

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER UNLESS MENTIONED OTHERWISE.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS 10T/M². THIS SBC SHOULD BE VERIFIED AT SITE BEFORE EXECUTION. ANY VARIATION ON SITE SHOULD BE INFORMED TO THE DESIGN ENGINEER FOR NECESSARY ACTION.
- GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFIRMING TO IS:1786.
- CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
 - (i) RCC BOX..... M30
 - (ii) RCC CRASH BARRIER..... M40
 - (iii) RETAINING WALL..... M30
 - (iv) PCC LEVELING COURSE.... M15
- THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoRTH SPECIFICATIONS.
- THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi=30^\circ$, $\gamma=2.0$ T/Cum
- DETAIL OF CAMBER/SUPER ELEVATION MAY BE VERIFIED WITH LATEST PLAN AND PROFILE DRAWING.
- FLOW DIRECTION SHOWN IN THE DRAWING IS INDICATIVE ONLY. BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
- FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
- DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
- 100mm ϕ PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL.
- 600mm THK. FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
- ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE WITH RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.

LEGEND:-

- FRL - FINISHED ROAD LEVEL
- GL. - GROUND LEVEL
- LVL. - LEVEL
- IL - INVERT LEVEL



TABLE-1 SCHEDULE OF BOX CULVERT

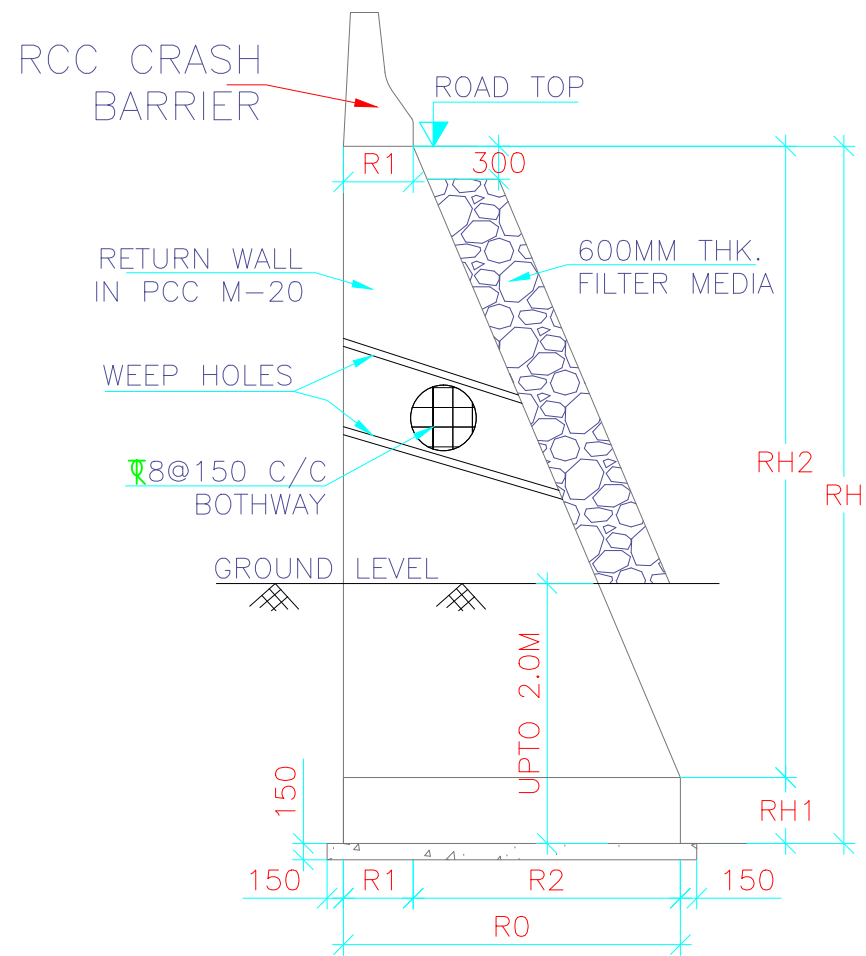
| S.No | DESIGN CH: SCHEDULE | PROPOSAL | DIRECTION OF FLOW | SKEW ANGLE | PROPOSED DETAILS | | | | | |
|------|---------------------|------------------|-------------------|------------|------------------|--------------------------|------|-----|-----|-----|
| | | | | | TYPE | DIMENSION DETAILS OF BOX | | | | |
| | | | | | a | b | c | d | e | |
| 1 | | NEW CONSTRUCTION | R TO L | 0° | BOX | 2000 | 2000 | 300 | 300 | 325 |

TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

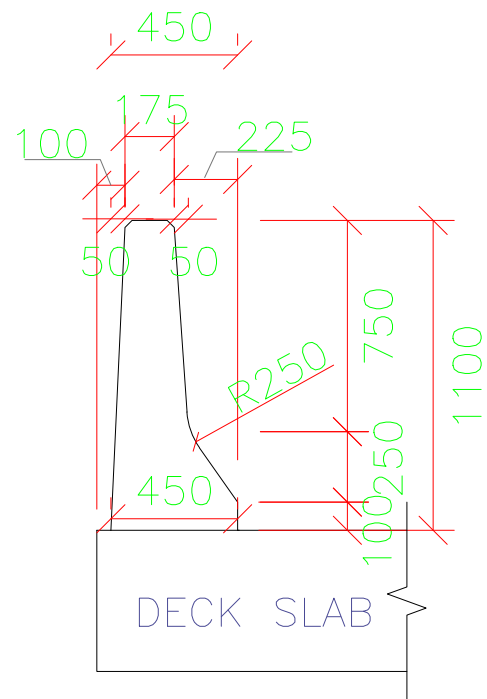
| S. No. | DIMENSION DETAILS(mm) | | | | | |
|--------|-----------------------|-----|------|------|-----|------|
| | R0 | R1 | R2 | R3 | RH1 | RH2 |
| 1 | 3450 | 500 | 2950 | 4300 | 600 | 3700 |

GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.
 21+ 115, + 21+ 315, + 22+ 590, + 23+ 100, + 25+ 165, + 25+ 315, + 25+ 490,
 + 27+ 465, + 27+ 590, + 27+ 745, + 29+ 390, + 29+ 665,

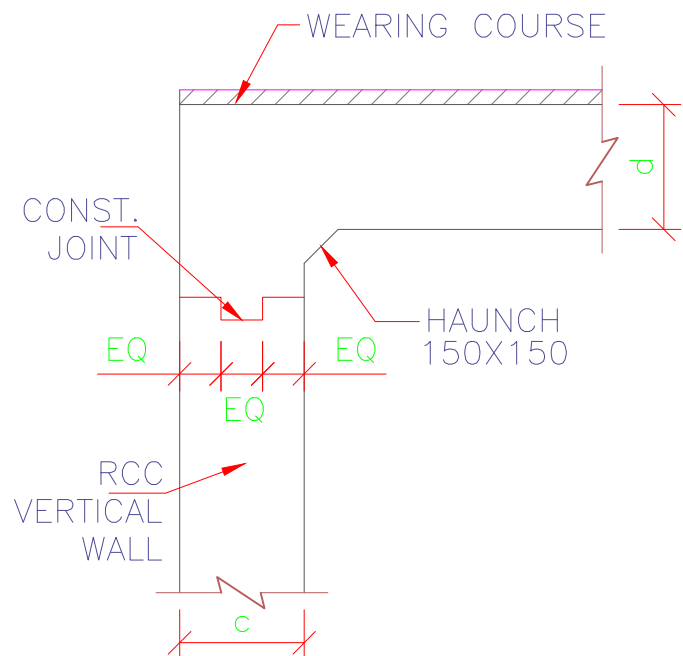
| | | | | | | |
|---|---|------------|--------------|--------------|--|--|
| CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@rediffmail.com | CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | PROJECT TITLE :- Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode. | General Arrangement Drawing:- GAD Box-1X2X2 |
|---|---|------------|--------------|--------------|--|--|



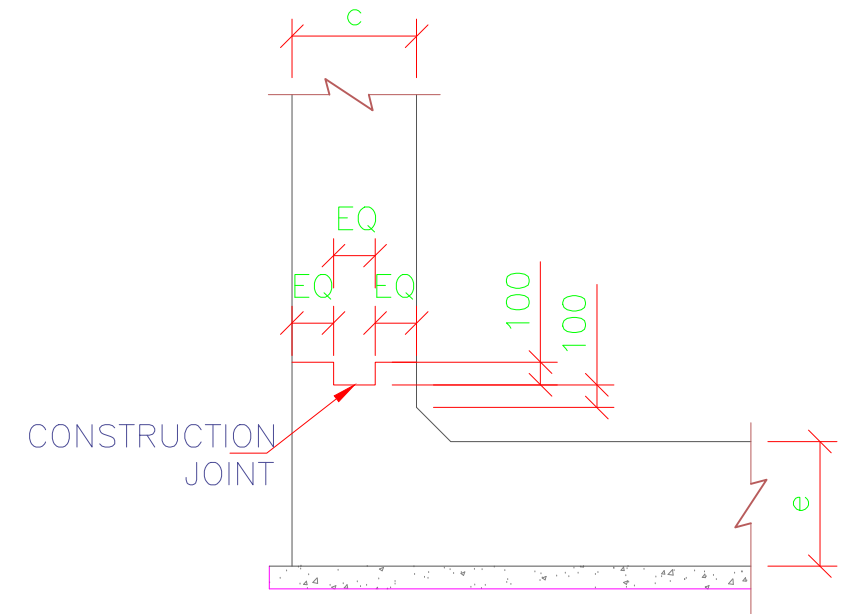
DETAIL OF PCC RETAINING WALL



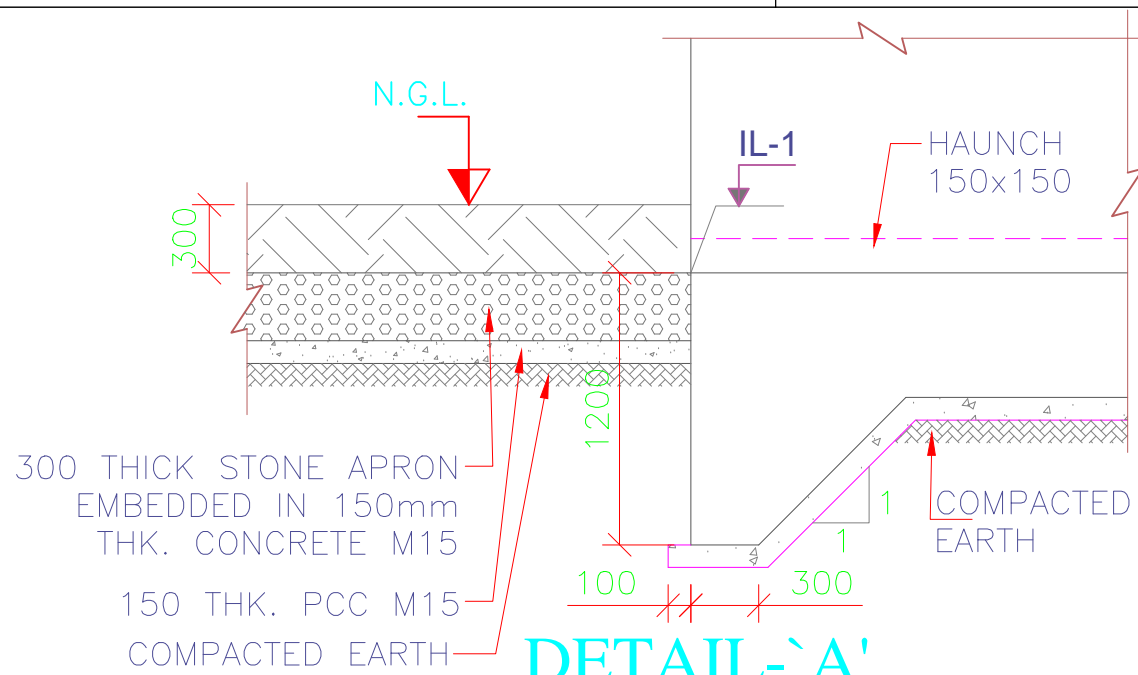
CRASH BARRIER DIMENSIONS



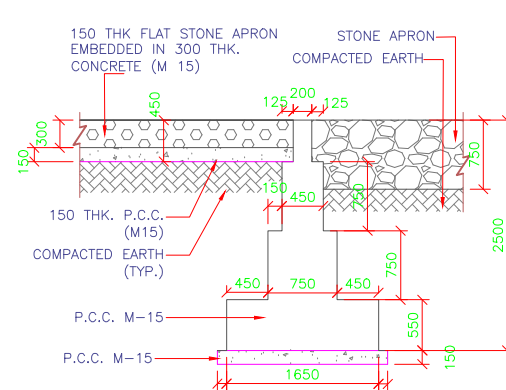
DETAIL-'B'



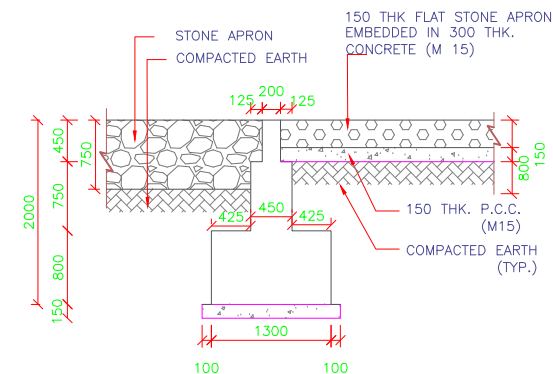
DETAIL-'C'



DETAIL-'A'



DETAIL OF CURTAIN WALL TYPE-I



DETAIL OF CURTAIN WALL TYPE-II

-- CONSULTANTS --

-- CLIENT --

DRG. NO. :

DESIGNED BY.

APPROVED BY.

-- PROJECT TITLE --

--General Arrangement Drawing--

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004686
E-mail : lninfra@rediffmail.com

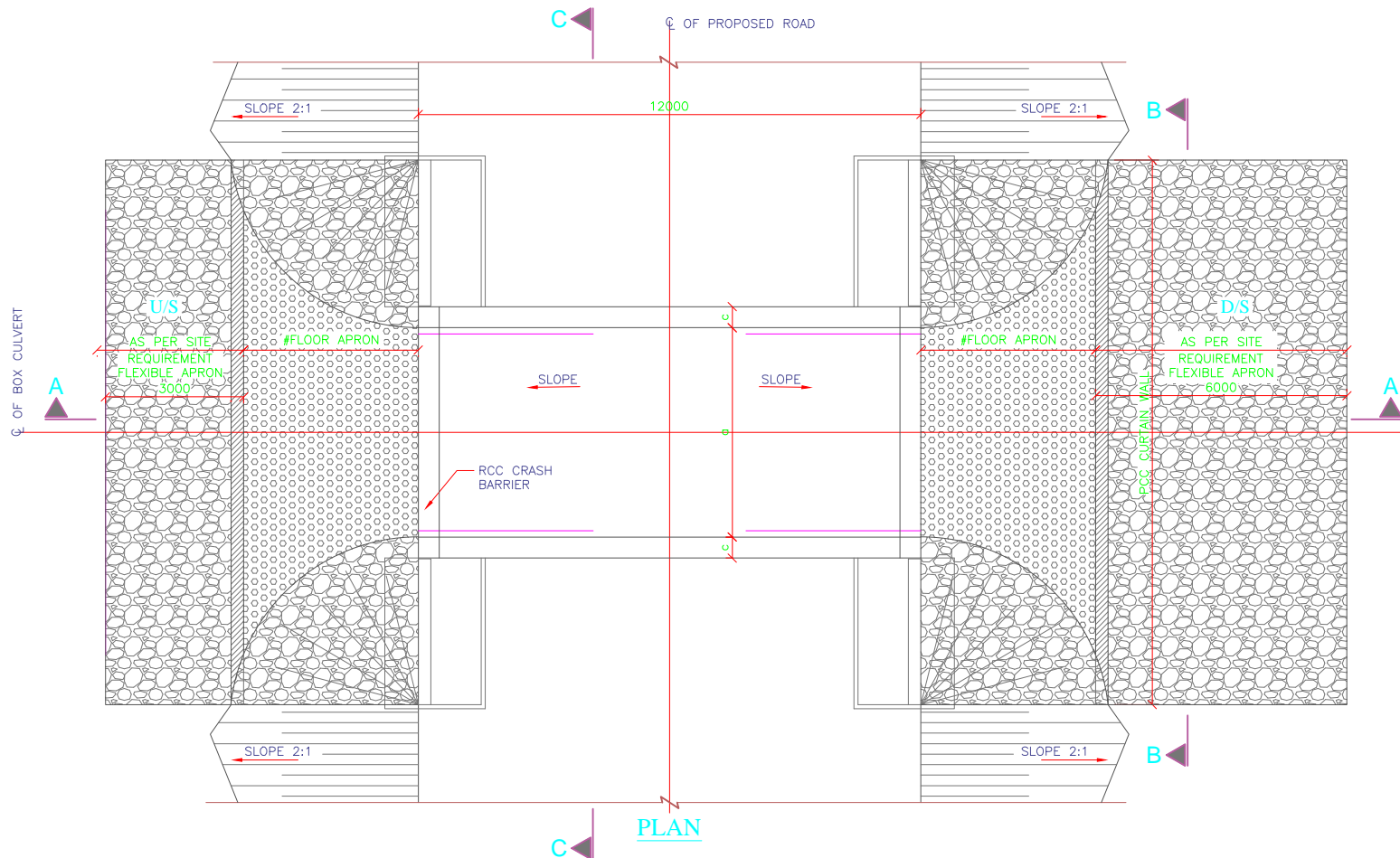
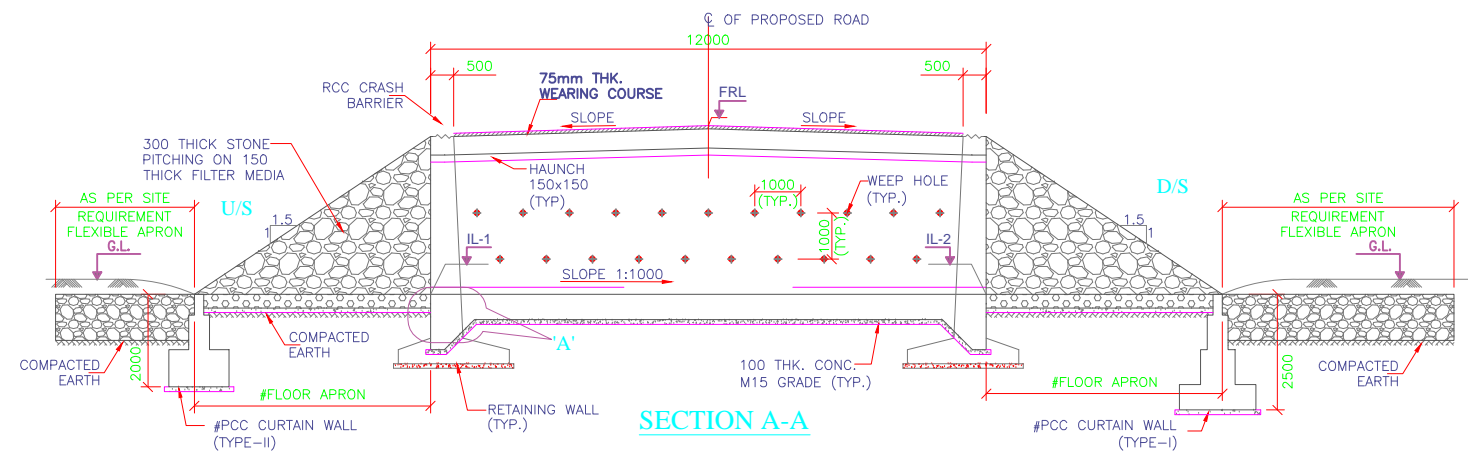


**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**

Consultancy Services for Preparation of Feasibility Study
and Detailed Project Report For Two lane With Paved
Shoulders of Tamenglong Haflong Road In The State of
Manipur on EPC Mode.

BOX CULVERT

Span-1No. 2X2



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER UNLESS MENTIONED OTHERWISE.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS $10T/M^2$. THIS SBC SHOULD BE VERIFIED AT SITE BEFORE EXECUTION. ANY VARIATION ON SITE SHOULD BE INFORMED TO THE DESIGN ENGINEER FOR NECESSARY ACTION.
- GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFIRMING TO IS:1786.
- CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
 - (i) RCC BOX..... M25
 - (ii) RCC CRASH BARRIER..... M40
 - (iii) RETAINING WALL..... M30
 - (iv) PCC LEVELING COURSE.... M15
- THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoRTH SPECIFICATIONS.
- THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi=30^\circ, \gamma=2.0 T/Cum$
- DETAIL OF CAMBER/SUPER ELEVATION MAY BE VERIFIED WITH LATEST PLAN AND PROFILE DRAWING.
- FLOW DIRECTION SHOWN IN THE DRAWING IS INDICATIVE ONLY. BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
- FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
- DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
- 100mm ϕ PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL.
- 600mm THK. FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
- ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE WITH RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.

LEGEND:-

- FRL - FINISHED ROAD LEVEL
- GL. - GROUND LEVEL
- LVL. - LEVEL
- IL - INVERT LEVEL

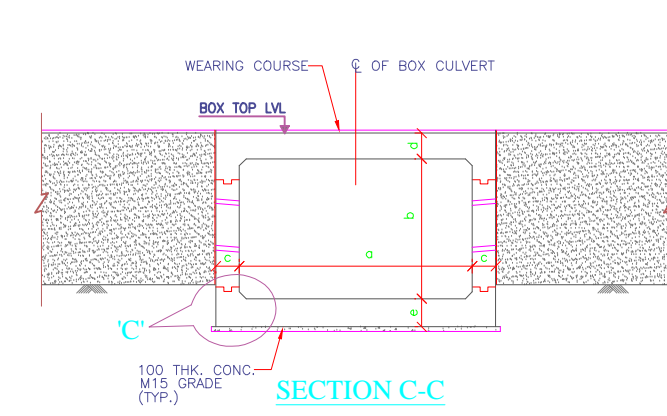
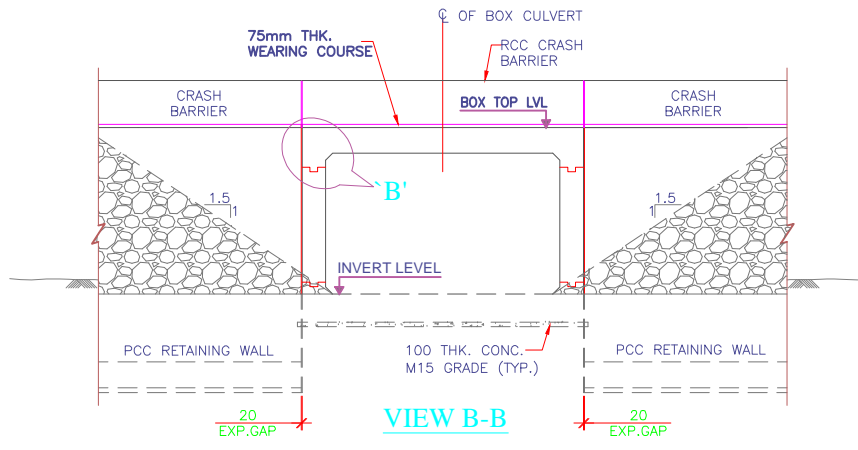


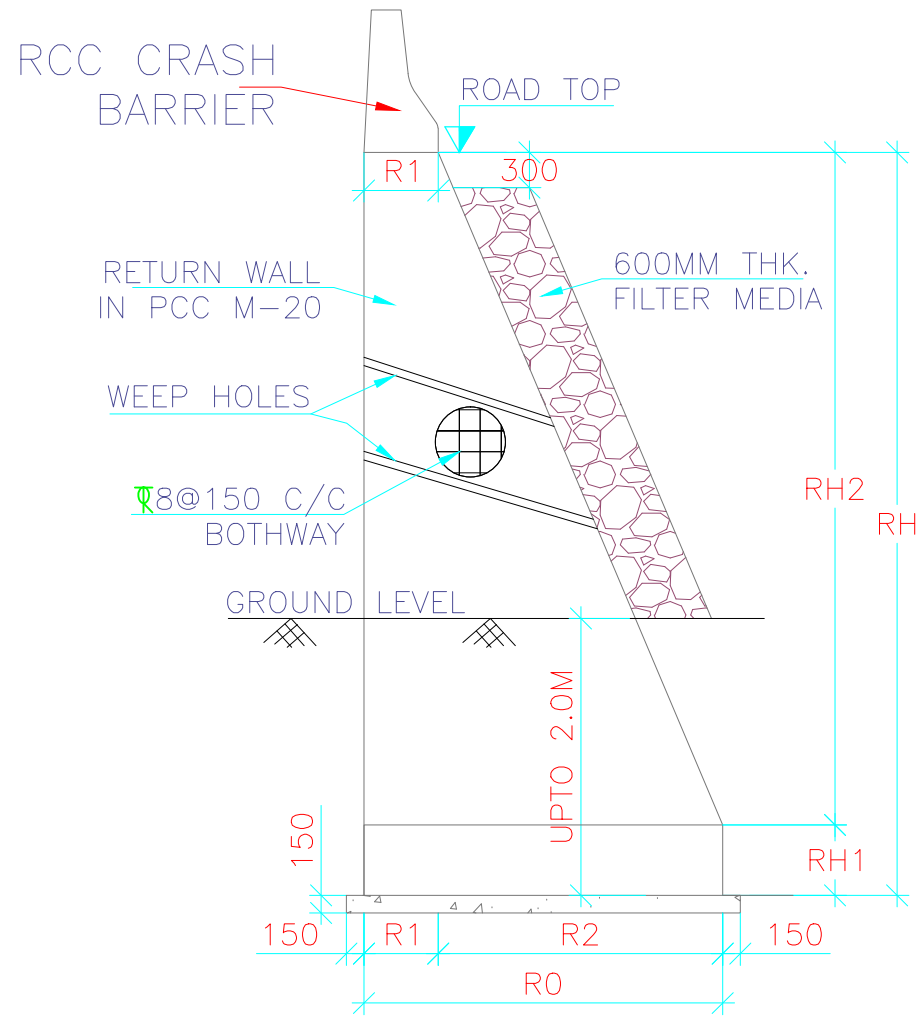
TABLE-1 SCHEDULE OF BOX CULVERT

| S. No. | DESIGN CH: SCHEDULE | PROPOSAL | DIRECTION OF FLOW | SKEW ANGLE | PROPOSED DETAILS | | | | | |
|--------|---------------------|------------------|-------------------|------------|------------------|--------------------------|------|-----|-----|-----|
| | | | | | TYPE | DIMENSION DETAILS OF BOX | | | | |
| | | | | | a | b | c | d | e | |
| 1 | | NEW CONSTRUCTION | R TO L | 0° | BOX | 3000 | 3000 | 420 | 420 | 420 |

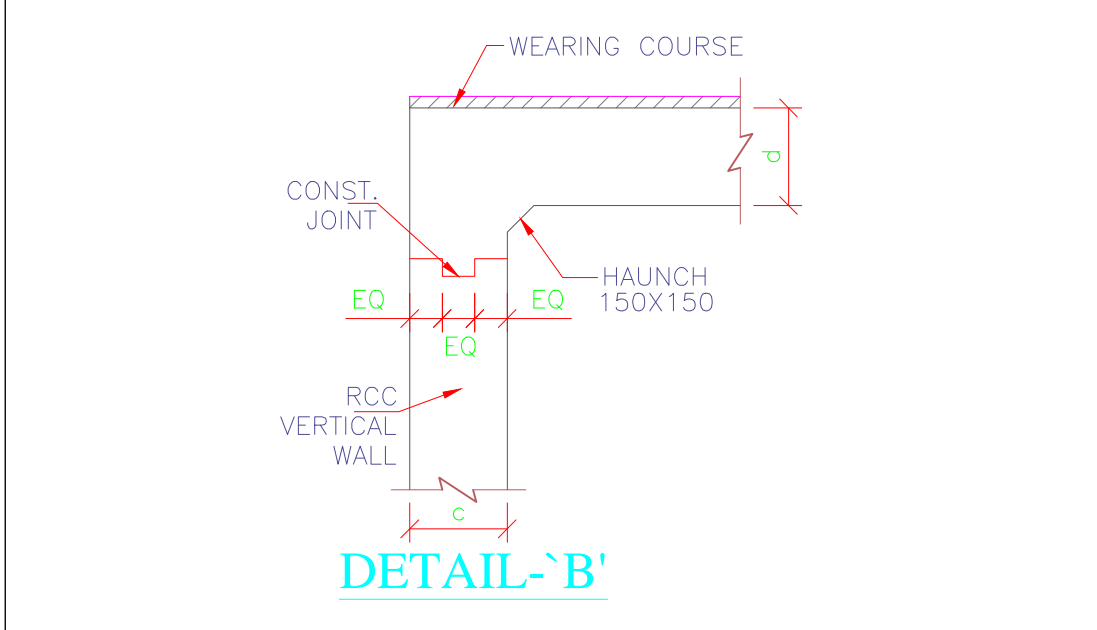
TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

| S. No. | DIMENSION DETAILS(mm) | | | | | |
|--------|-----------------------|-----|------|------|-----|------|
| | R0 | R1 | R2 | RH | RH1 | RH2 |
| 1 | 4450 | 500 | 3950 | 5170 | 600 | 4570 |

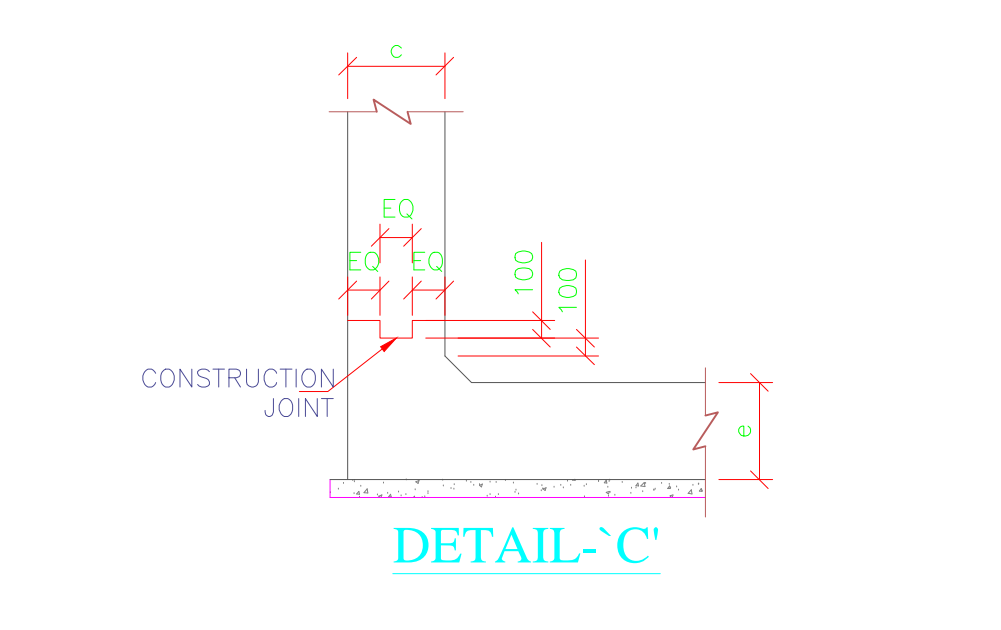
| | | | | | | |
|--|---|------------|--------------|--------------|--|---|
| --: CONSULTANTS :- | --: CLIENT :- | DRG. NO. : | DESIGNED BY. | APPROVED BY. | --: PROJECT TITLE :- | --:General Arrangement Drawing:- |
| L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) | | | | Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode. | BOX CULVERT Span-1No. 3X3 |



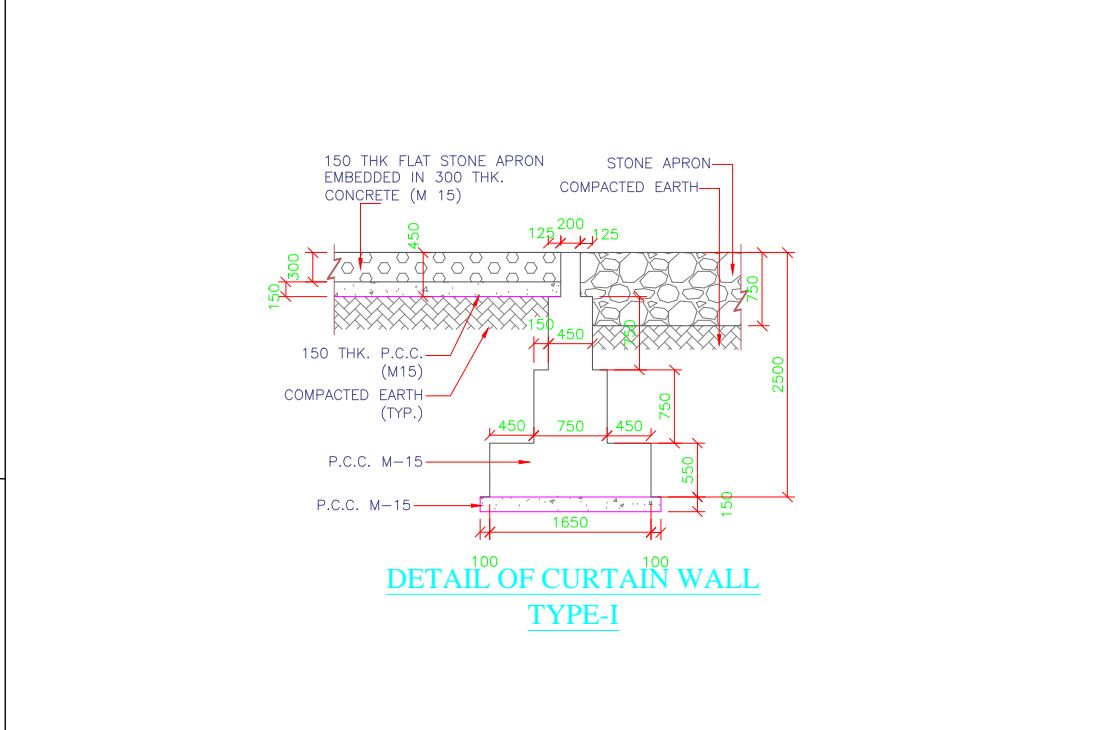
DETAIL OF PCC RETAINING WALL



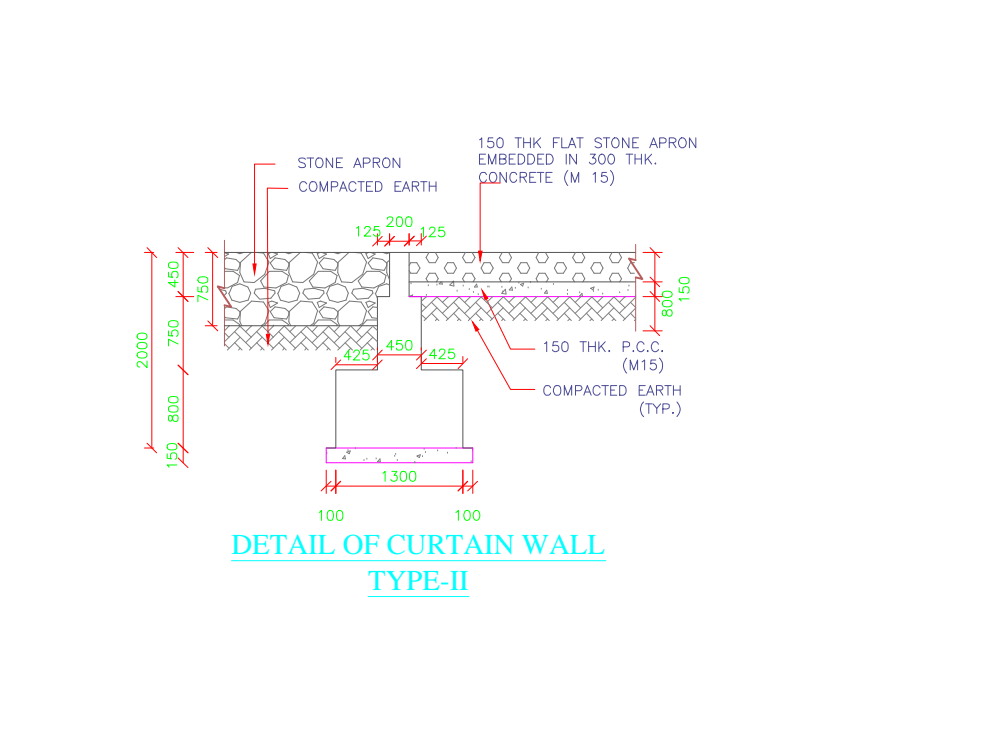
DETAIL-'B'



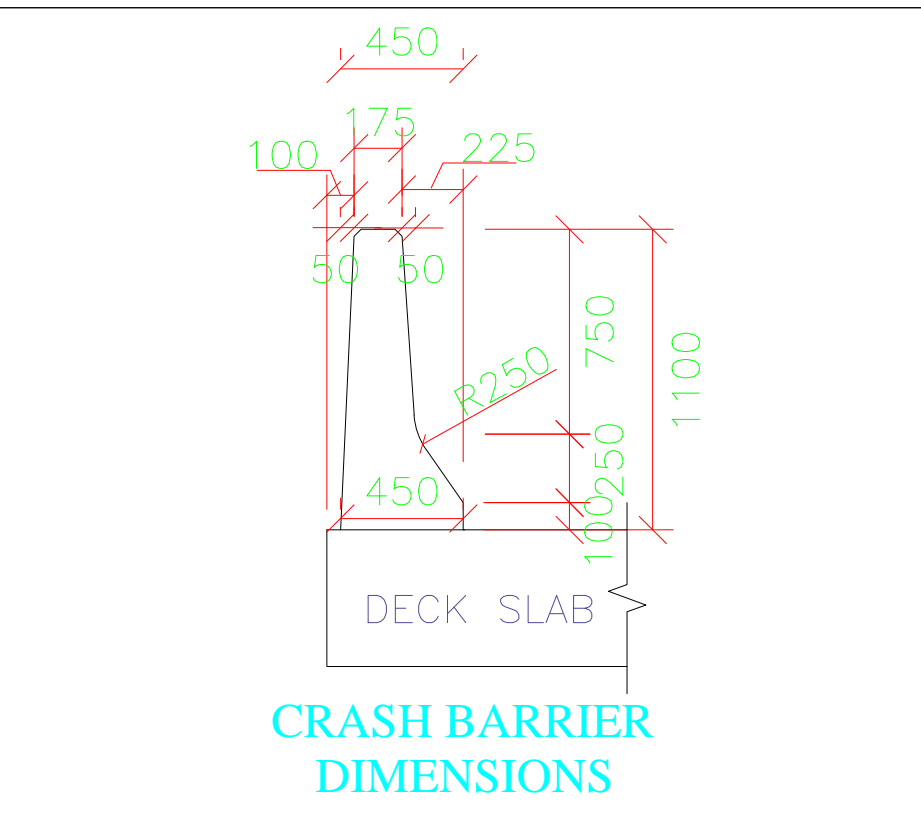
DETAIL-'C'



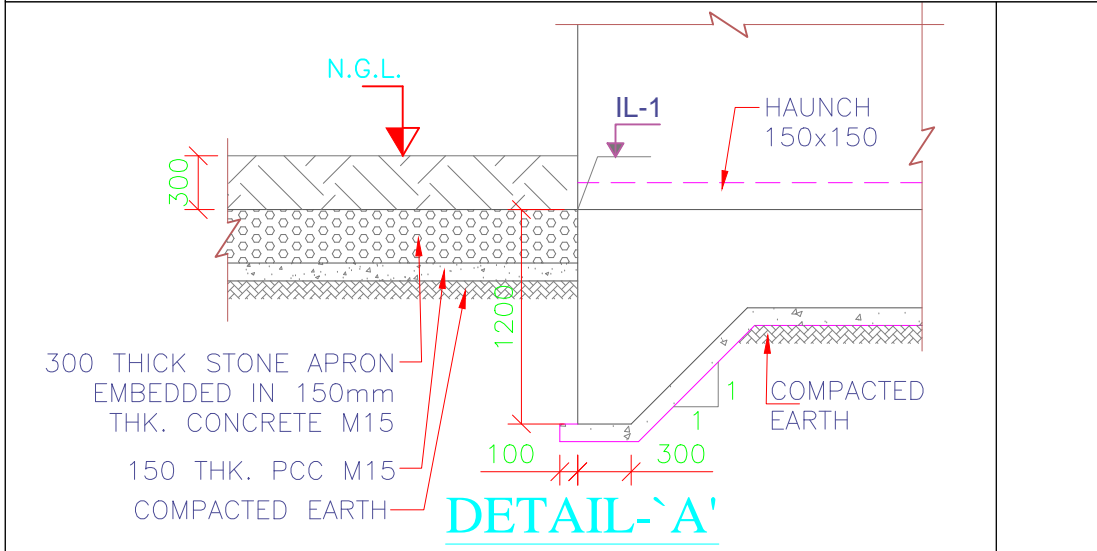
DETAIL OF CURTAIN WALL TYPE-I



DETAIL OF CURTAIN WALL TYPE-II



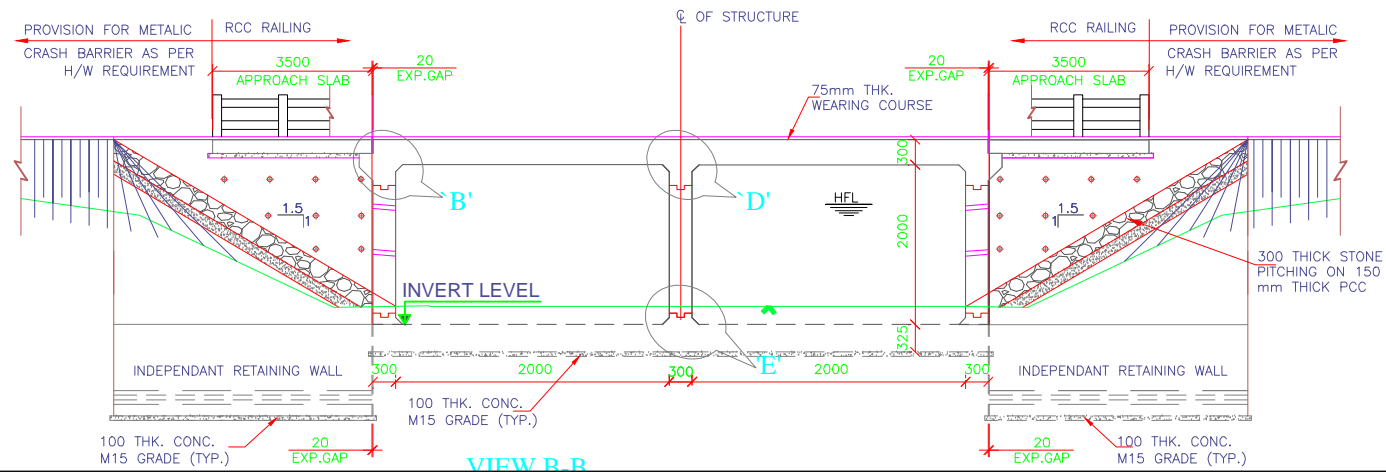
CRASH BARRIER DIMENSIONS



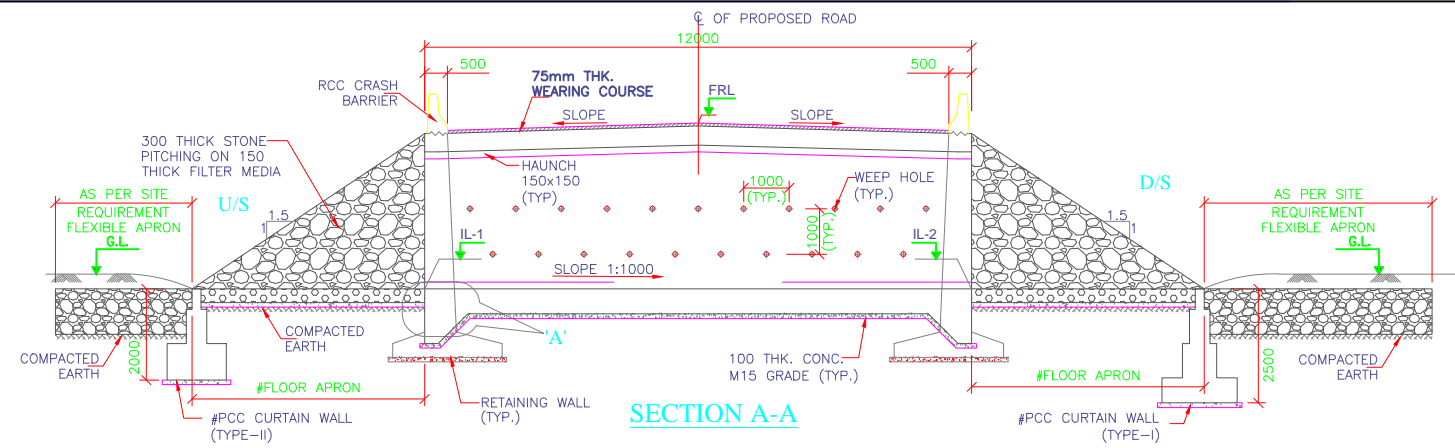
DETAIL-'A'

GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH. 21+520,21+925,+22+800,+24+520,+24+915,+25+715,+25+920,+26+150,+28+790,+28+985,+29+915,+30+115,+30+415,+30+515,

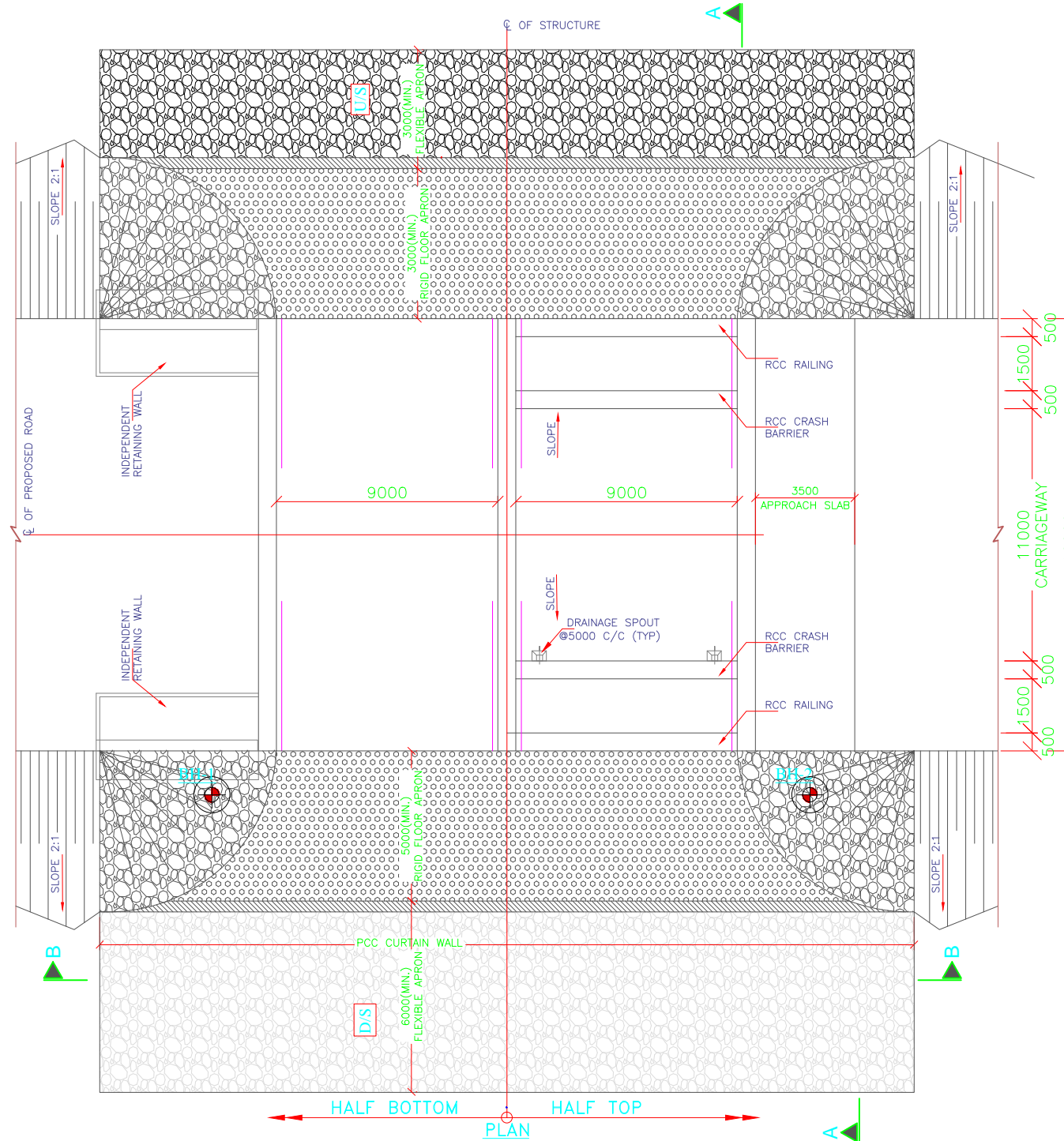
| | | | | | | |
|--|---|-------------------|---------------------|---------------------|--|--|
| <p>CONSULTANTS :-</p> | <p>CLIENT :-</p> | <p>DRG. NO. :</p> | <p>DESIGNED BY.</p> | <p>APPROVED BY.</p> | <p>PROJECT TITLE :-</p> | <p>General Arrangement Drawing:-</p> |
| <p>L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-I, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com</p> | <p>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)</p> | | | | <p>Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode.</p> | <p>BOX CULVERT Span-1No. 3X3</p> |



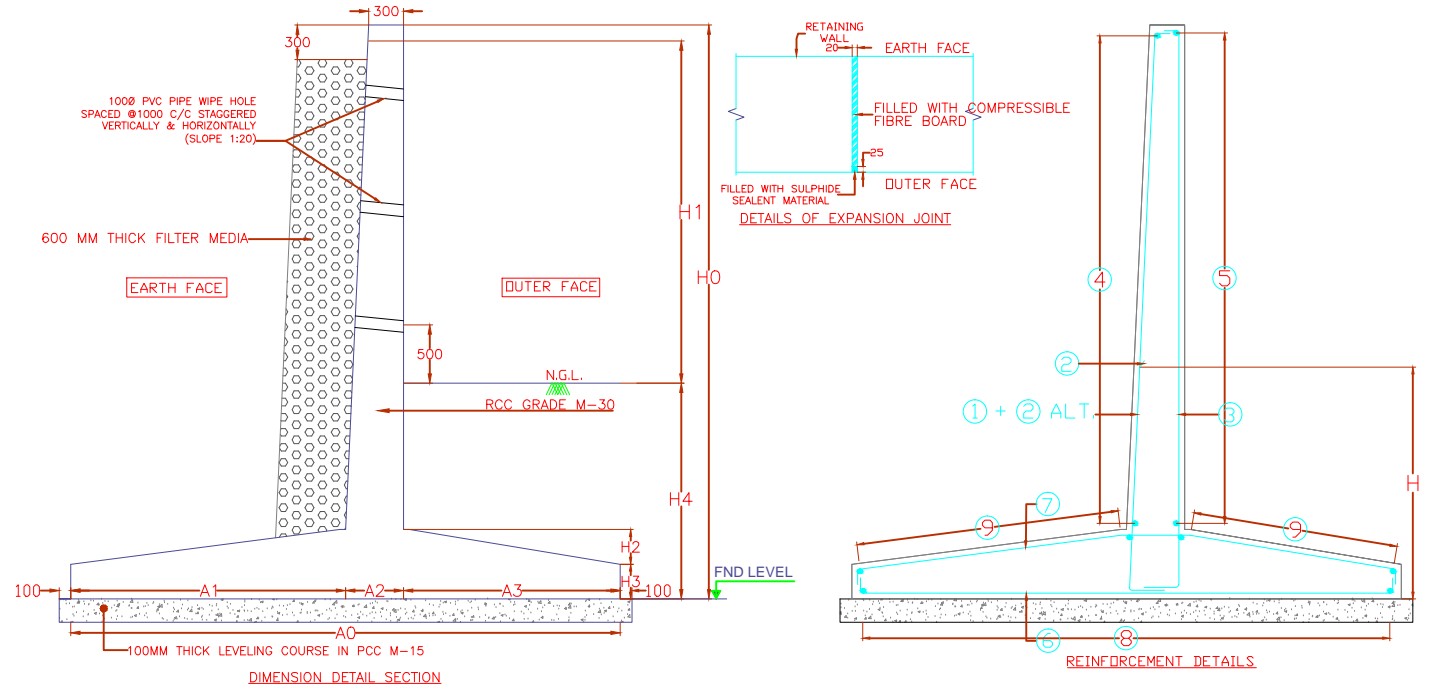
VIEW R-B



SECTION A-A

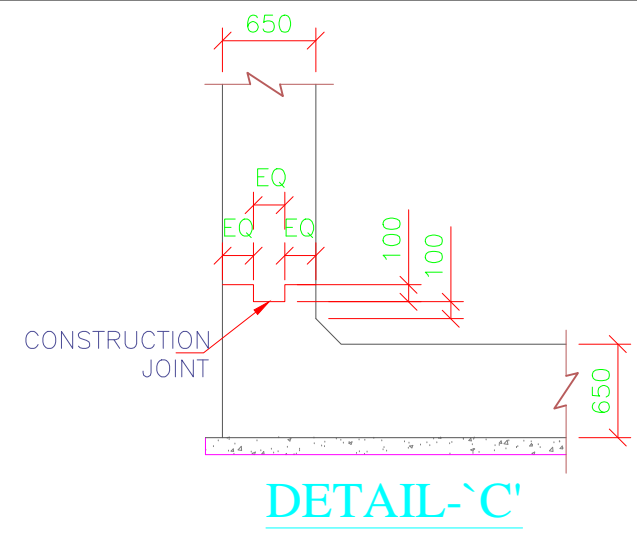


PLAN

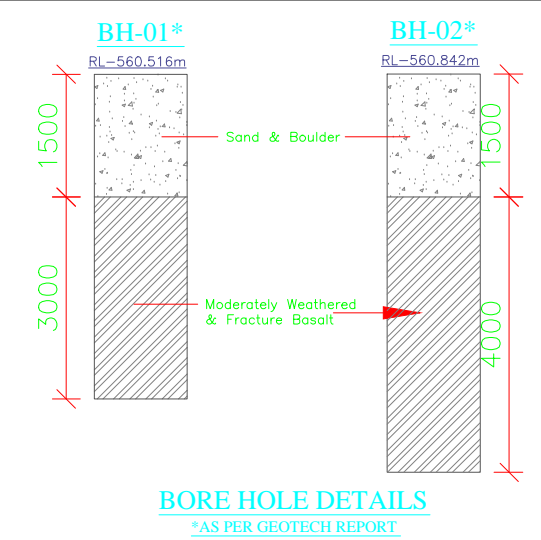


DIMENSION DETAIL:-

| SERIAL NO. | OVERALL HEIGHT H0 (mm) | HEIGHT ABOVE OF GL H1 (mm) | H2 (mm) | H3 (mm) | H4 (mm) | A0 (mm) | A1 (mm) | A2 (mm) | A3 (mm) |
|------------|------------------------|----------------------------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 5000 | 3000 | 500 | 300 | 1500 | 4050 | 1200 | 450 | 2400 |



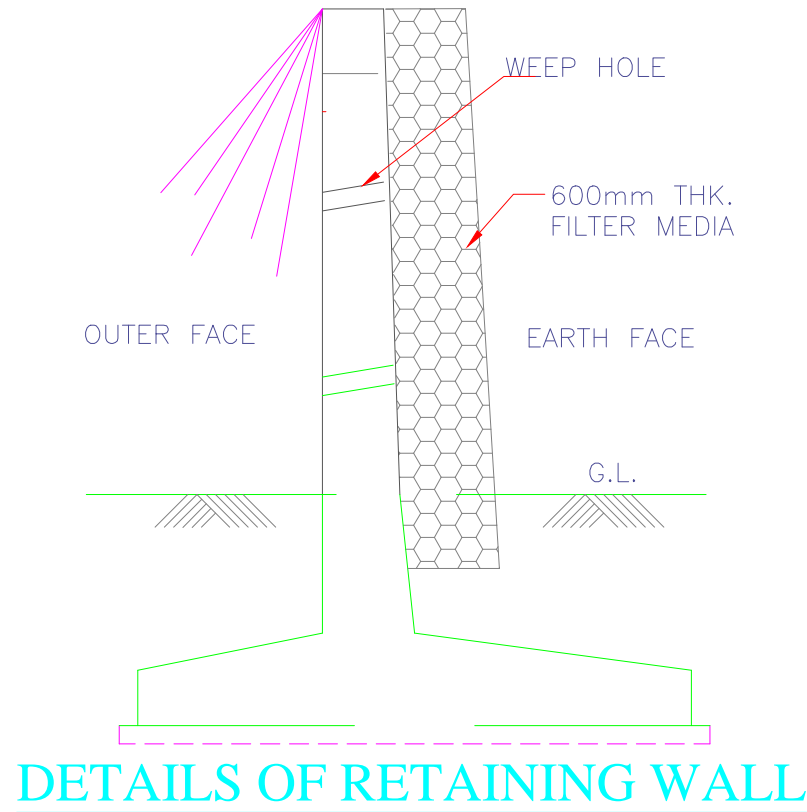
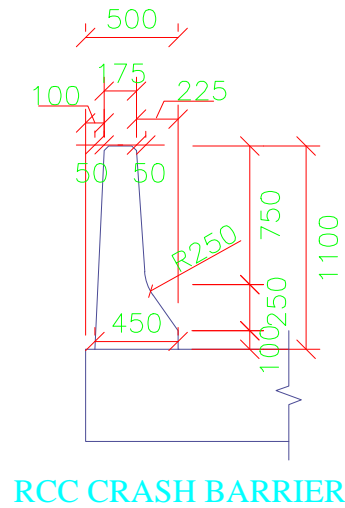
DETAIL - C



BORE HOLE DETAILS

*AS PER GEOTECH REPORT

| | | | | | | |
|--|--|--------------------|---------------------|---------------------|--|---|
| <p>CONSULTANTS :-</p> <p>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</p> <p>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)</p> <p>Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com</p> | <p>CLIENT :-</p> <p>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)</p> | <p>DRG. NO. :-</p> | <p>DESIGNED BY.</p> | <p>APPROVED BY.</p> | <p>PROJECT TITLE :-</p> <p>Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode.</p> | <p>General Arrangement Drawing:-</p> <p>BOX CULVERT</p> <p>Span-2No. 2X2</p> |
|--|--|--------------------|---------------------|---------------------|--|---|



NOTES: -

1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS MENTIONED OTHERWISE.
 2. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING . ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
 3. LAYING COMPACTION AND EXTENT OF BACKFILL BEHIND RETAINING WALL SHALL CONFIRM TO APPENDIX - 6 IRC-78-2014
 4. WEEP HOLES OF DIAMETER 100mm. SHALL BE PROVIDED AT SUITABLE STAGGERED SPACING NOT EXCEEDING 1M IN BOTH DIRECTION FOR RETAINING WALL.
 5. GRADE FOR CONCRETE FOR RETAINING WALL IS M-30.
 6. BACKFILL GRANULAR SOIL MATERIAL BEHIND WALL SHALL BE LAID AS PER APPENDIX 6 OF IRC: 78-2014. THE PROPERTIES ARE $C = 0, \phi = 30^\circ, \gamma = 20\text{KN/CU.M}$
 7. GRADE OF STEEL Fe 500 AS PER IS 1786.
 8. CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.
 - i) FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm
 - ii) FOR BASE SLAB 75mm
 9. EARTH FILL ON BOTH SIDES OF RETAINING WALL SHALL BE DONE SIMULTANEOUSLY.
 10. SAND FILLING OF MIN. 300mm WILL BE DONE BELOW FOUNDATION WHEREVER CLAYEY SOIL IS PRESENT.
 11. DRAWING IS VALID FOR HORIZONTAL EARTH FACE ONLY.
 12. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE . IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOWS WITH MAXIMUM ALLOWABLE LAPPING (p) OF 50% ONLY
(IRC : 112: 2011), (CLAUSE: 15.2.5.12)
- LAP LENGTH $l_s = a1.l_{bnet}$
- $a1 = 1.0$ FOR $p\% \leq 25\%$
 $a1 = 1.5$ FOR $25\% \leq p\% \leq 33\%$
 $a1 = 1.4$ FOR $33\% \leq p\% \leq 50\%$
- (IRC: 112= 2011) (CLAUSE: 15.2.3.3)
- DEVELOPMENT LENGTH (l_{bnet})
- $l_{bNET} = a.l_b$ ($a = 1.0$)
 $l_b = k\phi$
 $k = 40$ FOR M30(Fe500)
 $k = 36$ FOR M35(Fe500)
 $k = 34$ FOR M40(Fe500)
- FOR UNFAVORABLE BOND CONDITION THE l_b SHOULD BE MULTIPLIED BY FACTOR OF 1.43 FOR $\phi > 32\text{mm}$ l_b , SHOULD BE INCREASED BY MULTIPLYING FACTOR $(100/132-\phi)$.

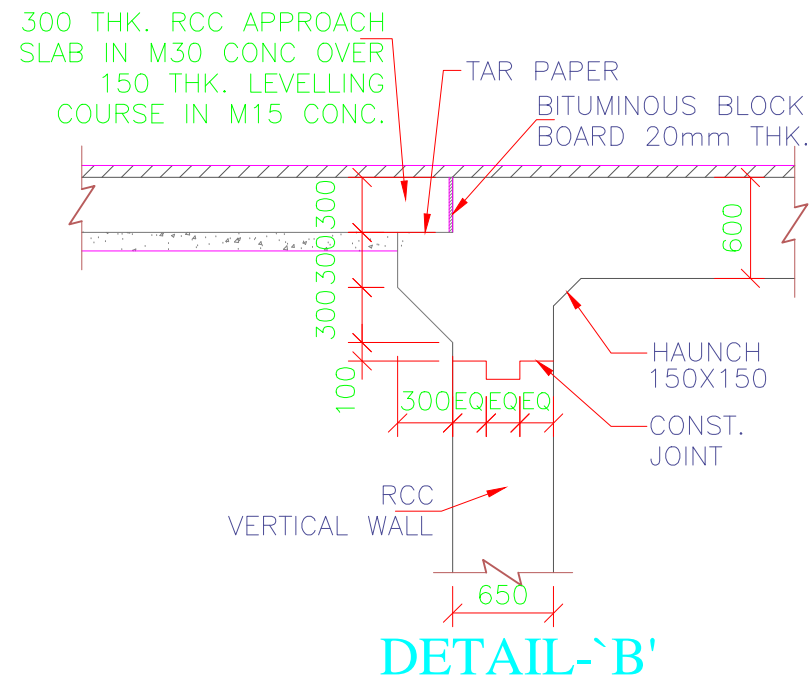
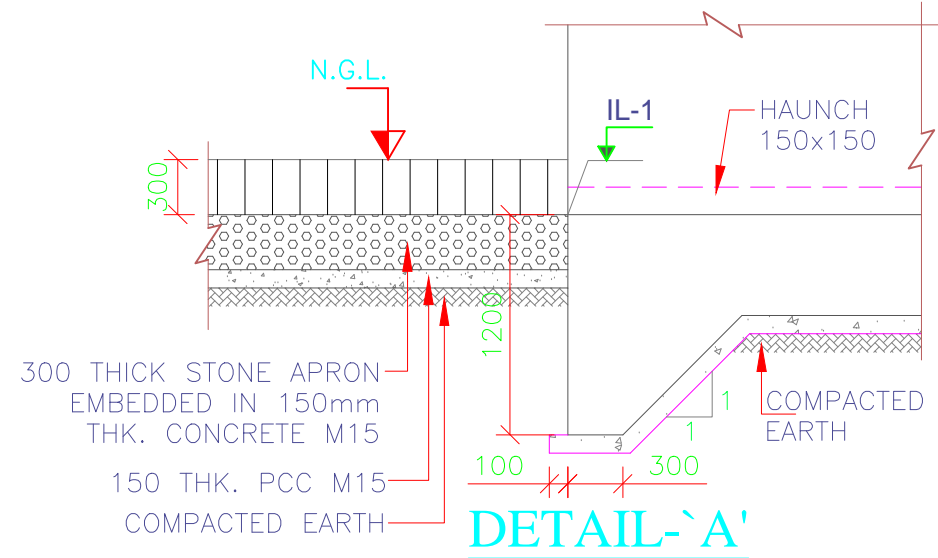


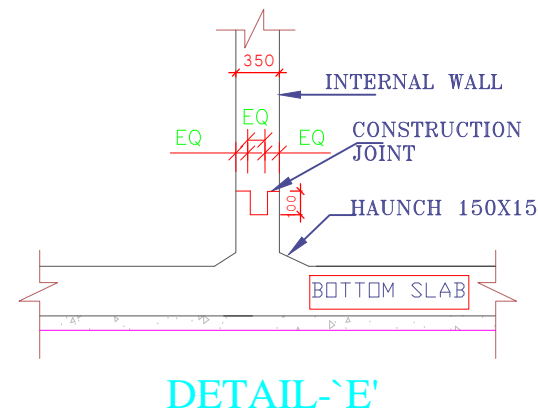
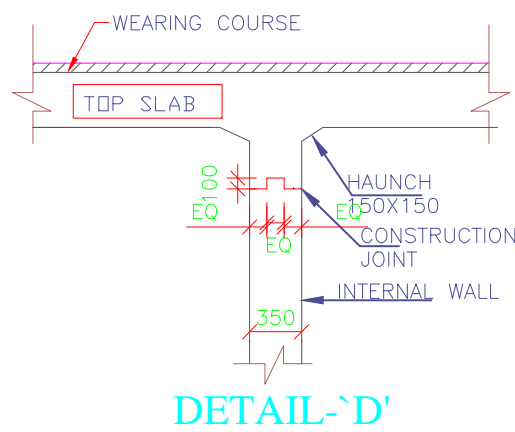
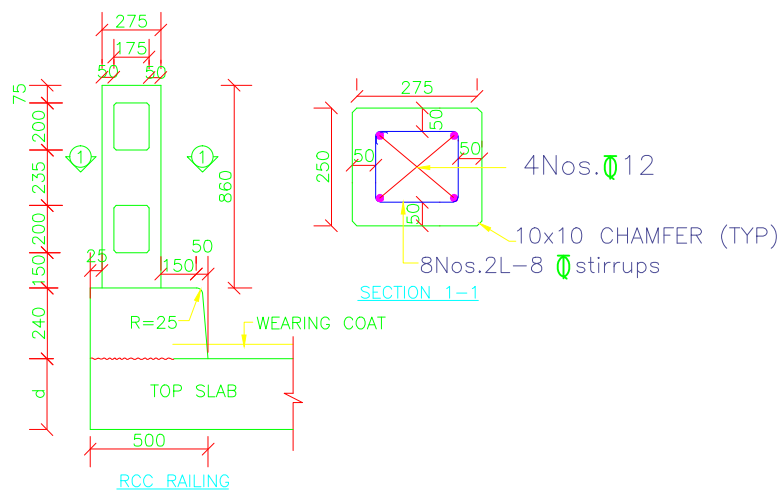
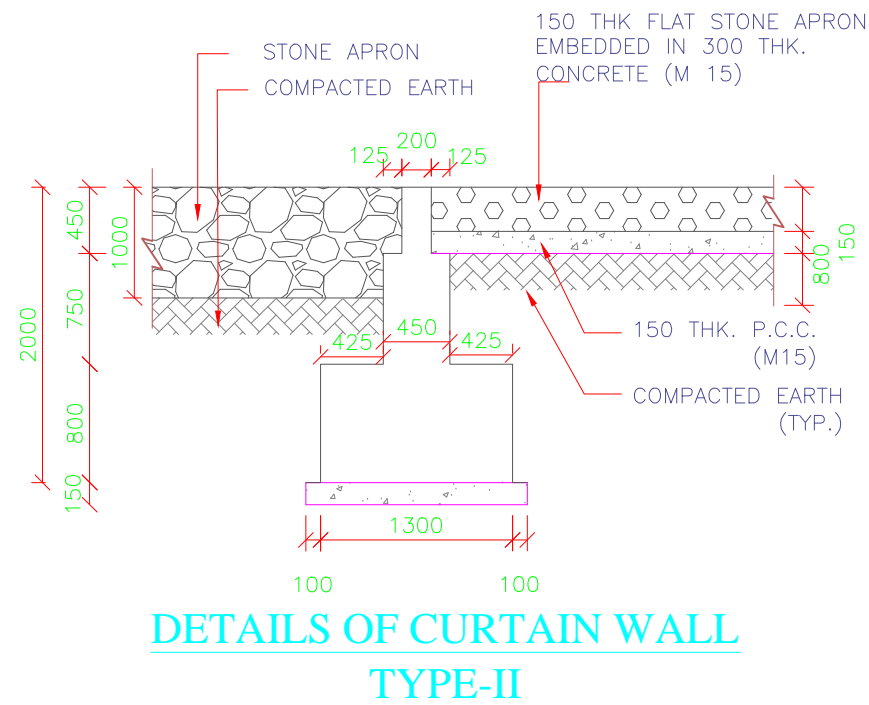
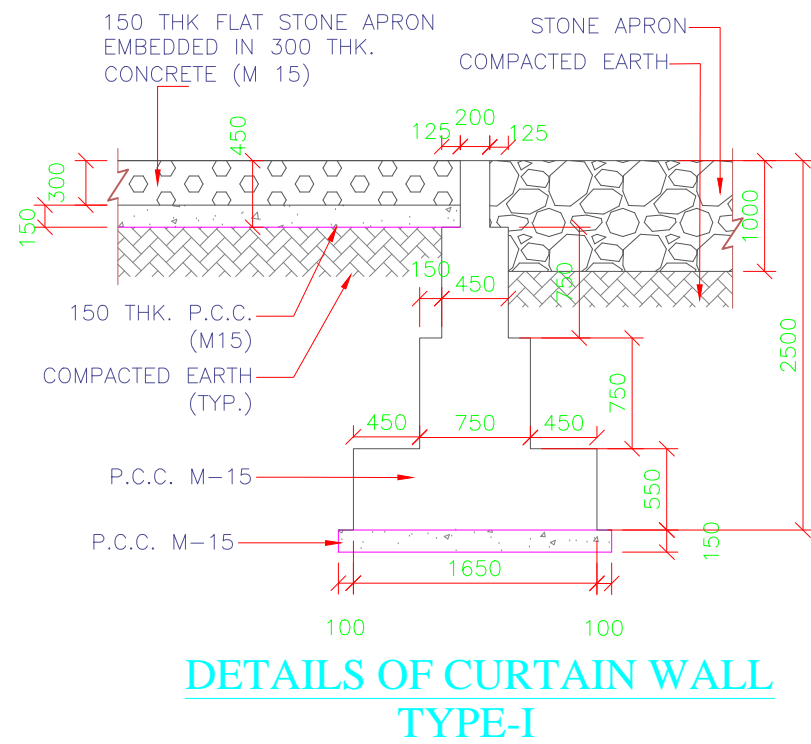
TABLE-1 SCHEDULE OF BOX CULVERT

| S. No. | DESIGN CH: SCHEDULE | DESIGN CH: AS PER HIGHWAY | PROPOSAL | DIRECTION OF FLOW | SKEW ANGLE | PROPOSED DETAILS | | | | | | |
|--------|---------------------|---------------------------|------------------|-------------------|------------|------------------|--------------------------|------|-----|-----|-----|-----|
| | | | | | | TYPE | DIMENSION DETAILS OF BOX | | | | | |
| | | | | | | | a | b | c | d | e | f |
| 1 | | | NEW CONSTRUCTION | R TO L | 0° | BOX | 2000 | 2000 | 300 | 300 | 325 | 300 |

TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

| S. No. | DIMENSION DETAILS(mm) | | | | | |
|--------|-----------------------|-----|------|------|-----|------|
| | R0 | R1 | R2 | RH | RH1 | RH2 |
| 1 | 3450 | 500 | 2950 | 4300 | 600 | 3700 |

| | | | | | | |
|--|--|-----------------------|--------------------------|--------------------------|--|--|
| CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. <small>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)</small> <small>Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com</small> | CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) | DRG. NO. : | DESIGNED BY : | APPROVED BY : | PROJECT TITLE :- Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode. | General Arrangement Drawing:- BOX CULVERT Span-2No. 2X2 |
|--|--|-----------------------|--------------------------|--------------------------|--|--|



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER UNLESS MENTIONED OTHERWISE.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS 15T/M². THIS SBC SHOULD BE VERIFIED AT SITE BEFORE EXECUTION. ANY VARIATION ON SITE SHOULD BE INFORMED TO THE DESIGN ENGINEER FOR NECESSARY ACTION.
- GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFIRMING TO IS:1786.
- CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
 - RCC BOXM30
 - RCC CRASH BARRIER/RAILING.....M40
 - RCC RETAINING WALL.....M30
 - PCC LEVELING COURSE.....M15
- THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoRTH SPECIFICATIONS.
- THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi=30^\circ$, $\gamma=2.0$ T/Cum
- DETAIL OF CAMBER/SUPER ELEVATION MAY BE VERIFIED WITH LATEST PLAN AND PROFILE DRAWING.
- FLOW DIRECTION SHOULD BE VERIFIED ON SITE BEFORE EXECUTION OF WORK. BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
- FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
- DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
- 100mm ϕ PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL.
- 600mm THK. FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
- ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.
- DIMENSIONS OF STRUCTURE ARE TENTATIVE AND SUBJECTED TO CHANGE ON DETAIL DESIGN.
- SHEAR KEY & CURTAIN WALL ARE NOT REQUIRED IF HARD ROCK IS FOUND AT GROUND LEVEL.

LEGEND:-

- FRL - FINISHED ROAD LEVEL
- GL - GROUND LEVEL
- LVL - LEVEL
- IL - INVERT LEVEL
- FL - FOUNDING LEVEL
- MSL - MAXIMUM SCOUR LEVEL
- BH - BORE HOLE
- * - AS PER HIGHWAY PROFILE
-  - BORE HOLE LOCATION

GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.

21+735,+23+290,+23+540,+23+720,+23+940,+24+420,
 +24+615,+24+765,+26+265,+26+370,+26+445,+26+790,
 +26+890,+27+015,+28+110,+28+330,+28+565,+29+215,+30+780,

CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.
 T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
 M.P. NAGAR, ZONE-I, BHOPAL (M.P.)

Tel./Fax : 0755-4295421,
 Mob.: 09826452711, 09977004686
 E-mail : lninfra@projects@gmail.com



**NATIONAL HIGHWAYS INFRASTRUCTURE
 DEVELOPMENT CORPORATION LIMITED (NHIDCL)**

CLIENT :-

DRG. NO. :

DESIGNED BY :

APPROVED BY :

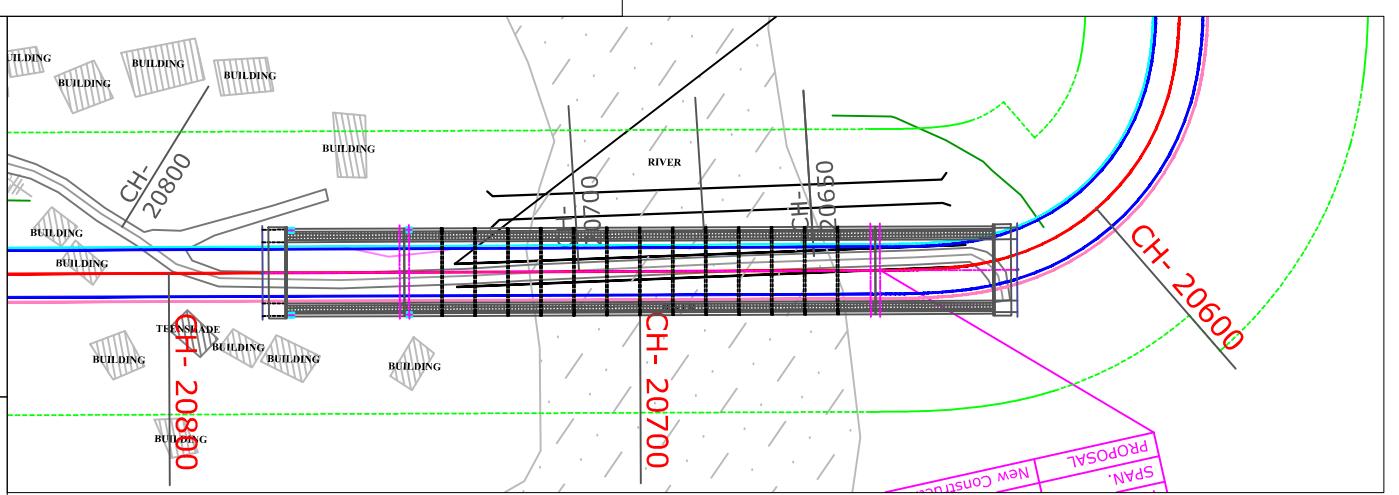
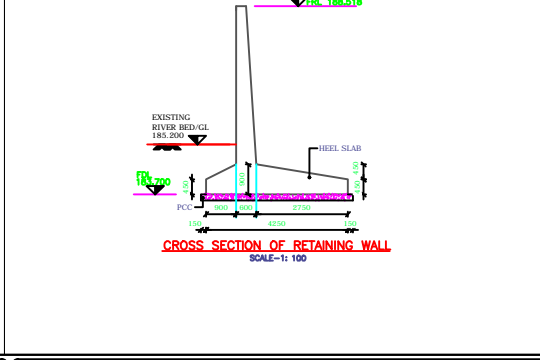
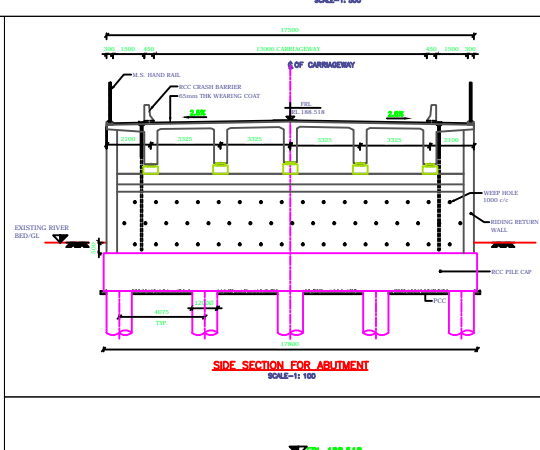
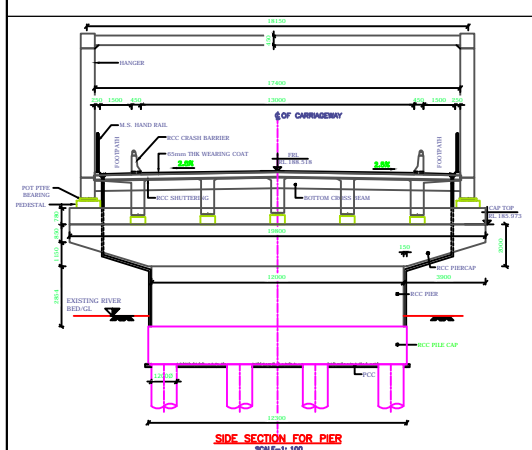
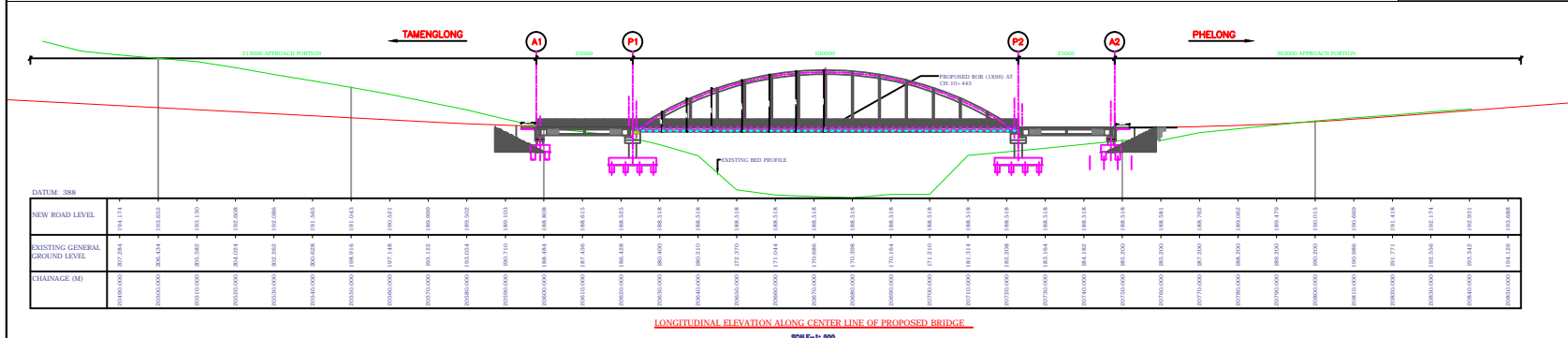
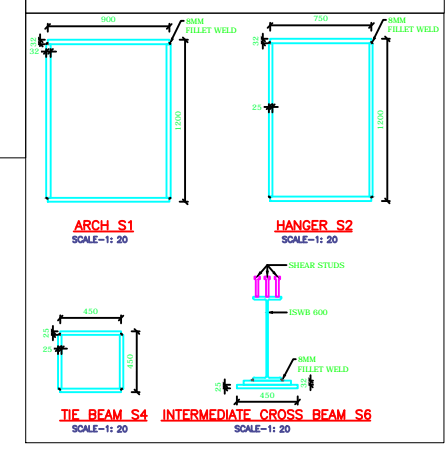
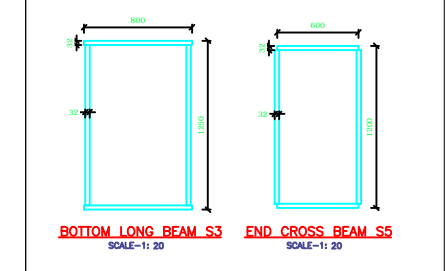
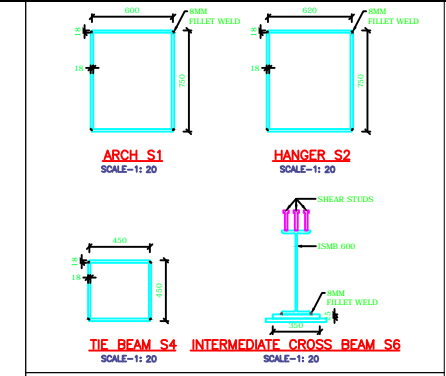
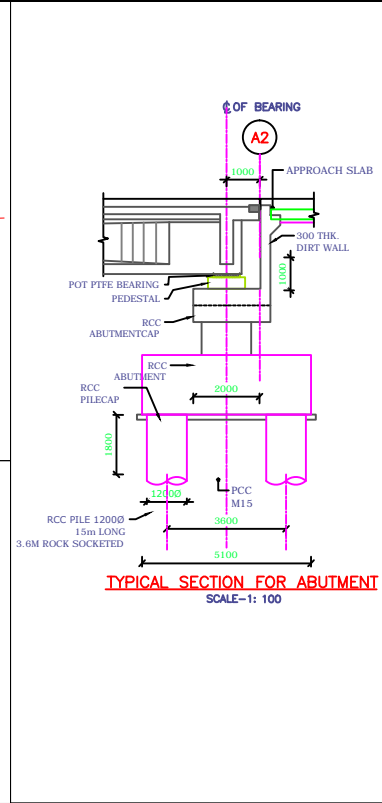
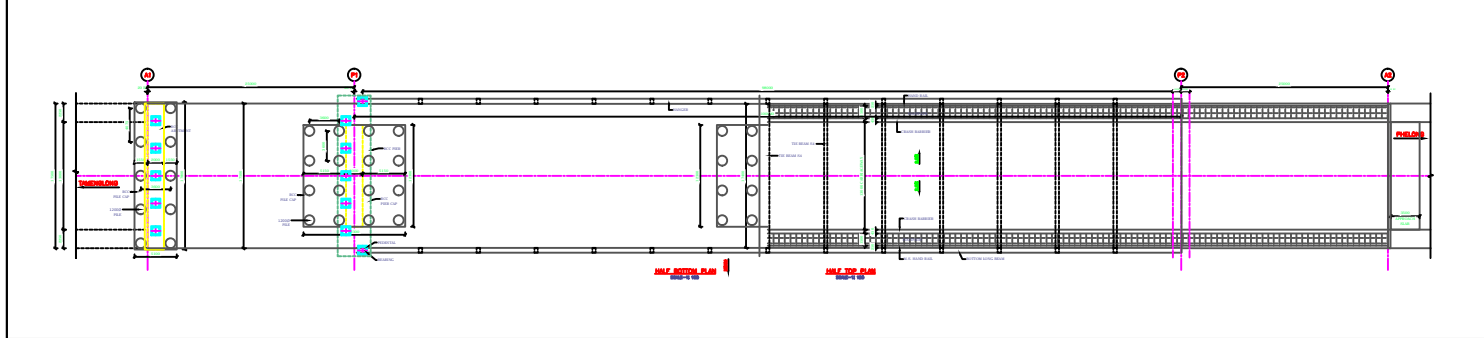
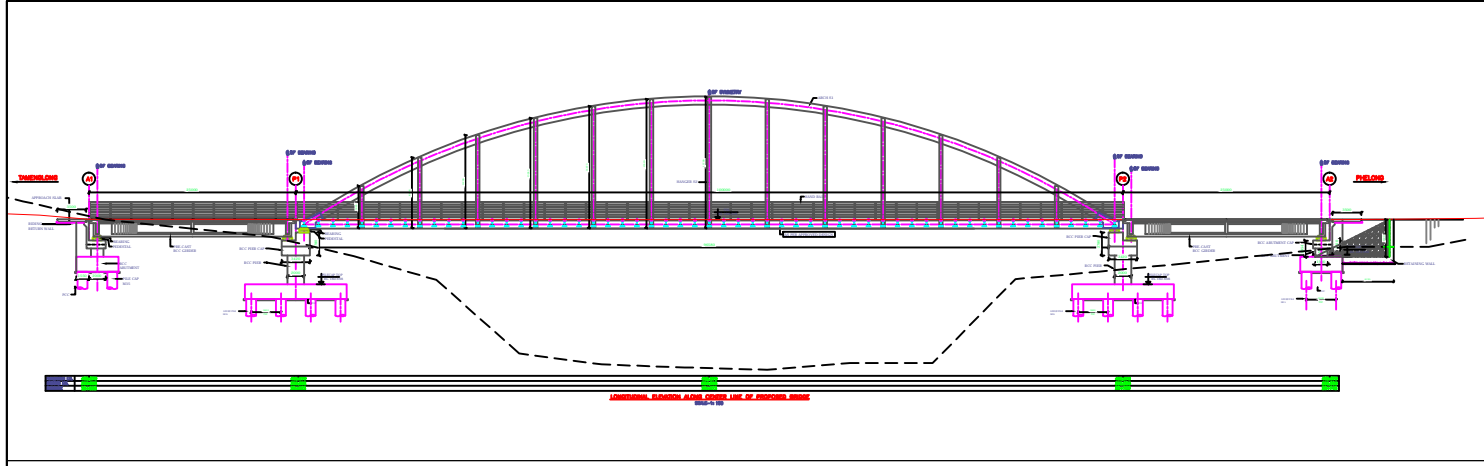
PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode.

General Arrangement Drawing:-

BOX CULVERT

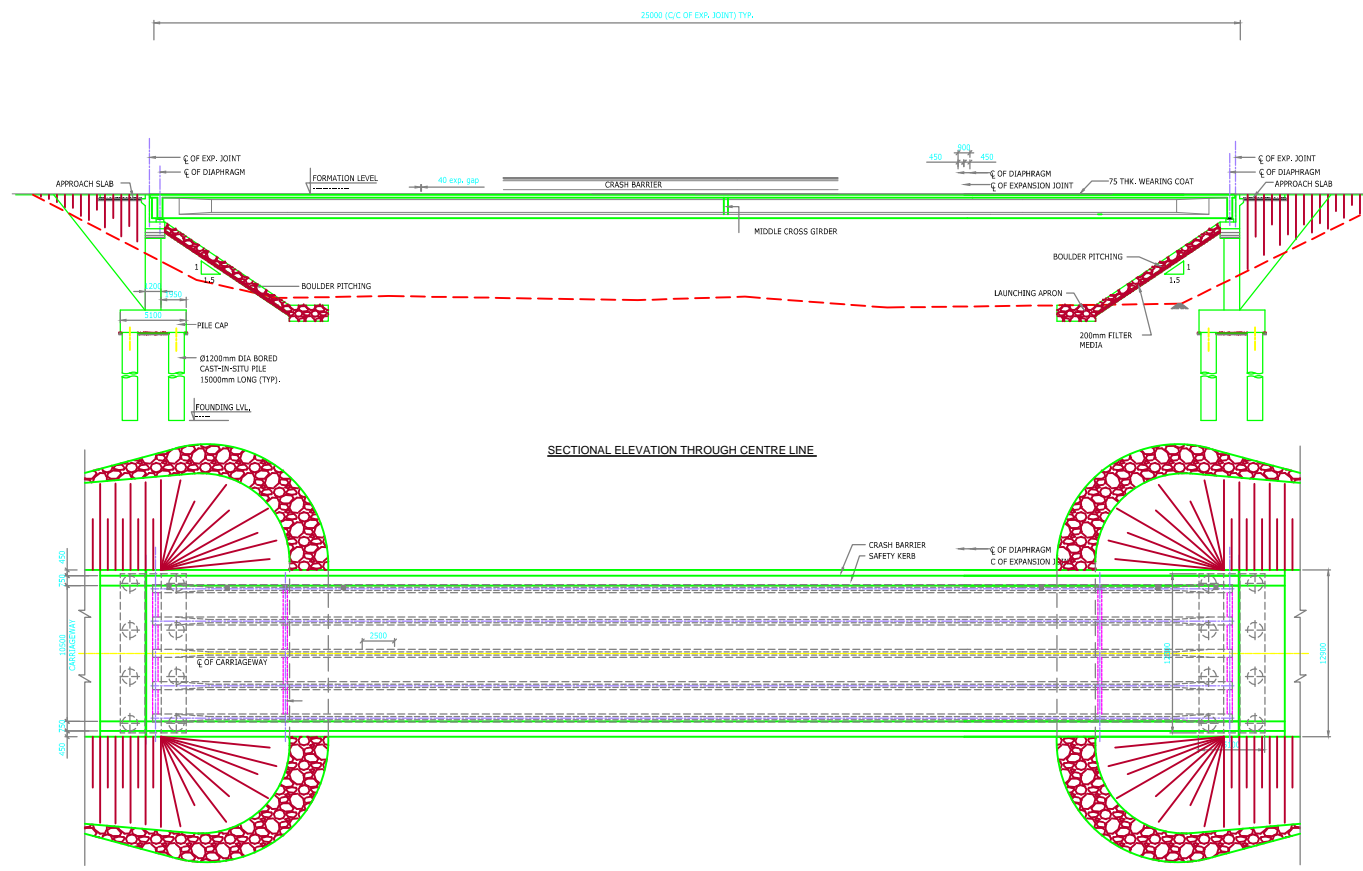
Span-2No. 2X2



- A) GENERAL NOTES :**
- ALL DIMENSIONS ARE SHOWN IN MM AND LEVELS ARE IN METER UNLESS OTHERWISE MENTIONED.
 - ROAD LEVEL HAS BEEN TAKEN AT CENTER OF CARRIAGEWAY.
 - COMMON BENCHMARK TO BE ESTABLISHED BY THE FIELD ENGINEER IN CONSULTATION WITH HIGHWAY & BRIDGES ENGINEERS BEFORE STARTING THE WORK.
 - ALL THE DIMENSIONS SHOWN SHOULD BE VERIFIED AT SITE BEFORE TAKING UP DESIGN WORK IN HAND. ANY DISCREPANCY NOTED SHOULD BE FORWARDED THROUGH ALTERATIONS DULY SIGNED, SUITABLE SPEED RESTRICTION, IF REQUIRED SHOULD BE IMPOSED BEFORE TAKING UP THE EXECUTION OF WORK WITH THE APPROVAL OF ENGINEER IN CHARGE.
 - GRADE OF CONCRETE TO BE ADOPTED FOR VARIOUS MEMBERS OF BRIDGE IS AS UNDER:
 - PILE, PILE CAP, PIER, PIER CAP, ABUTMENT, DIRTWALL GIRDER M: 35
 - DECK SLAB, CRASH BARRIER, PEDESTAL M: 40
 - APPROACH SLAB M: 30
 - PCC M: 15
 - REINFORCING STEEL SHALL BE OF HYSD (TMT) BARS OF FE-500D.
 - ALL STEEL PLATES USED IN FABRICATION OF THIS BRIDGE ARE OF GRADE Fe490/490B. ONLY ISWB 600 IS OF GRADE 410.
 - STRIP SEAL TYPE EXPANSION JOINT SHOULD BE PROVIDED AS PER LATEST MORTH / MOST REQUIREMENT. CONTRACTOR SHOULD FURNISH DESIGN/DRAWING OF EXPANSION JOINT FROM FIRMS, APPROVED BY MOST AT VARIOUS RELEVANT AMBIENT TEMPERATURES TO SUIT SITE CONDITIONS WITH THE APPROVAL OF ENGINEER-IN-CHARGE.
 - SUITABLE UTILITY DUCTS IF REQUIRED SHOULD BE PROVIDED BELOW FOOTPATH SLAB WITH THE APPROVAL OF ENGINEER-IN-CHARGE.
 - DRAINAGE SPOUT SHALL BE PROVIDED AS PER MOST SPECIFICATION. DESIGN CONSULTANT SHOULD SUBMIT SEPARATE SHEET OF DRAINAGE SPOUTS AS PER LATEST MOST STANDARDS.
 - TYPE OF FOUNDATION SHOULD BE DECIDED BY ENGINEER-IN-CHARGE, BASED ON DETAILED GEO TECHNICAL INVESTIGATION AT THE TIME OF STRUCTURAL DESIGN. PILE FOUNDATION PREFERABLY SHOULD BE PROVIDED AS FAR AS POSSIBLE KEEPING SITE CONDITIONS IN VIEW FOR ANY OTHER SUITABLE FOUNDATION.
 - PILES SHALL BE ROCK SOCKETED 3.6m IN HARD ROCK.
 - MAXIMUM LIVE LOAD ALLOWED IS 3 LANE OF CLASS A OR 1 LANE OF 70R + ONE LANE OF CLASS A AS PER IRC-6-2017.
 - NO WORK SHOULD BE TAKEN UP IN HAND TILL PROOF CHECKED DESIGN DRAWING ARE OBTAINED.
 - GALVANIZED SACRIFICIAL SHUTTERING TO BE PROVIDED FOR CASTING OF DECK SLAB.
 - GUARD RAIL TO BE PROVIDED AS PER STANDARD DRAWING.

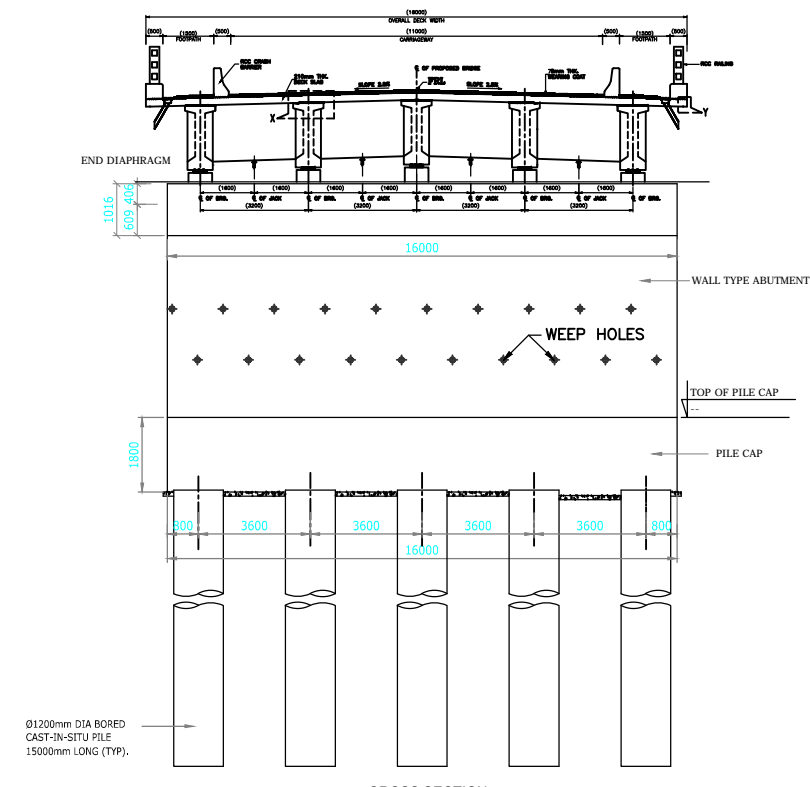
- B) SPECIFICATION / IS CODES :**
- DESIGN SHOULD BE AS PER RELEVANT IS / IRC CODES WITH LATEST AMENDMENTS.
 - THE STANDARD LOADING AS PER IRC 6.
 - BRIDGE LIES IN SEISMIC ZONE V AS PER IRC 6-2017 AND SHALL BE DESIGNED AS PER IRC SP: 114-2018.
 - 100 MM DIA PVC PIPES AS WEEP HOLES SHALL BE PROVIDED IN THE ABUTMENT AND RETAINING WALLS AT AN INTERVAL OF 1000 MM C/C (APPENDIX 6 OF IRC 78-2014). VERTICALLY AND HORIZONTALLY STAGGERED.
 - DIMENSIONS OF INDIVIDUAL MEMBERS SHOWN IN DWG. SUCH AS, SHAPES AND SIZES OF ABUTMENTS, PILES, PILE-CAPS AND FOOTINGS ARE INDICATIVE.
 - SHAPES AND SIZE OF ELASTOMERIC AND PTFE BEARINGS, PEDESTAL, RCC ABUTMENT, ABUTMENT CAP AND FOUNDATIONS SHOWN IN THIS DRAWINGS ARE TENTATIVE AND ARE SUBJECT TO CHANGE IN FINAL EXECUTION DRAWING AND DESIGN. SIZES OF STRUCTURAL MEMBERS ARE TENTATIVE AND MAY BE REVISED AT THE TIME OF DETAIL DESIGN.
 - THE DESIGN IS ACCORDING TO THE FOLLOWING CODES:
 - (A) IRC: 5-2015 (B) IRC: 6-2017 (C) IRC: SP: 114-2018
 - (D) IRC: 22-2015 (E) IRC: 24-2010 (F) IRC: 78-2014
 - (G) IRC: 112:2011 (H) IRC:83-2018(PART-III)
 - WEARING COAT SHALL BE PROVIDED AS PER THE SPECIFICATIONS. IRC: 16-2008
 - ENGINEER-IN-CHARGE WILL ENSURE SAFETY OF EXISTING ROAD, WHEN WORKING CLOSE TO IT. BY PROVIDING TEMPORARY SAFETY MEASURE SUCH AS SHEET PILES, BARRICADES, ROAD SIGN ETC IN CONSULTATION WITH TRAFFIC DEPARTMENT.
 - FULL FLEDGED LOAD TEST OF SUPER STRUCTURE SHOULD BE DONE AS PER IRC-SP-51 TO ENSURE QUALITY WORK.

| | | | | | | |
|---|---|------------|--------------|--------------|---|---|
| :- CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com | :- CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) | DRG. NO. : | DESIGNED BY. | APPROVED BY. | :- PROJECT TITLE :- Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode. | -General Arrangement Drawing:- BRIDGE ON BARAK RIVER AT D.CH:20+ 700 OLD TAMENGLONG- PHELONG SECTION |
|---|---|------------|--------------|--------------|---|---|

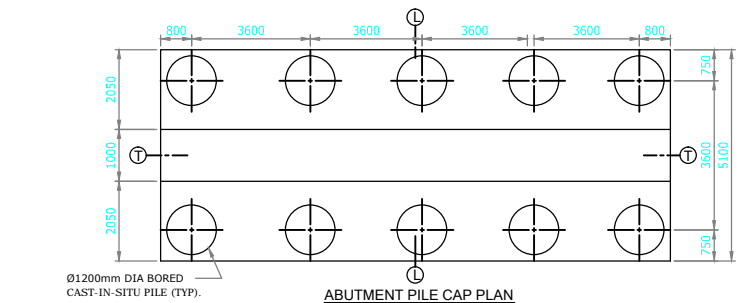


| | |
|---|---------|
| PROPOSED ROAD LEVEL (m) | 303.644 |
| A.S. / B.S. (m) | 301.890 |
| PILE CAP BOTTOM LEVEL/ PROPOSED LEVEL (m) | 303.644 |
| FINISHING (m) | 22+380 |

LONGITUDINAL ELEVATION



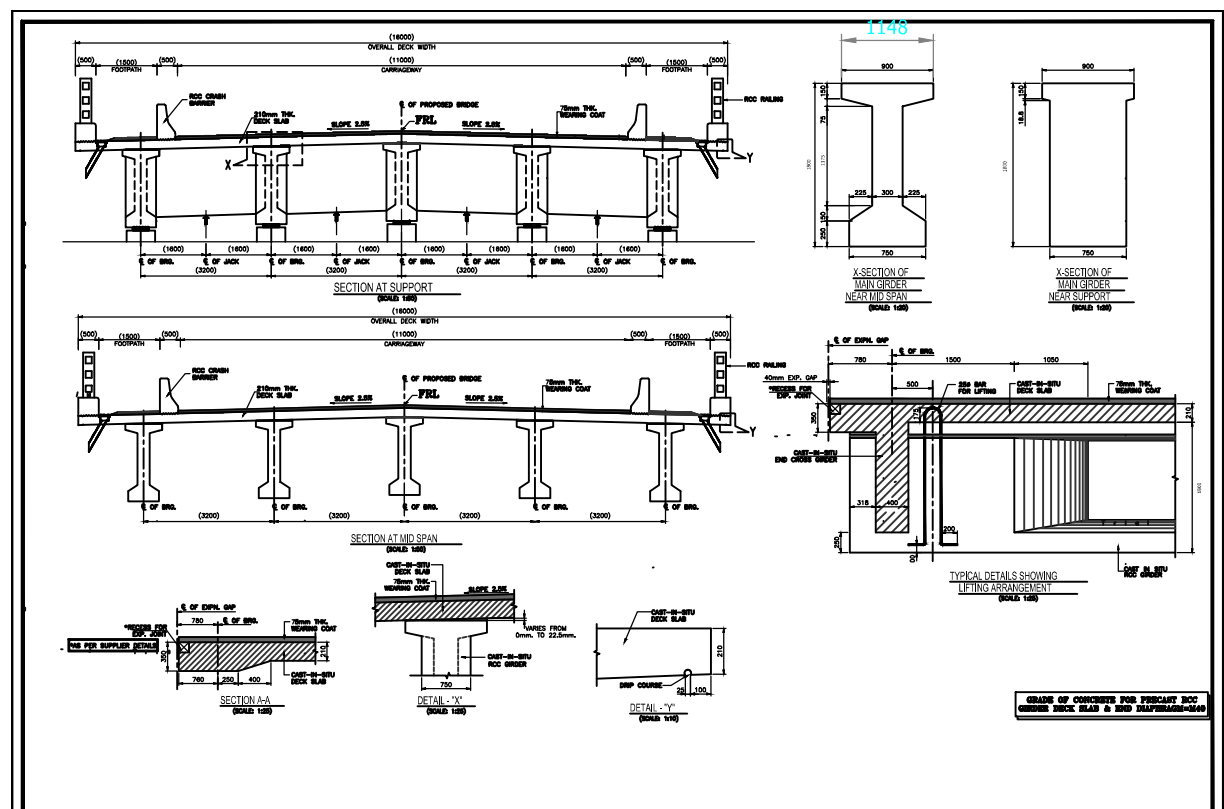
CROSS SECTION



ABUTMENT PILE CAP PLAN

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. DRAWING SHALL NOT BE SCALED.
2. THIS DRG. SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRGS.
3. GRADE OF CONCRETE:-
 - i). FOR R.C.C GIRDER - M35
 - ii). FOR R.C.C DECK - M35
 - iii). FOR PIER & ABUTMENT - M30
 - iv). FOR PILE & PILE CAP - M30



GRADE OF CONCRETE FOR PRECAST RCC GIRDER, DECK SLAB & END ABUTMENT

| | | | | | | | | |
|--|--|--|--|------------|--------------|--------------|---|--|
| -: CONSULTANTS :- | | -: CLIENT :- | | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :- | -:General Arrangement Drawing:- |
| L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com | | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) | | | | | Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Hailong Road In The State of Manipur on EPC Mode. | BRIDGE AT 20+920 & 22+380 OLD TAMENGLONG- PHELONG SECTION |