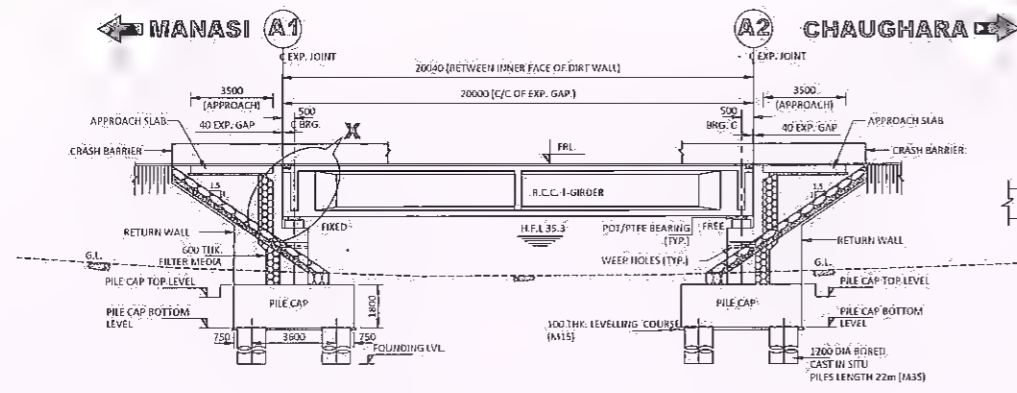


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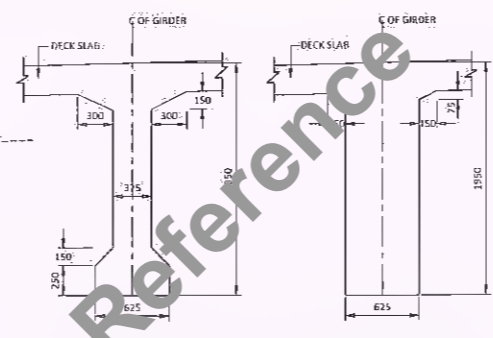
MINOR BRIDGE'S

← MANASI

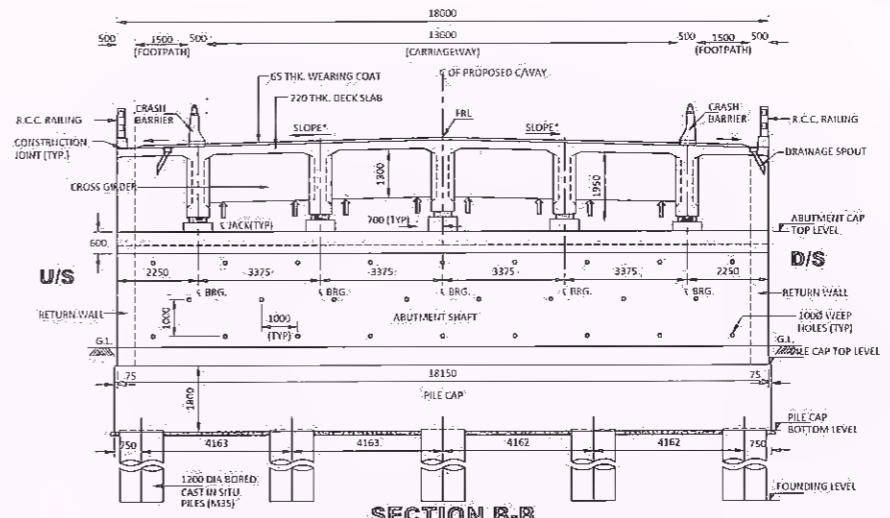
CHAUGHARA →



SECTIONAL ELEVATION A-A (SCALE 1:200)

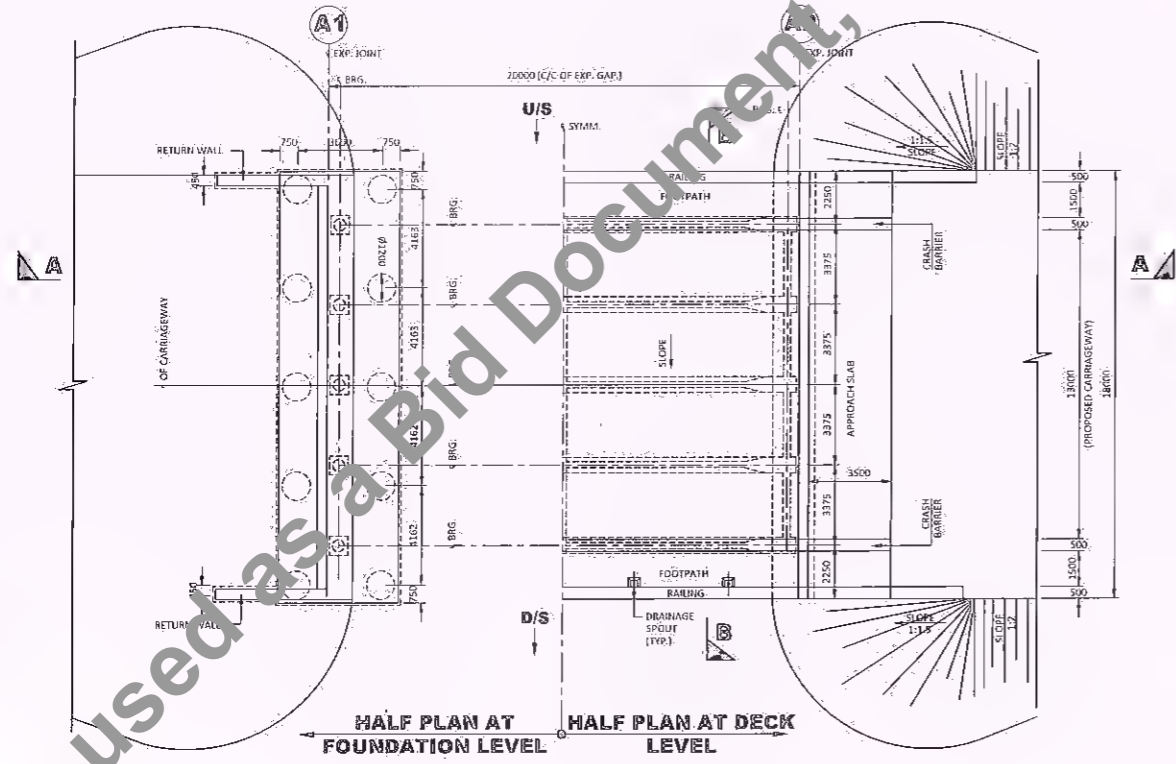


DETAILS OF R.C.C. GIRDER (SCALE 1:40)

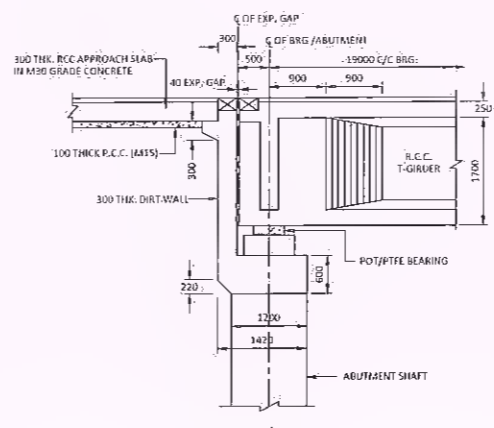


SECTION B-B (SCALE 1:100)

SLOPE AS PER HIGHWAY PLAN AND PROFILE



HALF PLAN AT FOUNDATION LEVEL (SCALE 1:200) and HALF PLAN AT DECK LEVEL



DETAIL-X (SCALE 1:75)

NOTES:-

- 01. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED.
- 02. DRAWINGS SHALL NOT BE SCALED; ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 03. GRADE OF CONCRETE SHALL BE:
 - (a) ABUTMENT, ABUTMENT CAP AND DIRT WALL - M35
 - (b) PILE FOUNDATION - M35
 - (c) P.C.C. - M15
 - (d) R.C.C. T-GIRDER - M40
 - (e) APPROACH SLAB - M30
 - (f) CRASH BARRIER - M40
 - (g) RETAINING WALL & MEDIAN WALL - M35
- 04. REINFORCING STEEL SHALL BE TMT DEFORMED BARS GRADE DESIGNATION Fe-500 CORRESPONDING TO IS-1786.
- 05. BACKFILLING BEHIND ABUTMENT AND WING WALL SHALL BE PROVIDED WITH SELECTED EARTH CORRESPONDING TO APPENDIX-G OF IRC:78-2014 HAVING PROPERTIES C=0.4, S=30, d=20% & yd=18MN/M3.
- 06. WEARING COAT SHALL COMPRISE 40mm THICK BITUMINOUS CONCRETE OVERLAID WITH 25mm THICK BITUMINOUS MASTIC LAYER.
- 07. WEAP HOLES, SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENTS, RETURN WALLS, MEDIAN WALL AND INDEPENDENT RETURN WALL ABOVE GROUND AS PER SECTION 2706 OF MORTH SPECIFICATIONS.
- 08. THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
- 09. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT:
- 10. FILLER TYPE EXPANSION JOINTS SHALL BE PROVIDED.
- 11. THE SPECIFICATIONS SHALL CONFIRM TO MOST SPECIFICATIONS FOR ROAD AND BRIDGES.
- 12. ALL DIMENSIONS ARE TENTATIVE IF CAN BE CHANGE AS PER DESIGN.

LEGENDS:-

- U/S = UP STREAM
- D/S = DOWN STREAM
- (TYP) = TYPICAL
- C = CENTER LINE

Client: Bihar State Road Development Corporation Ltd.	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: HaskoningDHV Nederland B.V.	Title: GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 2+348 (Span Arrangement 1x20.0m)	DRAWING No.: RHDHV/648DT/DDPR/MNB-001	RO
SCALE	Project	Design Consultants	Title	DRAWING No.	RO
DATE: JULY 2019	DESIGNED: R Singh	DRAWN: J.P. Dobhal	CHECKED: R Singh	APPROVED: S Pathari	SHEET: 01 OF 01
REV	DATE	DESCRIPTION OF REVISIONS			

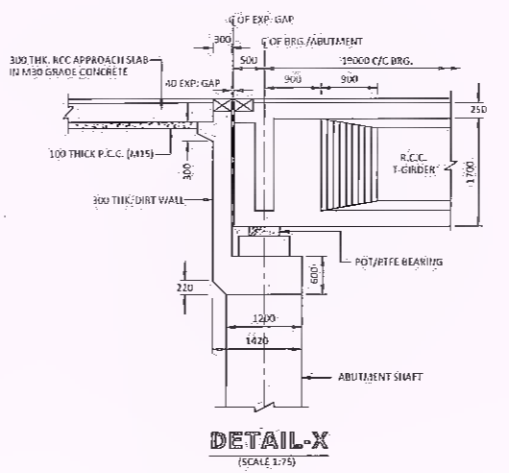
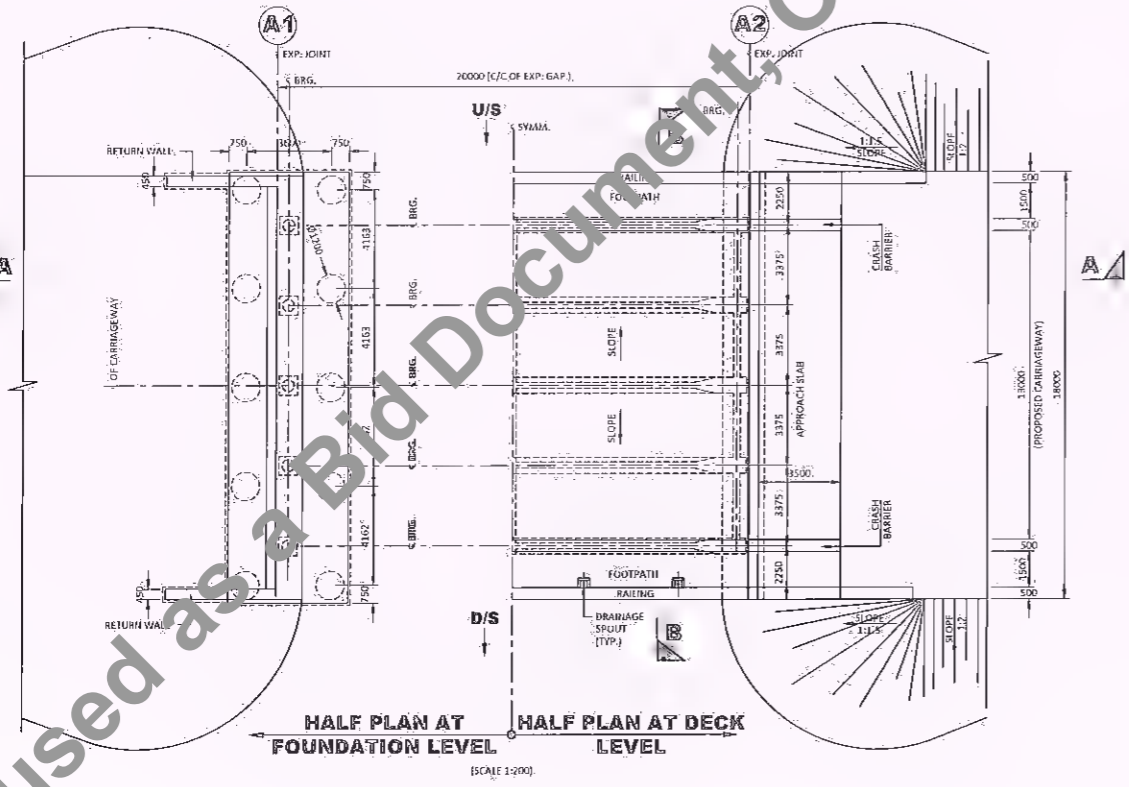
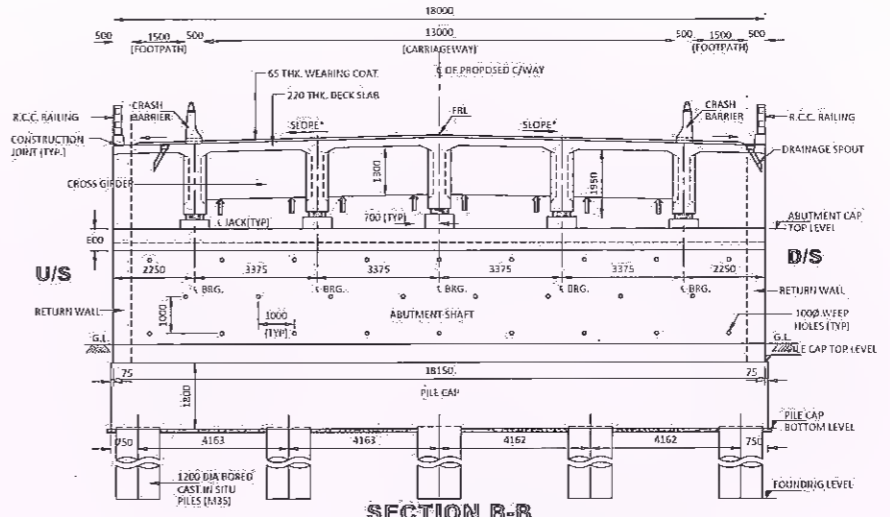
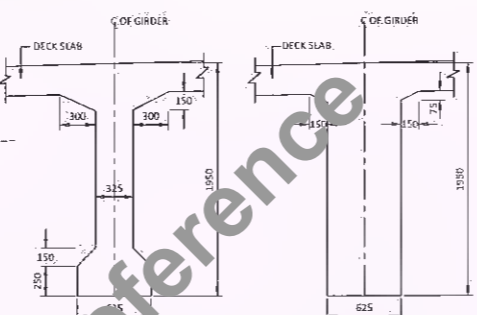
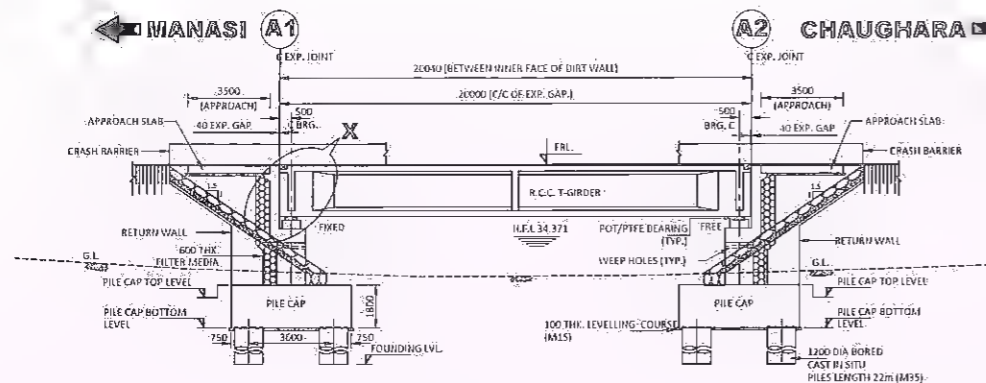
Manager (Tech.) BSRDCL PIU-Khagaria

D.G.M. (Tech.) BSRDCL PIU-Khagaria

Not to be used as a Bid Document, Only for Reference

← MANASI

CHAUGHARA →



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED.
- DRAWING SHALL NOT BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- GRADE OF CONCRETE SHALL BE:-
 (i) ABUTMENT, ABUTMENT CAP AND DIRT WALL - M35
 (ii) PILE FOUNDATION - M35
 (iii) R.C.C. - M35
 (iv) R.C.C. T-GIRDER - M40
 (v) APPROACH SLAB - M30
 (vi) CRASH BARRIER - M30
 (vii) RETAINING WALL & MEDIAN WALL - M35
- REINFORCING STEEL SHALL BE TRAP DEFORMED BARS GRADE DESIGNATION F-500 CONFORMING TO IS : 1786.
- BACKFILLING BEHIND ABUTMENT AND WING WALL SHALL BE PROVIDED WITH SELECTED EARTH CONFORMING TO APPENDIX G OF IRC:78-2014 HAVING PROPERTIES C=0.5, D=30°, δ=20° & 10-120kN/m².
- WEARING COAT SHALL COMPRISE 40mm THICK BITUMINOUS CONCRETE OVERLAIN WITH 25mm THICK BITUMINOUS MASTIC LAYER.
- WEEP HOLES, SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENTS, RETURN WALLS, MEDIAN WALL AND INDEPENDENT RETURN WALL ABOVE GROUND AS PER SECTION 2706 OF MORTH SPECIFICATIONS.
- THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
- ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT.
- FILER TYPE EXPANSION JOINTS SHALL BE PROVIDED.
- THE SPECIFICATIONS SHALL CONFORM TO ROST SPECIFICATIONS FOR ROAD AND BRIDGES.
- ALL DIMENSIONS ARE TENTATIVE IT CAN BE CHANGED AS PER DESIGN.

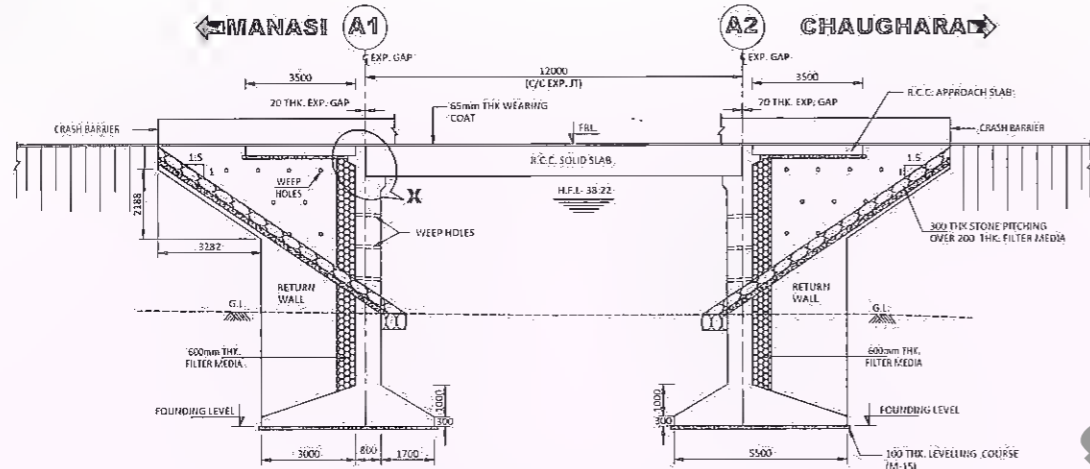
LEGENDS:-

- U/S = UP STREAM
- D/S = DOWNSTREAM
- (TYP) = TYPICAL
- CL = CENTER LINE

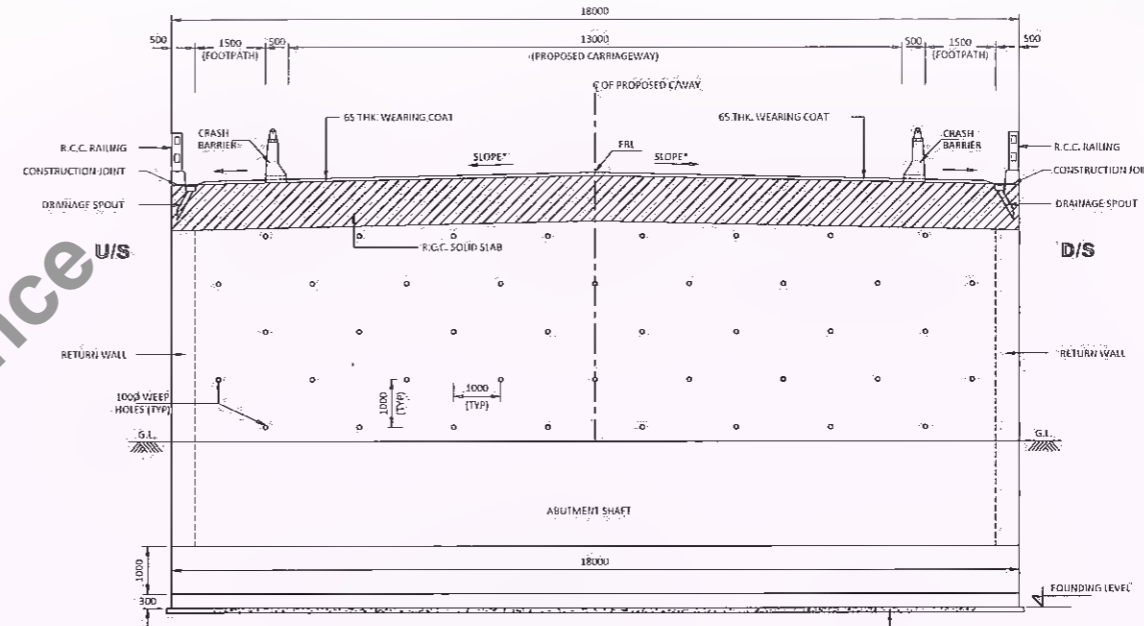
Client: Bihar State Road Development Corporation Ltd.	SCALE: Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: HaskoningDHV Nederland B.V.	Title: GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 3+302 (Span Arrangement :1x20.0m)	DRAWING NO.: RHDHV/64801/DDPR/MNB.002	RO
			DATE: JULY-2019	SHEET: 01 OF 01	APPROVED
Manager (Tech.) BSRDCL PIU-Khagaria			D.G.M. (Tech.) BSRDCL PIU-Khagaria		
REV DATE DESCRIPTION OF REVISIONS			DESIGNED: R Singh DRAWN: J P Dasgupta CHECKED: R Singh APPROVED: S Pathari		

← MANASI

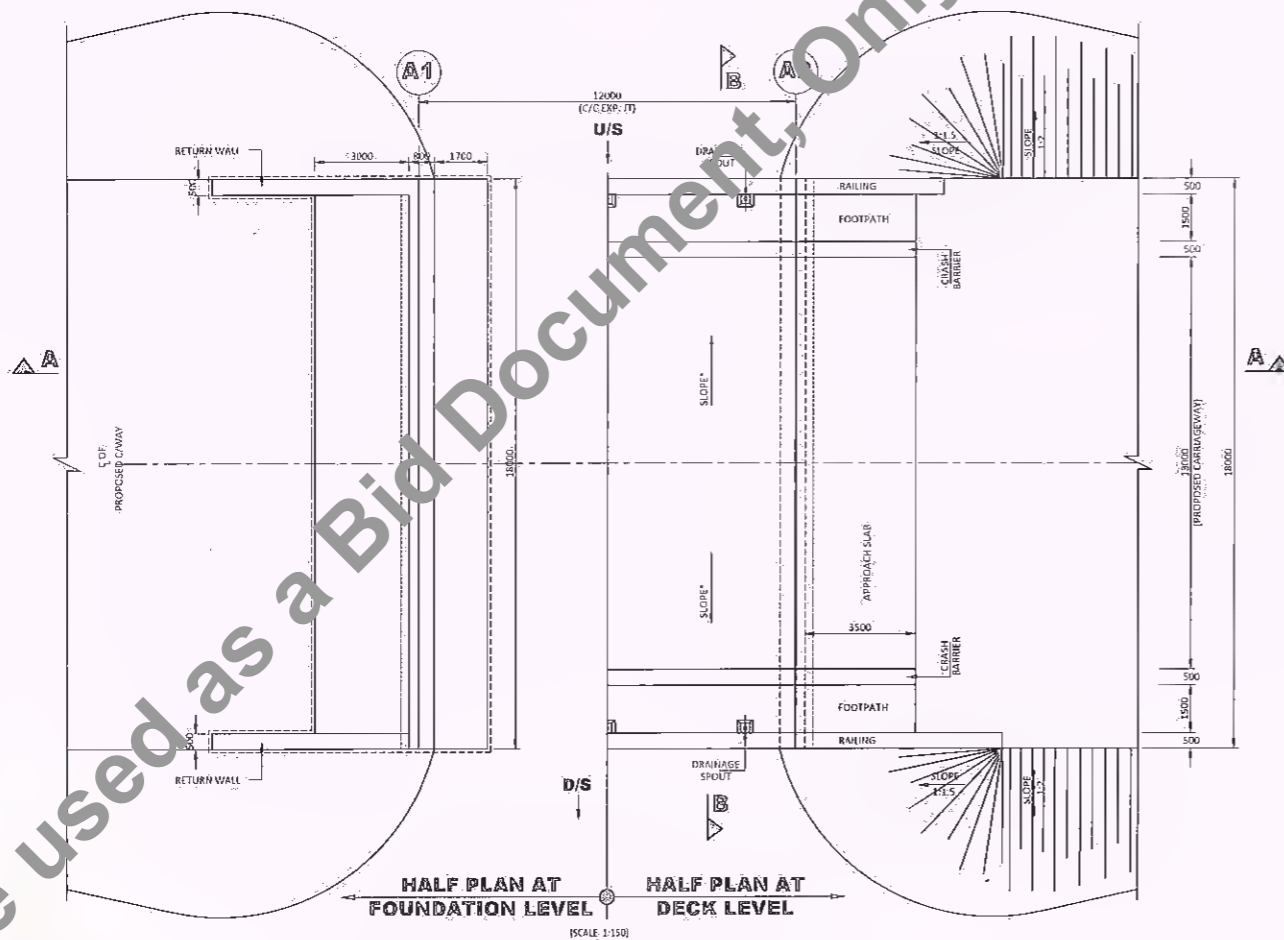
CHAUGHARA →



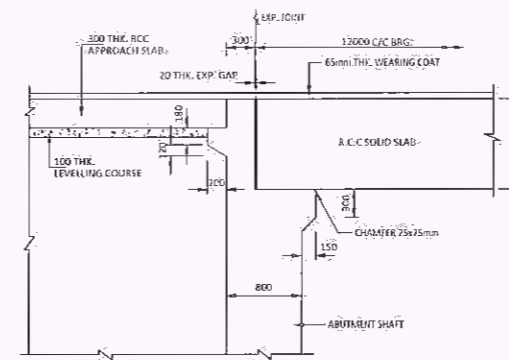
SECTIONAL ELEVATION A-A
(SCALE: 1:150)



SLOPE AS PER HIGHWAY PLAN AND PROFILE
SECTION B-B
(SCALE: 1:100)



HALF PLAN AT FOUNDATION LEVEL
HALF PLAN AT DECK LEVEL
(SCALE: 1:150)



DETAIL-X
(SCALE: 2:1)

NOTES:-

01. ALL DIMENSIONS ARE IN KILOMETRES AND LEVELS IN METRES, UNLESS OTHERWISE ATTENTIONED.
02. DRAWING SHALL NOT BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
03. GRADE OF CONCRETE SHALL BE:
 - (i) ABUTMENT, ABUTMENT CAP AND DIRT WALL - M35
 - (ii) OPEN FOUNDATION - M35
 - (iii) P.C.C. - M15
 - (iv) R.C.C. SOLID SLAB SUPER-STRUCTURE - M35
 - (v) APPROACH SLAB - M30
 - (vi) CRASH BARRIER - M30
 - (vii) RETURN WALL - M35
04. REINFORCING STEEL SHALL BE AT DEFORMED BARS GRADE DESIGNATION Fe-500D CONFORMING TO IS-1786.
05. BACKFILLING BEHIND ABUTMENT AND WING WALL SHALL BE PROVIDED WITH SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2000 HAVING PROPERTIES C=0.9, φ=30°, φ=20° & γ=18KN/M³.
06. WEARING COAT SHALL COMPRISE 40mm THICK BITUMINOUS CONCRETE OVERLAIN WITH 25mm THICK BITUMINOUS MASTIC LAYER.
07. WEEP HOLES, SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENTS, RETURN WALLS, ABUTMENT WALL AND WINGWALLS RETURN WALL ABOVE GROUND AS PER SECTION 2.7.65 OF MORTH SPECIFICATIONS.
08. THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
09. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT.
10. FILTER TYPE EXPANSION JOINTS SHALL BE PROVIDED.
11. THE SPECIFICATIONS SHALL CONFORM TO MOST SPECIFICATIONS FOR ROAD AND BRIDGES.
12. ALL DIMENSION ARE TENTATIVE IT CAN BE CHANGED AS PER DESIGN.

LEGENDS:-

- U/S = UP STREAM
- D/S = DOWN STREAM
- (TYP) = TYPICAL
- C = CENTER LINE

Client: Bihar State Road Development Corporation Ltd.	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: HaskoningDHV Nederland B.V.	Title: GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT CH. 11+176 (Span Arrangement 1x12m)	DRAWING NO: RHDHV/64801/DDPR/MNB-003	RO
DATE: JULY, 2019	DESIGNED: R Singh	DRAWN: J P Dohal	CHECKED: R Singh	APPROVED: S Pathuri	SHEET: 01 OF 01
REV	DATE	DESCRIPTION OF REVISIONS			

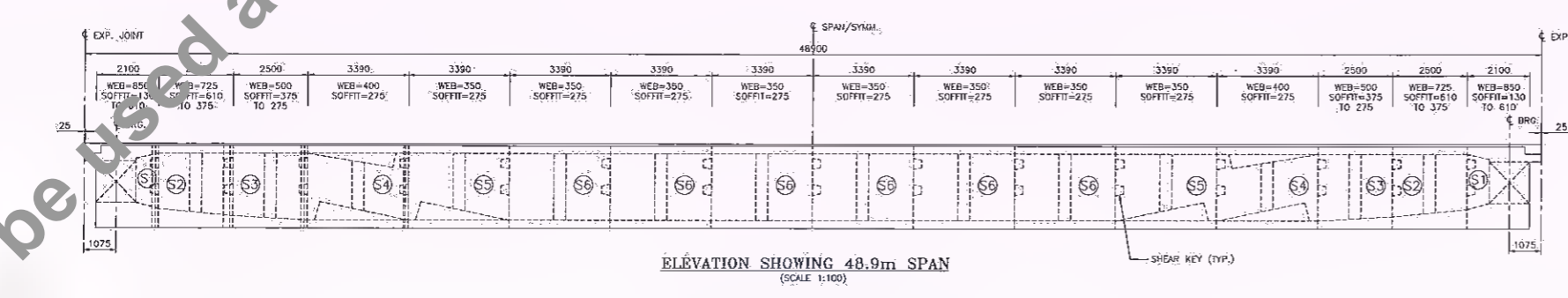
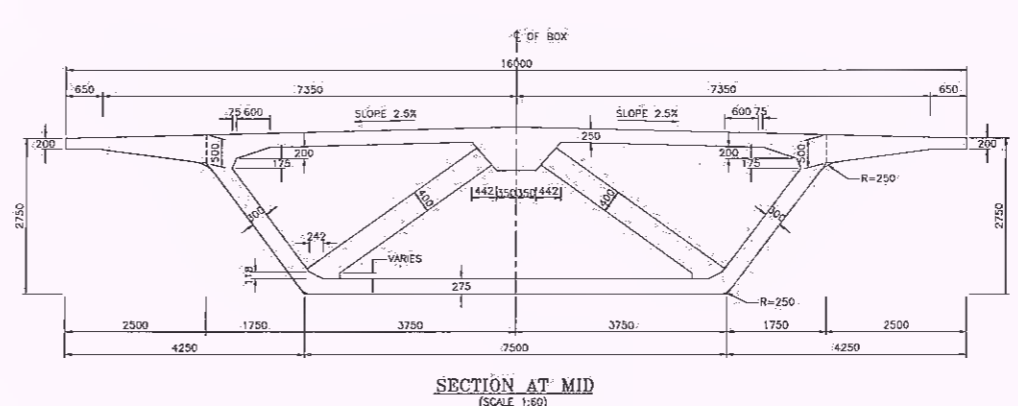
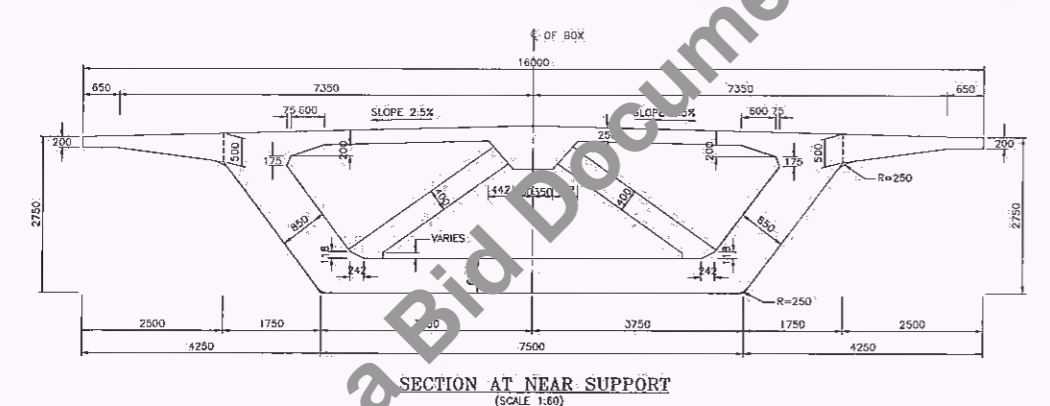
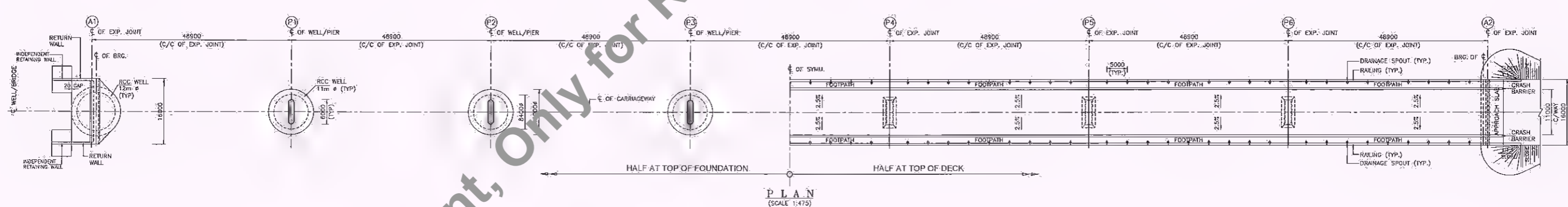
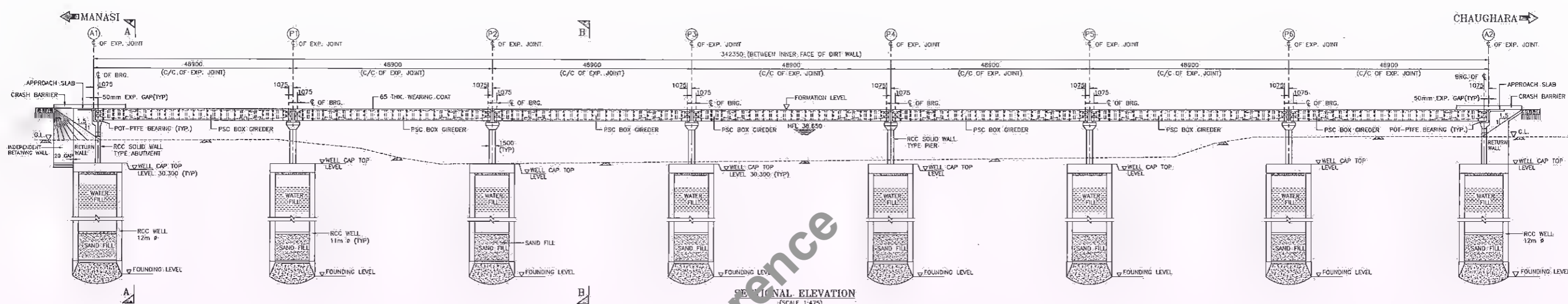
Manager (Tech.)
BSRDCL
PIU-Khagaria

D.G.M. (Tech.)
BSRDCL
PIU-Khagaria

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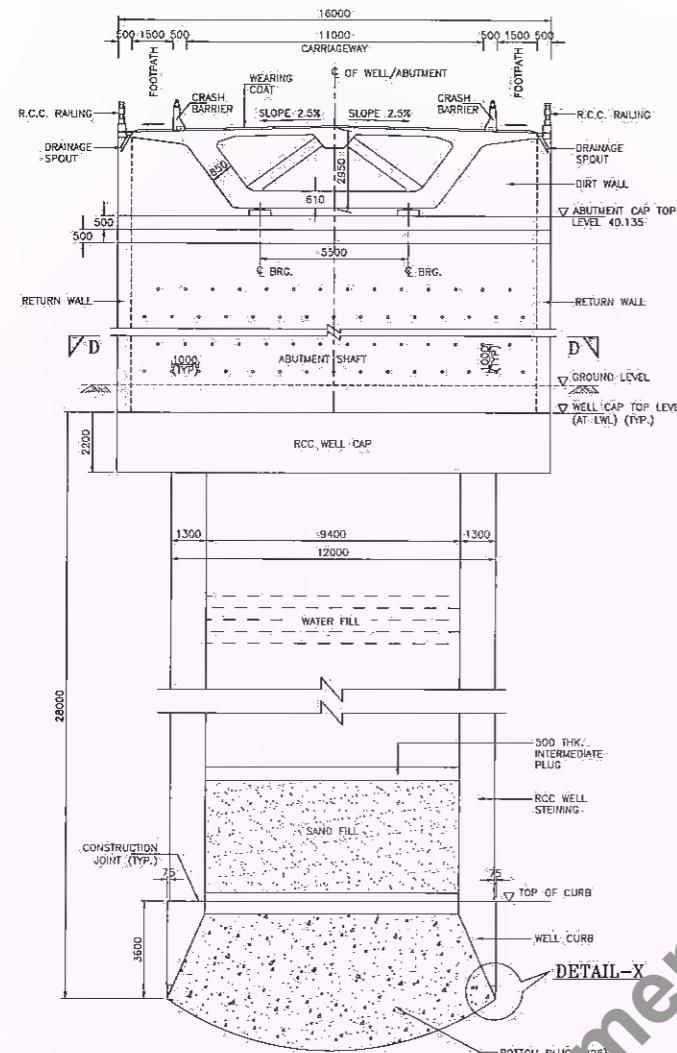
Not to be used as a Bid Document. Only for Reference

MAJOR BRIDGE'S

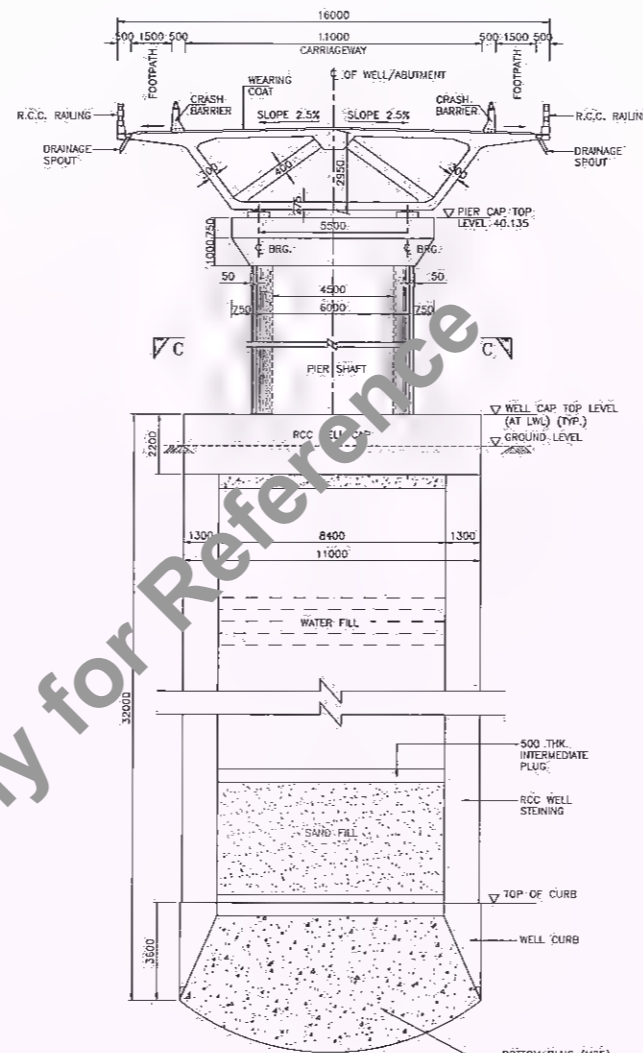


- NOTES:**
- ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 - GRADE OF CONCRETE FOR VARIOUS ELEMENTS ARE AS FOLLOWS:-
 - (a) PSC SUPERSTRUCTURE.....M50
 - (b) RCC FOOTPATH.....M30
 - (c) RCC CRASH BARRIER/RAILING.....M40
 - (d) APPROACH SLAB.....M30
 - (e) RCC RETAINING WALL.....M35
 - (f) PIER/ABUTMENT.....M35
 - (g) WELL FOUNDATION.....M35
 - TYPE OF BEARING PROPOSED HERE IS POT-PITEE AS PER IRC:83 (PART-3)
 - ALL REINFORCEMENT BARS ARE IMT BARS (GRADE DESIGNATION Fe500D) AS PER IS:1786.
 - WEARING COAT SHALL COMPRISE 40mm THICK BITUMINOUS CONCRETE OVERLAD WITH 25mm THICK BITUMINOUS MASTIC LAYER.
 - WEEP HOLES, SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENTS, RETURN WALLS, MEDIAN WALL AND INDEPENDENT RETURN WALL ABOVE GROUND AS PER SECTION 2708 OF NORTH SPECIFICATIONS.
 - THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
 - ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT.
 - REFER SHEET 02 OF 02 DRAWING RHDHV/64801/DDPR/MB-001.

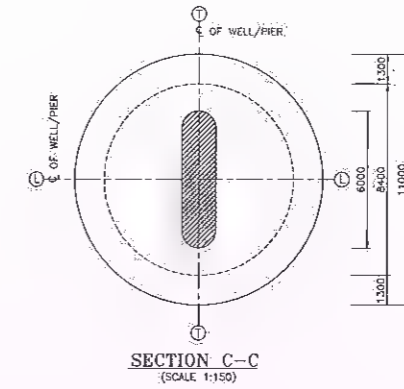
<p>Client: Bihar State Road Development Corporation Ltd.</p> <p>Scale: AS SHOWN</p> <p>Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31) Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V</p> <p>Design Consultant: HaskoningDHV Nederland B.V.</p>	<p>Manager (Tech.) BSRDCL PIU-Khagaria</p>	<p>D.G.M. (Tech.) BSRDCL PIU-Khagaria</p>	<p>REV. DATE. DESCRIPTION OF REVISIONS.</p>	<p>GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT PROPOSED DESIGN CH: 84798 (Span Arrangement 7x48.9m)</p> <p>MANASISD: RHDHV/64801/DDPR/MB-001 RO DATE: DECEMBER 2021</p>
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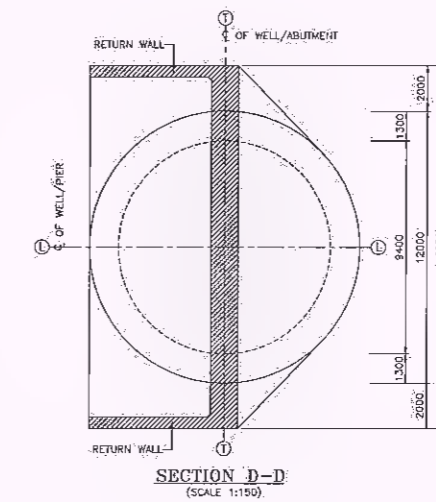
SECTION A-A
(SCALE 1:125)



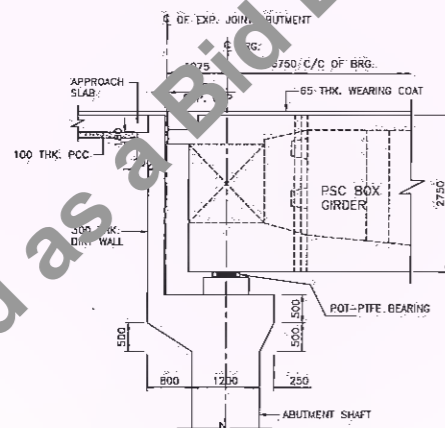
SECTION B-B
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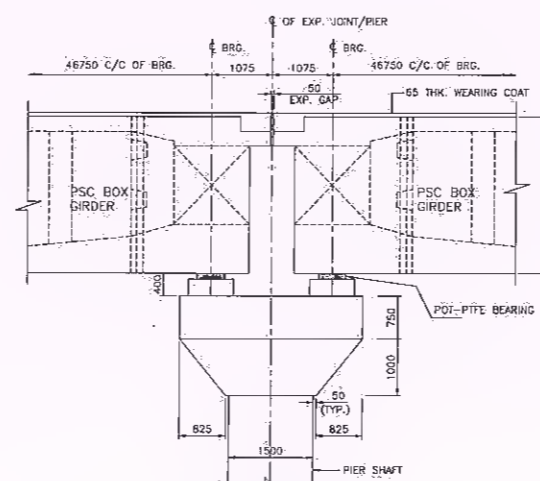
SECTION C-C
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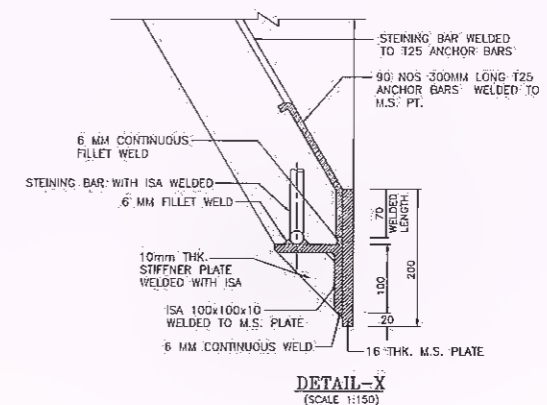
SECTION D-D
(SCALE 1:150)



TYPICAL DETAIL AT
ABUTMENT LOCATION
(SCALE 1:60)



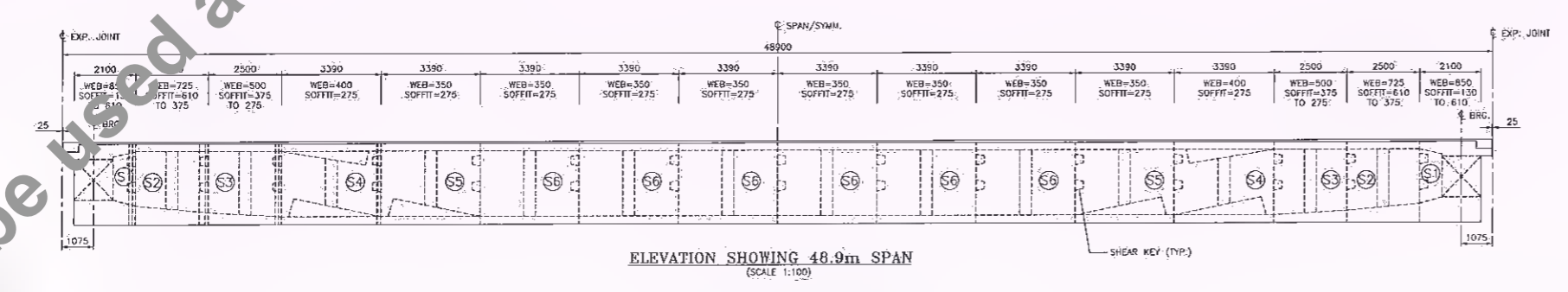
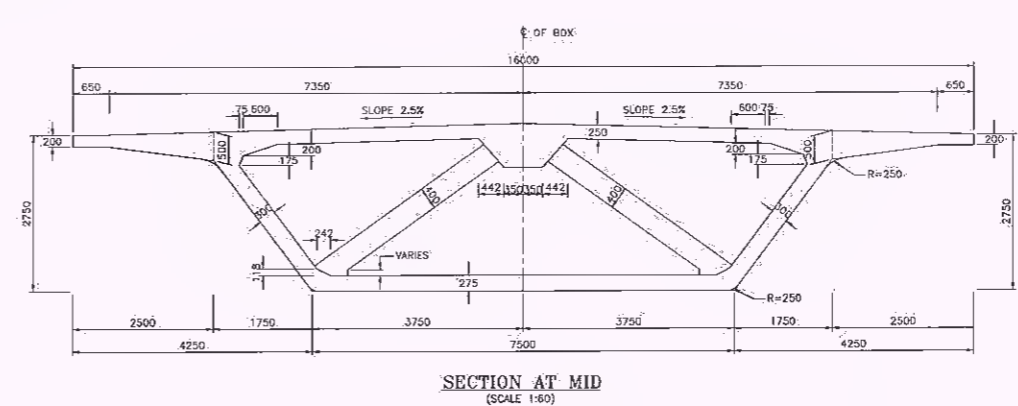
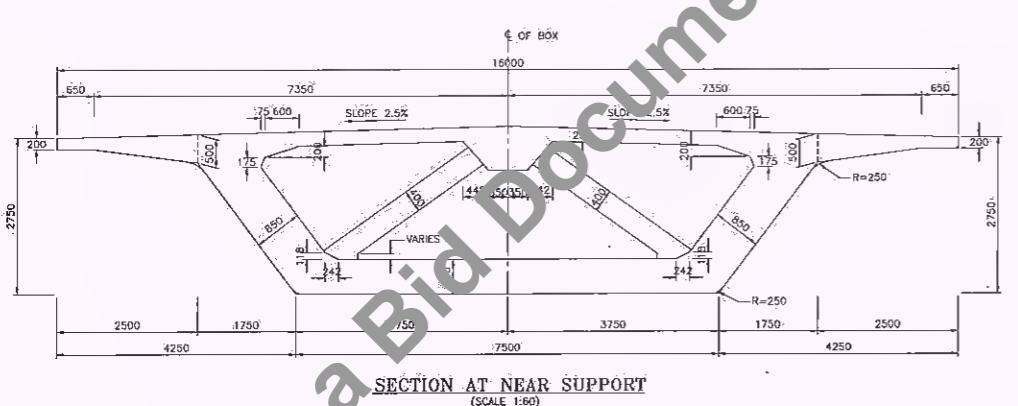
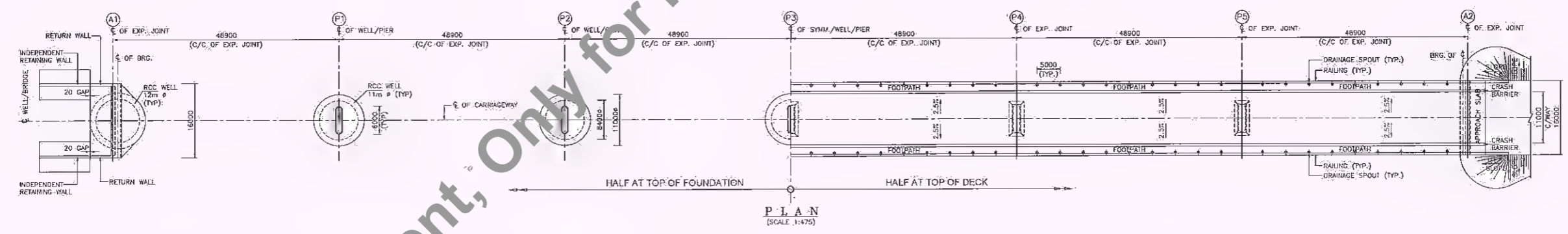
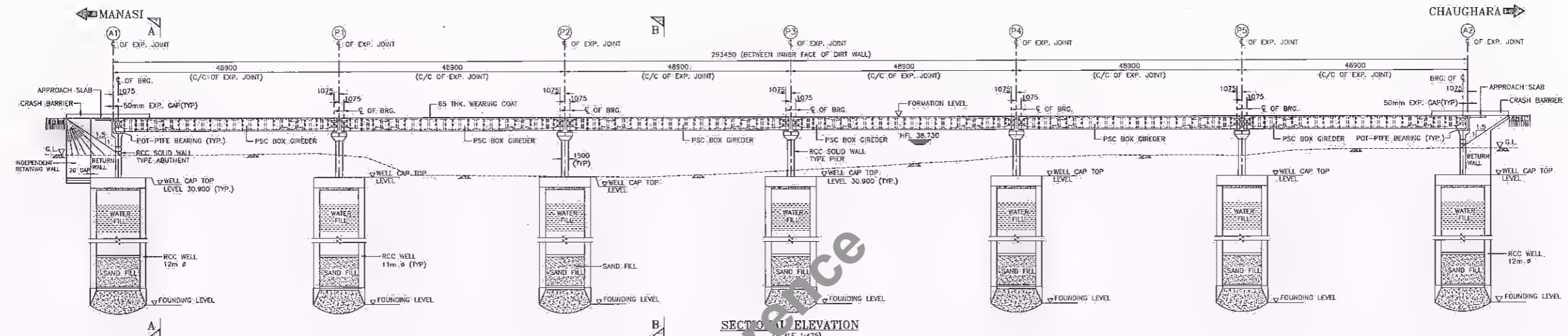
TYPICAL DETAIL AT
PIER LOCATION
(SCALE 1:60)



DETAIL-X
(SCALE 1:150)

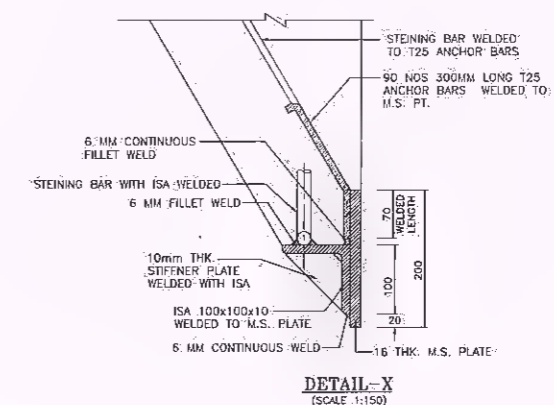
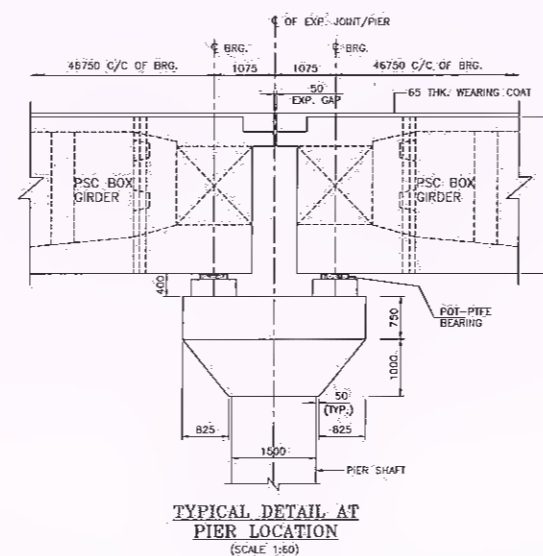
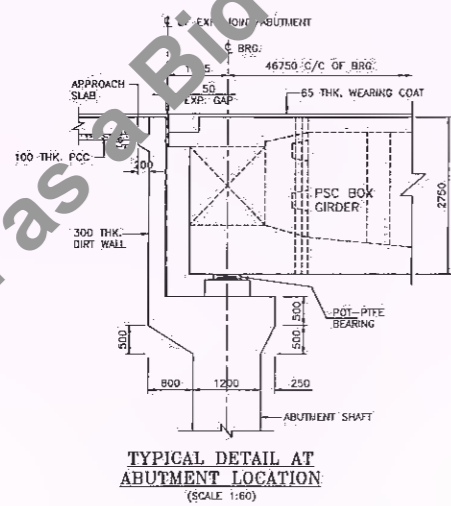
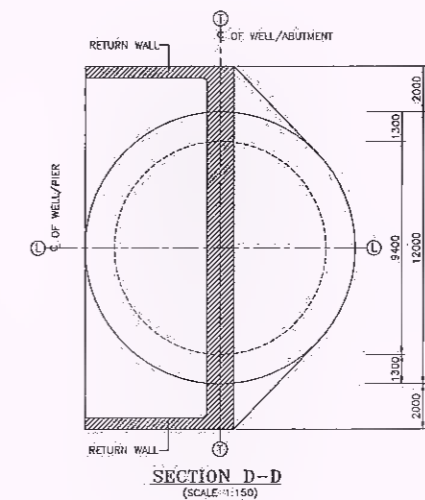
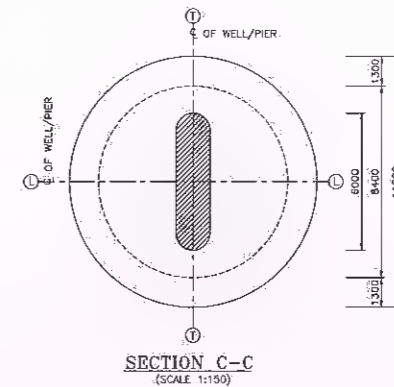
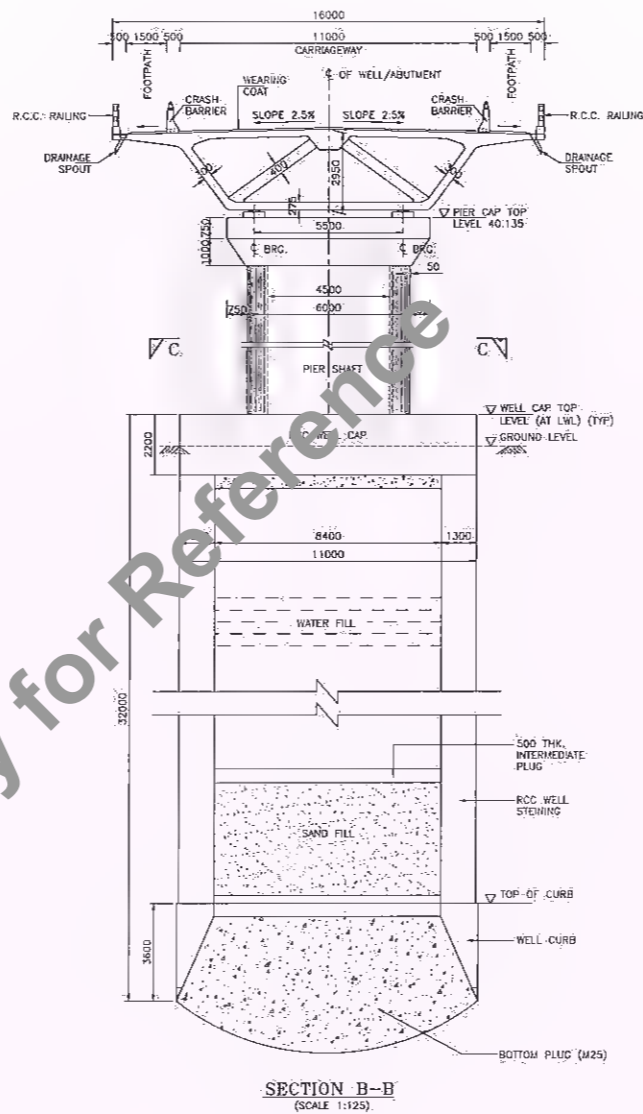
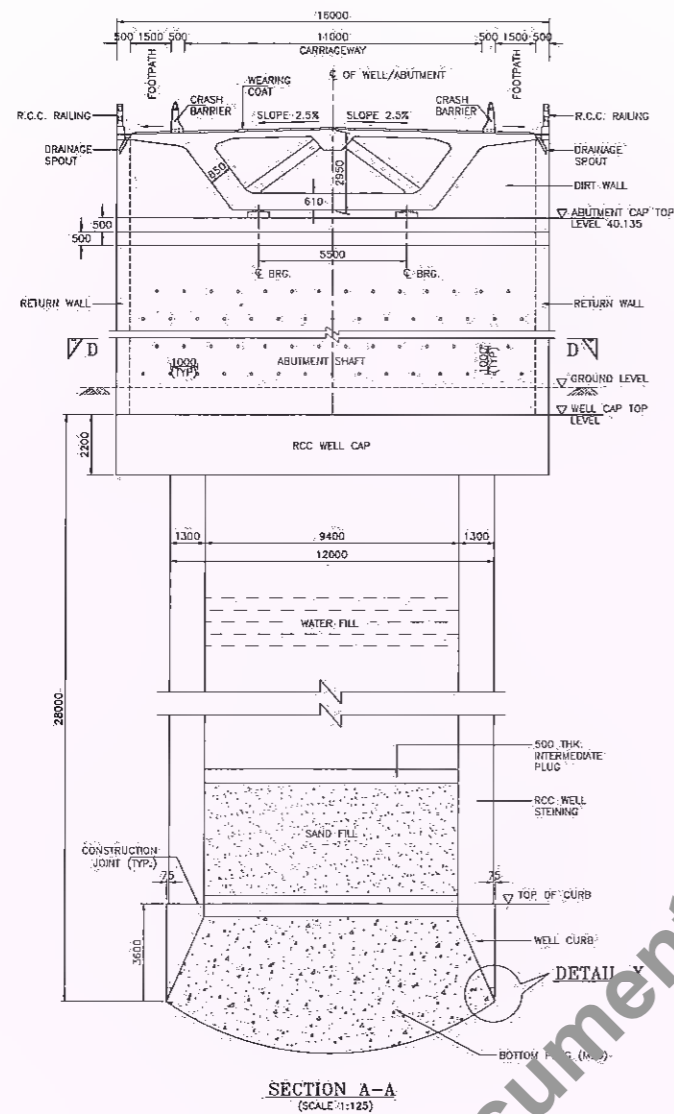
- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALED, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. REFER SHEET 01 OF 02 DRAWING RHDW/84801/BDPR/AMB-001.

Client: Bihar State Road Development Corporation Ltd.	Scale: AS SHOWN	Project: Consultancy Services for Preparation of Detailed Project Report for Muzasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultant: HaskoningDHV Nederland B.V.	Title: GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT PROPOSED DESIGN CH: B+79B (Span Arrangement 7x48.9m)	Drawings No: RHDW/84801/BDPR/AMB-001	Rev: 02 OF 02
Manager (Tech.) BSRDCL PIU-Khagaria	D.G.M. (Tech.) BSRDCL PIU-Khagaria				Prepared: S. Sankar	Checked: L. S. Panwar
					Approved: M. Nam	Approved: S. Pathari



- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALE. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. GRADE OF CONCRETE FOR VARIOUS ELEMENTS ARE AS FOLLOWS:-
 - (a) PSC SUPERSTRUCTURE.....M50
 - (b) PCC FOOTPATH.....M30
 - (c) RCC CRASH BARRIER/RAILING.....M40
 - (d) APPROACH SLAB.....M30
 - (e) RCC RETAINING WALL.....M35
 - (f) PIER/ABUTMENT.....M35
 - (g) WELL FOUNDATION.....M35
 4. TYPE OF BEARING PROPOSED HERE IS POT-PIE AS PER IRC:83 (PART-3).
 5. ALL REINFORCEMENT BARS ARE TMT BARS (GRADE DESIGNATION F5500) AS PER IS:1786.
 6. WEARING COAT SHALL COMPRISE 40mm THICK BITUMINOUS CONCRETE OVERLAD WITH 25mm THICK BITUMINOUS MASTIC LAYER.
 7. WEAP HOLES, SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENTS, RETURN WALLS, MEDIAN WALL AND INDEPENDENT RETURN WALL ABOVE GROUND AS PER SECTION 2706 OF MORTH SPECIFICATIONS.
 8. THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
 9. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT.
 10. REFER SHEET 02 OF 02 DRAWING RHDH/64801/DDPR/MJB-002.

Not to be Used as a Bid Document, Only for Reference



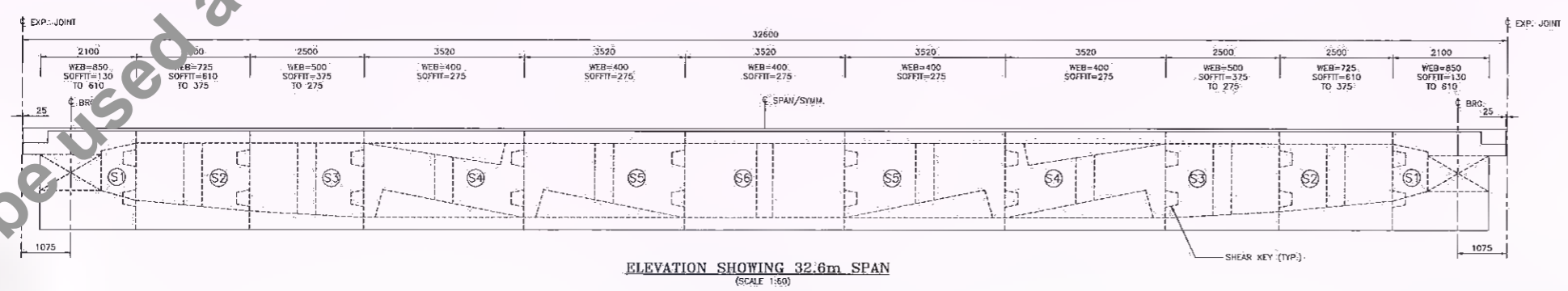
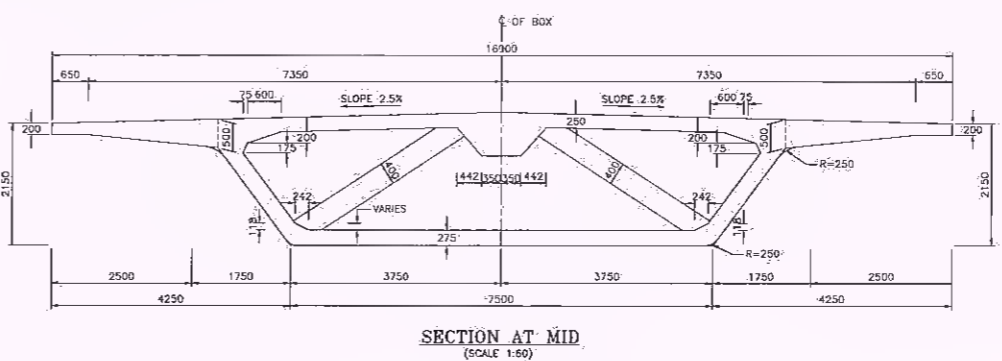
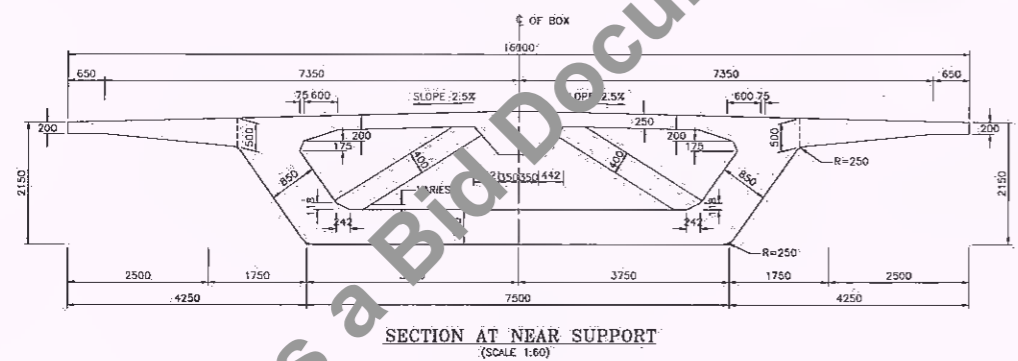
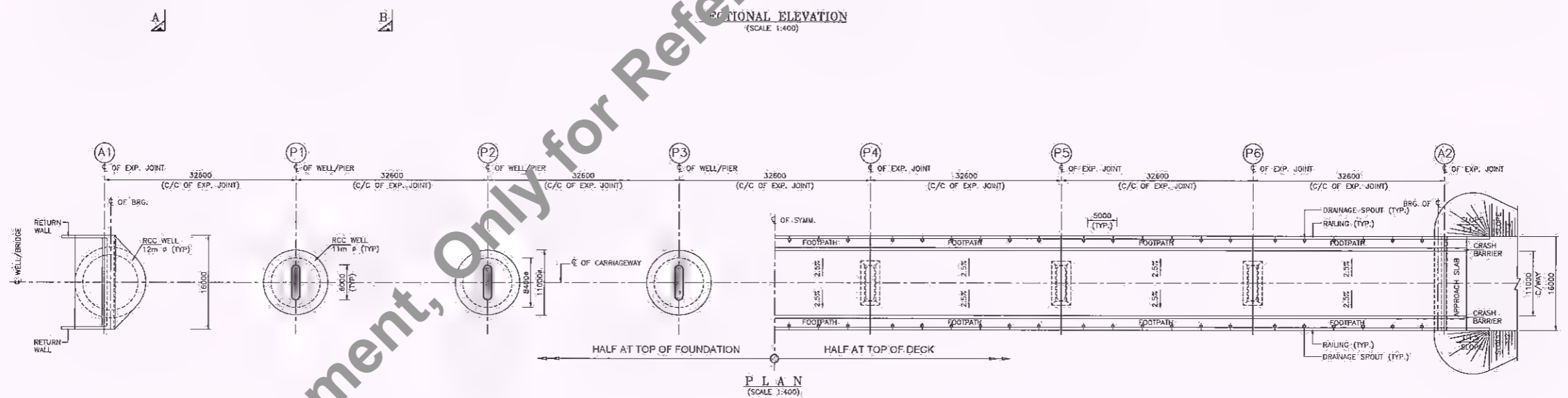
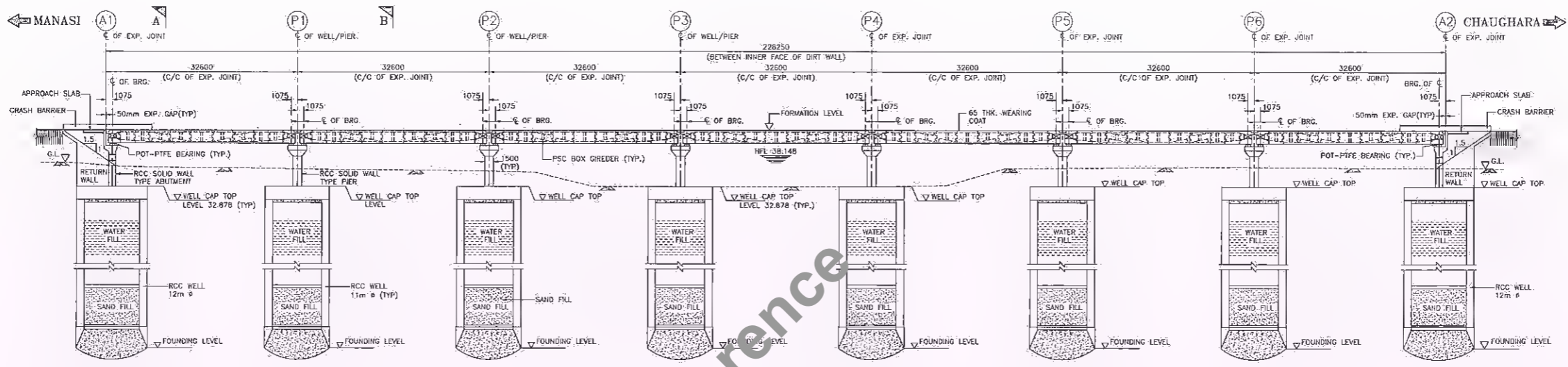
- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALE, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. REFER SHEET 01 OF 02 DRAWING RHDW/64801/DDPR/4JB-002.

Client: Bihar State Road Development Corporation Ltd.	Scale: AS SHOWN	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultant: HaskoningDHV Nederland B.V.	Table: GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT PROPOSED DESIGN CH: 9+765 (Span Arrangement 6x48.9m)	Drawn By: S. Solanki	Checked By: L.S. Panwar	Approved By: M. Alam	Scale: 1:100	Sheet No: 02 OF 02	Date: 02 DEC 2021
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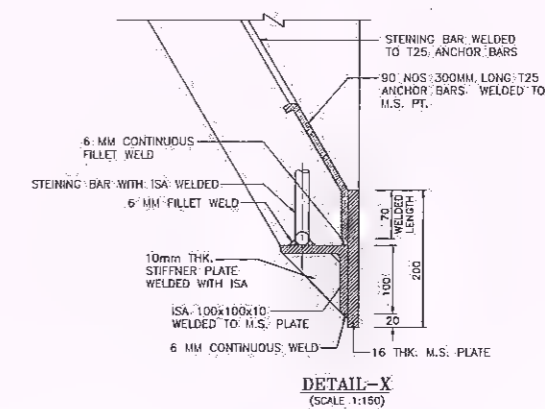
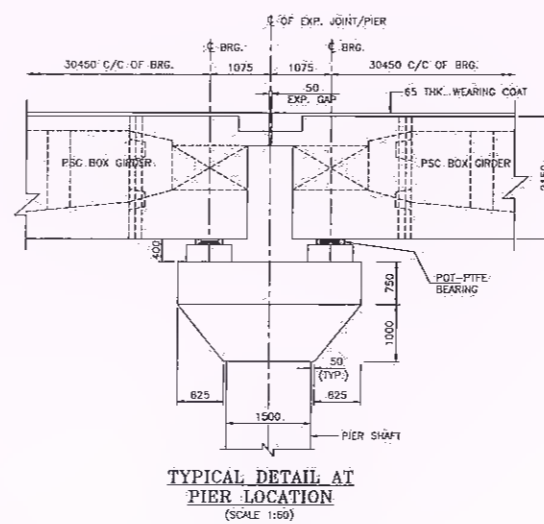
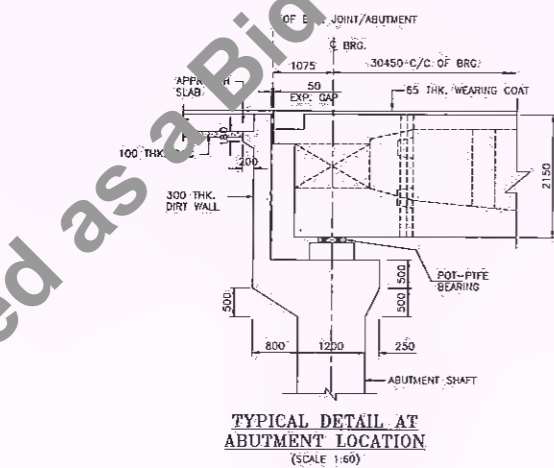
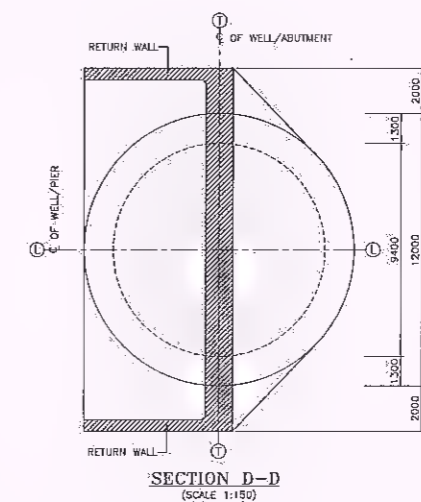
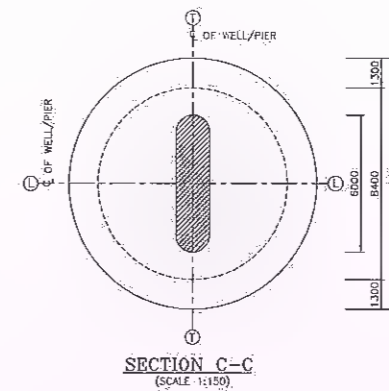
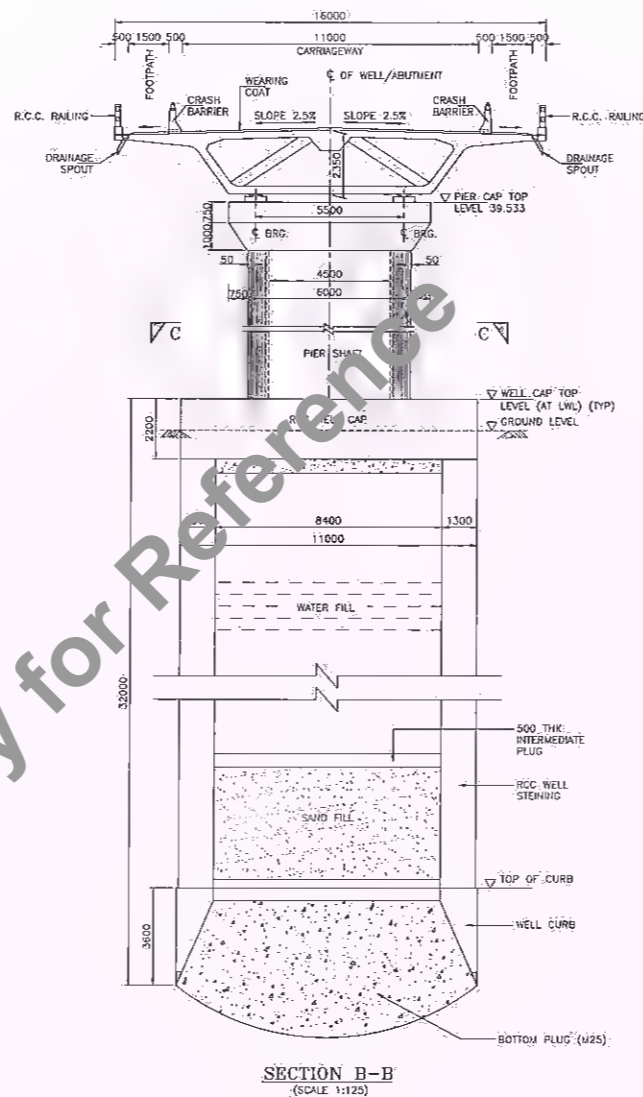
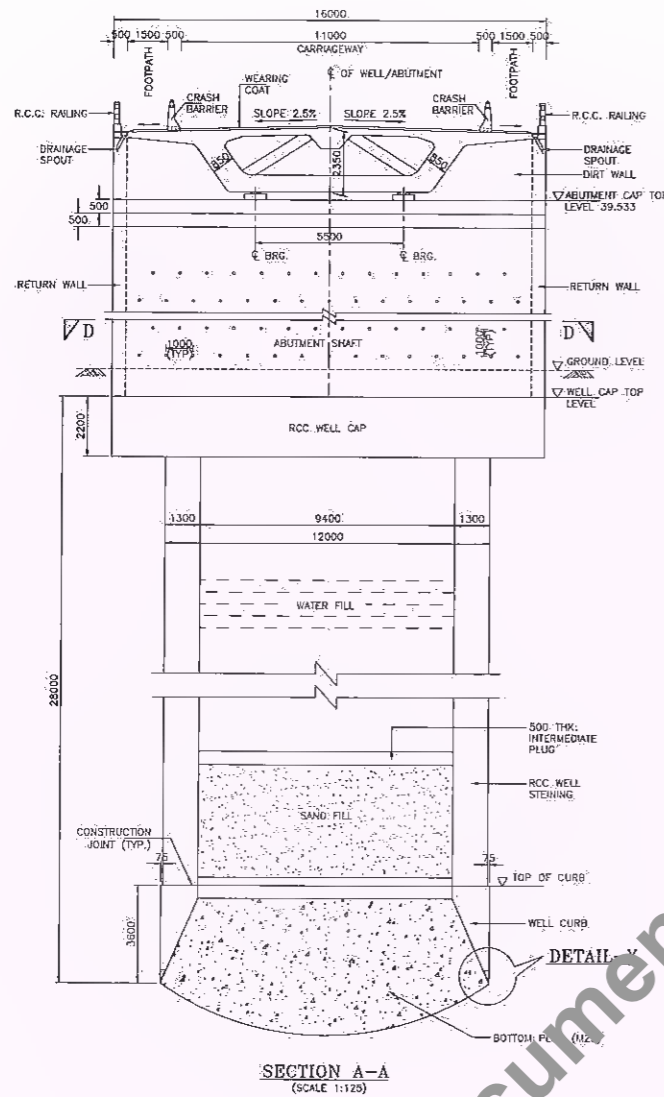


- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALE. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. GRADE OF CONCRETE FOR VARIOUS ELEMENTS ARE AS FOLLOWS:-
 - (a) PSC SUPERSTRUCTURE.....M50
 - (b) RCC FOOTPATH.....M30
 - (c) RCC CRASH BARRIER/RAILING.....M40
 - (d) APPROACH SLAB.....M30
 - (e) RCC RETAINING WALL.....M35
 - (f) PIER/ABUTMENT.....M35
 - (g) WELL FOUNDATION.....M35
 4. TYPE OF BEARING PROPOSED HERE IS POT-PIEE AS PER IRC:83 (PART-3)
 5. ALL REINFORCEMENT BARS ARE TMT BARS (GRADE DESIGNATION Fe500) AS PER IS:1786.
 6. WEARING COAT SHALL COMPRISE 40mm THICK BITUMINOUS CONCRETE OVERLAD WITH 25mm THICK BITUMINOUS MASTIC LAYER.
 7. WEEP HOLES, SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENTS, RETURN WALLS, MEDIAN WALL AND INDEPENDENT RETURN WALL ABOVE GROUND AS PER SECTION 2705 OF HORTH SPECIFICATIONS.
 8. THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
 9. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT.
 10. REFER SHEET 02 OF 02 DRAWING RHDH/64801/DPDR/MJB-003.

Client: Bihar State Road Development Corporation Ltd.	Scale: AS SHOWN	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31) Baharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultant: HaskoningDHV Nederland B.V.	Title: GENERAL ARRANGEMENT DRAWING FOR MAJOR BRIDGE AT PROPOSED DESIGN CH: 11+967 (Span Arrangement 7x32.6m)	Rev: 01	Date: 02 DECEMBER 2021	Sheet: 01 of 02
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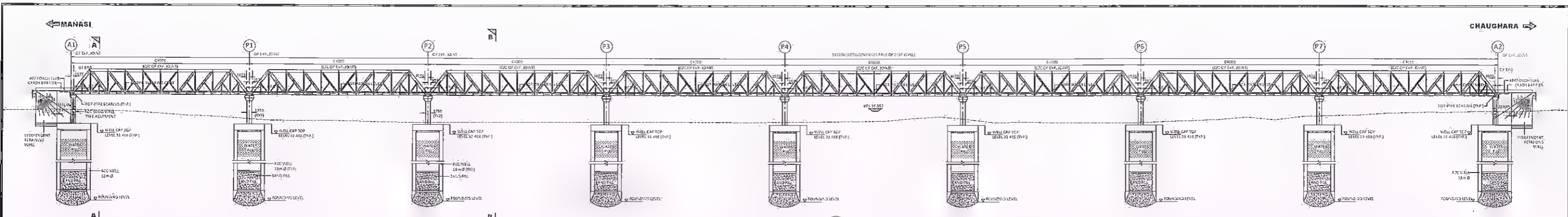


- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALE, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. REFER SHEET 01 OF 02 DRAWING: RHD/H/64801/DDPR/MJB-003.

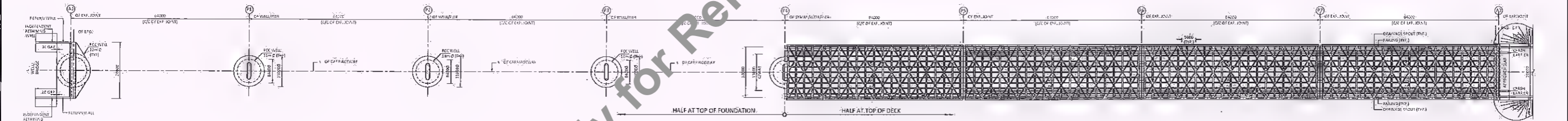
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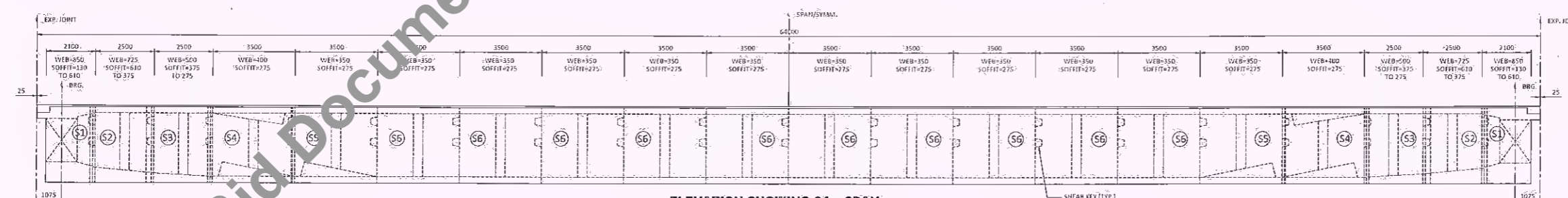
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SECTIONAL ELEVATION
(SCALE 1:500)



PLAN
(SCALE 1:500)

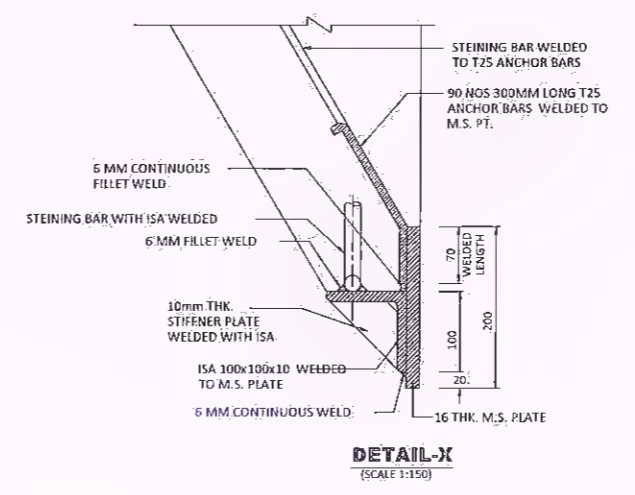
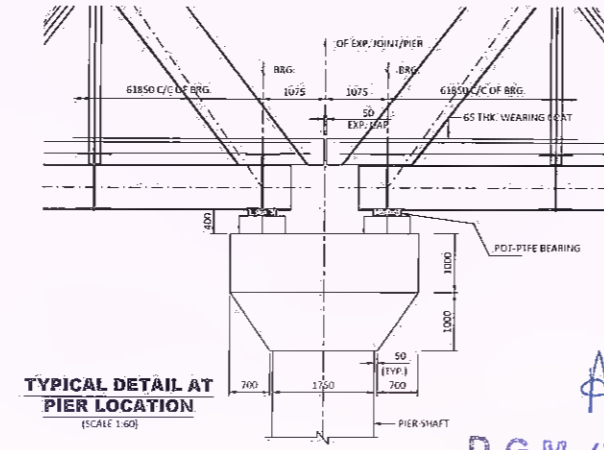
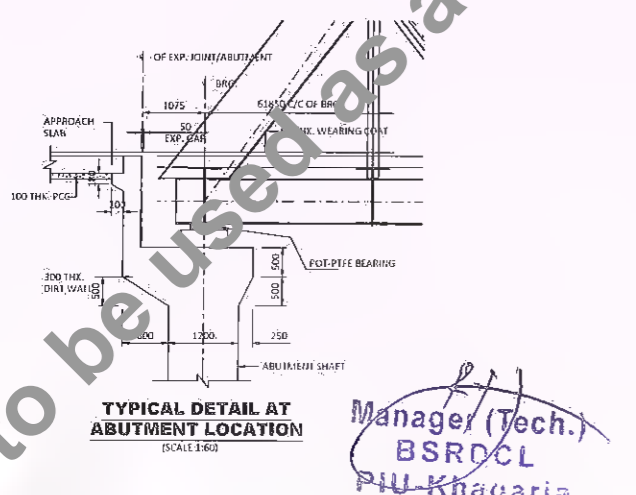
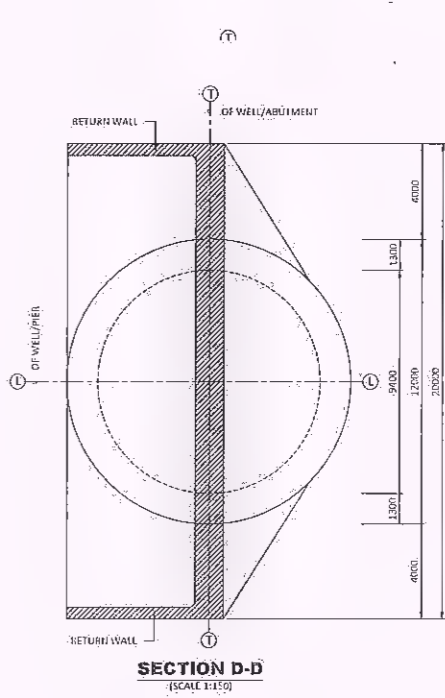
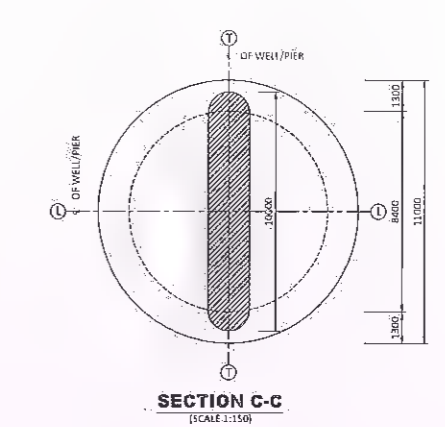
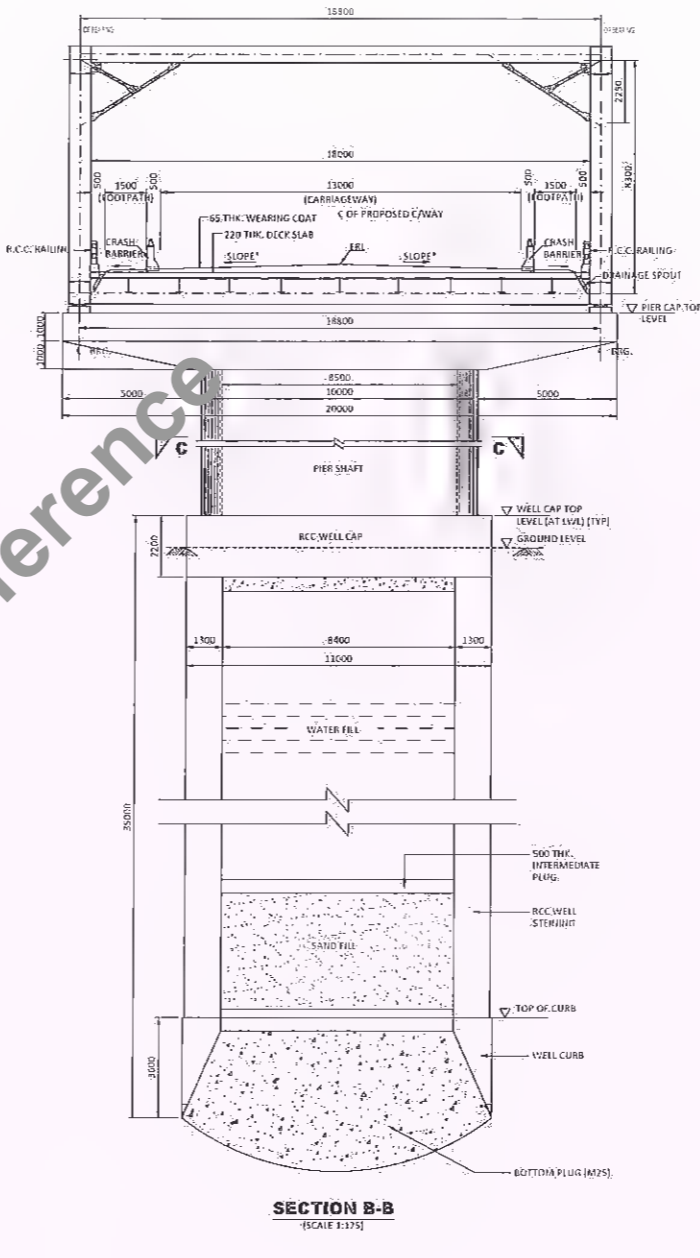
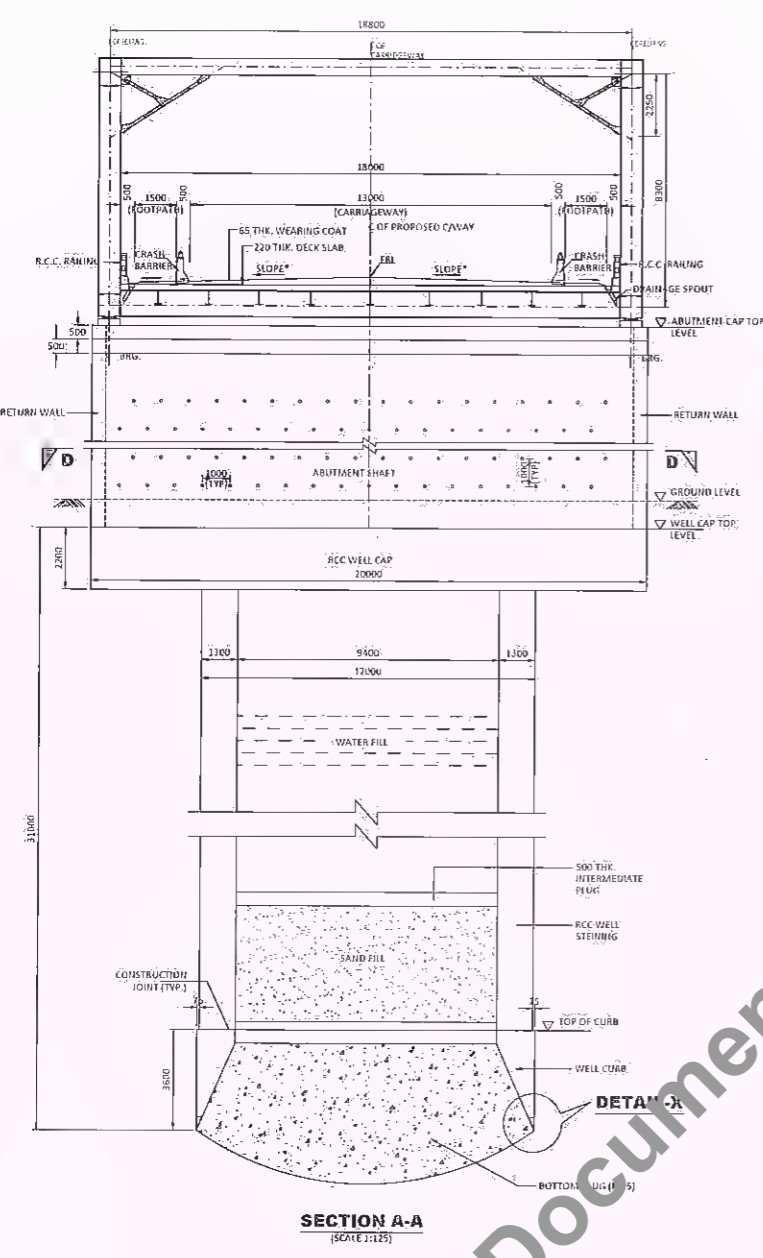


ELEVATION SHOWING 64m SPAN
(SCALE 1:100)

- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED;
 2. DIMENSIONS ARE NOT TO SCALE; ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED;
 3. GRADE OF CONCRETE FOR VARIOUS ELEMENTS ARE AS FOLLOWS:-
 (a) PCC SUPERSTRUCTURE..... M30
 (b) PCC FOOTPATH..... M30
 (c) RCC CRASH BARRIER/RAILING..... M30
 (d) APPROACH SLAB..... M30
 (e) RCC RETAINING WALL..... M35
 (f) PIER/ABUTMENT..... M35
 (g) WELL FOUNDATION..... M35
 4. TYPE OF BEARING PROPOSED HERE IS POT-PIEE AS PER IRC'S (PART-3)
 5. ALL REINFORCEMENT BARS ARE TMT BARS (GRADE DESIGNATION F450D) AS PER IS:786.
 6. WEARING COAT SHALL COMPRISE 40mm THICK BEDDING CONCRETE OVERLAIN WITH 25mm THICK BITUMINOUS MASTIC LAYER.
 7. WEEP HOLES; SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN ALL SACCEES THROUGH RETURN WALLS, RETAINING WALL AND INDEPENDENT RETURN WALL ABOVE GROUND AS PER SECTION 2706 OF MORTH SPECIFICATIONS.
 8. THE DIMENSION OF STRUCTURAL COMPONENTS SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAILED DESIGN.
 9. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION SO THAT.
 10. REFER SHEET 02 OF 02 DRAWING RHD/H/64801/DDPR/MB-004.

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A
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- NOTES:**
1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO SCALE, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. REFER SHEET 01 OF Q2 DRAWING RHDHV/G4801/DDPR/MJB-014.
 4. ALL DRAWINGS ARE TENTATIVE IT CAN BE CHANGED AS PER DESIGN.

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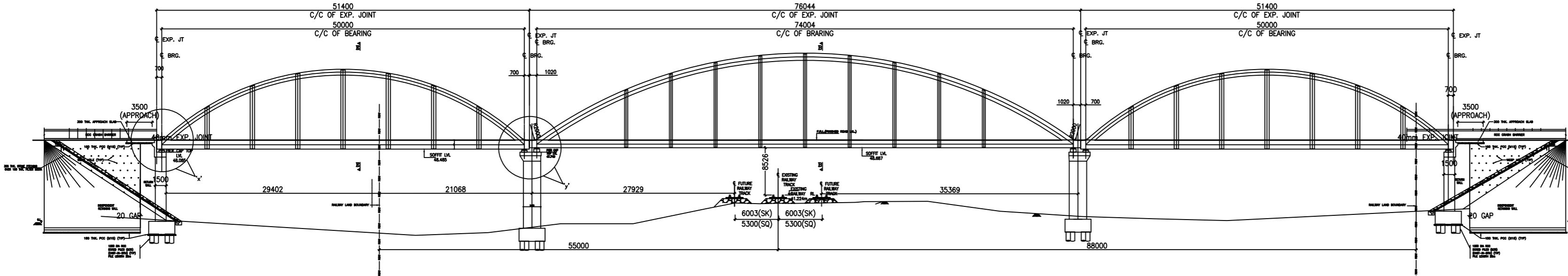
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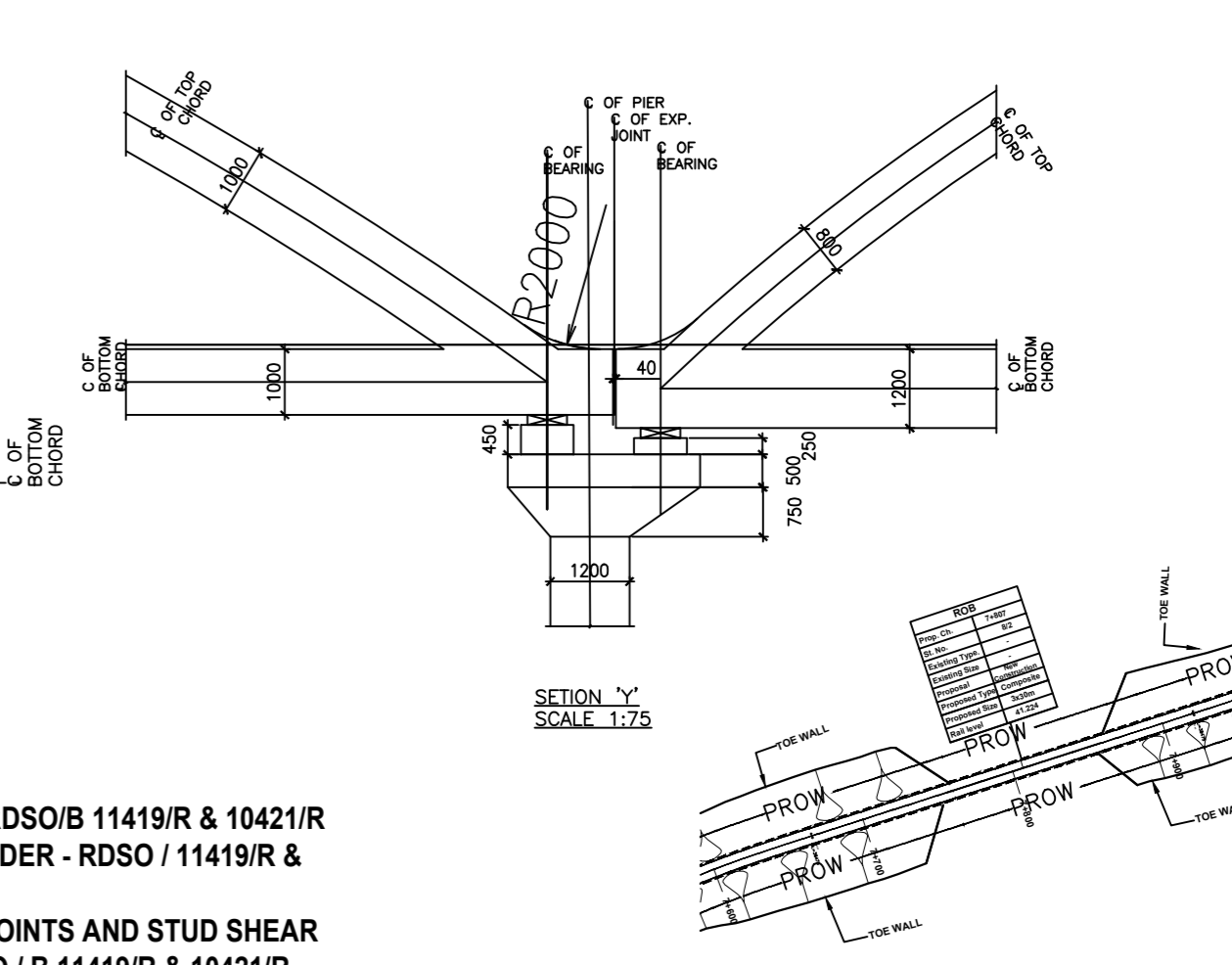
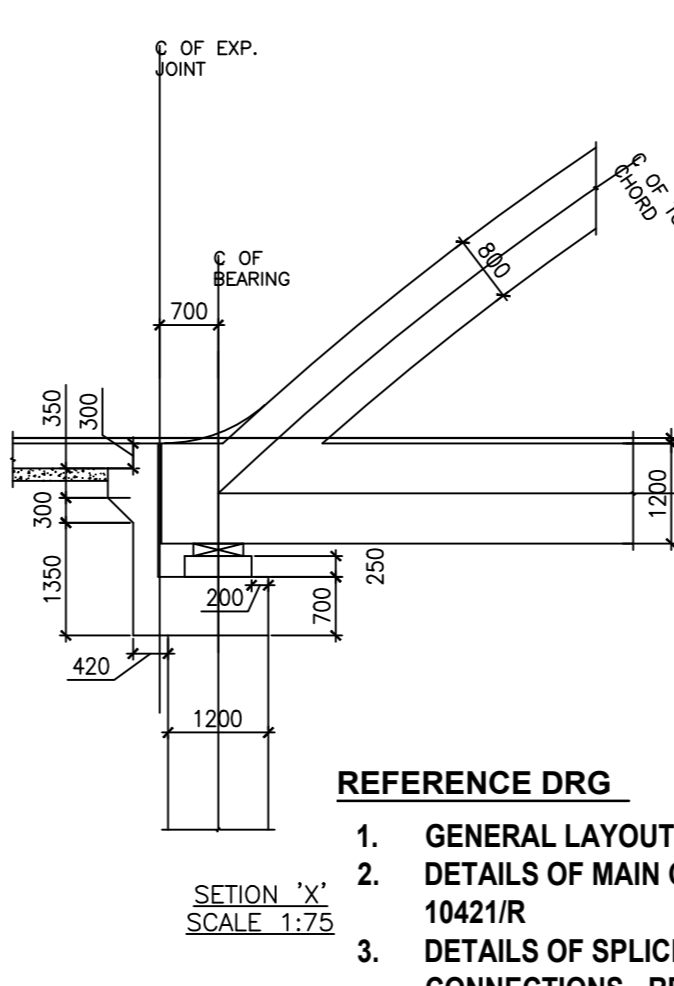
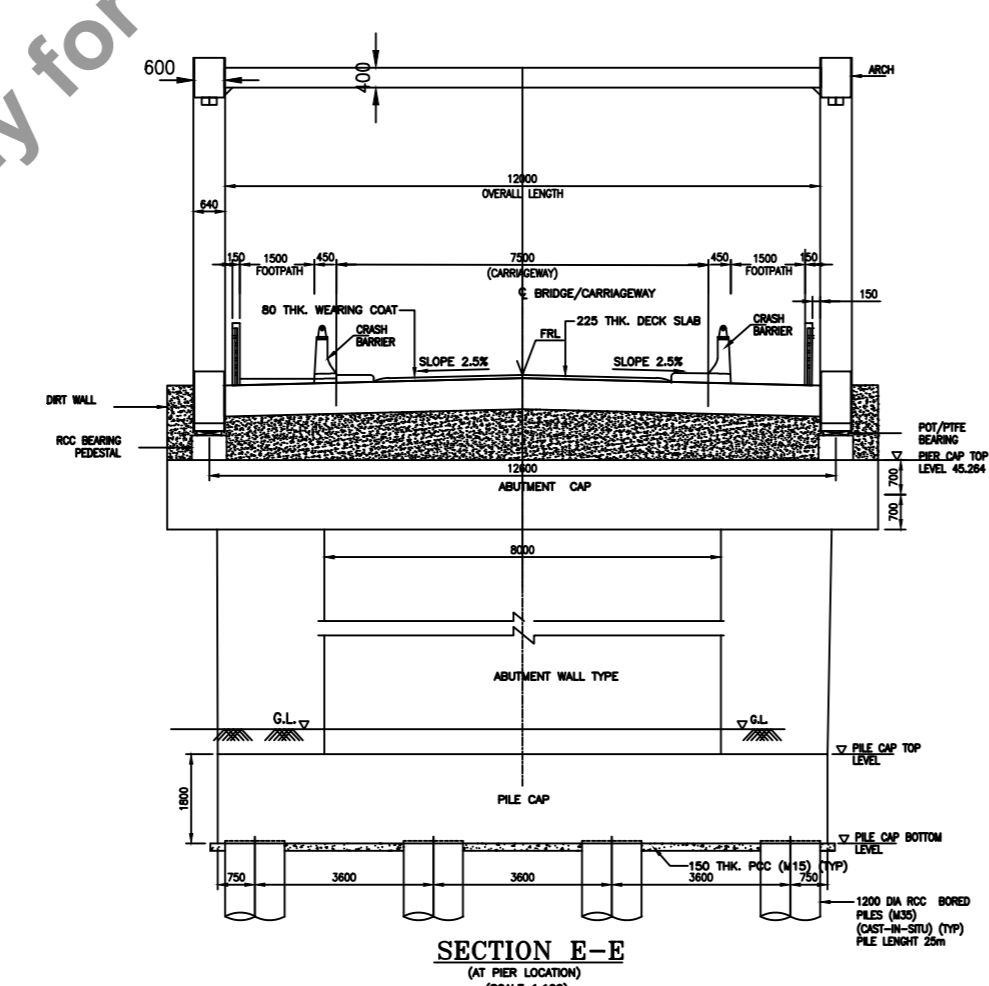
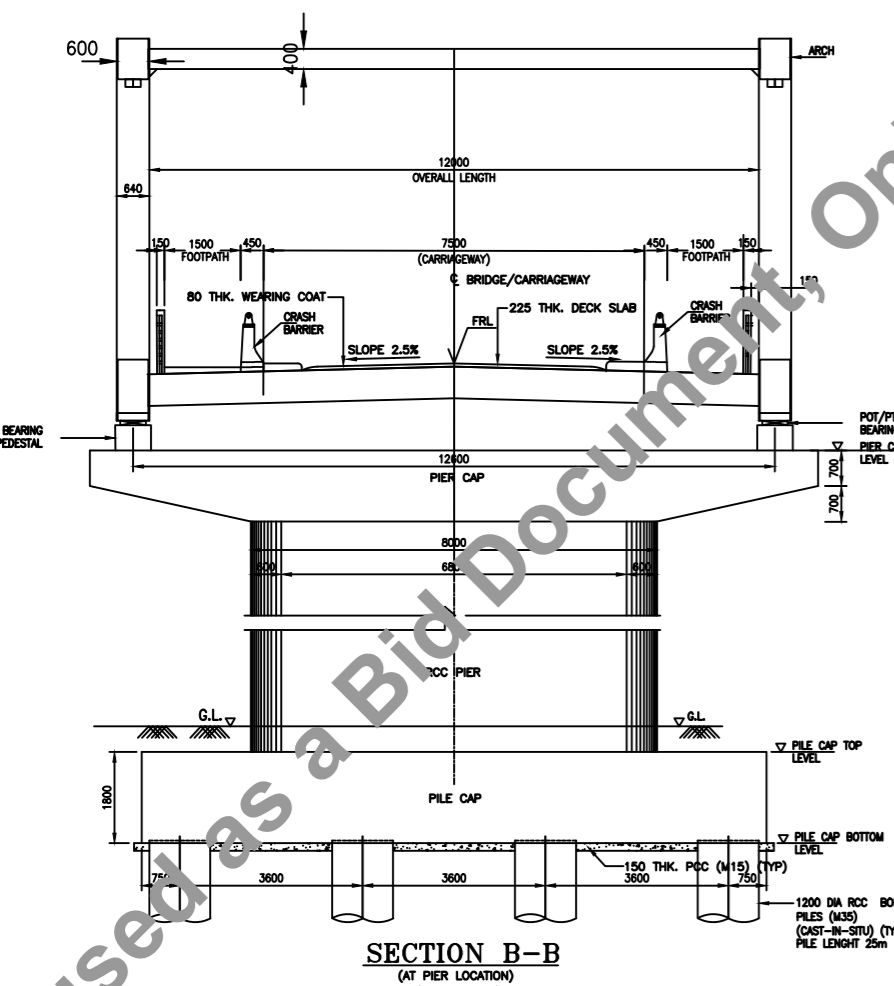
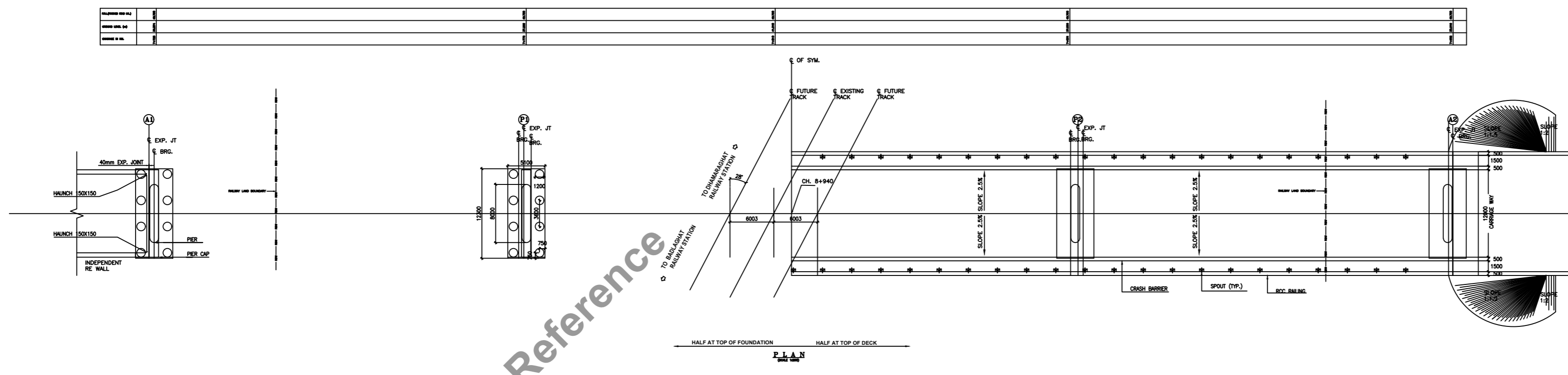
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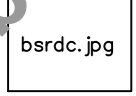
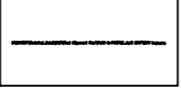
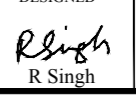
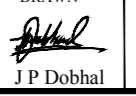
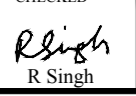

→ BADLAGHAT

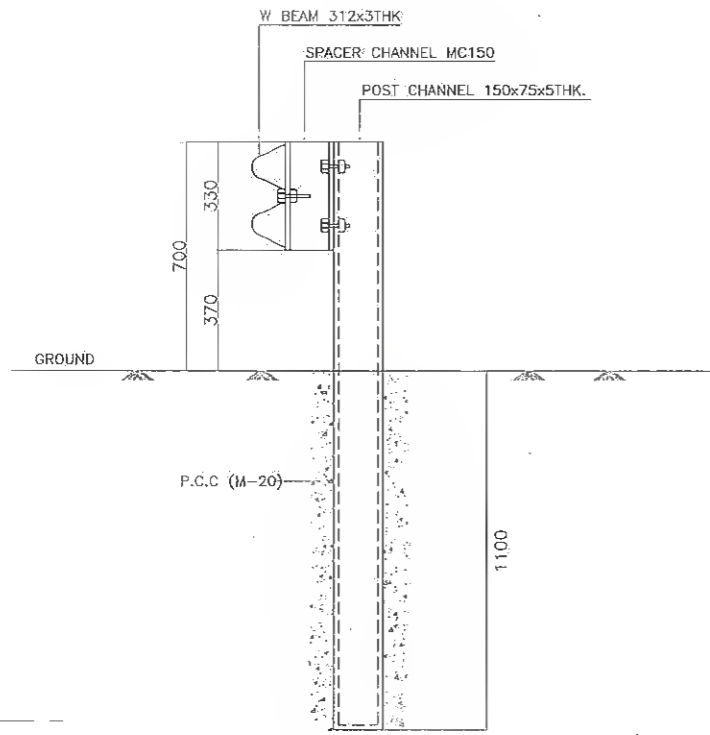


- NOTES:-**
- 1 ALL DIMENSIONS ARE IN METERS UNLESS SPECIFIED OTHERWISE
 - 2 DIMENSIONS ARE NOT TO BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 - 3 ALL THE DIMENSIONS SHOWN SHOULD BE VERIFIED AT SITE BEFORE BEGINNING OF DESIGN WORK IN HAND. ANY DISCREPANCY NOTED SHOULD BE FORWARDED THROUGH ALTERATIONS DAILY SHEET.
 - 4 DRAWINGS SHOULD BE PROCEEDED AS PER MOST SPECIFICATIONS DESIGN CONSULTANT SHOULD SUBMIT SEPARATE SHEET OF DRAINAGE SLOUTS AS PER LATEST MOST STANDARDS.
 - 5 THE APPROACHES ARE IN REINFORCED CONCRETE RETAINING WALL OR REINFORCED EARTH WALL.
 - 6 EXPOSURE CONDITION OF THE BRIDGE AND ITS COMPONENTS SHOULD BE DECLARED AS PER IRC 113-2011/IRC 21-2000/IS 456. ALL SPECIFICATION LAD DOWN IN IRC CODES/IS 456 CODE FOR RELEVANT EXPOSURE CONDITION SHALL BE FOLLOWED.
 - 7 FOR DETAILS OF SUBSTRUCTURE AND SUPER STRUCTURE REFER SEPARATE DRAWING DAILY APPROVED BY RAILWAY.
 - 8 WORK SHOULD BE CARRIED OUT BY THE PARTY UNDER THE SUPERVISION OF RAILWAY ENGINEERS WITHIN RAILWAY LAND LIMIT.
 - 9 SANCTION OF ORS SHOULD BE OBTAINED PRIOR TO EXECUTION OF PROPOSED WORK.
 - 10 TYPE OF BEARING - POT-PILE
 - 11 SUSTAINABLE UTILITY DUCTS IF REQUIRED SHOULD BE PROVIDED BELOW FOOTPATH SLAB WITH THE APPROVAL OF ENGINEER IN CHARGE.
 - 12 R.C.C CRASH BARRIER OF 1.8 M HEIGHT IN RAILWAY PORTION WILL BE PROVIDED AS PER APPROVED DRAWING.
 - 13 DESIGN SHALL BE AS PER LATEST RELEVANT CODE OF IRC INCLUDING SP-33 AND OTHER CODES AS APPROVED BY M.C.T.
 - 14 RAILWAY/STATE GOVT./PRIVATE AUTHORITIES SHOULD ENSURE DURING EXECUTION OF THE WORK, SAFETY OF RUNNING RAIL TRAFFIC SHOULD NOT BE AFFECTED.
 - 15 SUSTAINABLE SPEED RESTRICTIONS IF REQUIRED SHOULD BE IMPOSED BEFORE TAKING UP THE EXECUTION OF WORK WITH THE APPROVAL OF ENGINEER IN CHARGE.
 - 16 TEMPORARY SIGNALING ARRANGEMENT WILL BE DONE AS PER G.R. 15.09 (1) D & S.R 15.09 (2) & S.R 15.09 (2) B & S.R 15.09 (2) C WHICHEVER IS APPLICABLE IF REQUIRED.
 - 17 LOADING STANDARD OF ROB AS PER IRC-R 2014.
 - 18 FULL FLEXIBLE LOAD TEST OF SUPER STRUCTURE SHOULD BE DONE AS PER IRC-SP-9 TO ENSURE QUALITY WORK.
 - 19 CONCRETE DESIGN MIX SHALL BE AS UNDER:-
RCC STRUCTURE --- M25
RCC FOUNDATION/PILE CAP --- M30
CRASH BARRIER --- M20
DECK SLAB --- M25
RCC RETAINING WALL --- M25
 - 20 MANNED LEVEL CROSSING DOES NOT EXIST AT THIS LOCATION.
 - 21 REINFORCEMENT BARS SHALL BE H.Y.S.D. OF GRADE FE-2500 CONFORM TO IS:1786.
 - 22 PROVISION OF CLAMPS IN THE SUBSTRUCTURE FOR SUPPORTING THE A.C. TRACTION WIRE TO BE MADE IN ACCORDANCE WITH THE CONCERNED AUTHORITY'S DESIGN BASED ON STANDARD TYPICAL DRAWING.
 - 23 ALL R.C.C./A.C.C./P.C.C. WORK SHOULD CONFORM TO RELEVANT I.R.C. CODES & MOST SPECIFICATION.
 - 24 FOR FABRICATION, WORKMANSHIP, INSPECTION & TESTING, PROTECTION AGAINST CORROSION ETC. RELEVANT PROVISION OF IRC-24-2001 SHALL BE FOLLOWED.
 - 25 THE DEPTH OF FOUNDATION SHOWN IN THIS DRAWING IS TENTATIVE & SHOULD BE DECIDED BY RAILWAY/STATE GOVT./PRIVATE AUTHORITIES AS PER ACTUAL SOIL PROPERTIES AND DESIGN CALCULATIONS.
 - 26 REPRESENTATIVE OF TELECOM & SIGNALING DEPARTMENTS SHOULD BE MADE AVAILABLE BEFORE COMMENCEMENT OF PROPOSED WORK, IN THE VICINITY OF SIGNAL & TELECOM CABLE.
 - 27 ROAD UP BANK (SHOWN) @ 2% AT 100 C/C SHALL BE EXECUTED IN ACCORDANCE WITH APPROACHING ABUTMENT/PIER CAP & BEARING FOR ROUTINE INSPECTION & MAINTENANCE.
 - 28 TEMPORARY ARRANGEMENT DRAWING OR METHODOLOGY TO LAUNCHING OF GIRDERS OVER RAILWAY TRACK SHOULD BE GOT APPROVED FROM RAILWAY AUTHORITY BEFORE STARTING THE WORK.
 - 29 ROAD AUTHORITY SHALL SUBMIT TO SLDEN-IN-CHARGE OF THE SECTION RELEVANT CREDENTIAL OF P.M.C (PROJECT MANAGEMENT CONSULTANCY) AND SITE IN-CHARGE TO BE APPOINTED FOR SUPERVISION AND EXECUTION OF THE BRIDGE PROPER IN RAILWAY AREA AFTER SIGNATORY OF CREDENTIALS SR. DEN SHALL ACCORD APPROVAL OF APPOINTING P.M.C AND SITE IN-CHARGE.
 - 30 DIMENSIONS GIVEN IN THIS DRAWING MUST BE RECONCILED AT SITE BEFORE STARTING THE WORK FOR FEASIBILITY.
 - 31 PRECAUTIONARY MEASURES FOR CONSTRUCTION OF ROB ON DEPOSIT WORK/COST SHARING WORK WITH RAILWAY/STATE GOVT. AND PRIVATE AGENCY SHOULD BE ADVISED BY ADVISOR CIVIL ENGINEERING RAILWAY BOARD LETTER NO. 87/CE-1/88/18 (PROJ) P.T.-H, DATED-18.02.2008 SHOULD BE STRICTLY FOLLOWED.
 - 32 NO CONSTRUCTION JOINT SHALL BE NORMALLY ALLOWED IN CONCRETE WORKS WITHOUT SPECIAL PRECAUTIONS AS PER THE RELEVANT BRIDGE CODES AND SUITABLE PROTECTION PAINTING OF APPROVED NAME SHOULD BE USED TO PAINT THE UNDERSIDE OF CONCRETE RO GIRDERS ALSO TO ENSURE LONG LIFE.
 - 33 CONTROLLED CONCRETE WITH WASH WATCHING SHALL BE USED.
 - 34 SOUND BELL SHOULD BE PROVIDED IN THE TRACK NEAR THE ISOLATED PIER OF ROB. NO CONSTRUCTION JOINT SHALL BE ALLOWED IN P.C.C OR R.C.C SLAB OR ORDER AND CURING OF ALL CONCRETE AND MASONRY WORKS AS PER THE RELEVANT CODES OF PRACTICE SHALL BE ENSURED BEFORE USE.
 - 35 INSPECTOR LADDERS/STEPS SHOULD BE PROVIDED TO ENSURE PROPER INSPECTION ACCESSIBILITY OF ROB.
 - 36 STRUCTURAL STEEL SHALL CONFORM TO IS 2062 (GRADE-40).
 - 37 STEEL SEAL TYPE EXPANSION JOINTS SHALL BE PROVIDED AS PER LATEST MOST REQUIREMENT. CONTRACTOR SHOULD FURNISH DESIGN/DRAWING OF EXPANSION JOINT, FROM FRIMS APPROVED BY MOST OF VARIOUS RELEVANT AGENCIES/TEMPERATURE TO SUIT SITE CONDITIONS WITH THE APPROVAL OF ENGINEER IN CHARGE.
 - 38 TO PROTECT THE CONCRETE FROM DAMAGE DUE TO SHOCK OF LOCOMOTIVES, 4.0M WIDE STRIP WITH POLYURETHANE PAINT PREPARED IN BLACK COLOUR SHALL BE PROVIDED IN THE SOFFIT OF THE DECK OVER RUNNING TRACKS.
 - 39 METALLIC CRASH BARRIER SHOULD BE PROVIDED UP TO 30M MINIMUM LENGTH ON EITHER SIDE OF THE BRIDGE AS PER MOST STANDARDS.
 - 40 STANDARD MAINTENANCE AGREEMENT SHOULD BE EXECUTED WITH RAILWAY AND RAILWAY/STATE GOVT. ALL ROAD AUTHORITY SHOULD DRAW UP FORMS FOR PERMISSOR FOR CONSTRUCTION OF ROB/RIB IN RAILWAY PORTION.
 - 41 ROAD AUTHORITY SHOULD ENSURE THAT BEFORE LAYING OF ANY NEW BEARING COAT IN FUTURE EXISTING BEARING COAT SHOULD BE COMPLETELY REMOVED.
 - 42 NO WORK SHOULD BE TAKEN UP IN HAND TILL PROOF CHECKED DESIGN AND DRAWING WITHIN RAILWAY AT THE TIME OF ORS APPLICATION IS FILED.
 - 43 MAINTENANCE CHARGES (CAPITALIZED) AND WAY LEASE CHARGES SHOULD BE DEPOSITED WITH RAILWAYS AT THE TIME OF ORS APPLICATION IS FILED.
 - 44 ALL STEEL STRUCTURES SHOULD HAVE ANTI-CORROSION PROTECTION OF LONG DURABILITY.
 - 45 ROAD LEASE FACILITIES/AGREEMENT RIGHT ON RAILWAY LAND SHALL BE GOT APPROVED BY CONCERNED RAILWAY AUTHORITY.
 - 46 DAG (DISPERSED) CHARGES SHOULD BE DEPOSITED WITH RAILWAYS AT THE TIME OF SUBMISSION OF FINAL DRAWING & DESIGN FOR APPROVAL.
 - 47 QUALITY CONTROL AND SAFETY PRECAUTIONS AND MEASURES TO BE OBSERVED DURING EXECUTION OF ROB/RIB THROUGH P.M.C (PROJECT MANAGEMENT CONSULTANCY).

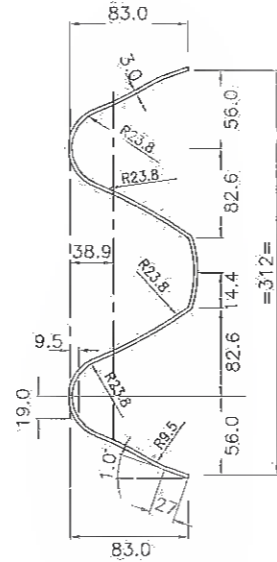


- REFERENCE DRG**
1. GENERAL LAYOUT - RDSO/B 11419/R & 10421/R
 2. DETAILS OF MAIN GIRDER - RDSO / 11419/R & 10421/R
 3. DETAILS OF SPLICE JOINTS AND STUD SHEAR CONNECTIONS - RDSO / B 11419/R & 10421/R

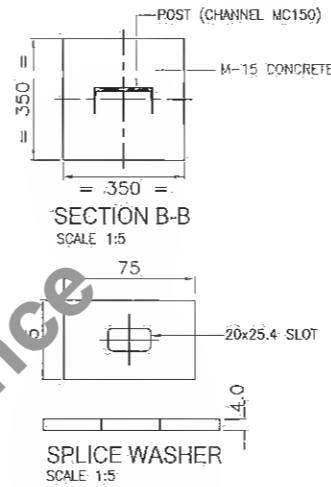
Client:  Bihar State Road Development Corporation Ltd.	SCALE	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants:  HaskoningDHV Nederland B.V.	Title:	DRAWING NO. : RHDHV/64801/DDPR/ROB-002/ R0
					DATE: JULY 2019
					DESIGNED:  R Singh
					DRAWN:  J P Dobhal
					CHECKED:  R Singh
					APPROVED:  S Pathuri
					REV DATE DESCRIPTION OF REVISIONS



CROSS SECTION A-A
SCALE 1:15

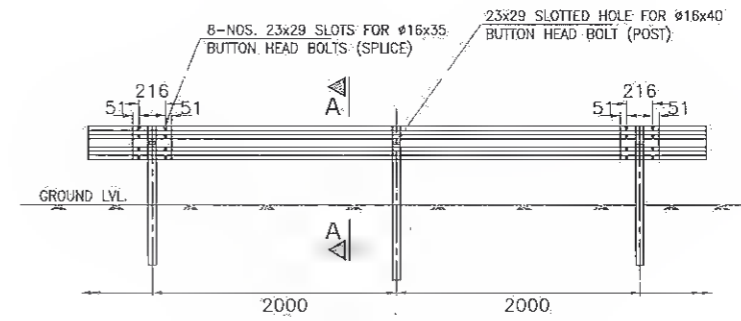


TYPICAL CROSS SECTION OF W-BEAM
SCALE 1:5

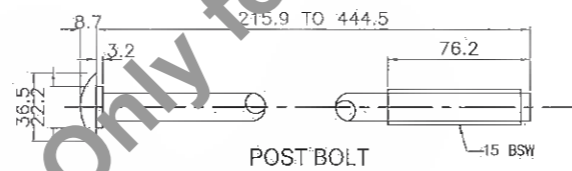


SECTION B-B
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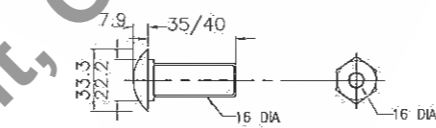
SPLICE WASHER
SCALE 1:5



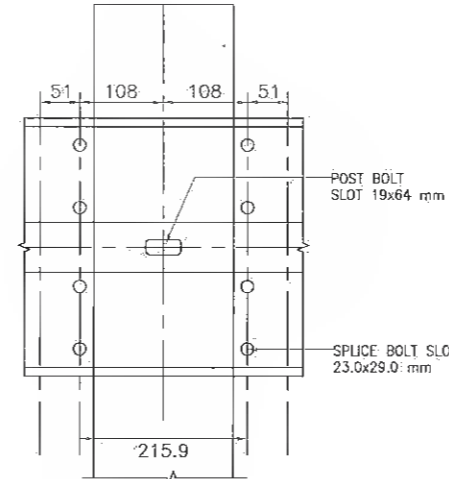
ELEVATION OF SINGLE SIDED CRASH BARRIER
SCALE 1:5



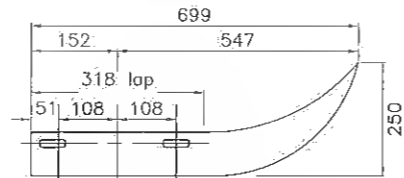
POST BOLT



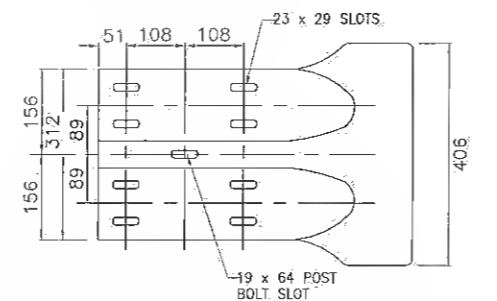
SPLICE / POST BOLT & NUT
SCALE 1:5



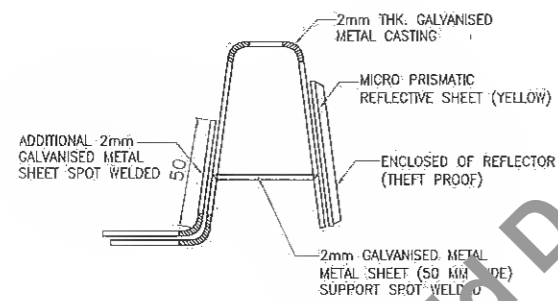
BEAM SPLICE
SCALE 1:5



PLAN
SCALE 1:5



ELEVATION OF W BEAM END SECTION (FLARED)
SCALE 1:5



GUARD RAIL REFLECTOR
SCALE 1:5

SHAPE : Equilateral Trapezium
DIMENSIONS :
FRONT CASTING
Top : 95mm
Bottom : 70mm
Height : 80mm
REFLECTIVE PORTION
Top : 70mm
Bottom : 50mm
Height : 50mm

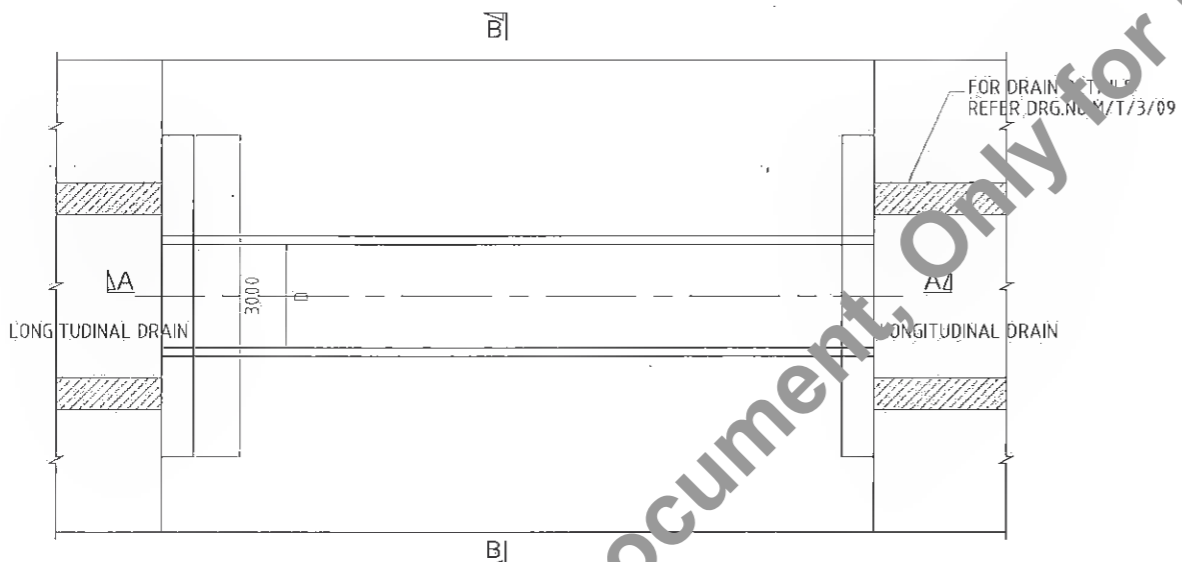
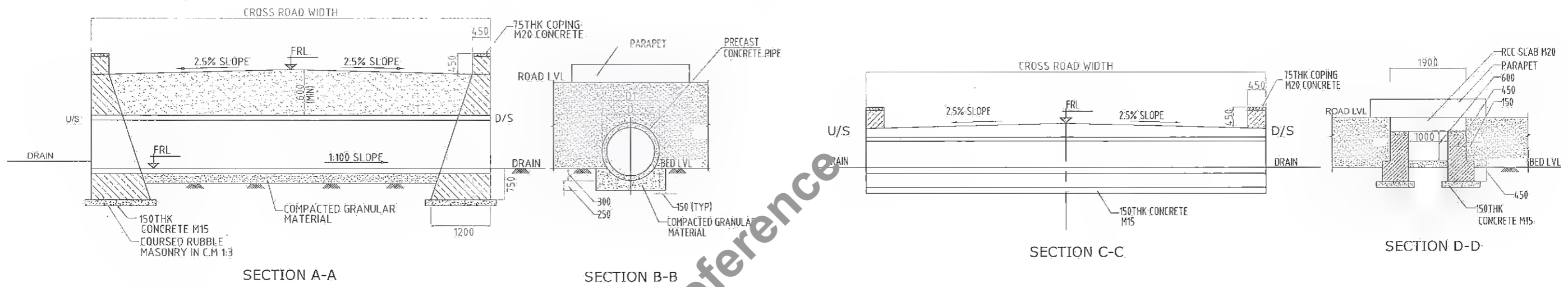
GUARD RAIL REFLECTOR WILL BE BOLTED REPLACING SPLICE WASHER EVERY 10 POSTS INTERVAL

NOTES:-

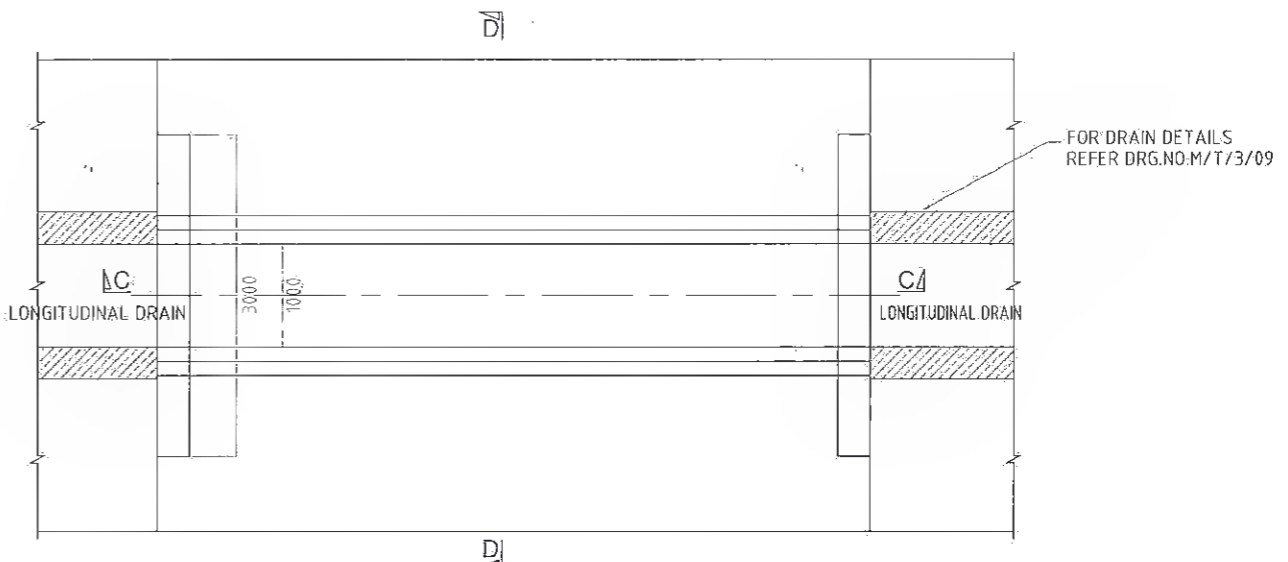
1. ALL DIMENSION ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL PUNCHING DIMENSIONS UNLESS OTHERWISE STATED = ±1mm.
3. WELDING ELECTRODES SHALL CONFORM TO IS:314.
4. FOR GUARD RAIL BEAMS, POSTS & SPACER MATERIAL SHALL CONFORM TO IS:10748, GRADE-II, IS 808, IS 2082
5. BOLTS, NUTS & WASHERS SHALL BE ELECTRO GALVANISED.
6. GUARD RAIL, POSTS, SPACERS, FOUNDATION BOLTS SHALL BE HOT DIP GALVANISED.
7. THE OVER LAPPING OF THE GUARD RAIL BEAM BE ACHIEVED USING SUITABLE SIZE WASHERS.
8. END OF CONCRETE BRIDGE BARRIERS SHALL BE PROVIDED WITH HOLES AND SEAT FOR END SHOE CONNECTION AS SHOWN. THE END SHOE SHALL BE FURNISHED AND INSTALLED WITH ROADWAY APPROACH GUARD RAIL.
9. W-BEAM GUARDRAIL ARE TO BE FABRICATED AND INSTALLED AS PER SECTION 810 OF MOST SPECIFICATION FOR METAL BEAM CRASH BARRIER.

A

	SCALE	Project	Design Consultants	Title : STANDARD DRAWINGS STEEL W-BEAM CRASH BARRIER DETAILS	DRAWING NO.: RHDHV/64081/DDPR/CB/01 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P. Dobhal CHECKED: R Singh APPROVED: S Pathari
	NTS	Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Royal HaskoningDHV HaskoningDHV Nederland B.V.		



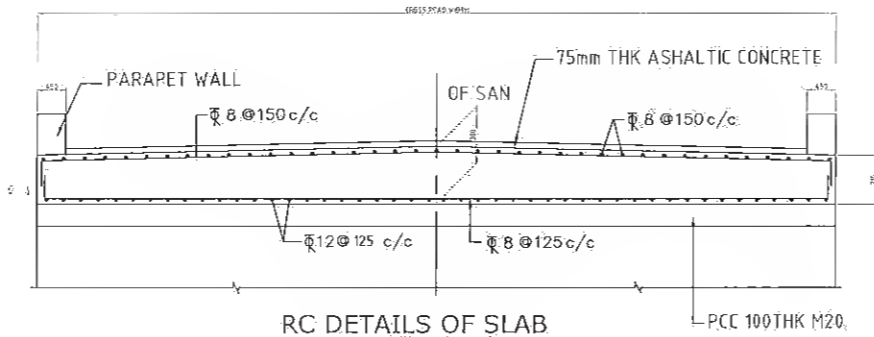
TYPICAL PLAN FOR PIPE CULVERT ON CROSS ROAD



TYPICAL PLAN FOR SLAB CULVERT ON CROSS ROAD

SCHEDULE OF PRECAST CONCRETE PIPE

NOMINAL DIAMETER 'D'	450	600	750
EXTERNAL DIAMETER 'D1'	540	720	900

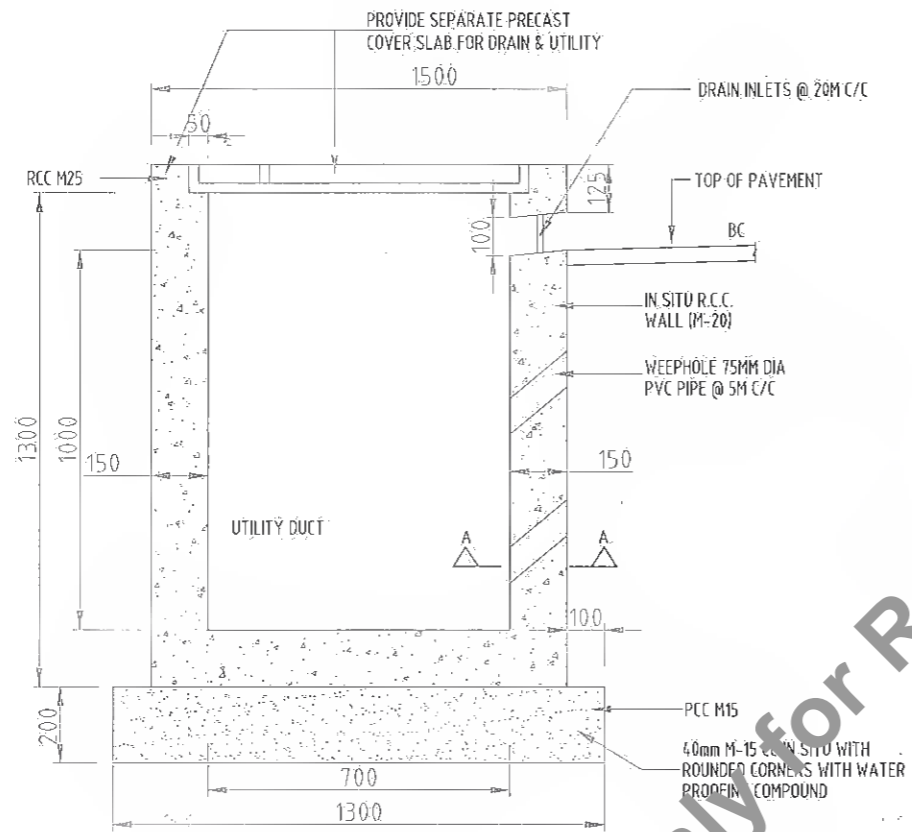


RC DETAILS OF SLAB

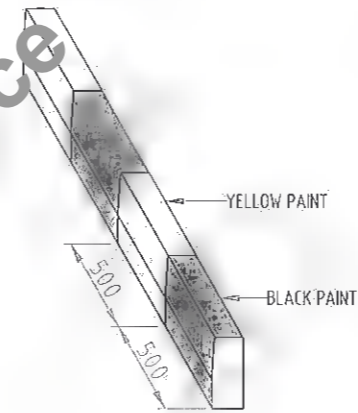
- NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
 2. ALL PRECAST CONCRETE PIPES TO BE OF GRADE NP3 CONFORMING TO IS 458.
 3. REINFORCEMENT BARS SHALL BE HIGH YIELD STRENGTH DEFORMED BARS (DENOTED AS) HAVING YIELD STRENGTH OF 415 MPa AND CONFORMING TO IS 1786.
 4. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50mm UNLESS OTHERWISE MENTIONED.
 5. THE SUITABILITY OF PIPE OR SLAB CULVERT FOR CROSS ROADS SHOULD BE DECIDED AT SITE BY ENGINEER-IN-CHARGE DEPENDING ON SITE CONDITIONS.

A

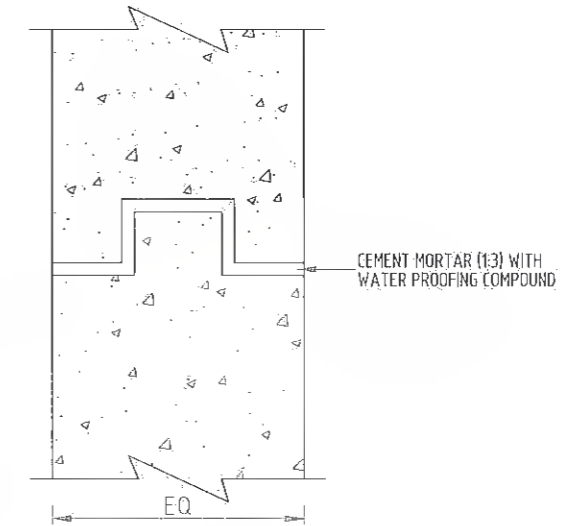
<p>Bihar State Road Development Corporation Ltd.</p>	<p>SCALE: NTS</p>	<p>Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V.</p>	<p>Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.</p>	<p>Client: ...</p>	<p>Title: TYPICAL - CROSS DRAIN SINGLE LANE BT ROAD/EARTHEN ROAD</p>	<p>DRAWING NO.: RHDHV/64081/DDPR/CD/01</p>	<p>DATE: APRIL 2017</p>	<p>SHEET: 01 OF 01</p>
						<p>DESIGNED: R Singh</p>	<p>DRAWN: J.J. Dobhal</p>	<p>CHECKED: R Singh</p>



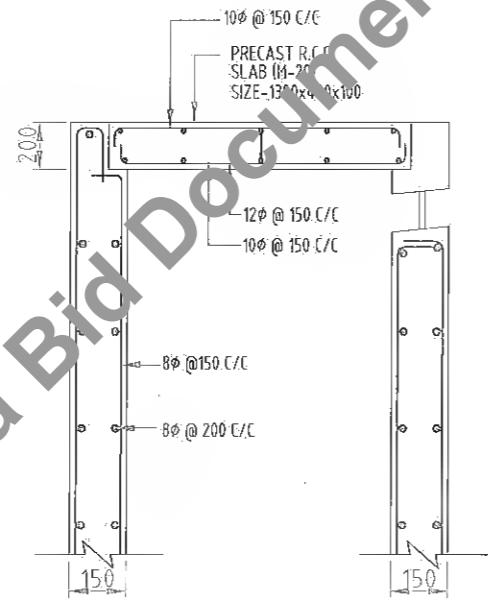
DETAIL OF SIDE DRAIN



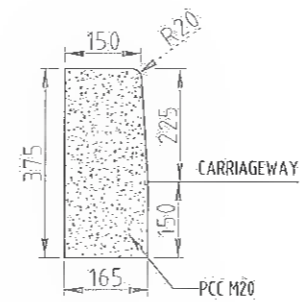
KERB MARKING



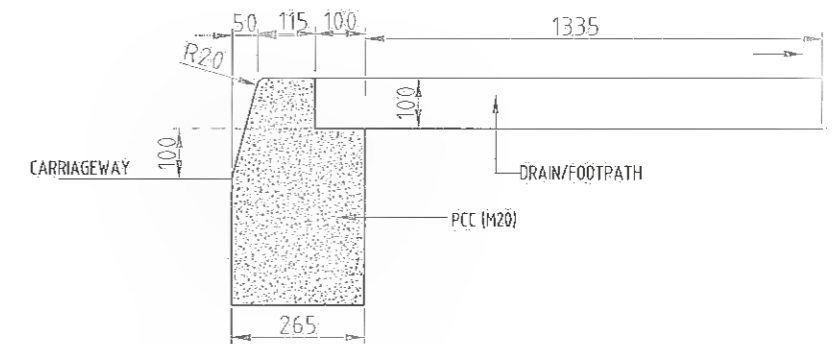
SECTION A-A
WATER PROOFING COMPOUND



DETAIL OF REINFORCEMENT



TYPE - I
KERB FOR CENTRAL
AND DIRECTIONAL ISLAND

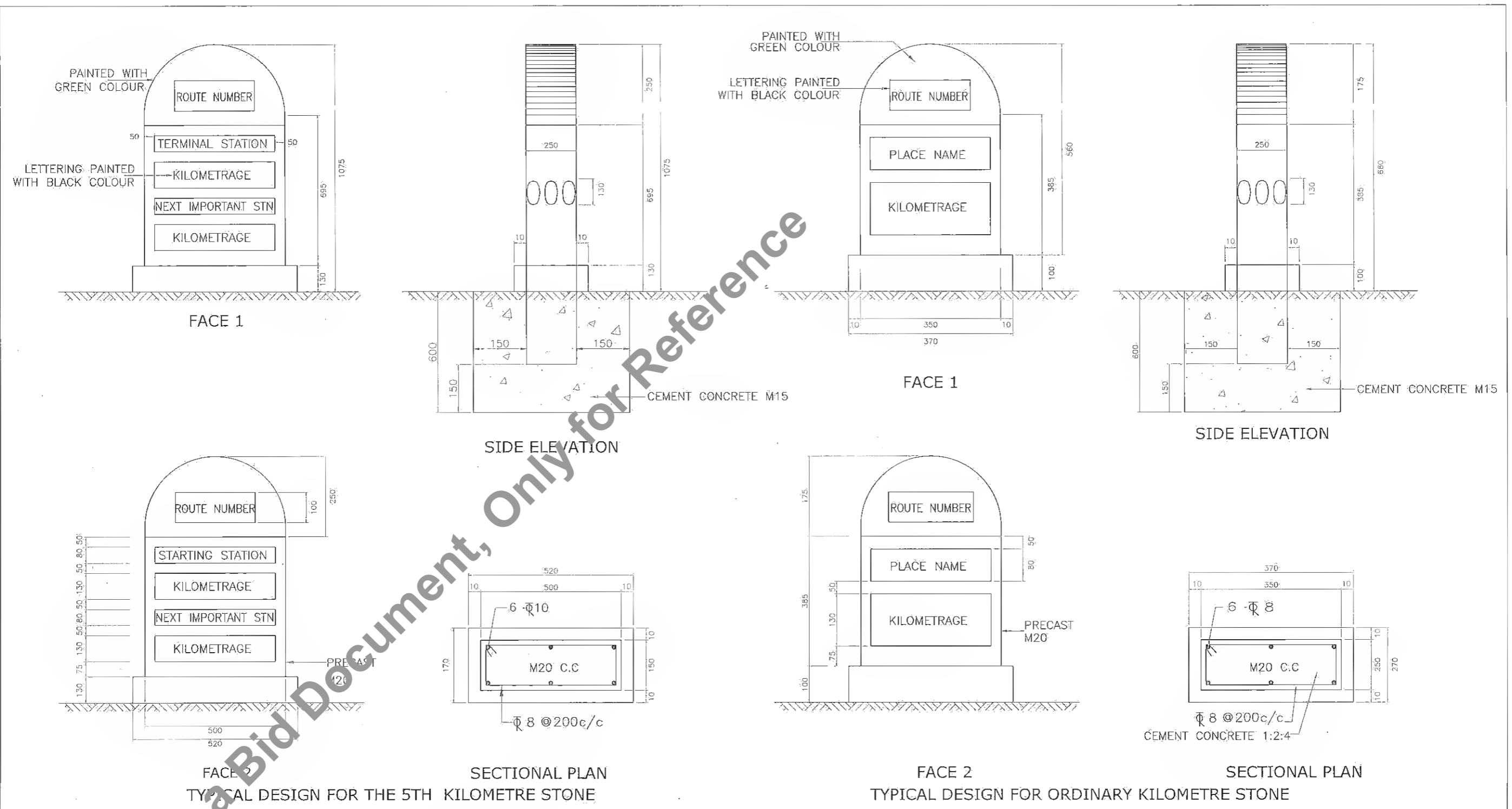


TYPE - II
KERB FOR
COVERED DRAIN

A

<p>Bihar State Road Development Corporation Ltd.</p>	<p>SCALE: NTS</p>	<p>Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V</p>	<p>Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.</p>	<p>Title: DETAILS OF COVER DRAIN AND KERB AT URBAN SECTION</p>	<p>DRAWING NO.: RHDHV/64081/DDPR/DR/01 R0</p>	<p>DATE: APRIL 2017</p>	<p>SHEET: 01 OF 01</p>
						<p>DESIGNED: R Singh</p>	<p>DRAWN: J P Dobhal</p>
<p>REV</p>	<p>DATE</p>	<p>DESCRIPTION OF REVISIONS</p>	<p>Rev. & Date</p>	<p>Rev. & Date</p>	<p>Rev. & Date</p>	<p>Rev. & Date</p>	<p>Rev. & Date</p>

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FACE 2
TYPICAL DESIGN FOR THE 5TH KILOMETRE STONE

FACE 2
TYPICAL DESIGN FOR ORDINARY KILOMETRE STONE

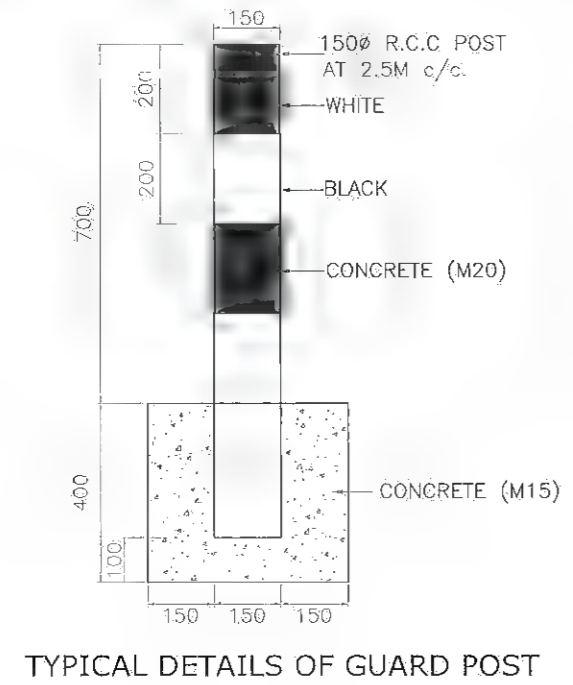
INDEX FOR KILOMETRE STONES

Km. No.	SCRIPT FOR PLACE NAMES	PLACE TO BE SHOWN
	ROMANS	TERMINAL/STARTING STATION AND NEXT IMPORTANT TOWN
1	HINDI (DEVANAGARI SCRIPT)	TERMINAL / STARTING STATION
2	LOCAL LANGUAGE (HINDI)	NEXT IMPORTANT TOWN

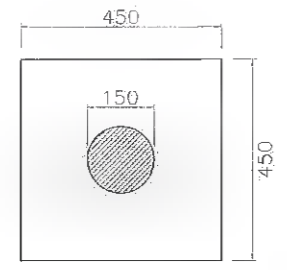
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFLECTORISED PAINT SHALL BE IN ACCORDANCE WITH CL.803.5 OF M.O.R.T & H SPEC.
3. FOR TYPE & STYLE SIZE OF LETTERING RELEVANT IRC CODE OF PRATICE SHALL BE REFERED.
4. LETTERING IS DONE WITH APPROVED QUALITY BLACK ENAMEL PAINT USING STENCIL

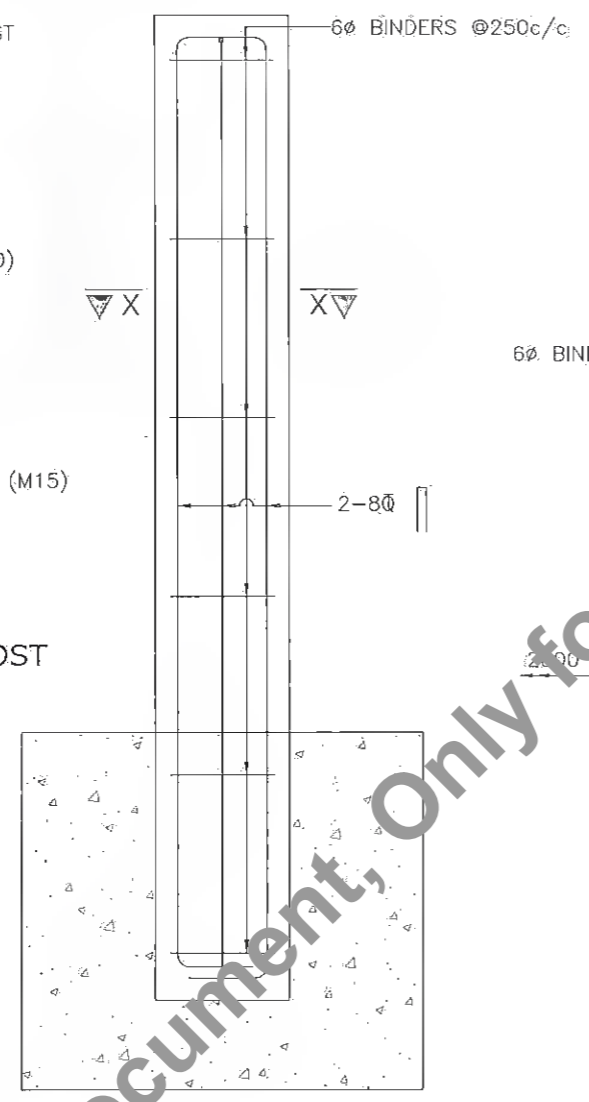
Client : Bihar State Road Development Corporation Ltd.	SCALE : NTS	Project : Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants : Royal HaskoningDHV Nederland B.V.	Title : TYPICAL KM STONE & 5TH KM STONE	DRAWING NO. : RHDHV/6408/1/DDPR/KM/01 R0 DATE : APRIL 2017 DESIGNED : R Singh DRAWN : J P Dobhal CHECKED : R Singh APPROVED : S Pathuri
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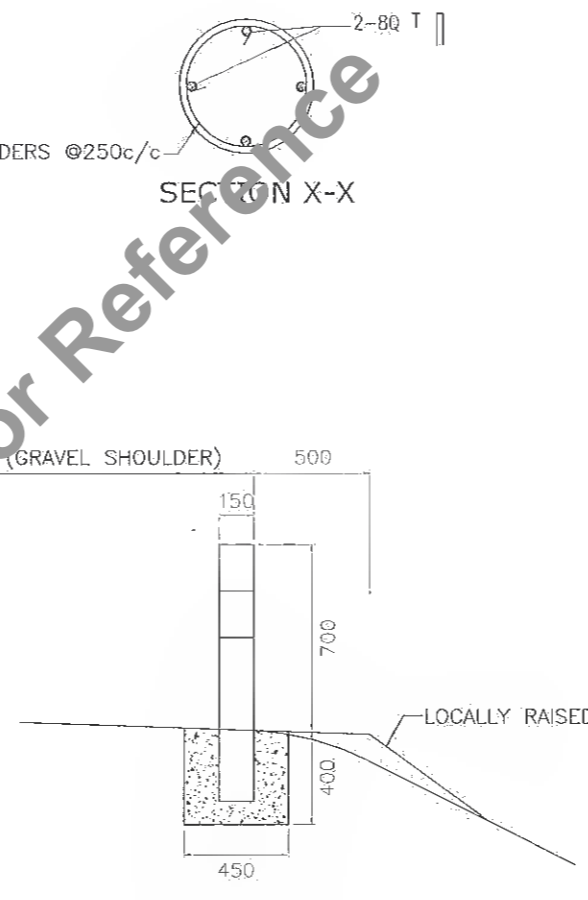
TYPICAL DETAILS OF GUARD POST



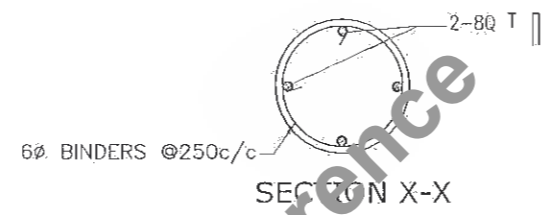
PLAN OF GUARD POST



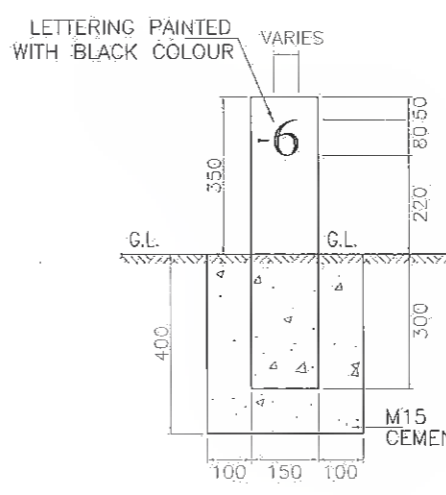
REINFORCEMENT DETAIL OF GUARD POST



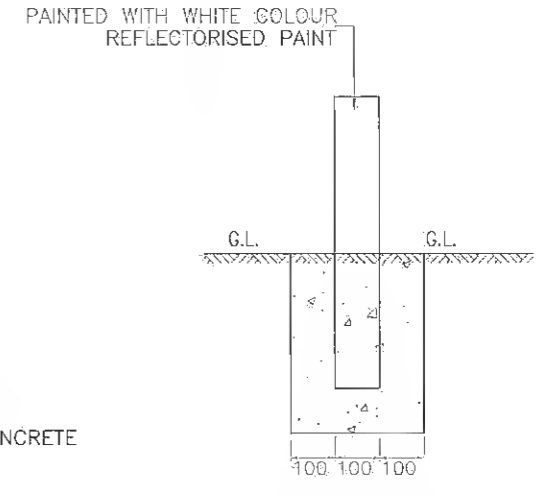
FIXING DETAILS OF GUARD POST



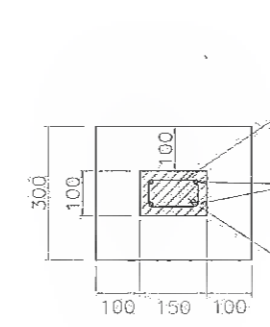
SECTION X-X



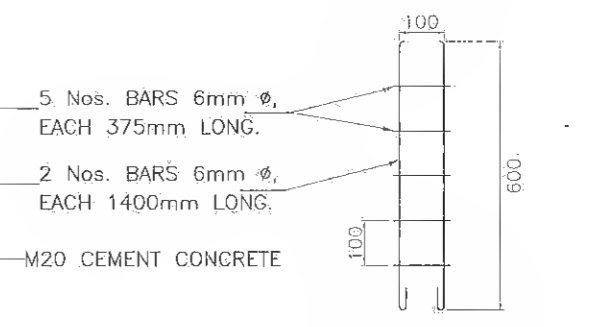
FRONT ELEVATION



SIDE ELEVATION



PLAN



SCHEDULE OF REINFORCEMENT

TYPICAL DESIGN FOR 200m STONES

NOTES:

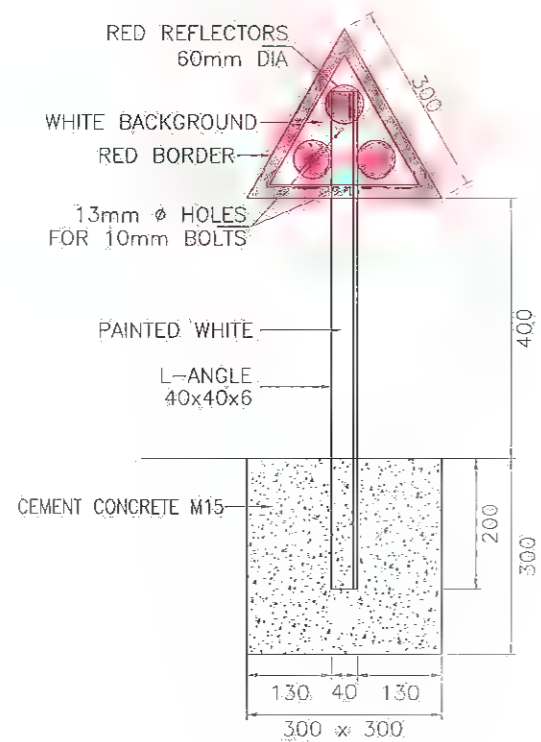
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED.
2. FOR EXACT DETAILS OF W-BEAM, REFER MANUFACTURER DRAWING.
3. W-BEAM BARRIER IS INSTALLED WHERE EMBANKMENT HEIGHT IS MORE THAN 6 METRES & AT IMMEDIATE BRIDGE APPROACHES.
4. R.C.C. GUARD POSTS IS INSTALLED WHERE EMBANKMENT HEIGHT IS BETWEEN 3M TO 6M & AT OTHER HAZARD LOCATIONS.

NOTES:

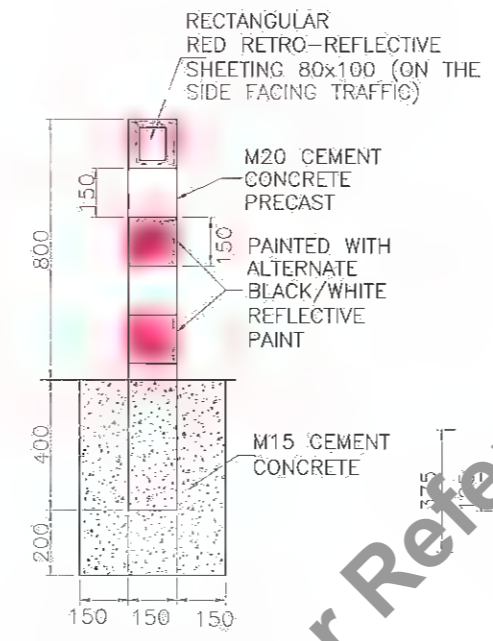
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFLECTORISED PAINT SHALL BE IN ACCORDANCE WITH CL.803.5 OF M.O.R.T & H SPEC.
3. FOR TYPE & STYLE SIZE OF LETTERING RELEVANT IRC CODE OF PRACTICE SHALL BE REFERED.
4. LETTERING IS DONE WITH APPROVED QUALITY BLACK ENAMEL PAINT USING STENCIL

A

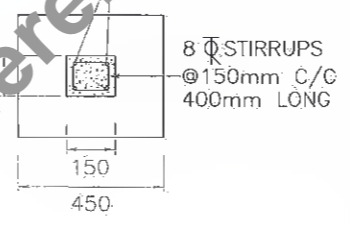
Client: Bihar State Road Development Corporation Ltd.	SCALE NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.	Title: TYPICAL DETAILS OF 200M STONE & GUARD POST	DRAWING NO.: RHDHV/64081/DDPR/KM/01 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P Dobhal CHECKED: R Singh APPROVED: S Pathuri	R0 SHEET: 02 OF 02						
<table border="1"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> </tr> </thead> <tbody> <tr> <td>R0</td> <td>24th April 2017</td> <td>Plan & Profile</td> </tr> </tbody> </table>				REV.	DATE	DESCRIPTION OF REVISIONS	R0	24 th April 2017	Plan & Profile			
REV.	DATE	DESCRIPTION OF REVISIONS										
R0	24 th April 2017	Plan & Profile										



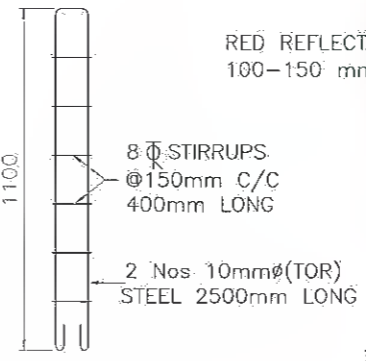
TYPICAL OBJECT MARKERS



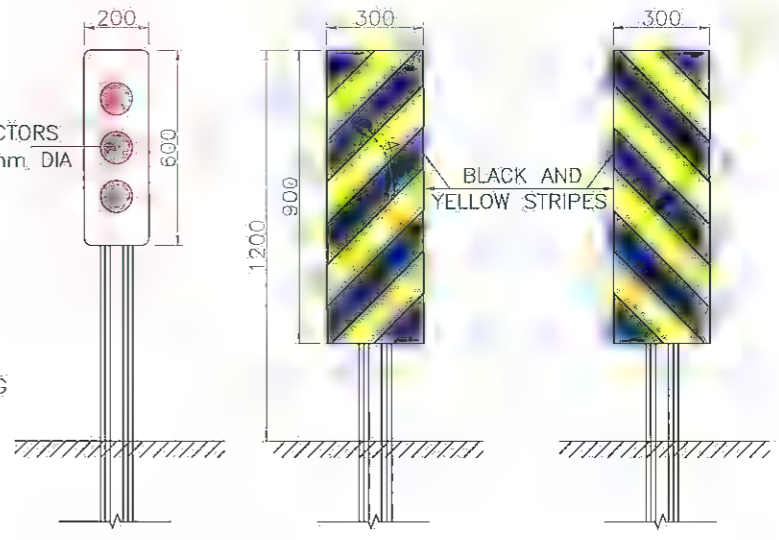
DELINEATORS WITH
RECTANGULAR REFLECTION



PLAN



SCHEDULE OF
REINFORCEMENT

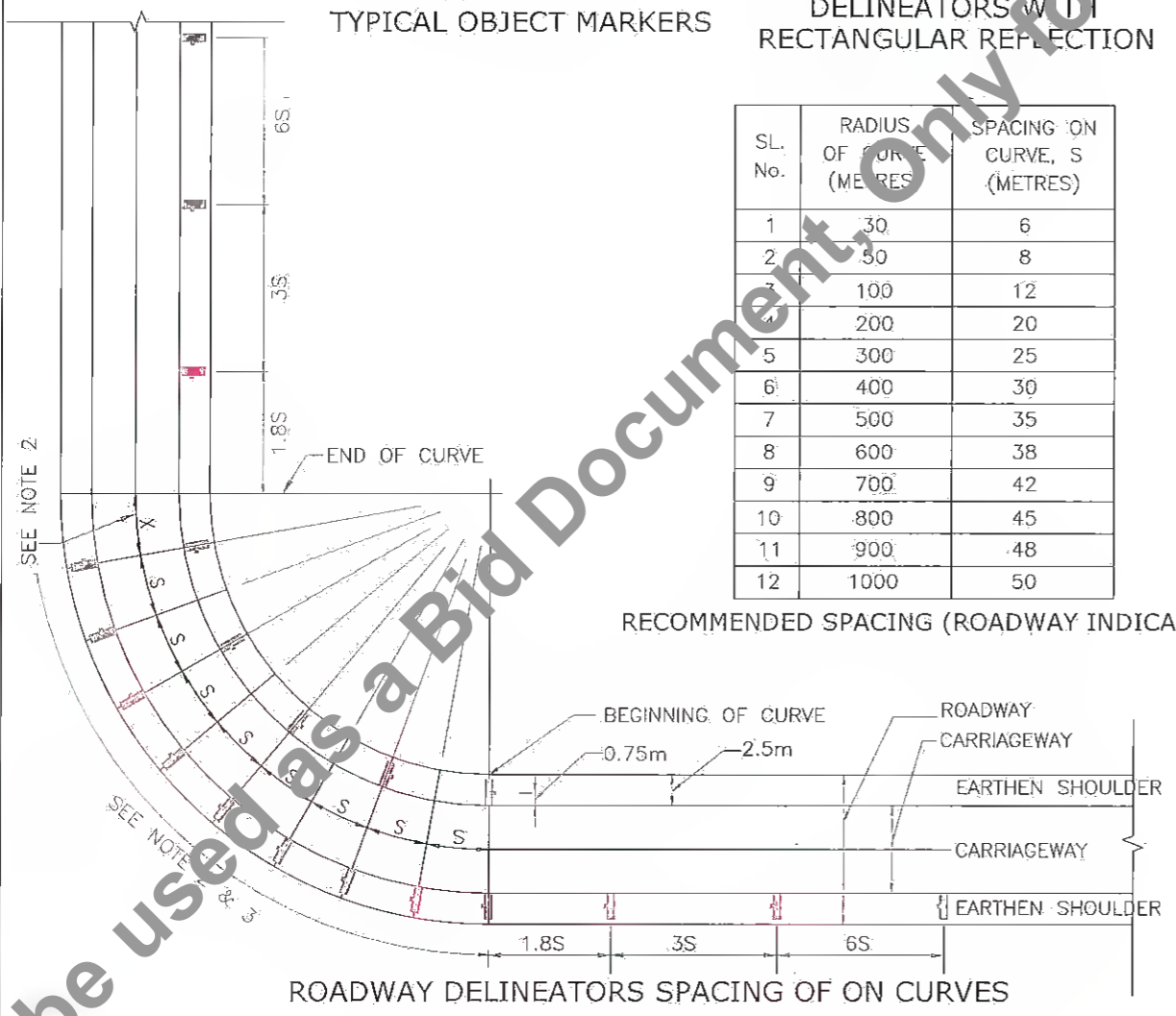


(SAME DESIGN TO BE USED
BOTH ON LEFT AND RIGHT
SIDE OF THE ROAD)

HAZARD MARKERS

SL. No.	RADIUS OF CURVE (METRES)	SPACING ON CURVE, S (METRES)
1	30	6
2	50	8
3	100	12
4	200	20
5	300	25
6	400	30
7	500	35
8	600	38
9	700	42
10	800	45
11	900	48
12	1000	50

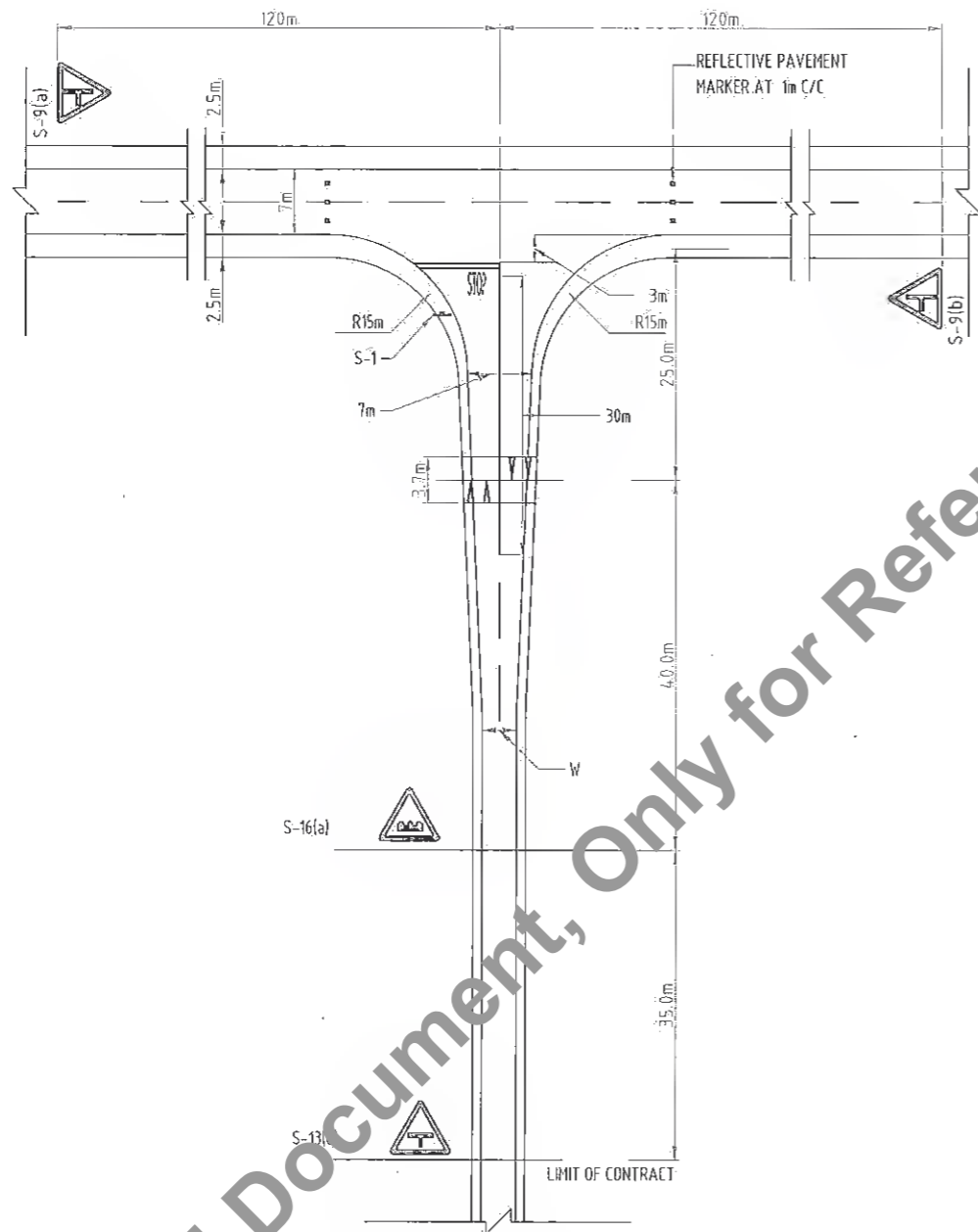
RECOMMENDED SPACING (ROADWAY INDICATOR)



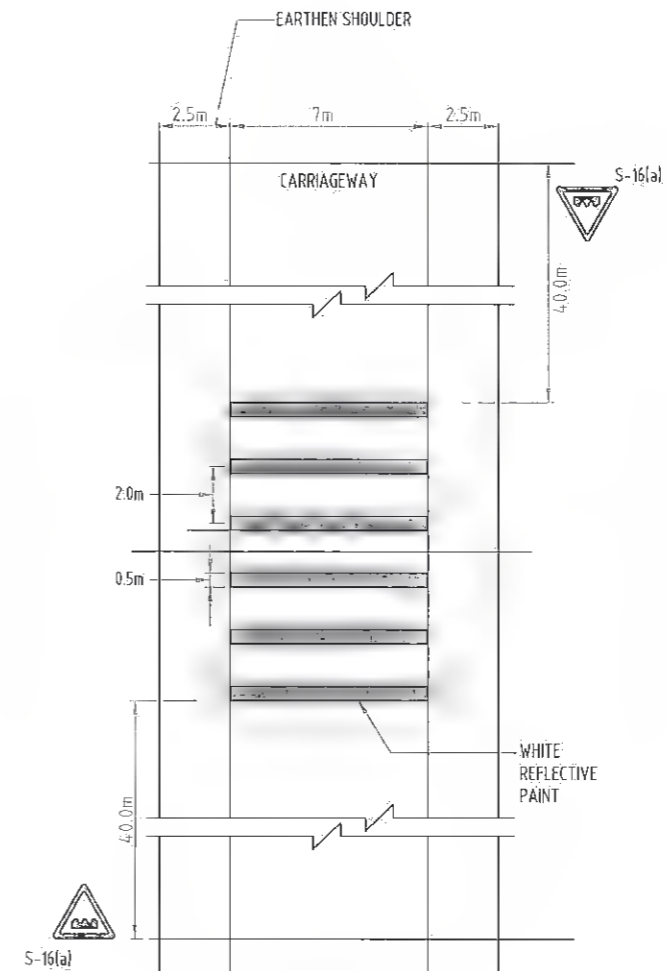
NOTES:

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
- ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
- INSTALL ALL DELINEATORS AT EDGE AS SHOWN IN THE DRAWING PERPENDICULAR TO THE ONCOMING TRAFFIC.
- SEE TABLE FOR VALUE OF 'S' i.e. SPACING OF DELINEATORS ON THE CURVE.
- ON STRAIGHT SECTIONS DELINEATORS SHOULD BE SPACED UNIFORMLY 50m FROM EACH OTHER, THE POSTS BEING IN PAIRS, ONE ON EACH SIDE OF THE ROADWAY.
- LOCATIONS OF OBJECT MARKERS
 - TRAFFIC ISLANDS AT APPROACHES TO INTERSECTIONS
 - MEDIAN OPENINGS
 - ON MEDIANS & ISLANDS ON FAR SIDE OF THE INTERSECTIONS
 - FACING APPROACHING TRAFFIC AT ISLANDS FORMING LEFT INFILTRATION LANES
- OBJECT MARKERS SHOULD BE SET BACK FROM THE FACE OF THE KERB A DISTANCE OF ATLEAST 500mm
- REQUIREMENT OF REFLECTORS SHALL BE IN ACCORDANCE WITH IRC:79-1981 CODE OF PRACTICE.
- ON EMBANKMENTS WITH HEIGHT MORE THAN 2m CLEAR SPACING OF DELINEATORS SHALL BE 25m.
- DELINEATORS ARE NOT PROVIDED AT LOCATIONS WHERE CHEVRON SIGN BOARDS ARE PROPOSED
- GAURD POSTS ARE PROVIDED ON EMBANKMENTS OF HEIGHT >2m AND <3m AT 5m INTERVAL
- DELINEATORS ARE PROVIDED BEFORE AND AFTER PARAPET WALL ON BOTH SIDES AT ALL BRIDGE LOCATIONS AND ALSO AT CULVERT LOCATIONS WHOSE WIDTH IS LESS THAN 12m AND MORE THAN 10m.
- REFLECTIVE PAINT SHALL BE IN ACCORDANCE WITH CL803.5 OF M.O.R.T & H SPEC.

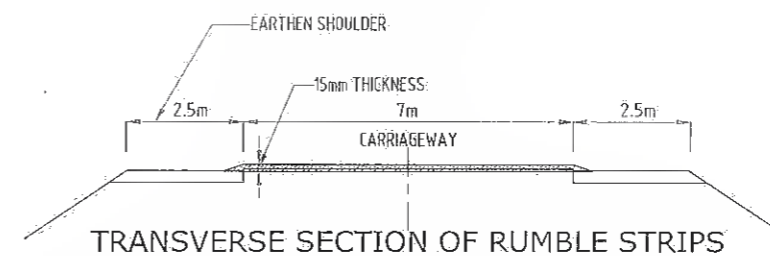
Client: Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V.	Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.	Title: DETAILS OF ROAD DELINEATORS	DRAWING NO.: RHDHV/64081/DDPR/RD/01 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P. Dobhal CHECKED: R Singh APPROVED: S. Pathari
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LOCATION OF ROADHUMP AT MINORROAD INTERSECTIONS



DETAILS OF RUMBLE STRIPS



TRANSVERSE SECTION OF RUMBLE STRIPS

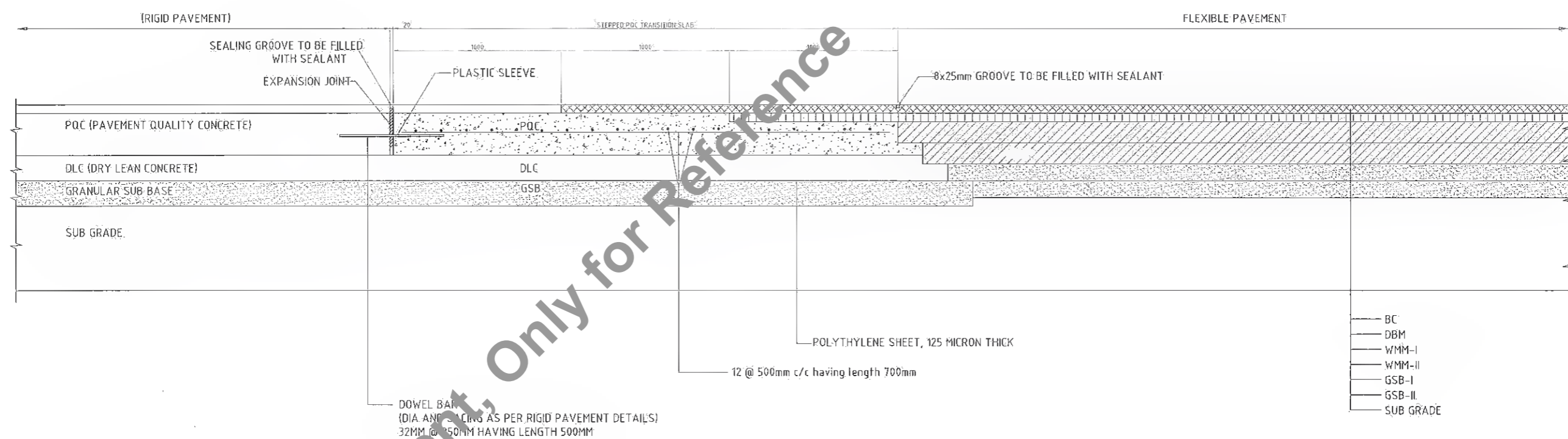
NOTES :-

1. THE DESIGN OF ROAD HUMP IS IN ACCORDANCE WITH IRC: 99-1988 GUIDE LINES.
2. ROAD HUMP IS PROPOSED AT UNCONTROLLED INTERSECTIONS OF MINOR ROADS WITH MAJOR ROADS ON THE MINOR ARMS.
3. THE WARNING SIGNS SHOULD BE OF THE DESIGN 'HUMP OR ROUGH ROAD' DETAILED IN IRC: 67-2001 SHOULD BE INSTALLED AT SPECIFIED DISTANCE AHEAD OF RUMBLE STRIP ROAD HUMP AS GIVEN IN DWG No. RHDHV\64801\SH-95\RS-001, RS-002 & RS-003
4. REFLECTIVE PAINT SHALL BE HOT APPLIED THERMOPLASTIC MATERIAL CONFORMING TO M.O.R.T & H SEC. CL.803.4
5. RUMBLE STRIPS ARE PROVIDED ON ALL SHARP CURVES WITH RADIUS LESS THAN 170m AND AT VILLAGE AND URBAN APPROACHES.
6. HEIGHT OF RUMBLE STRIP IS 15mm
7. MATERIAL OF CONSTRUCTION FOR RUMBLE STRIP IS OPEN GRADED PREMIX BITUMINOUS SURFACING (TYPE-B) AS PER TECH.SEC. CL 512
8. MATERIAL OF CONSTRUCTION FOR ROAD HUMP IS BITUMINOUS CONCRETE AS PER TECH.SEC. CL 509
9. REFLECTIVE PAVEMENT MARKERS ARE PROVIDED AS SHOWN IN DRAWING No. RHDHV\64801\SH-95\RPM-001 BEFORE AND AFTER RUMBLE STRIPS/ROAD HUMP.

A

<p>Bihar State Road Development Corporation Ltd.,</p>	<p>SCALE: NTS</p>	<p>Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V</p>	<p>Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.</p>	<p>Title: DETAILS OF ROAD HUMP AND RUMBLE STRIPS</p>	<p>DRAWING NO: RHDHV\64801\DDPR\RH&RS\01\RO</p>						
					<p>DATE: APRIL 2017</p>	<p>DESIGNED: R Singh</p>	<p>DRAWN: J P Dobhal</p>	<p>CHECKED: R Singh</p>	<p>APPROVED: S Pathani</p>		
<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						REV	DATE	DESCRIPTION OF REVISIONS			
REV	DATE	DESCRIPTION OF REVISIONS									

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TYPICAL DETAILS OF TRANSITION SLAB BETWEEN RIGID & FLEXIBLE PAVEMENT

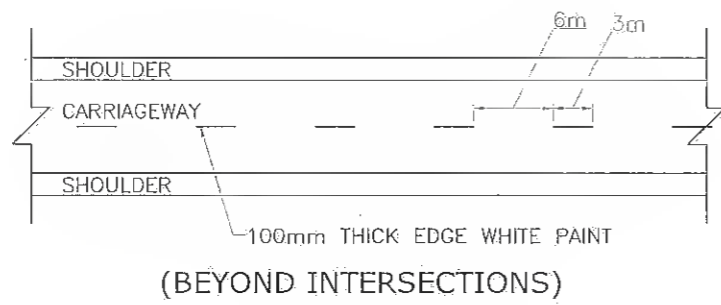
NOTES:
 1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED.
 2. THIS DRAWING IS TO BE READ ALONG WITH OTHER TYPICAL ROAD X-SECTION DRAWINGS.

A

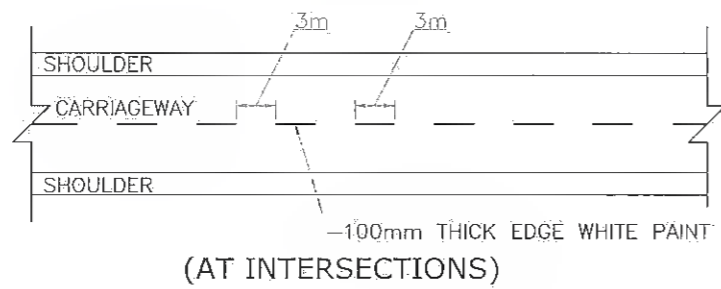
Client: Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: HaskoningDHV Nederland B.V.	Title: TYPICAL DETAILS OF TRANSITION SLAB BETWEEN RIGID AND FLEXIBLE PAVEMENT	DRAWING NO.: RHDHV/64081/DDPR/RIGID/01 R0 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P Dabhal CHECKED: R Singh APPROVED: S Pathuri														
<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				REV	DATE	DESCRIPTION OF REVISIONS				<table border="1"> <thead> <tr> <th>DESIGNED</th> <th>DRAWN</th> <th>CHECKED</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td>R Singh</td> <td>J P Dabhal</td> <td>R Singh</td> <td>S Pathuri</td> </tr> </tbody> </table>		DESIGNED	DRAWN	CHECKED	APPROVED	R Singh	J P Dabhal	R Singh	S Pathuri
REV	DATE	DESCRIPTION OF REVISIONS																	
DESIGNED	DRAWN	CHECKED	APPROVED																
R Singh	J P Dabhal	R Singh	S Pathuri																

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DETAILS OF CENTRE LINE

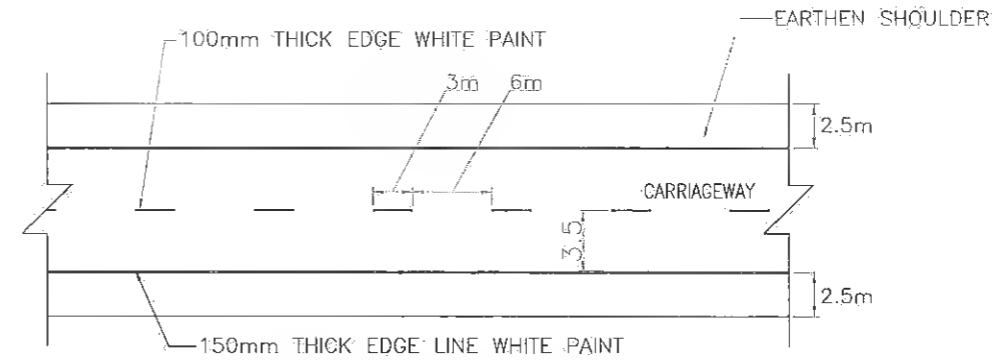


(BEYOND INTERSECTIONS)

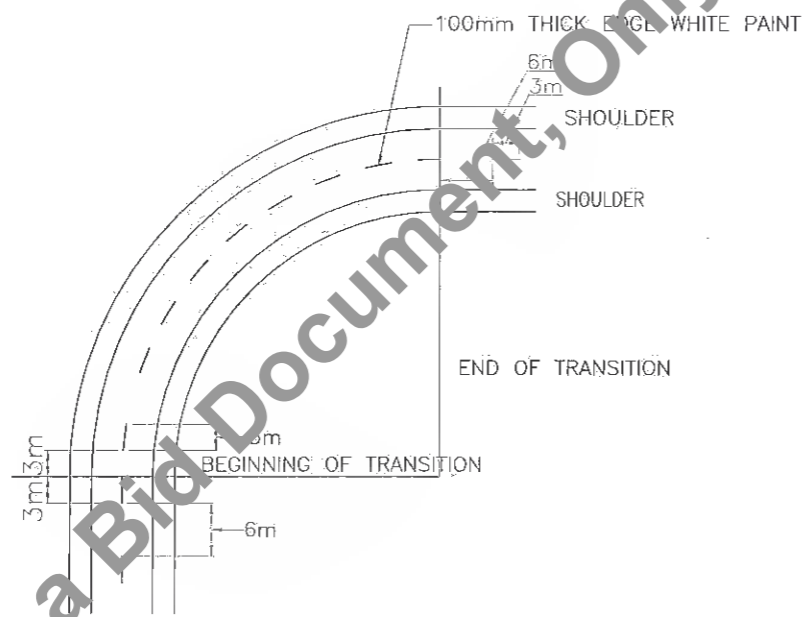


(AT INTERSECTIONS)

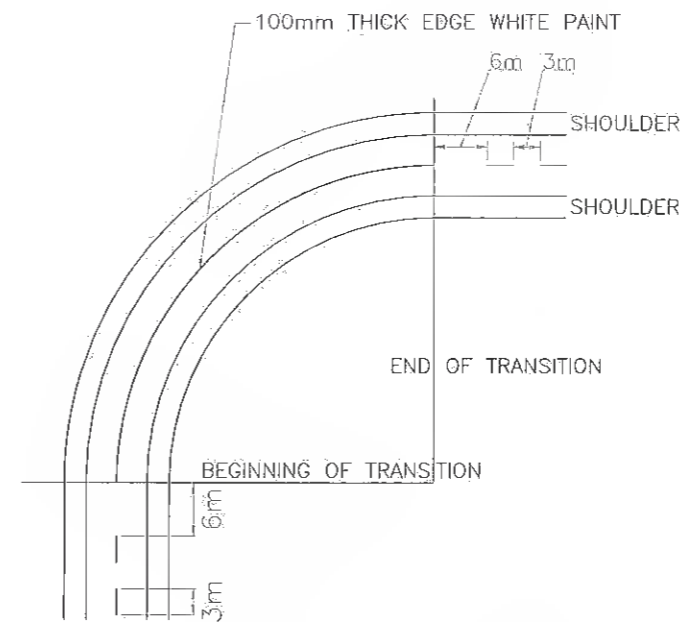
LONGITUDINAL MARKING



DETAILS OF EDGE LINE MARKING



DETAILS AT CURVES

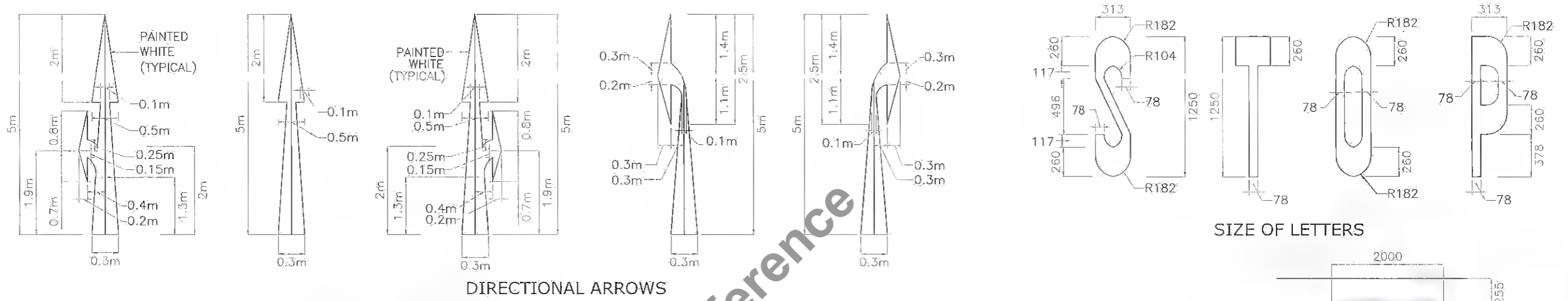


DETAILS AT SHARP CURVES
(NO-OVERTAKING ZONE)

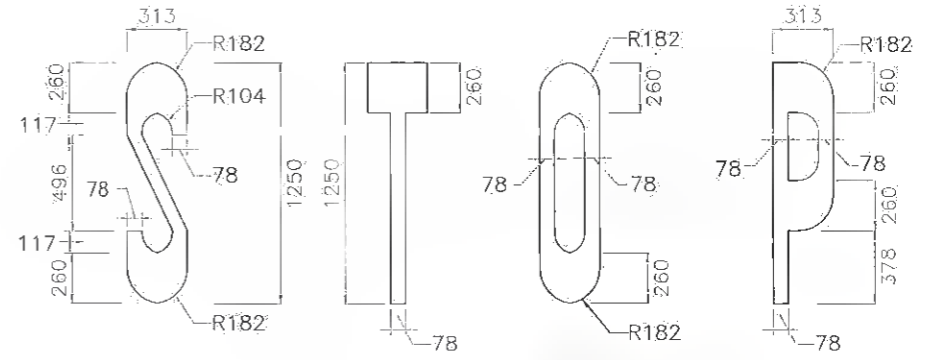
NOTE:

1. EDGE LINE MARKINGS SHOULD NOT BE CARRIED ACROSS THE MOUTHS OF SIDE ROADS
2. CENTRE LINE & EDGE MARK SHALL END AT THE STOP LINE & SHALL NOT BE CONTINUED.
3. ROAD MARKING SHOULD BE DONE WITH THERMOPLASTIC PAINT CONFORMING TO CL. 803.4 OF M.O.R.T & H SPECIFICATIONS
4. DETAILS OF ROAD MARKING ARE AS PER IRC: 35-1997, CODE OF PRACTICE FOR ROAD MARKINGS

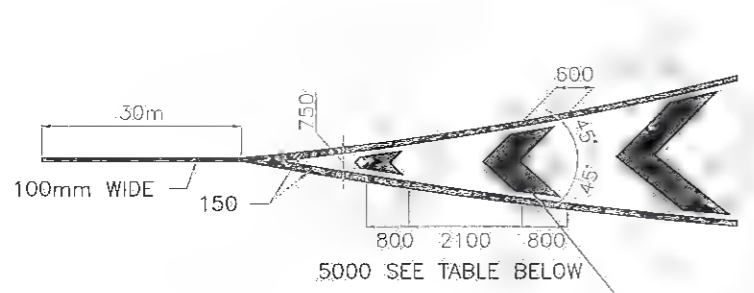
Client:  Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi' Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants:  Royal HaskoningDHV HaskoningDHV Nederland B.V.	REV DATE DESCRIPTION OF REVISIONS	Title: TYPICAL ROAD MARKING DETAILS	DRAWING NO.: RHDHV/64081/DP/01 RO DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P Dobhal CHECKED: R Singh APPROVED: S Pathuri SHEET: 01 OF 02
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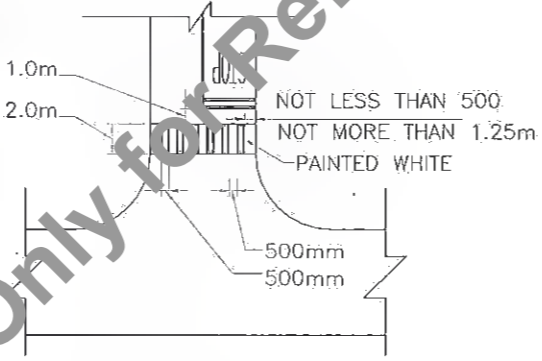
DIRECTIONAL ARROWS



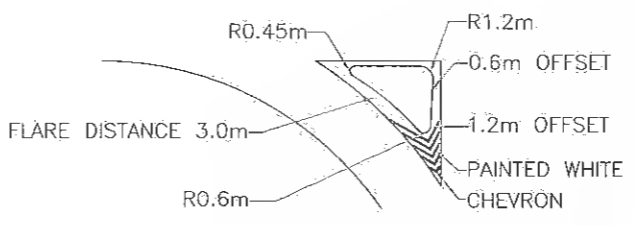
SIZE OF LETTERS



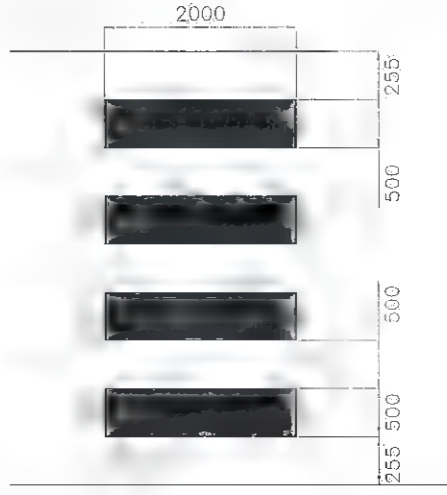
DIAGONAL MARKINGS



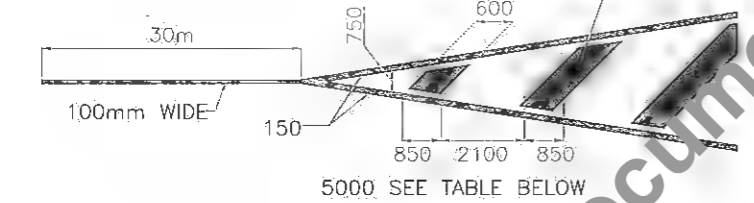
PEDESTRIAN CROSSING



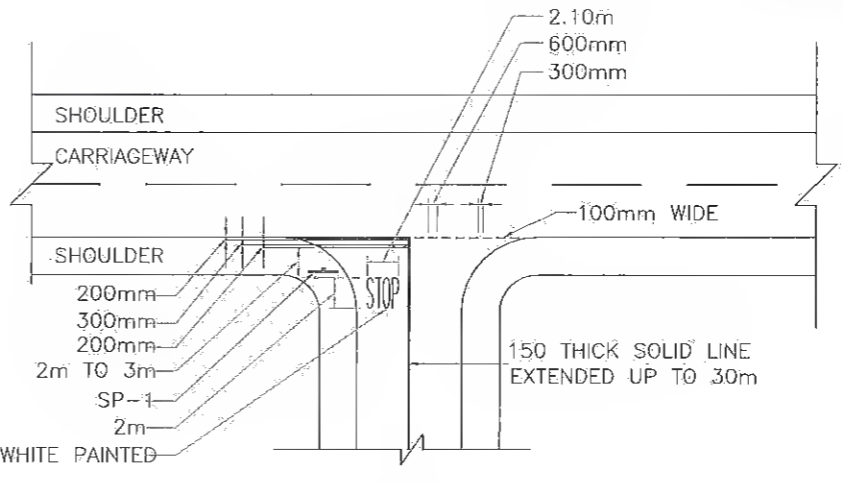
CHANNELISING ISLAND



PEDESTRIAN CROSSING



CHEVRON MARKINGS



STOP LINE

TABLE : SPACING BETWEEN DIAGONALS/CHEVRONS

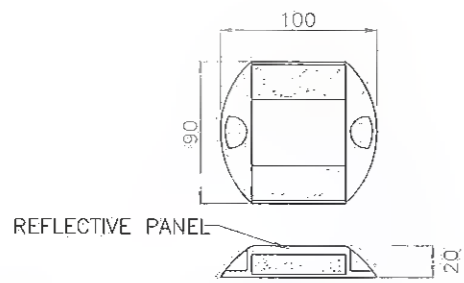
TOTAL LENGTH OF MARKING (m)	CLEAR SPACING BETWEEN DIAGONALS OR CHEVRONS (mm)	
	SPEED (<75 km/h)	SPEED (>75 km/h)
<6	2100	-
6 TO 22	3500	-
>22	5000	-
<10	-	4000
>10	-	6000

NOTE:

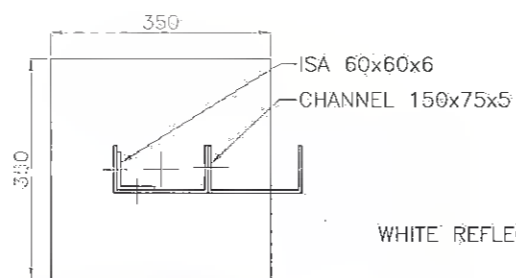
1. ALL LENGTHS AND SPACINGS IN THE TABLE ARE MEASURED PARALLEL TO ROAD CENTRE LANE.
2. FIRST DIAGONAL OR CHEVRON IS TO BE SO LOCATED THAT ITS LENGTH IS ATLEAST EQUAL TO ITS WIDTH
3. WIDTH OF ALL DIAGONALS/CHEVRONS MEASURED AT RIGHT ANGLES TO THE DIAGONALS OR CHEVRONS IS 600mm.
4. FOR CENTERLINE AND EDGELINE MARKING AT BUS BAY LOCATION REFER DRAWING NO. RHDHV\64801\SH-95\BB-001
5. ROAD MARKING SHOULD BE DONE WITH THERMOPLASTIC PAINT CONFORMING TO CL. 803.4 OF M.O.R.T & H SPECIFICATIONS
6. DETAILS OF MARKING AT INTERSECTIONS ARE AS PER M.O.R.T & H TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS

Client: Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasí (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.	Title: TYPICAL ROAD MARKING DETAILS	DRAWING NO.: RHDHV/64081/DDPR/RM/01 R0 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P Debhal CHECKED: R Singh APPROVED: S Pathari
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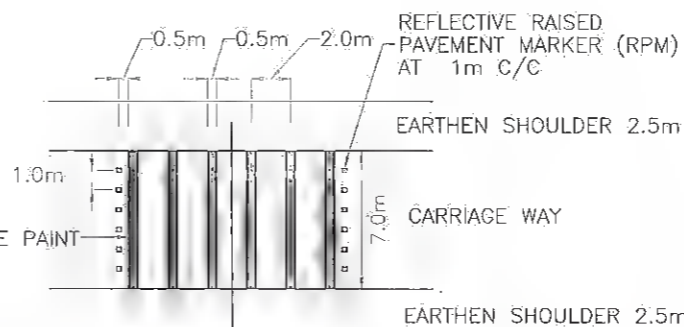
Not to be used as a Bid Document, Only for Reference



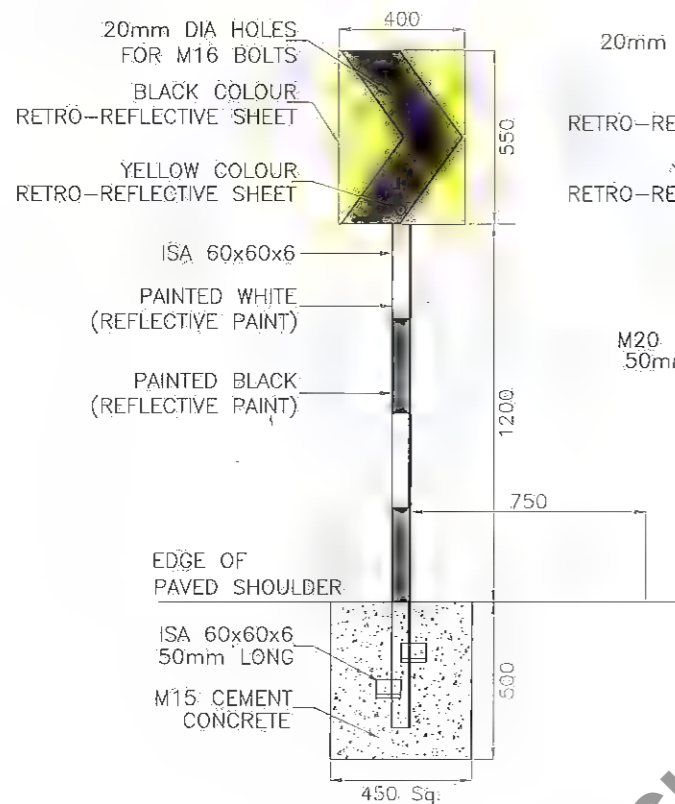
REFLECTIVE PAVEMENT MARKERS (RPM)



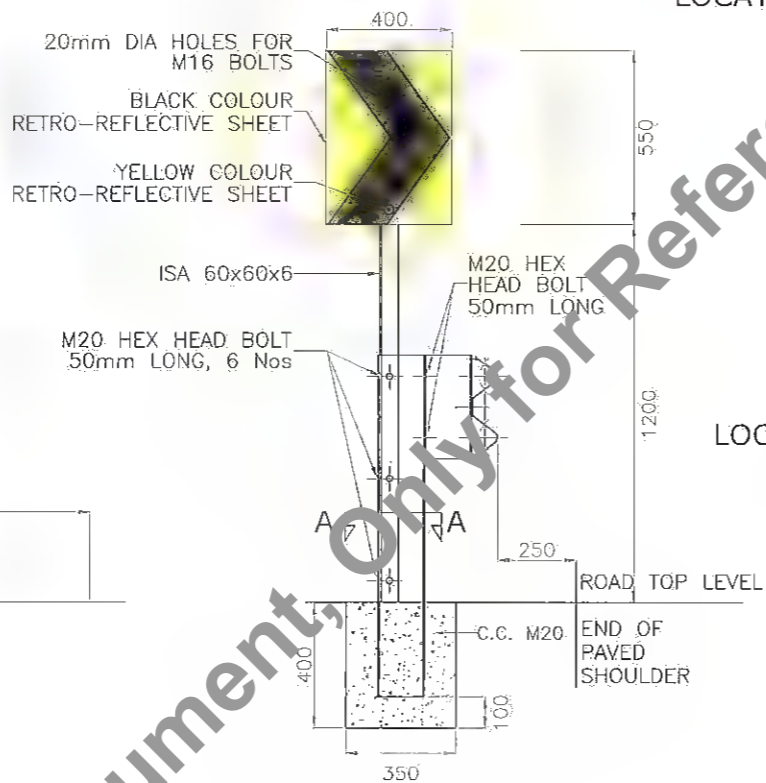
SECTION 'A-A'



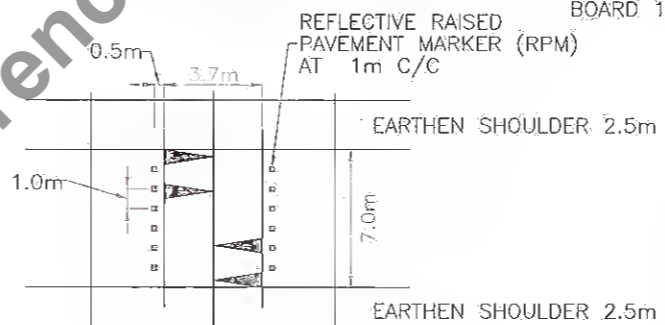
LOCATION OF RPM BEFORE RUMBLE STRIPS



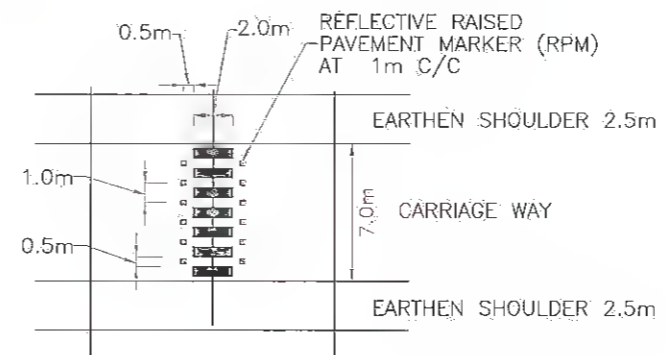
(FOR CURVES > 170m & < 200m RADIUS) CHEVRON DIRECTION SIGN BOARD



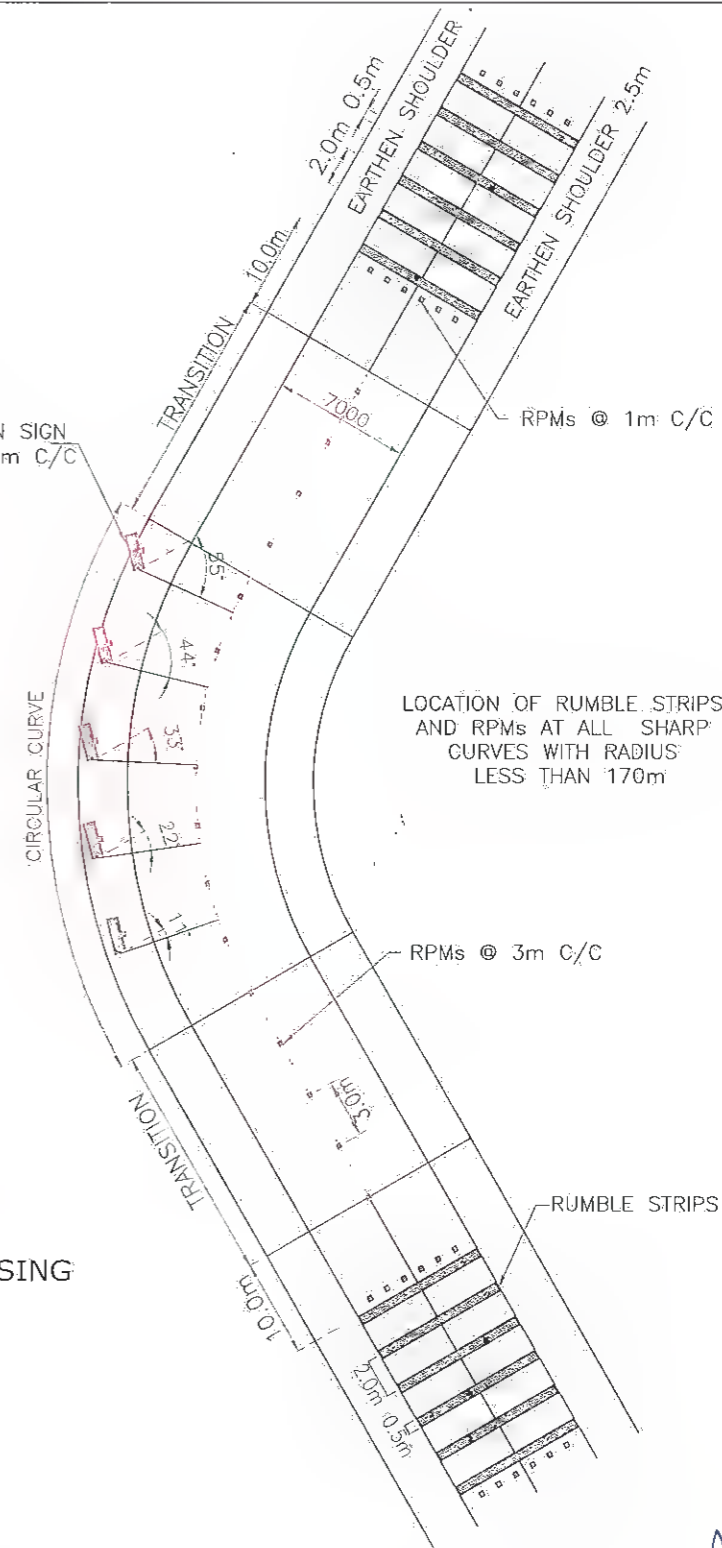
(FOR CURVES < 170m RADIUS) CHEVRON DIRECTION SIGN BOARD WITH CRASH BARRIER



LOCATION OF RPM BEFORE ROAD HUMPS



LOCATION OF RPM BEFORE PEDESTRIAN CROSSING



LOCATION OF RUMBLE STRIPS AND RPMs AT ALL SHARP CURVES WITH RADIUS LESS THAN 170m

REFLECTIVE PAVEMENT MARKERS

- SPECIFICATION OF MATERIAL, DESIGN, OPTICAL PERFORMANCE, TESTS AND FIXING OF RPM SHALL BE IN ACCORDANCE WITH TECH.SPEC. CL.812.
- LOCATIONS OF RPM

COLOUR OF RPM	LOCATION	SPACING
WHITE	RUMBLE STRIP & ROAD HUMPS AS SHOWN IN DRG.	1m C/C
YELLOW	CURVES < 600m RADIUS ALONG CENTERLINE	3m C/C
RED	BEFORE AND AFTER PEDESTRIAN CROSSING AS SHOWN IN DRG. AND AT APPROACHES TO ROAD INTERSECTION	1m C/C

- RPM SHOULD MEET MINIMUM CIL VALUES EQUIVALENT TO CATEGORY 'A' STUDS AS PER CLAUSE 812 OF TECH.SPEC.

CHEVRON SIGN BOARD

- THE SIZE OF 'CHEVRON' SIGNBOARD IS 400MM X 550MM.
- THE SIGN BOARD SHOULD BE WIDE-ANGLE MICRO-PRISMATIC LENS CONFIRMING TO TECH.SPEC. CL.801.3.2.2
- THE RETRO - REFLECTIVE SURFACE AFTER CLEANING WITH SOAP AND WATER IN DRY CONDITION SHOULD HAVE THE MINIMUM CO-EFFICIENT OF RETRO-REFLECTION (MORT&H WIDE 801.3.2 CLAUSE & MINISTRY'S LETTER NO. RW/NH-33023/31/88-DO III) AS INDICATED BELOW FOR ENCAPSULATED LENS.
- CHEVRON SIGN BOARDS SHALL BE INSTALLED AT 10M C/C AS SHOWN IN THE DRAWINGS AT ALL CURVES OF RADIUS LESS THAN 200M ALONG THE OUTER EDGE FACING THE TRAFFIC OF NEARBY LANE.

Client: Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.	Title: DETAILS OF RPMs & CHEVRON MARKERS	DRAWING NO.: RHDHV/6408/1/DDPR/RPM/01 R0
DESIGNED: R Singh	DRAWN: J P Dohral	CHECKED: R Singh	APPROVED: S Pathuri	DATE: APRIL 2017	SHEET: 01 OF 01
REV: 1	DATE: 24/04/2017	DESCRIPTION OF REVISIONS: Plan & Profile			



STOP



COMPULSORY
KEEP LEFT



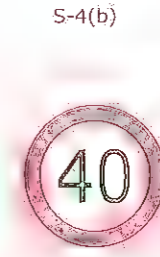
RESTRICTION ENDS



GIVE WAY



SPEED LIMIT



SPEED LIMIT



SPEED LIMIT



SPEED LIMIT



OVERTAKING
PROHIBITED



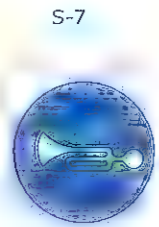
ONE WAY



ONE WAY



SCHOOL ZONE



COMPULSORY
SOUND HORN



CROSS ROAD



RIGHT SIDE ROAD



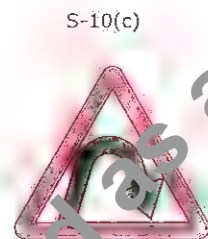
LEFT SIDE ROAD



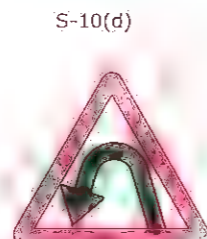
RIGHT HAND
CURVE



LEFT HAND
CURVE



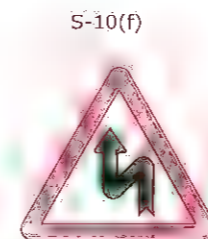
RIGHT HAIR PIN
BEND



LEFT HAIR PIN
BEND



RIGHT REVERSE
BEND



LEFT REVERSE
BEND



T-INTERSECTION





PEDESTRIAN
CROSSING

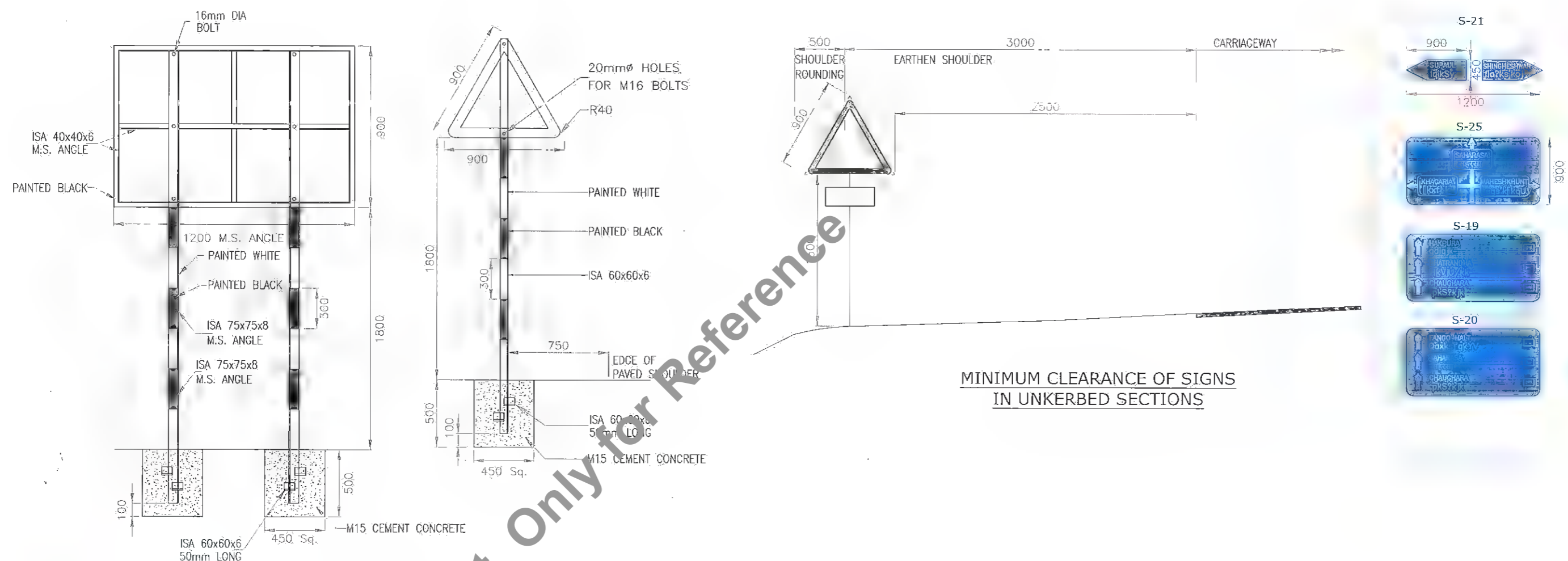
<p>Bihar State Road Development Corporation Ltd.</p>	<p>SCALE: NTS</p>	<p>Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V</p>	<p>Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.</p>	<table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	REV	DATE	DESCRIPTION OF REVISIONS				<p>Title: TYPICAL ROAD SIGNS</p>	<p>DRAWING NO.: RHDHV/64081/DDPR/RS/01 RO</p>
					REV	DATE	DESCRIPTION OF REVISIONS					
<p>DATE: APRIL 2017</p>	<p>SHEET: 01 OF 03</p>											
<p>DESIGNED: R Singh</p>	<p>DRAWN: J.P. Dobhal</p>	<p>CHECKED: R Singh</p>	<p>APPROVED: S Pathuri</p>	<p> </p>	<p> </p>	<p> </p>						

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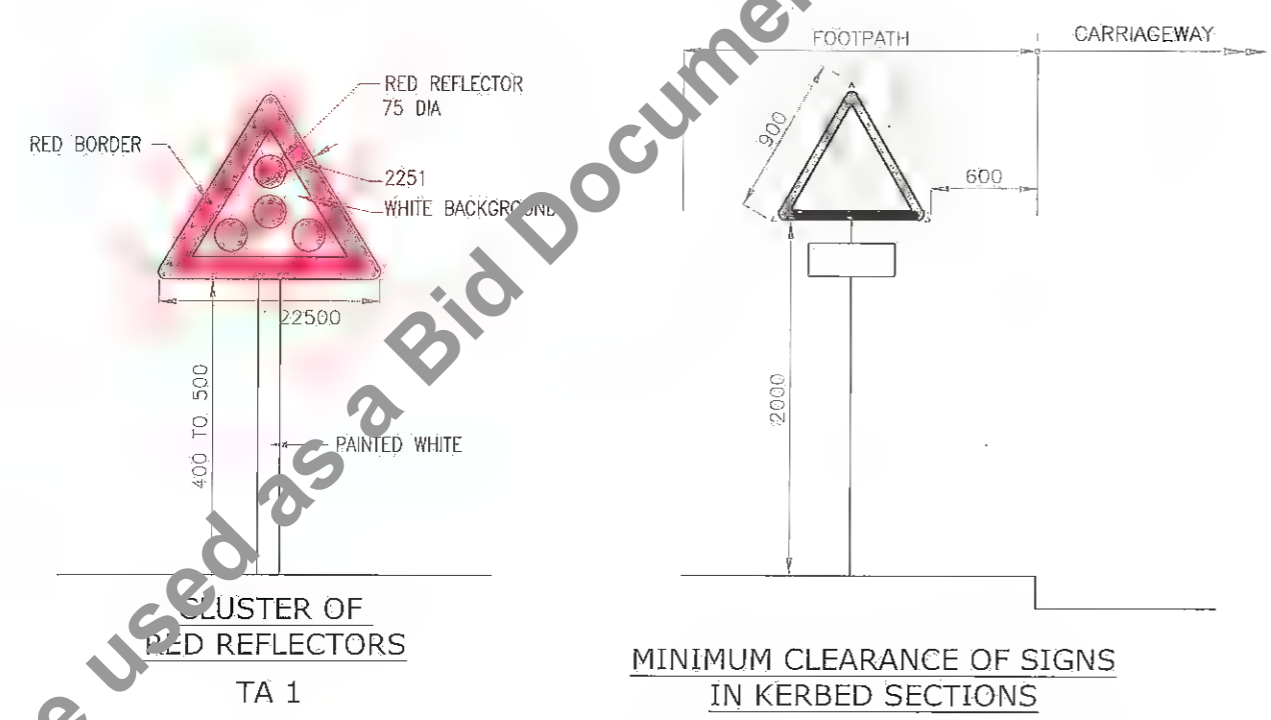
S-13(a)  STAGGERED INTERSECTION	S-13(b)  STAGGERED INTERSECTION	S-13(c)  MAJOR ROAD AHEAD	S-13(d)  MAJOR ROAD AHEAD	S-14(a)  Y-INTERSECTION	S-14(b)  Y-INTERSECTION
S-14(c)  Y-INTERSECTION	S-14(d)  GAP IN MEDIAN	S-14(e)  OVERHEAD CABLE	S-15(a)  NARROW BRIDGE	S-15(b)  DUAL C' WAY STARTS	S-15(c)  DUAL C' WAY ENDS
S-15(d)  SERIES OF BENDS	S-16(a)  HUMP OR ROUGH ROAD	S-16(b)  BARRIER AHEAD	S-17  STATE ROUTE MARKER SIGN	S-18(a)  GUARDED RAILWAY CROSSING AT 200m	S-18(b)  GUARDED RAILWAY CROSSING AT 50-100m
S-24  PUBLIC TELEPHONE	S-22  PETROL BUNK	S-23  HOSPITAL	NOTE: 1. DETAILS OF ROAD SIGNS ARE AS PER IRC: 67-2001. 2. DETAIL OF STATEROUTE MARKER SIGN IS AS PER IRC: 31-1969. 3. ALL MANDATORY AND CAUTIONARY SIGNS SHOULD BE HIGH INTENSITY WIDE ANGLE MICRO PRISMATIC SHEETING CONFORMING TO CL-801 OF TECH. SPECIFICATION 4. ALL INFORMATORY SIGNS SHOULD CONFIRM TO STANDARDS OF HIGH INTENSITY ENCAPSULATED TYPE RETRO REFLECTIVE SHEETING AS PER CL. 801 OF TECH. SPECIFICATION		
S-25  DISPENSARY	S-26  EATING PLACE	LEGEND  WHITE SHEET  BLACK SHEET  RED SHEET  BLUE SHEET			

Client:  Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar; Package V.	Design Consultants:  Royal HaskoningDHV HaskoningDHV Nederland B.V.	<table border="1"> <tr><td>REV</td><td>DATE</td><td>DESCRIPTION OF REVISIONS</td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	REV	DATE	DESCRIPTION OF REVISIONS										Title: TYPICAL ROAD SIGNS	DRAWING NO.: RHDHV/64081/DDPR/RS/02 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P Dobhal CHECKED: R Singh SHEET: 02 OF 03 APPROVED: S Pathuri
REV	DATE	DESCRIPTION OF REVISIONS																



DETAIL OF TYPICAL POST

MINIMUM CLEARANCE OF SIGNS IN UNKERBED SECTIONS



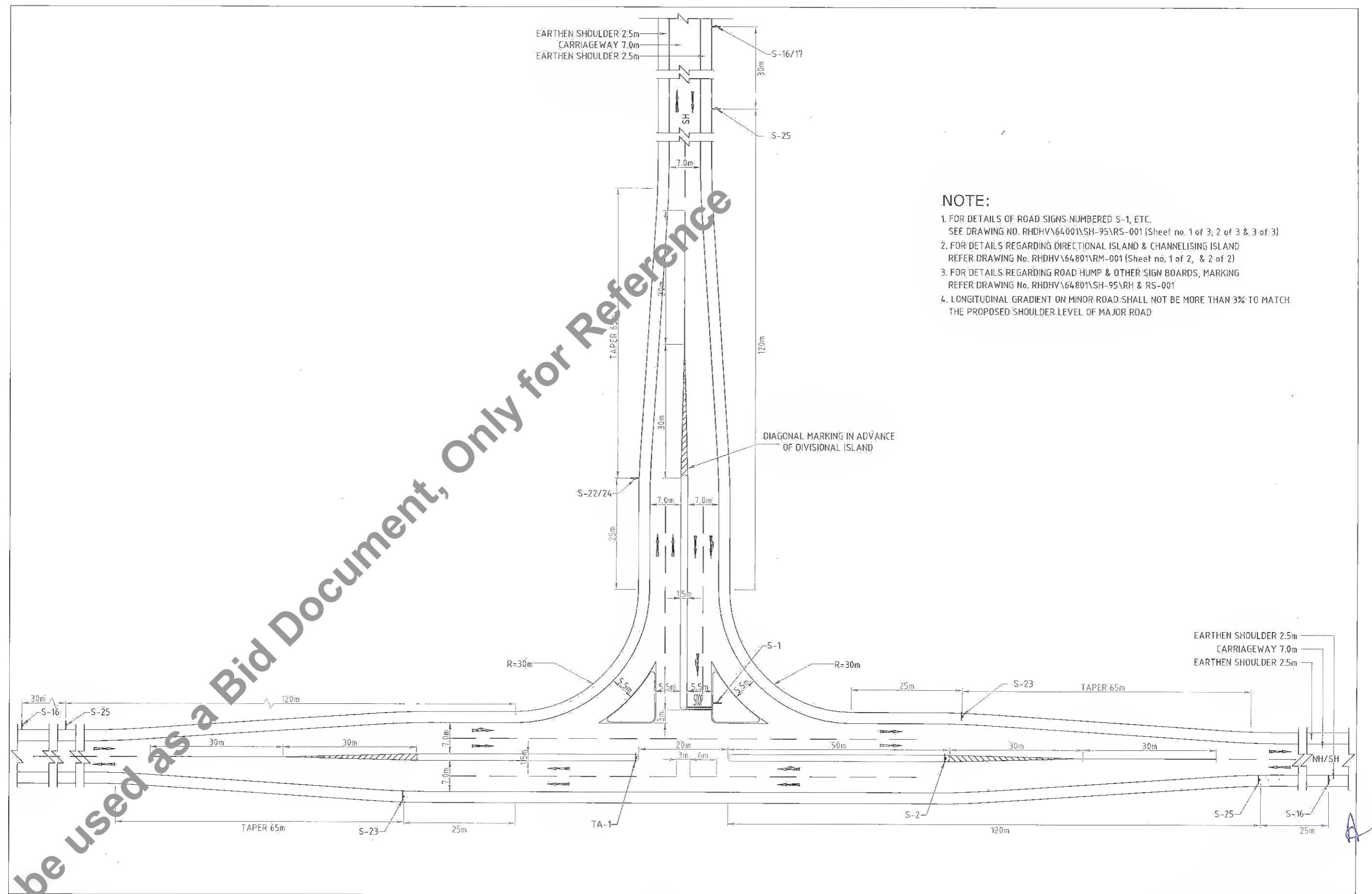
CLUSTER OF RED REFLECTORS TA 1

MINIMUM CLEARANCE OF SIGNS IN KERBED SECTIONS

NOTES

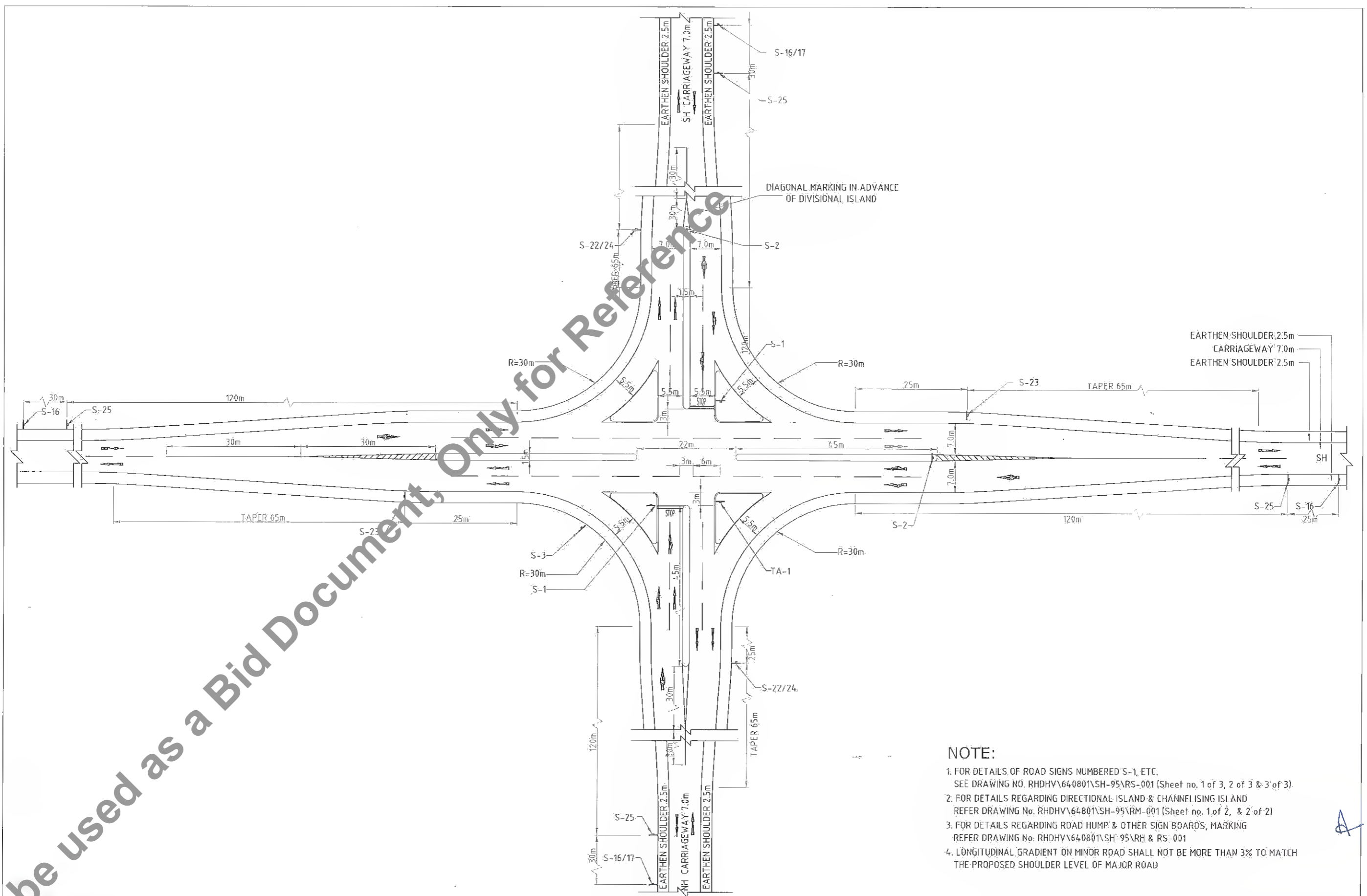
1. ALL DIMENSIONS ARE IN mm UNLESS INDICATED OTHERWISE.
2. ROAD SIGNS, SIZES OF ARROWS, LETTERS & NUMERALS IS AS PER IRC:67-2001.
3. ALL ROAD SIGNS ARE NORMALLY BE PLACED AT RIGHT ANGLES TO THE LINE OF TRAVEL OF THE APPROACHING TRAFFIC.
4. ALL WARNING SIGNS ARE NORMALLY BE LOCATED AT 120m IN ADVANCE OF THE HAZARD WARNED AGAINST IN NON-URBAN LOCATIONS. IN URBAN LOCATIONS, THE WARNING SIGNS ARE LOCATED AT ABOUT 50m AWAY FROM THE POINT OF HAZARD.
5. ALL ROAD SIGNS ARE RETRO-REFLECTIVE SHEET OF HIGH INTENSITY GRADE WITH ENCAPSULATED LENSE FIXED OVER ALUMINIUM SHEET AS PER MORT&H SPECIFICATIONS.
6. ROUTE MARKER SIGN FOR NH IS AS PER IRC :2-1968.
7. SIGNS WITH AN AREA UPTO 0.9sq. m. SHALL BE MOUNTED ON A SINGLE POST, AND FOR GREATER AREA TWO OR MORE SUPPORTS SHALL BE PROVIDED.
8. POST ANGLES USED TO SUPPORT THE SIGN BOARD SHALL BE PAINTED WITH (2-COATS) APPROVED QUALITY (ANTI-CORROSIVE) ENAMEL PAINT OVER TWO COATS OF GOOD QUALITY PRIMER

Client: Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: Royal HaskoningDHV HaskoningDHV Nederland B.V.	Title: TYPICAL ROAD SIGNS	DRAWING NO.: RHDHV/64081/DDPRS/01 RO
DATE: APRIL 2017					SHEET: 03 OF 03
DESIGNED: R Singh		DRAWN: J P Dobhal		CHECKED: R Singh	APPROVED: S Pathuri
REV	DATE	DESCRIPTION OF REVISIONS			



Client: Bihar State Road Development Corporation Ltd.	SCALE NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: HaskoningDHV Nederland B.V.	Title: TYPICAL 4-LEGGED INTERSECTION WITH SINGLE LANE BT ROAD	DRAWING NO.: RHDHV/64001/DDPR/JN/01 DATE: APRIL 2017 DESIGNED: R Singh DRAWN: J P Dohal CHECKED: R Singh APPROVED: S Pathuri	R0 SHEET: 01 of 05
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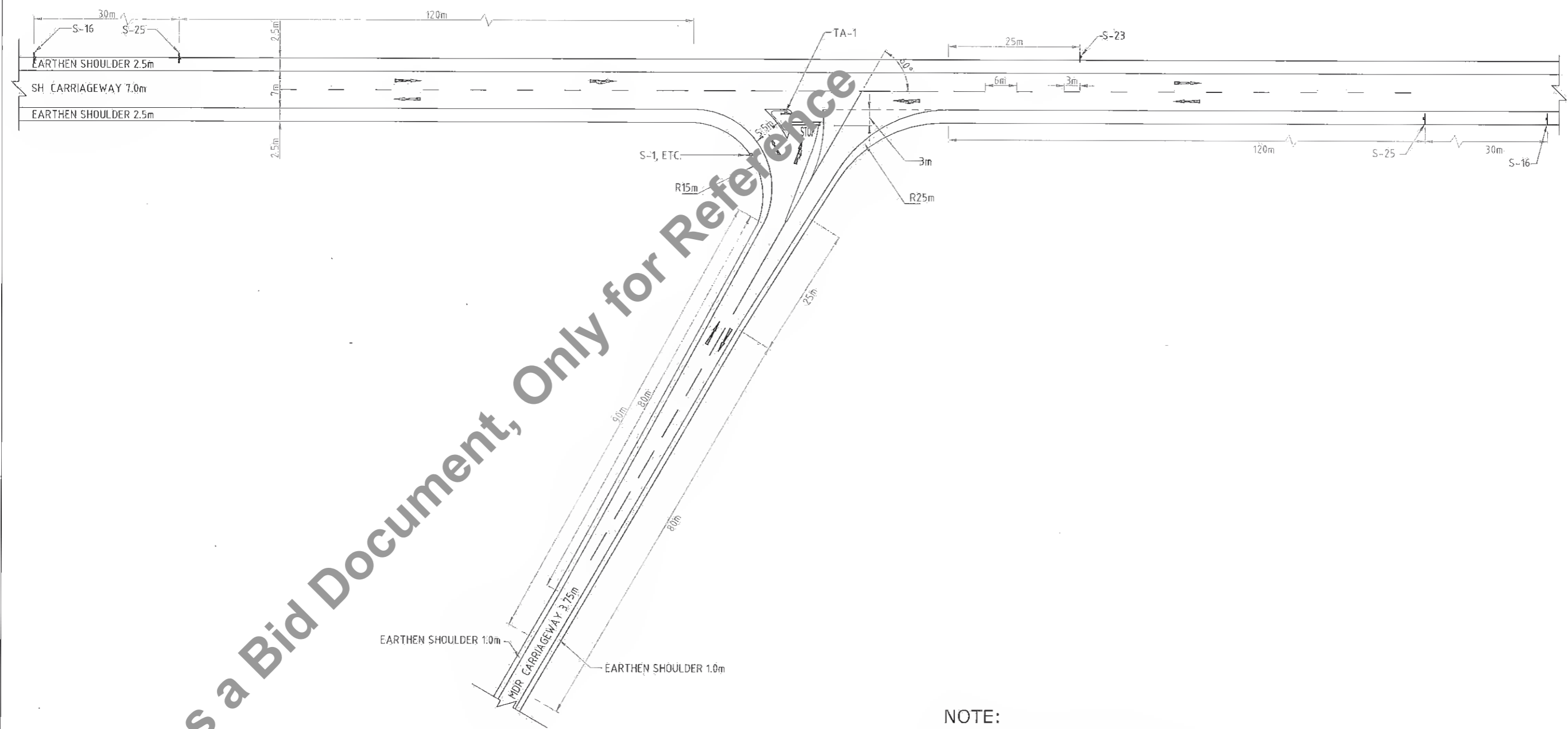
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- NOTE:**
1. FOR DETAILS OF ROAD SIGNS NUMBERED 'S-1, ETC. SEE DRAWING NO. RHDHV\640801\SH-95\RS-001 (Sheet no. 1 of 3, 2 of 3 & 3 of 3)
 2. FOR DETAILS REGARDING DIRECTIONAL ISLAND & CHANNELISING ISLAND REFER DRAWING No. RHDHV\640801\SH-95\RM-001 (Sheet no. 1 of 2, & 2 of 2)
 3. FOR DETAILS REGARDING ROAD HUMPS & OTHER SIGN BOARDS, MARKING REFER DRAWING No. RHDHV\640801\SH-95\RH & RS-001
 4. LONGITUDINAL GRADIENT ON MINOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD

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Client:  Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants:  HaskoningDHV Nederland B.V.	Title: TYPICAL 4-LEGGED INTERSECTION WITH WITH SINGLE LANE BT ROAD	DRAWING NO.: RHDHV/64081/DDPR/JN/01 RO DATE: APRIL 2017 SHEET: 02 OF 05 DESIGNED: R Singh DRAWN: J P Dobhal CHECKED: R Singh APPROVED: S Pathuri
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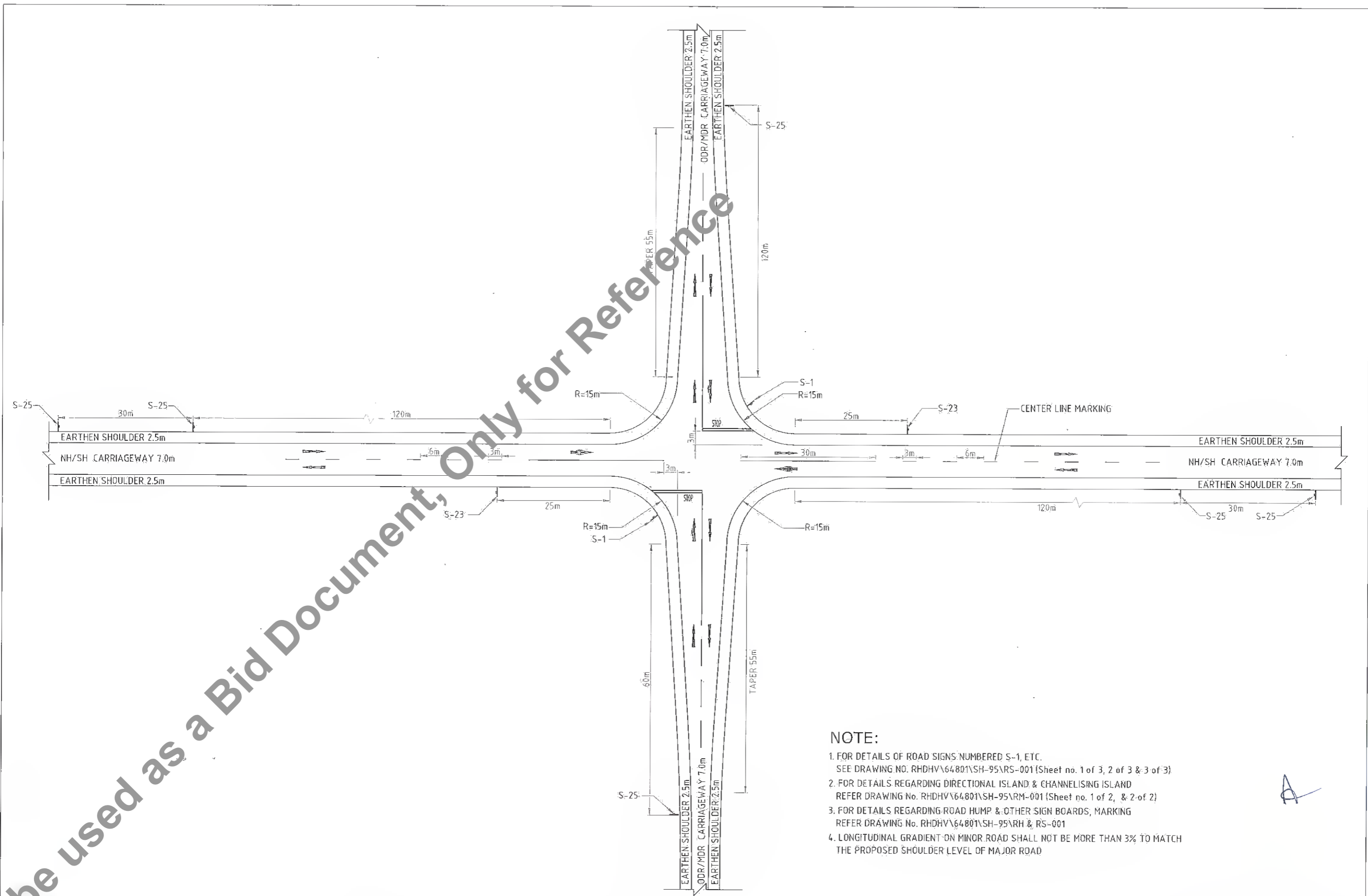
NOTE:

1. FOR DETAILS OF ROAD SIGNS NUMBERED 'S-1, ETC.' SEE DRAWING NO. RHDHV\64801\SH-95\RS-001 (Sheet no. 1 of 3, 2 of 3 & 3 of 3)
2. FOR DETAILS REGARDING DIRECTIONAL ISLAND & CHANNELISING ISLAND REFER DRAWING No. RHDHV\64801\SH-95\RM-001 (Sheet no. 1 of 2, & 2 of 2)
3. FOR DETAILS REGARDING ROAD HUMP & OTHER SIGN BOARDS, MARKING REFER DRAWING No. RHDHV\64801\SH-95\Manasi (NH-31)-Saharsa-Hardi Chaughara\RH & RS-001
4. LONGITUDINAL GRADIENT ON MINOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD

A

Client :  Bihar State Road Development Corporation Ltd.	SCALE : NTS	Project : Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants :  Royal HaskoningDHV HaskoningDHV Nederland B.V.	Title : TYPICAL 4-LEGGED INTERSECTION WITH SINGLE LANE BT ROAD	DRAWING NO: RHDHV/64081/DDPR/JN/01	RO
					DATE: APRIL 2017	SHEET: 11 OF 16
				DESIGNED: R Singh		DRAWN: J P Dohari
				CHECKED: R Singh		APPROVED: S Pathuri
				REV: DATE DESCRIPTION OF REVISIONS:		

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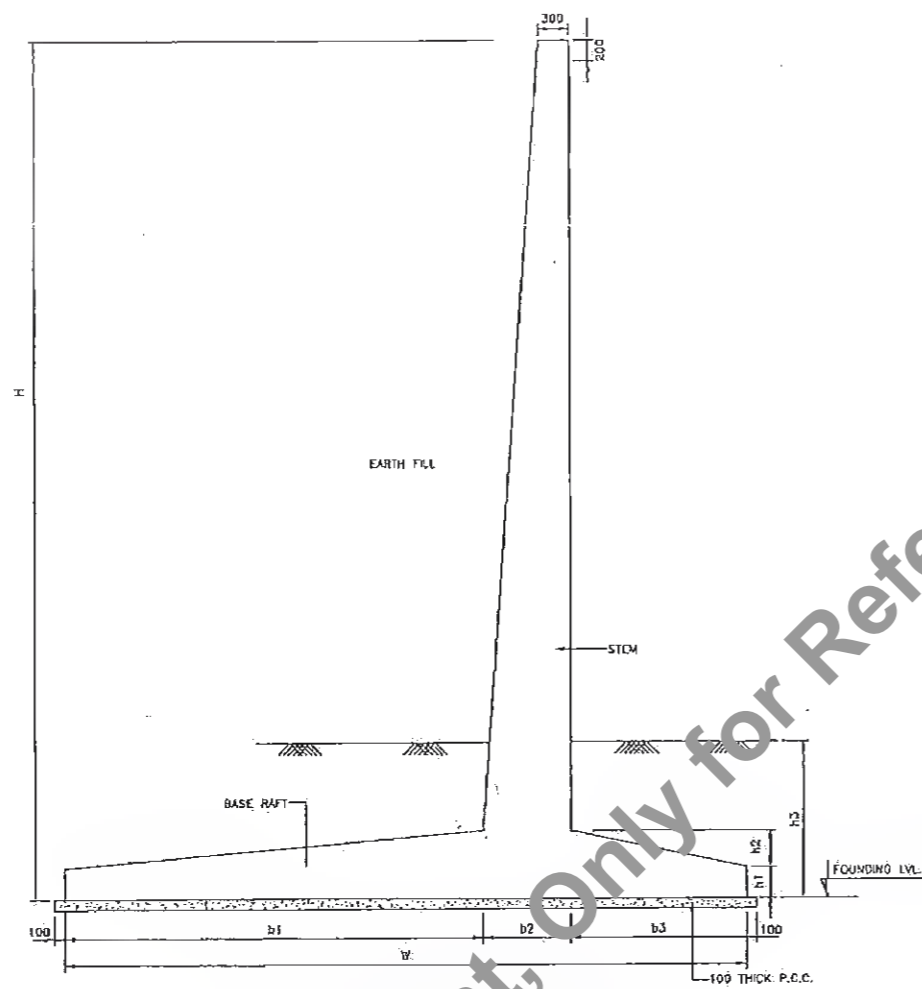


NOTE:

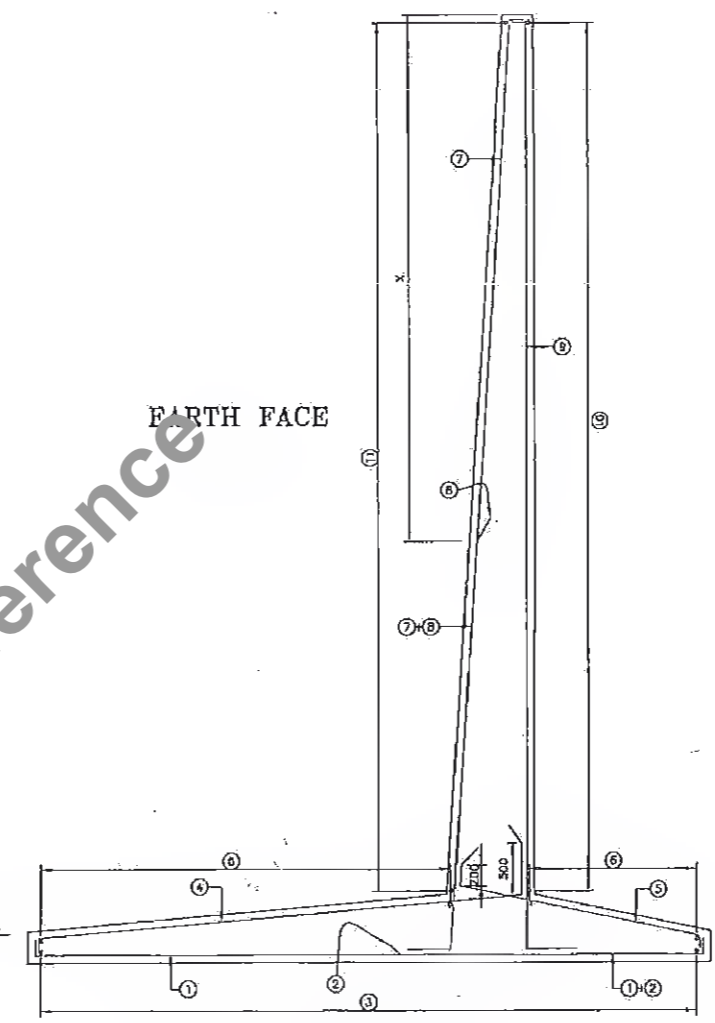
1. FOR DETAILS OF ROAD SIGNS NUMBERED S-1, ETC.
SEE DRAWING NO. RHDHV\64801\SH-95\RS-001 (Sheet no. 1 of 3, 2 of 3 & 3 of 3)
2. FOR DETAILS REGARDING DIRECTIONAL ISLAND & CHANNELISING ISLAND
REFER DRAWING No. RHDHV\64801\SH-95\RM-001 (Sheet no. 1 of 2, & 2 of 2)
3. FOR DETAILS REGARDING ROAD HUMPS & OTHER SIGN BOARDS, MARKING
REFER DRAWING No. RHDHV\64801\SH-95\RH & RS-001
4. LONGITUDINAL GRADIENT ON MINOR ROAD SHALL NOT BE MORE THAN 3% TO MATCH THE PROPOSED SHOULDER LEVEL OF MAJOR ROAD

A

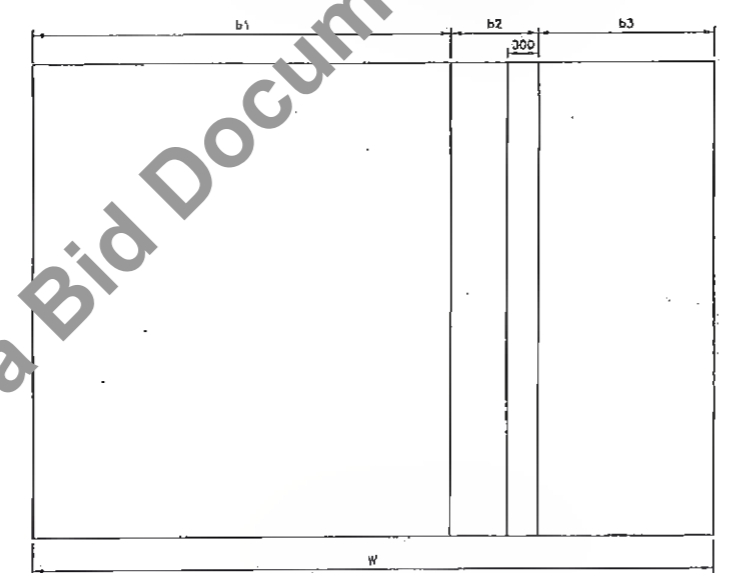
Client: Bihar State Road Development Corporation Ltd.	SCALE: NTS	Project: Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V	Design Consultants: HaskoningDHV Nederland B.V.	Title: TYPICAL 4-LEGGED INTERSECTION WITH SINGLE LANE BT ROAD		DRAWING NO.: RHDHV/64081/DDPR/JN/01	R0
				DATE: APRIL 2017	DESIGNED: R Singh	DRAWN: J.P. Dobhal	CHECKED: R Singh
RR: 2 nd April 2017 REVISIONS:		Plan & Profile		REVISIONS:			



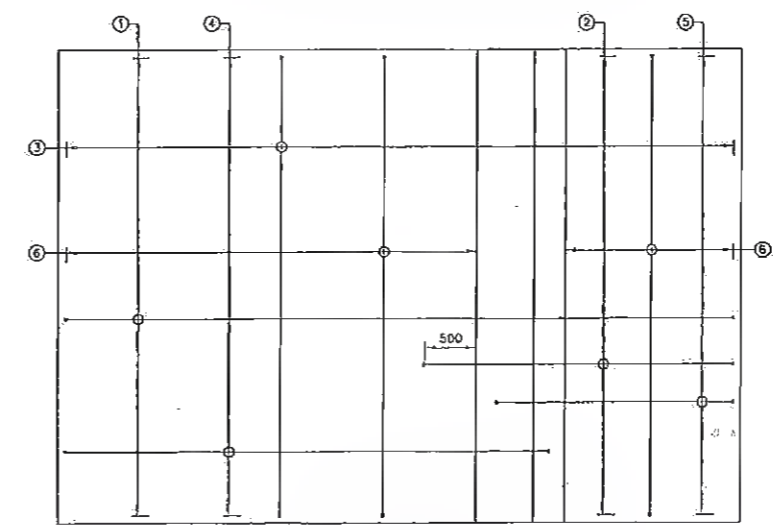
CROSS SECTION OF RETAINING WALL
(SHOWING DIMENSION)
(SCALE 1:50)



CROSS SECTION OF RETAINING WALL
(SHOWING REINFORCEMENT)
(SCALE 1:50)



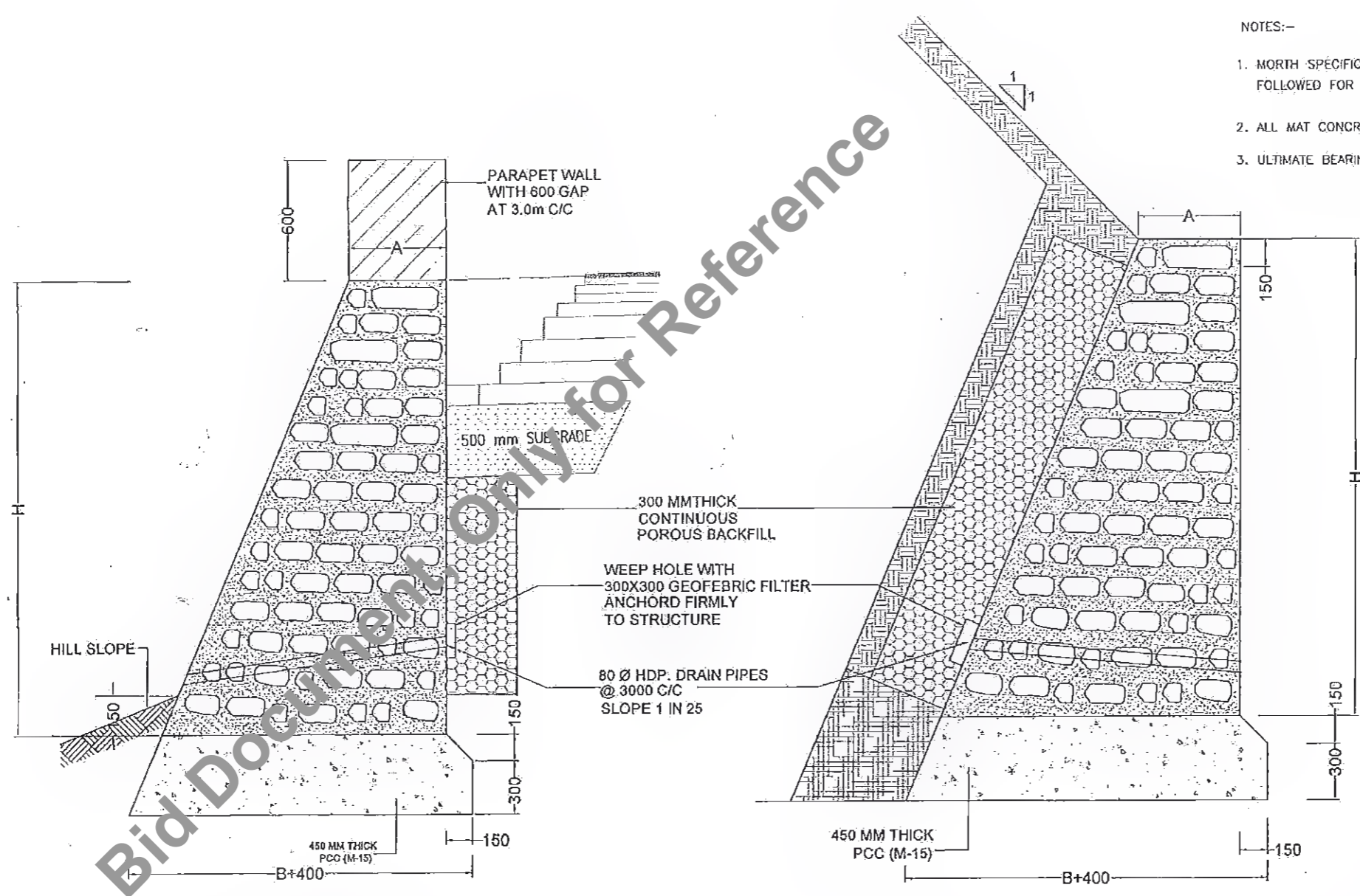
PLAN OF FOOTING
(SHOWING DIMENSION)
(SCALE 1:50)



PLAN OF FOOTING
(SHOWING REINFORCEMENT)
(SCALE 1:50)

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<p>Client : Bihar State Road Development Corporation Ltd.</p>	<p>SCALE NTS</p>	<p>Project : Consultancy Services for Preparation of Detailed Project Report for Manasi (NH-31)-Saharsa-Hardi Chaughara section of SH-95 in the State of Bihar, Package V</p>	<p>Design Consultants : Royal HaskoningDHV HaskoningDHV Nederland B.V.</p>	<p>Title : RETAINING WALL</p>	<p>DRAWING NO. : RHDHV/1260/Ram-Alm/RE/20 DATE : APRIL 2017</p>	<table border="1"> <tr> <td>DESIGNED R. Singh</td> <td>DRAWN J.P. Dabhal</td> <td>CHECKED R. Singh</td> <td>APPROVED S. Pathuri</td> </tr> </table>	DESIGNED R. Singh	DRAWN J.P. Dabhal	CHECKED R. Singh	APPROVED S. Pathuri		
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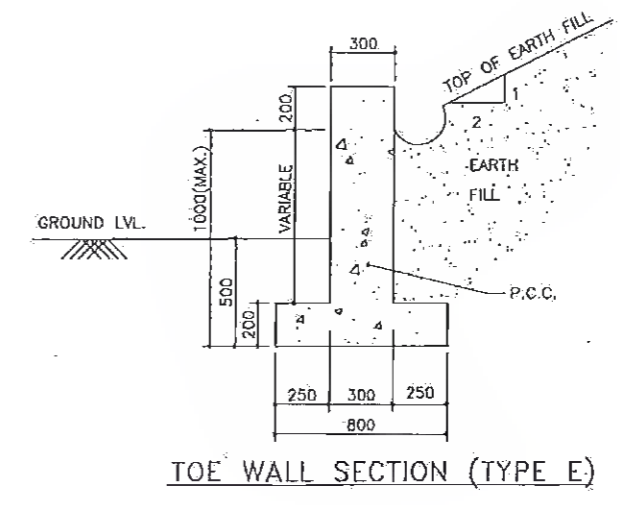
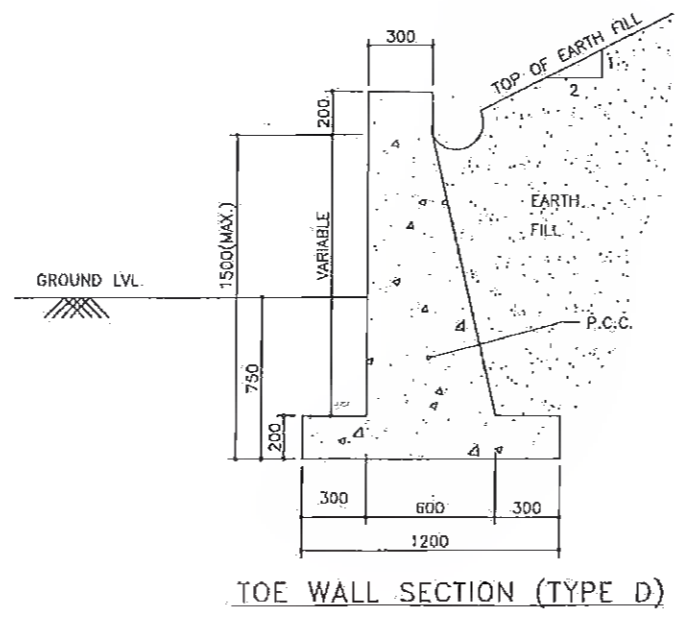
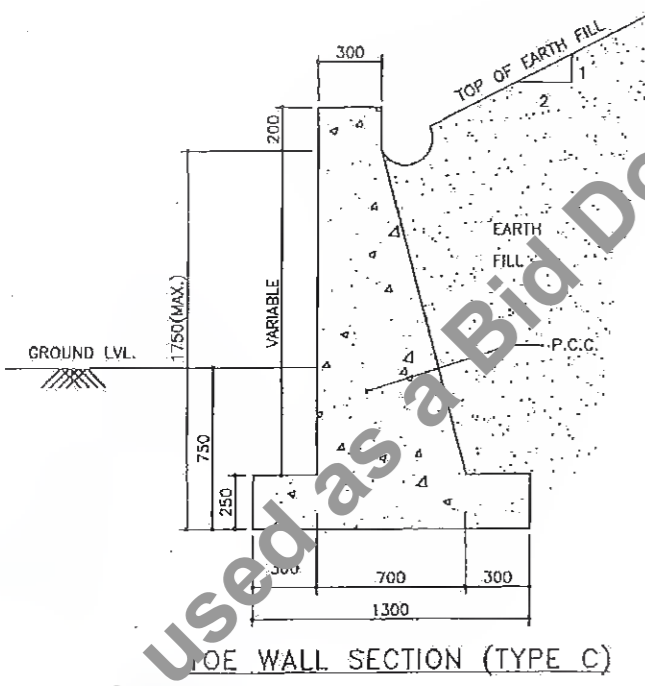
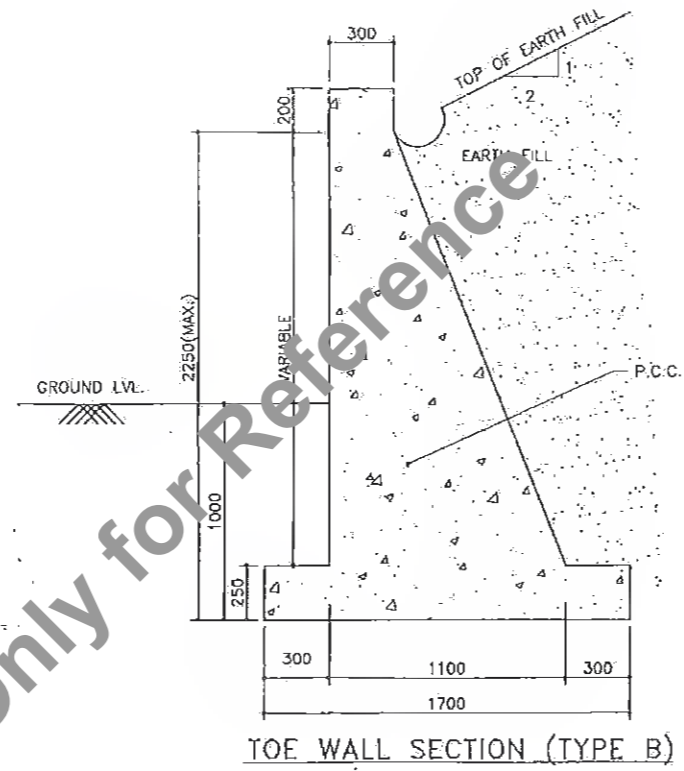
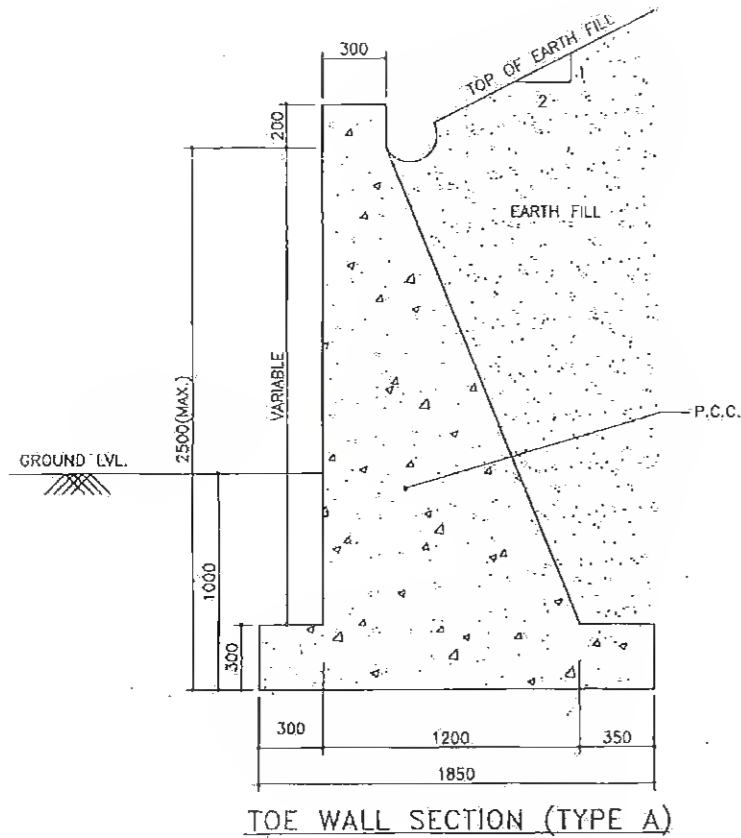
- NOTES:-
1. NORTH SPECIFICATIONS FOR ROAD AND BRIDGE WORKS TO BE FOLLOWED FOR CONSTRUCTION
 2. ALL MAT CONCRETE/LEVELLING COURSE : M15
 3. ULTIMATE BEARINGS CAPACITY OF SOIL 30t/Sqm.

DETAIL OF RETAINING WALL
RUBBLE MASONRY (1:3)

DETAIL OF RUBBLE MASONRY (1:3) BREAST WALL

DIMENSIONS		
"H" IN MM	"A" IN MM	"B" IN MM
900	450	641
1200	450	722
1500	450	900
1800	500	1081
2100	500	1259
2400	525	1441
2700	525	1622
3000	550	1800
3300	550	1981
3600	575	2159
3800	575	2341
4200	600	2522
4500	600	2700

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NOTES

1. ALL DIMENSIONS ARE IN mm.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DO NOT SCALE THE DIMENSIONS.
3. GRADE OF CONC. FOR P.C.C. WORKS ----- M-15.
4. SKIN REINFORCEMENT 8 @ 150 c/c BOTHWAYS IS PROVIDED ON ALL FACES OF P.C.C. MEMBERS.

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