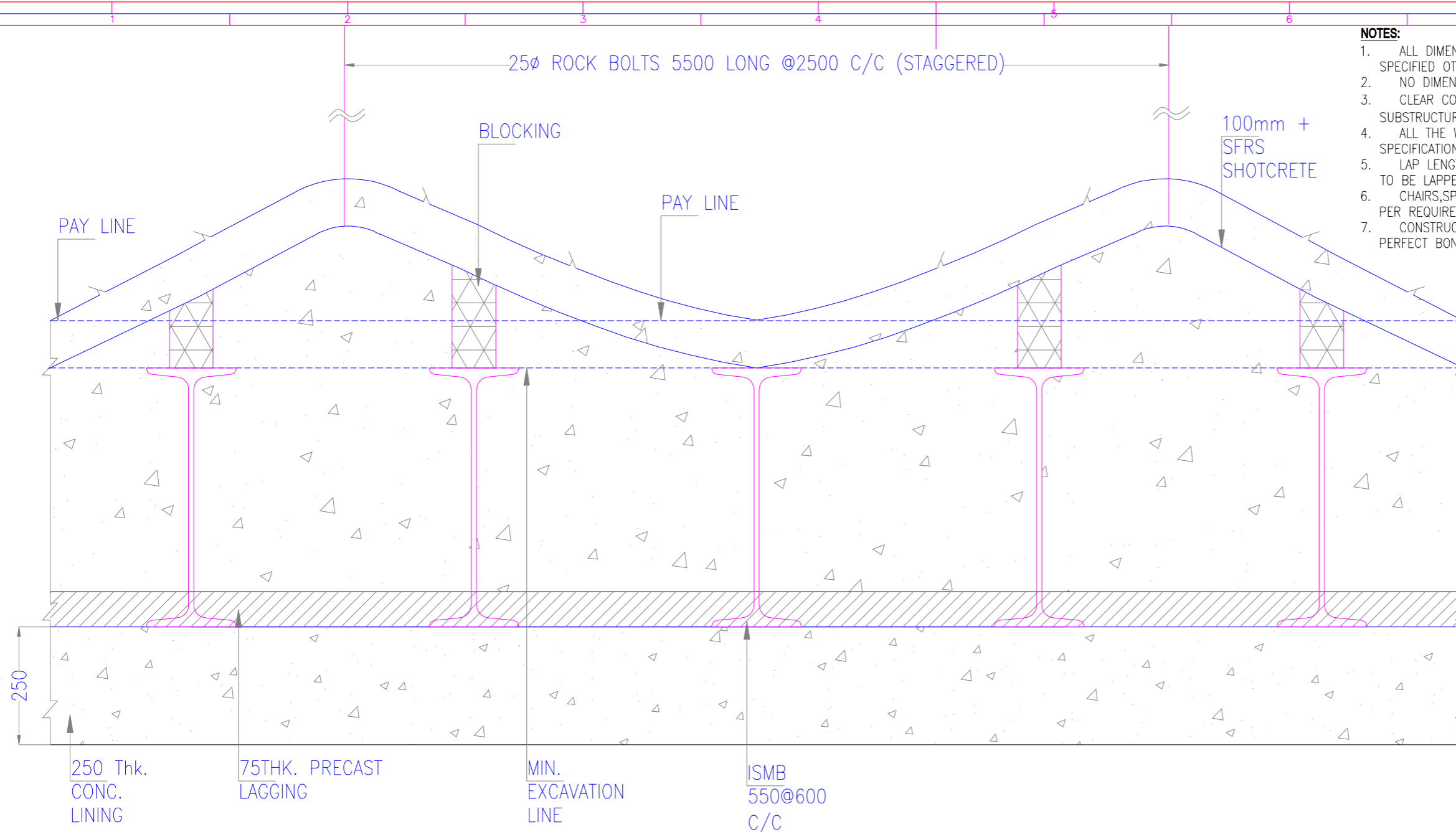


SECTION OF TUNNEL IN VERY POOR ROCK  
(SCALE : 1:60)

- NOTES:**
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  7. CONSTRUCTION JOINTS SHALL BE STAGGERED AND WELL TREATED TO MAKE PERFECT BOND BETWEEN OLD AND NEW CONCRETE.

- REFERENCE:**
- |   |                            |
|---|----------------------------|
| 1. LOCATION PLAN  | CMES/NHIDCL/SK/NH510/TU/01 |
| 2. PLAN AND PROFILE   | CMES/NHIDCL/SK/NH510/TU/02 |
| 3. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK)   | CMES/NHIDCL/SK/NH510/TU/03 |
| 4. TYPICAL DETAILED FOR TUNNEL LINING (AVERAGE ROCK)                    | CMES/NHIDCL/SK/NH510/TU/04 |
| 5. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (POOR ROCK)      | CMES/NHIDCL/SK/NH510/TU/05 |
| 6. TYPICAL DETAILED FOR TUNNEL LINING (POOR ROCK)                       | CMES/NHIDCL/SK/NH510/TU/06 |
| 7. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK) | CMES/NHIDCL/SK/NH510/TU/07 |
| 8. TYPICAL DETAILED FOR TUNNEL LINING (VERY POOR ROCK)                  | CMES/NHIDCL/SK/NH510/TU/08 |
| 9. PORTAL DETAILS FOR INLET   | CMES/NHIDCL/SK/NH510/TU/09 |
| 10. PORTAL DETAILS FOR OUTLET   | CMES/NHIDCL/SK/NH510/TU/10 |
| 11. TYPICAL SECTION OF PORTAL SECTION D-D                               | CMES/NHIDCL/SK/NH510/TU/11 |
| 12. TYPICAL SECTION OF PORTAL SECTION E-E                               | CMES/NHIDCL/SK/NH510/TU/12 |
| 13. TYPICAL SECTION OF PORTAL SECTION I-I                               | CMES/NHIDCL/SK/NH510/TU/13 |
| 14. RCC DETAILS OF PORTAL SECTION D-D                                   | CMES/NHIDCL/SK/NH510/TU/14 |
| 15. RCC DETAILS OF PORTAL SECTION E-E                                   | CMES/NHIDCL/SK/NH510/TU/15 |
| 16. RCC DETAILS OF PORTAL SECTION I-I                                   | CMES/NHIDCL/SK/NH510/TU/16 |
| 17. TYPICAL LIGHTING DETAILS OF TUNNEL                                  | CMES/NHIDCL/SK/NH510/TU/17 |

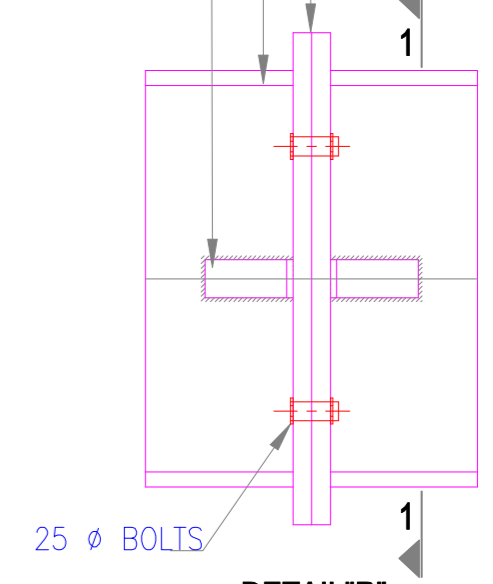
NOTES:				CLIENT:		CONSULTANT:		PROJECT:			
				NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001		CM ENGINEERING & SOLUTION MARUTI VIHAR, HOUSE NO. 1473A, GURGAON, HARYANA -122002 Email - cmesconsultancy@gmail.com Phone: 9811406386, 9911052266, 01244255138		CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM			
				MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA		DETAILED PROJECT REPORT RABONGLA TUNNEL TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK)		TITLE			
				Manager (NHIDCL) Gangtok, Sikkim		SM ASK DK		STATUS: DPR DRAWING			
				General Manager (NHIDCL) Gangtok, Sikkim		DEALT CHECKED APPROVED		DATE 06.04.20 SCALE AS SHOWN A3			
REVISIONS								CMES/NHIDCL/SK/NH510/TU/ 07			
DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED					REV. SHEET			
								R0 1 of 1			



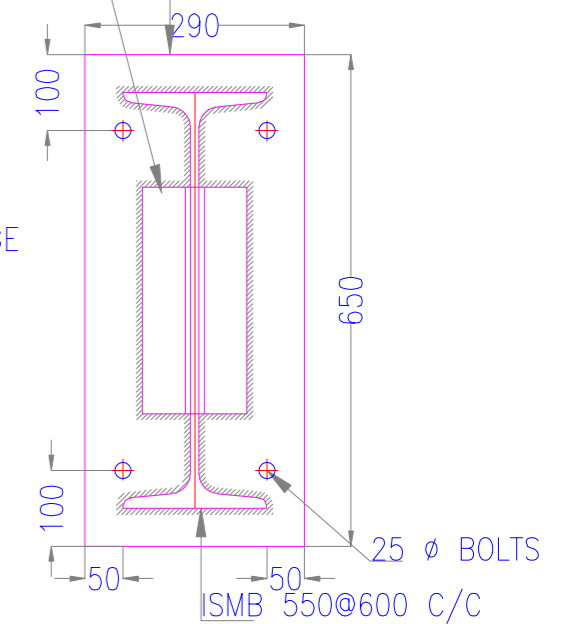
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ISMB 550@600 C/C  
ISA 100X65X8  
650X290X25THK. M.S. PLATE

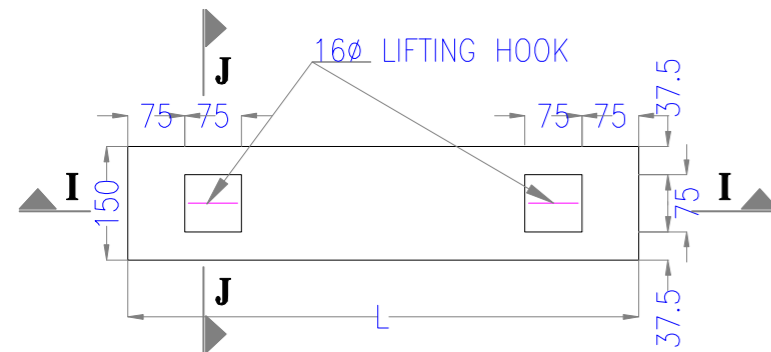


ISA 100X65X8  
650X290X25THK. M.S. PLATE

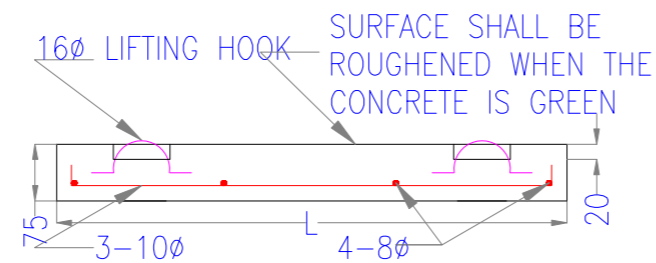


**SECTION 1-1**

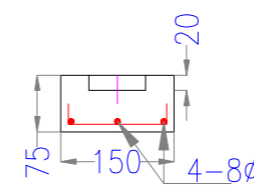
**SECTION C-C**



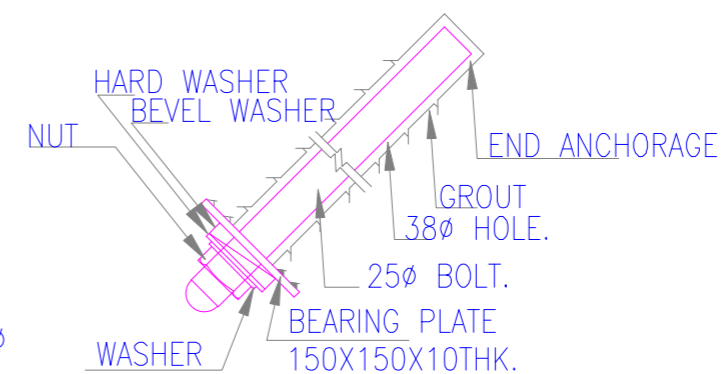
**PLAN OF PRE CAST LAGGING SLAB (TYP.)**  
(NOT TO SCALE)



**SECTION I-I**  
(NOT TO SCALE)  
(LENGTH 'L' = 425 FOR VERY POOR ROCK)



**SECTION J-J**  
(NOT TO SCALE)



**TYPICAL DETAILS OF ROCK BOLTS**

**NOTES:**

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

**CLIENT:**



**NATIONAL HIGHWAY & INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.**  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET,  
NEW DELHI-110001

MINISTRY OF ROAD, TRANSPORT & HIGHWAYS,  
GOVERNMENT OF INDIA

Manager (NHIDCL)  
Gangtok, Sikkim

General Manager (NHIDCL)  
Gangtok, Sikkim

**CONSULTANT:**



**CM ENGINEERING & SOLUTION**  
MARUTI VIHAR, HOUSE NO. 1473A,  
GURGAON, HARYANA -122002  
Email - cmesconsultancy@gmail.com  
Phone: 9811406386, 9911052266, 01244255138

SM

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DK

DEALT

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APPROVED

**PROJECT:**

CONSTRUCTION OF 2 LANE NH-510  
(SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING)  
IN SOUTH WEST SIKKIM

**TITLE**

DETAILED PROJECT REPORT  
**RABONGLA TUNNEL**  
TYPICAL DETAILED FOR TUNNEL LINING  
(VERY POOR ROCK)

STATUS: **DPR DRAWING**

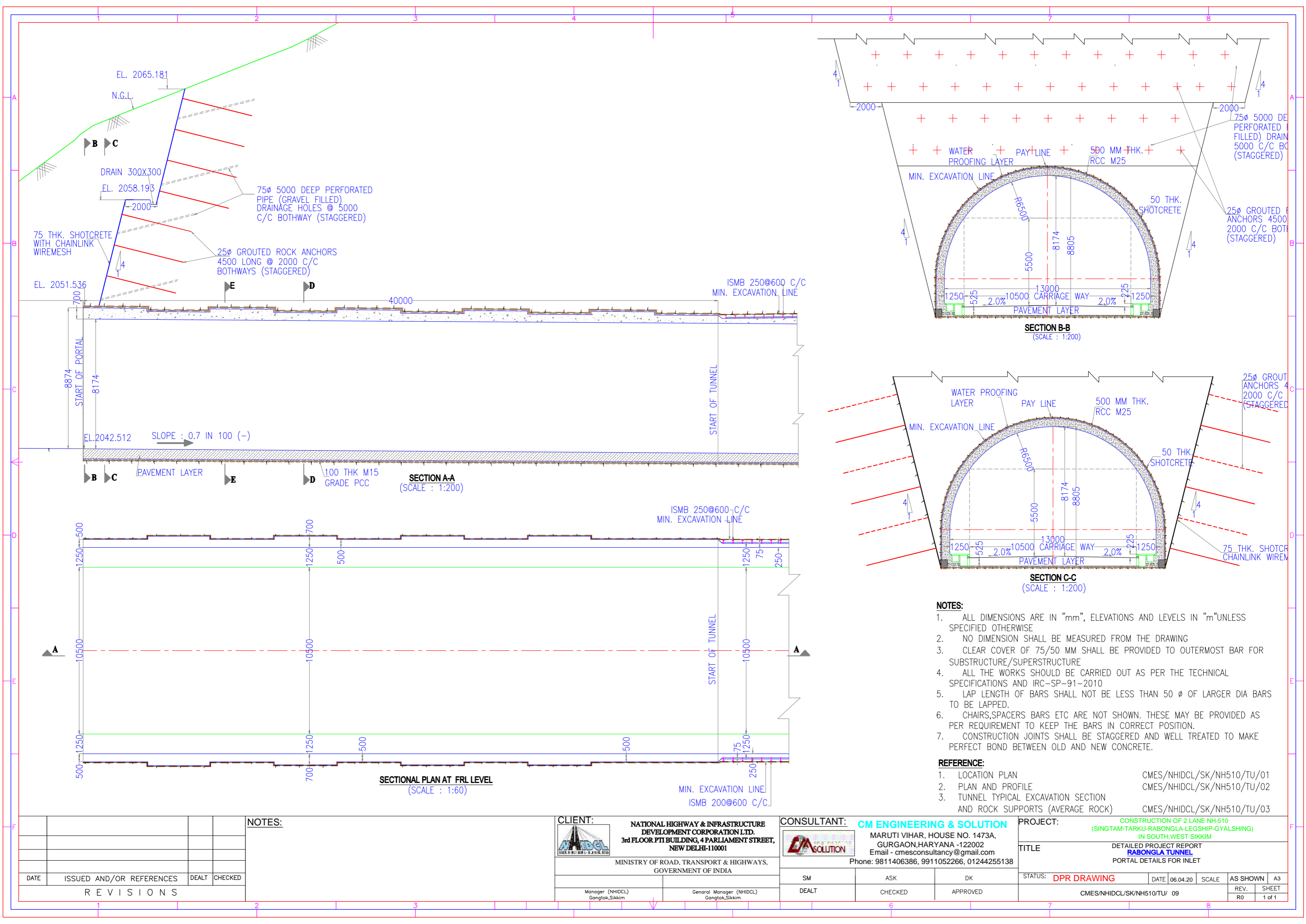
DATE: 06.04.20

SCALE

AS SHOWN A3

CMES/NHIDCL/SK/NH510/TU/ 08

REV. SHEET  
R0 1 of 1



NOTES:

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REFERENCE:

- LOCATION PLAN CMES/NHIDCL/SK/NH510/TU/01
- PLAN AND PROFILE CMES/NHIDCL/SK/NH510/TU/02
- TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK) CMES/NHIDCL/SK/NH510/TU/03

NOTES:

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

CLIENT:



NATIONAL HIGHWAY & INFRASTRUCTURE  
DEVELOPMENT CORPORATION LTD.  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET,  
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MINISTRY OF ROAD, TRANSPORT & HIGHWAYS,  
GOVERNMENT OF INDIA

Manager (NHIDCL)  
Gangtok, Sikkim

General Manager (NHIDCL)  
Gangtok, Sikkim

CONSULTANT:



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Email - cmesconsultancy@gmail.com  
Phone: 9811406386, 9911052266, 01244255138

SM

ASK

DK

DEALT

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APPROVED

PROJECT:

CONSTRUCTION OF 2 LANE NH-510  
(SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING)  
IN SOUTH WEST SIKKIM

TITLE

DETAILED PROJECT REPORT  
RABONGLA TUNNEL  
PORTAL DETAILS FOR INLET

STATUS:

DPR DRAWING

DATE

06.04.20

SCALE

AS SHOWN

A3

CMES/NHIDCL/SK/NH510/TU/ 09

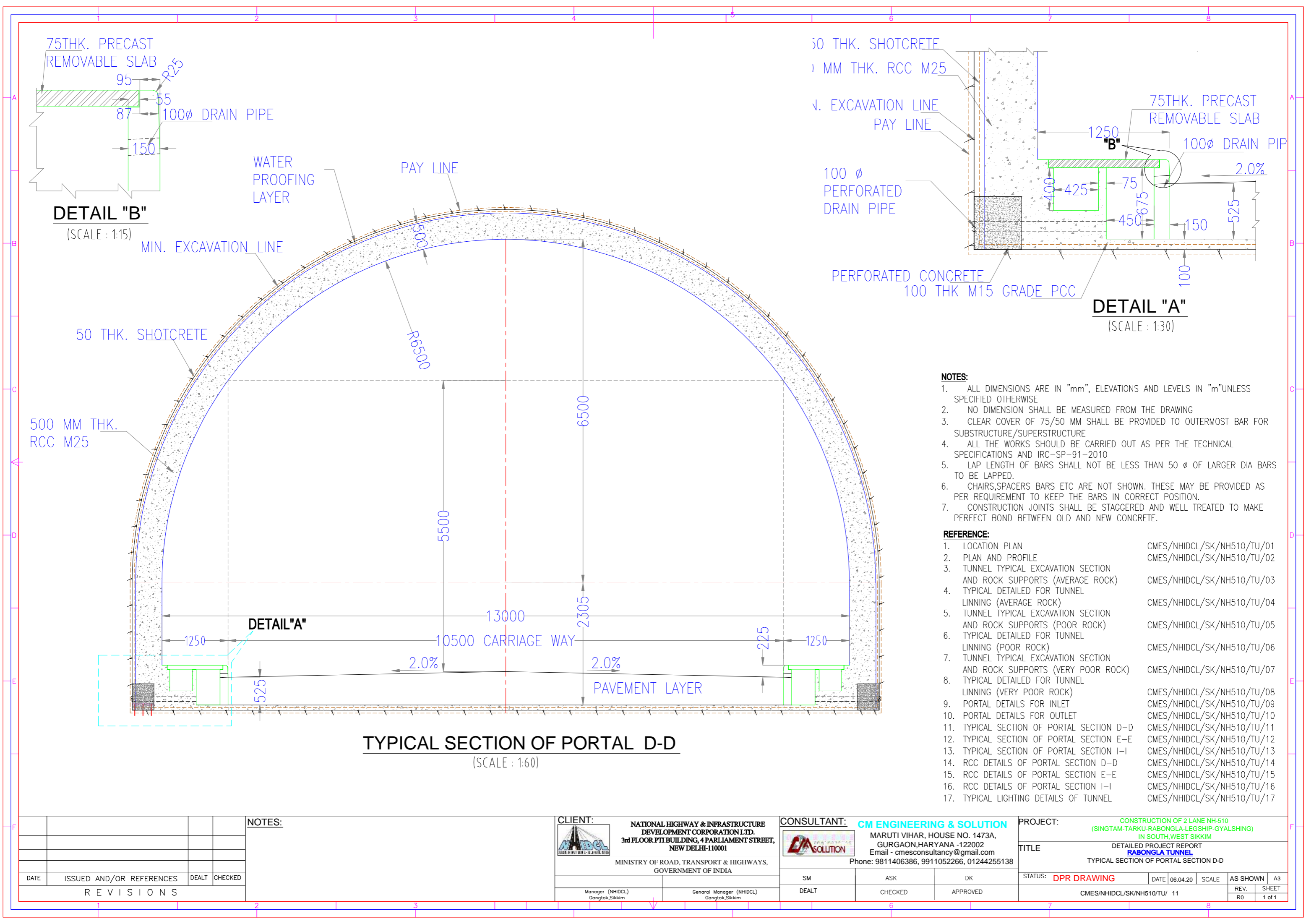
REV.

SHEET

R0

1 of 1





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3. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK)	CMES/NHIDCL/SK/NH510/TU/03
4. TYPICAL DETAILED FOR TUNNEL LINNING (AVERAGE ROCK)	CMES/NHIDCL/SK/NH510/TU/04
5. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (POOR ROCK)	CMES/NHIDCL/SK/NH510/TU/05
6. TYPICAL DETAILED FOR TUNNEL LINNING (POOR ROCK)	CMES/NHIDCL/SK/NH510/TU/06
7. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK)	CMES/NHIDCL/SK/NH510/TU/07
8. TYPICAL DETAILED FOR TUNNEL LINNING (VERY POOR ROCK)	CMES/NHIDCL/SK/NH510/TU/08
9. PORTAL DETAILS FOR INLET	CMES/NHIDCL/SK/NH510/TU/09
10. PORTAL DETAILS FOR OUTLET	CMES/NHIDCL/SK/NH510/TU/10
11. TYPICAL SECTION OF PORTAL SECTION D-D	CMES/NHIDCL/SK/NH510/TU/11
12. TYPICAL SECTION OF PORTAL SECTION E-E	CMES/NHIDCL/SK/NH510/TU/12
13. TYPICAL SECTION OF PORTAL SECTION I-I	CMES/NHIDCL/SK/NH510/TU/13
14. RCC DETAILS OF PORTAL SECTION D-D	CMES/NHIDCL/SK/NH510/TU/14
15. RCC DETAILS OF PORTAL SECTION E-E	CMES/NHIDCL/SK/NH510/TU/15
16. RCC DETAILS OF PORTAL SECTION I-I	CMES/NHIDCL/SK/NH510/TU/16
17. TYPICAL LIGHTING DETAILS OF TUNNEL	CMES/NHIDCL/SK/NH510/TU/17

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

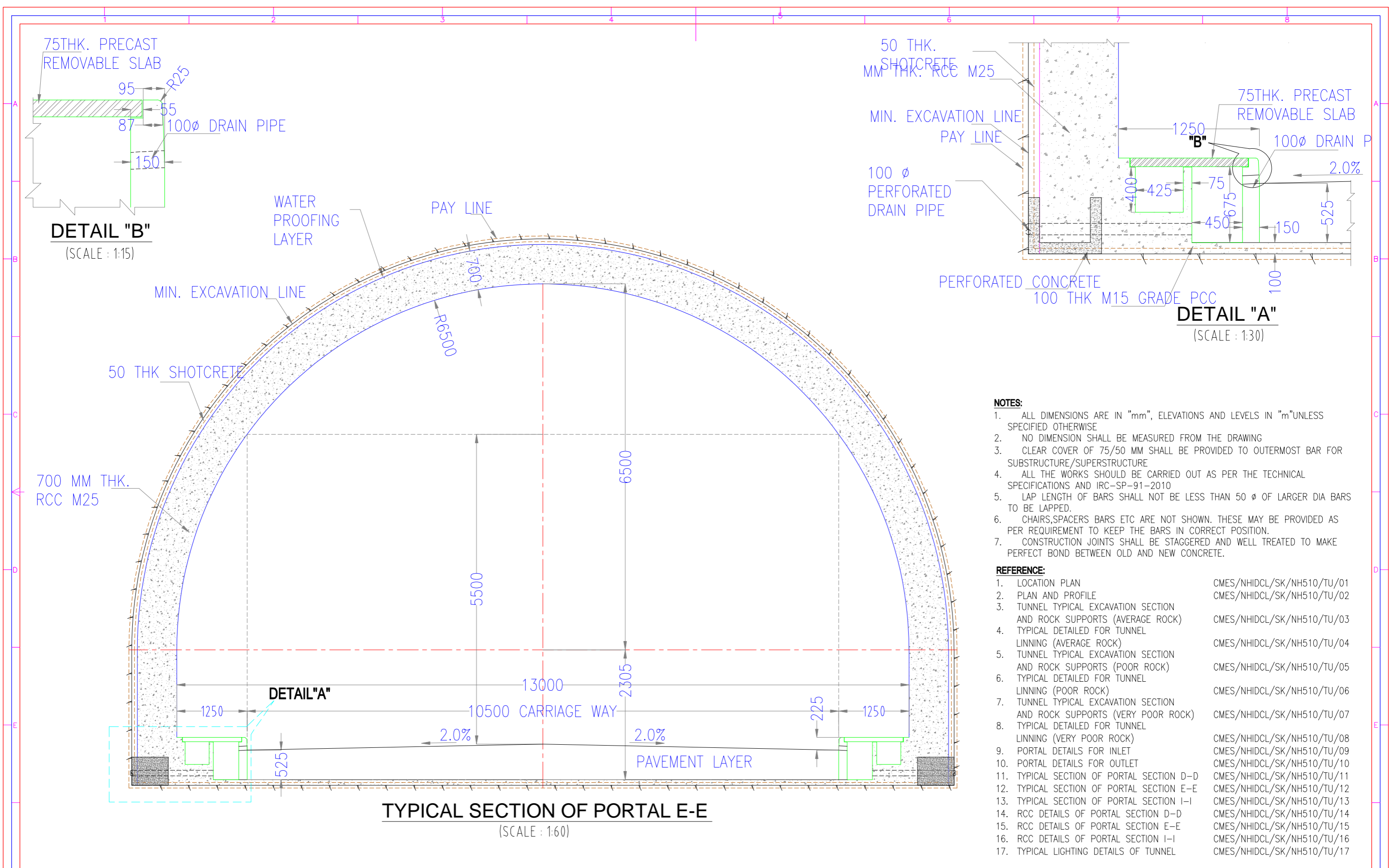
NOTES:			

**CLIENT:**  
**NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001  
  
MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA  
  
Manager (NHIDCL) Gangtok, Sikkim      General Manager (NHIDCL) Gangtok, Sikkim

**CONSULTANT:**  
**CM ENGINEERING & SOLUTION**  
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Email - cmesconsultancy@gmail.com  
Phone: 9811406386, 9911052266, 01244255138  
  
SM      ASK      DK  
DEALT      CHECKED      APPROVED

**PROJECT:**  
CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM  
  
TITLE  
DETAILED PROJECT REPORT  
RABONGLA TUNNEL  
TYPICAL SECTION OF PORTAL SECTION D-D  
  
STATUS: **DPR DRAWING**      DATE: 06.04.20      SCALE:      AS SHOWN      A3  
REV.      SHEET  
R0      1 of 1

CMES/NHIDCL/SK/NH510/TU/ 11





- NOTES:**
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REFERENCE:	
1. LOCATION PLAN	CMES/NHIDCL/SK/NH510/TU/01
2. PLAN AND PROFILE	CMES/NHIDCL/SK/NH510/TU/02
3. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (AVERAGE ROCK)	CMES/NHIDCL/SK/NH510/TU/03
4. TYPICAL DETAILED FOR TUNNEL LINNING (AVERAGE ROCK)	CMES/NHIDCL/SK/NH510/TU/04
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6. TYPICAL DETAILED FOR TUNNEL LINNING (POOR ROCK)	CMES/NHIDCL/SK/NH510/TU/06
7. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK)	CMES/NHIDCL/SK/NH510/TU/07
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16. RCC DETAILS OF PORTAL SECTION I-I	CMES/NHIDCL/SK/NH510/TU/16
17. TYPICAL LIGHTING DETAILS OF TUNNEL	CMES/NHIDCL/SK/NH510/TU/17

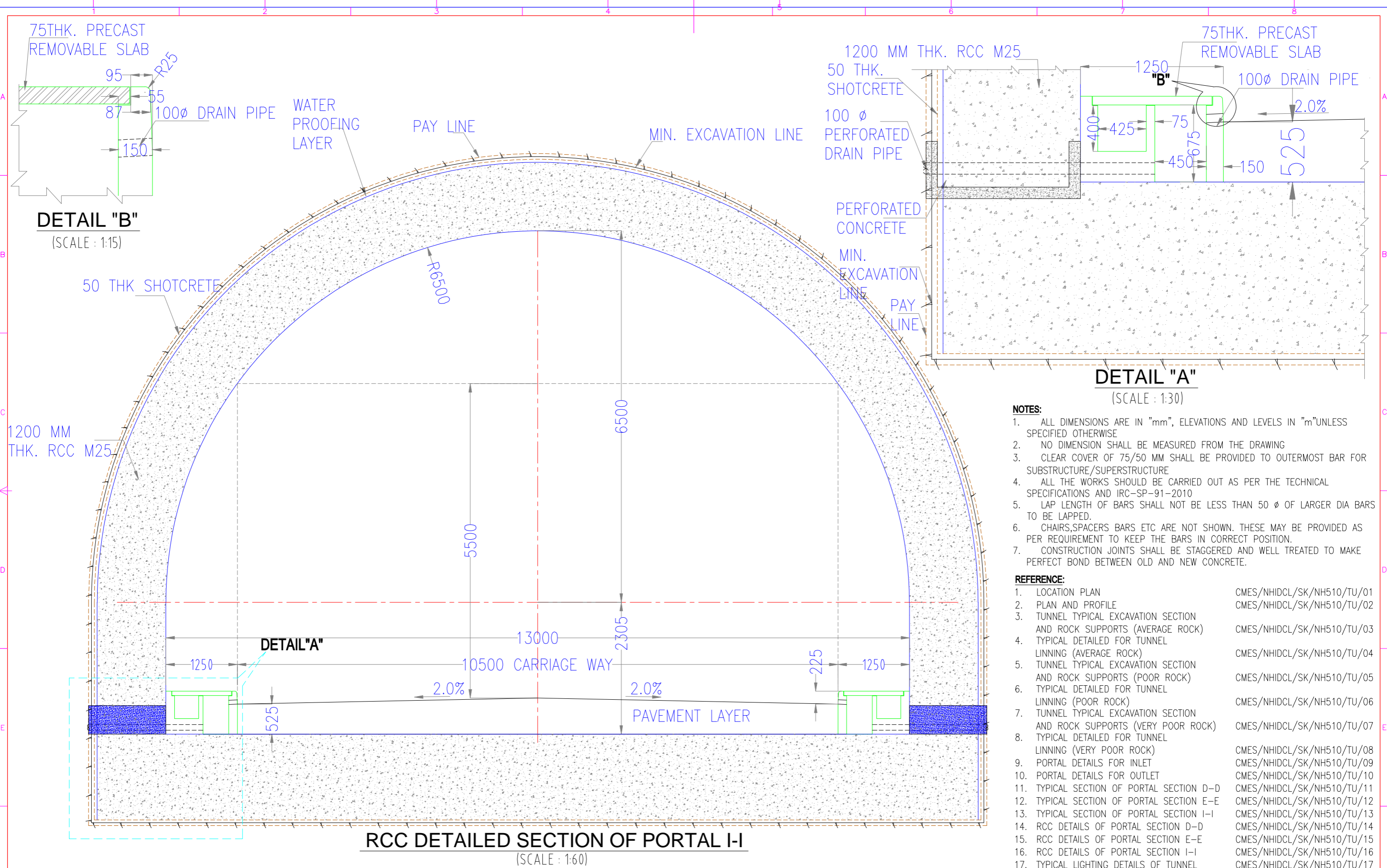
DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

NOTES:			

CLIENT:	
 <b>NATIONAL HIGHWAY &amp; INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.</b> 3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001	
MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA	
Manager (NHIDCL) Gangtok, Sikkim	General Manager (NHIDCL) Gangtok, Sikkim

CONSULTANT:		
 <b>CM ENGINEERING &amp; SOLUTION</b> MARUTI VIHAR, HOUSE NO. 1473A, GURGAON, HARYANA -122002 Email - cmesconsultancy@gmail.com Phone: 9811406386, 9911052266, 01244255138		
SM	ASK	DK
DEALT	CHECKED	APPROVED

PROJECT:			
CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM			
TITLE DETAILED PROJECT REPORT RABONGLA TUNNEL TYPICAL SECTION OF PORTAL SECTION E-E			
STATUS: <b>DPR DRAWING</b>	DATE: 06.04.20	SCALE	AS SHOWN   A3
CMES/NHIDCL/SK/NH510/TU/ 12			REV. SHEET R0 1 of 1



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- REFERENCE:**
- |   |                            |
|---|----------------------------|
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| 4. TYPICAL DETAILED FOR TUNNEL LINNING (AVERAGE ROCK)                   | CMES/NHIDCL/SK/NH510/TU/04 |
| 5. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (POOR ROCK)      | CMES/NHIDCL/SK/NH510/TU/05 |
| 6. TYPICAL DETAILED FOR TUNNEL LINNING (POOR ROCK)                      | CMES/NHIDCL/SK/NH510/TU/06 |
| 7. TUNNEL TYPICAL EXCAVATION SECTION AND ROCK SUPPORTS (VERY POOR ROCK) | CMES/NHIDCL/SK/NH510/TU/07 |
| 8. TYPICAL DETAILED FOR TUNNEL LINNING (VERY POOR ROCK)                 | CMES/NHIDCL/SK/NH510/TU/08 |
| 9. PORTAL DETAILS FOR INLET   | CMES/NHIDCL/SK/NH510/TU/09 |
| 10. PORTAL DETAILS FOR OUTLET   | CMES/NHIDCL/SK/NH510/TU/10 |
| 11. TYPICAL SECTION OF PORTAL SECTION D-D                               | CMES/NHIDCL/SK/NH510/TU/11 |
| 12. TYPICAL SECTION OF PORTAL SECTION E-E                               | CMES/NHIDCL/SK/NH510/TU/12 |
| 13. TYPICAL SECTION OF PORTAL SECTION I-I                               | CMES/NHIDCL/SK/NH510/TU/13 |
| 14. RCC DETAILS OF PORTAL SECTION D-D                                   | CMES/NHIDCL/SK/NH510/TU/14 |
| 15. RCC DETAILS OF PORTAL SECTION E-E                                   | CMES/NHIDCL/SK/NH510/TU/15 |
| 16. RCC DETAILS OF PORTAL SECTION I-I                                   | CMES/NHIDCL/SK/NH510/TU/16 |
| 17. TYPICAL LIGHTING DETAILS OF TUNNEL                                  | CMES/NHIDCL/SK/NH510/TU/17 |

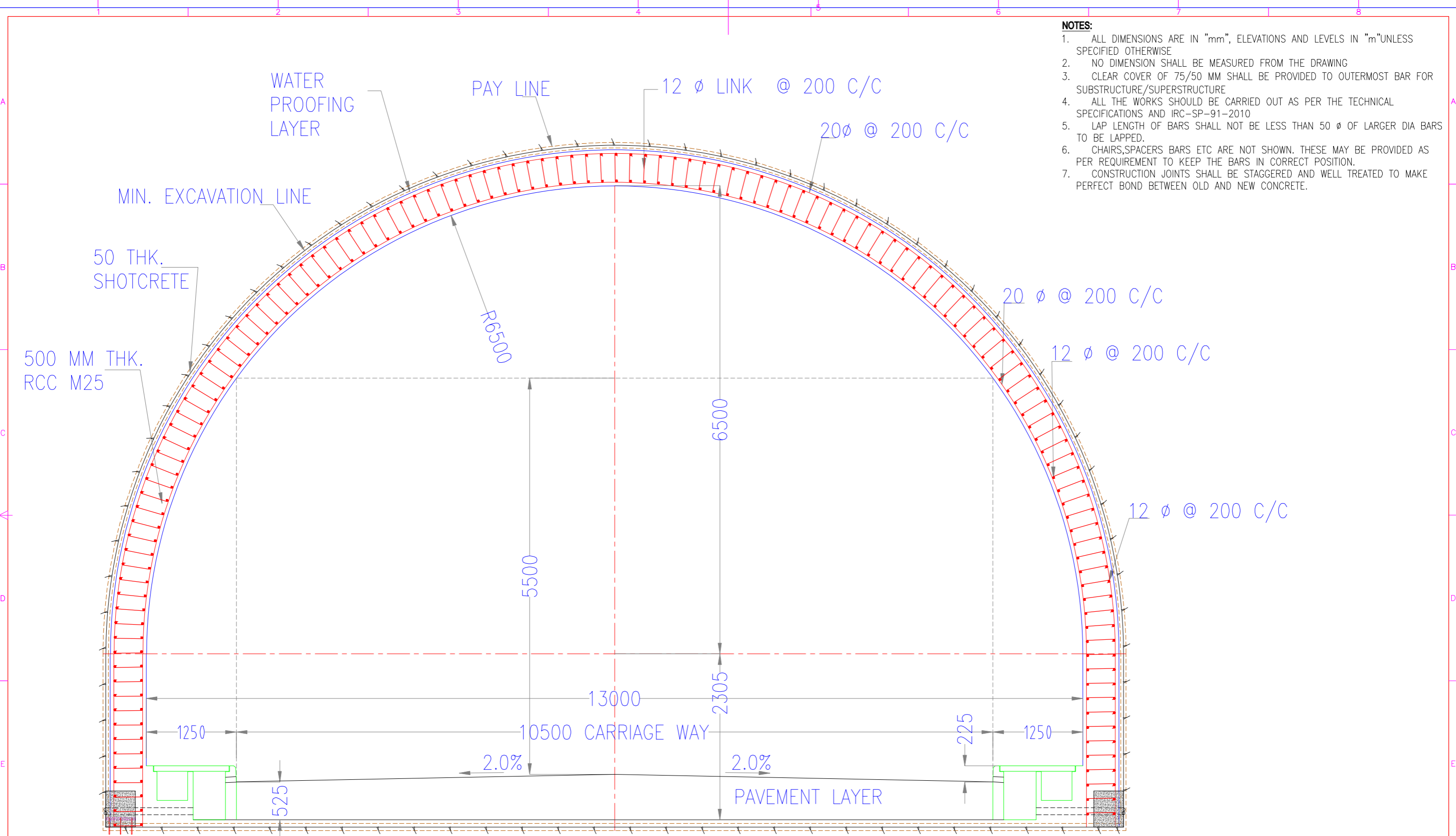
DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
R E V I S I O N S			

NOTES:			

CLIENT:	
NATIONAL HIGHWAY & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001	
MINISTRY OF ROAD, TRANSPORT & HIGHWAYS, GOVERNMENT OF INDIA	
Manager (NHIDCL) Gangtok, Sikkim	General Manager (NHIDCL) Gangtok, Sikkim

CONSULTANT:		
CM ENGINEERING & SOLUTION		
MARUTI VIHAR, HOUSE NO. 1473A, GURGAON, HARYANA -122002 Email - cmesconsultancy@gmail.com Phone: 9811406386, 9911052266, 01244255138		
SM	ASK	DK
DEALT	CHECKED	APPROVED

PROJECT:			
CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM			
TITLE			
DETAILED PROJECT REPORT RABONGLA TUNNEL TYPICAL SECTION OF PORTAL SECTION I-I			
STATUS: DPR DRAWING		DATE: 06.04.20	SCALE: AS SHOWN
CMES/NHIDCL/SK/NH510/TU/ 13		REV. R0	SHEET 1 of 1



- NOTES:**
1. ALL DIMENSIONS ARE IN "mm", ELEVATIONS AND LEVELS IN "m"UNLESS SPECIFIED OTHERWISE
  2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWING
  3. CLEAR COVER OF 75/50 MM SHALL BE PROVIDED TO OUTERMOST BAR FOR SUBSTRUCTURE/SUPERSTRUCTURE
  4. ALL THE WORKS SHOULD BE CARRIED OUT AS PER THE TECHNICAL SPECIFICATIONS AND IRC-SP-91-2010
  5. LAP LENGTH OF BARS SHALL NOT BE LESS THAN 50 Ø OF LARGER DIA BARS TO BE LAPPED.
  6. CHAIRS,SPACERS BARS ETC ARE NOT SHOWN. THESE MAY BE PROVIDED AS PER REQUIREMENT TO KEEP THE BARS IN CORRECT POSITION.
  7. CONSTRUCTION JOINTS SHALL BE STAGGERED AND WELL TREATED TO MAKE PERFECT BOND BETWEEN OLD AND NEW CONCRETE.

**RCC DETAILED SECTION OF PORTAL D-D**

(SCALE : 1:60)

DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

NOTES:

CLIENT:



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DEVELOPMENT CORPORATION LTD.  
3rd FLOOR PTI BUILDING, 4 PARLIAMENT STREET,  
NEW DELHI-110001

MINISTRY OF ROAD, TRANSPORT & HIGHWAYS,  
GOVERNMENT OF INDIA

Manager (NHIDCL)  
Gangtok, Sikkim

General Manager (NHIDCL)  
Gangtok, Sikkim

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Email - cmesconsultancy@gmail.com  
Phone: 9811406386, 9911052266, 01244255138

SM

DEALT

ASK

CHECKED

DK

APPROVED

PROJECT:

CONSTRUCTION OF 2 LANE NH-510  
(SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING)  
IN SOUTH WEST SIKKIM

TITLE

DETAILED PROJECT REPORT  
RABONGLA TUNNEL  
RCC DETAILS FOR PORTAL SECTION D-D

STATUS:

DPR DRAWING

DATE

06.04.20

SCALE

AS SHOWN

A3

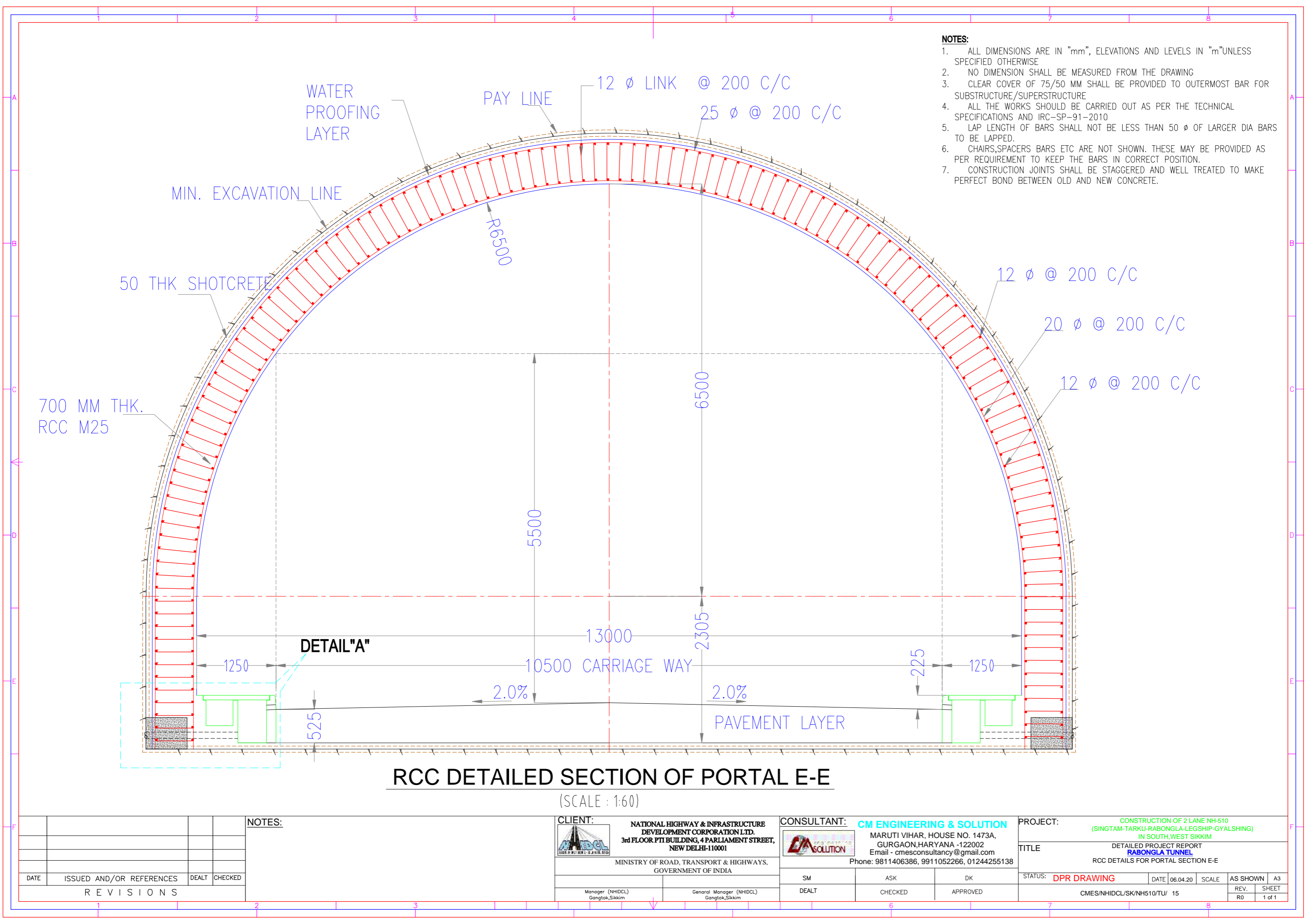
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REV.

SHEET

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1 of 1



DATE	ISSUED AND/OR REFERENCES	DEALT	CHECKED
REVISIONS			

NOTES:			

CLIENT:	
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SM	ASK	DK
DEALT	CHECKED	APPROVED

PROJECT:	
CONSTRUCTION OF 2 LANE NH-510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN SOUTH WEST SIKKIM	
TITLE	
DETAILED PROJECT REPORT RABONGLA TUNNEL	
RCC DETAILS FOR PORTAL SECTION E-E	
STATUS: DPR DRAWING	
DATE	06.04.20
SCALE	AS SHOWN
AS SHOWN	A3
REV.	SHEET
R0	1 of 1



