TRAFFIC SIGNS AND ROAD MARKING PLAN

TITLE:

DRAWING NO:

NOTES:

PROJECT:

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 550 KMS ROAD LENGTH AND MAINTENANCE WORKS OF 1050 KMS ROAD LENGTH OF CORE ROAD NETWORKS OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

ROAD NAME:

PACKAGE - 3 : DADHOL - LADOUR

TENDER PURPOSE ONLY
TENDER PURPOSE ONLY

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH.

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

DRAWING NO.: HP/DAD-LAD/TSRM-015

FROM CH: 9+800 TO 10+500
PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADATION WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMALACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH.

HIMALACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

DRAWING NO:
HP/DAD-LAD/TSRM-017

TENDER PURPOSE ONLY

FROM CH: 11+200 TO 11+900
SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HP SRTT) IN THE STATE OF HIMACHAL PRADESH AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

TITLE: TRAFFIC SIGNS AND ROAD MARKING PLAN
FROM CH: 12+600 TO 13+208
DRAWING NO.: HP/DAD-LAD/TSRM-019
ROAD NAME: PACKAGE - 3: DADHOL - LADROUR

TENDER PURPOSE ONLY
MISP AND ESMP DETAILS DRAWINGS
TYPICAL DETAILS OF NOISE BARRIER PROVISION AT SENSITIVE RECEPTOR

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
2. ALL BRICKS WORKS SHALL BE 9 INCHES THICK, CEMENT SAND MORTAR SHALL BE USED IN RATIO OF 1:6 FOR WALL.
3. FOR GENERAL SPECIFICATION OF MATERIAL AND WORKMANSHIP, REFER TO THE LATEST VERSION OF THE NATIONAL BUILDING CODE OF INDIA.
4. FOR SPECIALIZED ITEMS, REFER TO THE MANUFACTURER'S BROCHURE/HAND BOOK.

TENDER PURPOSE ONLY
NOTE:

1. THE DEBRIS DISPOSAL LOCATIONS ARE ADJACENT TO ROAD (WITHIN 5 TO 10M AVERAGE DISTANCE) AND EASY ACCESS TO THE CONTRACTOR.
2. THE ABOVE LOCATIONS ARE INDICATIVE ONLY. THE CONTRACTOR HAS TO IDENTIFY DEBRIS DISPOSAL LOCATION LOCATIONS ON HIS OWN AS PER SPECIFICATIONS AND STANDARDS AND IN CONSULTATION WITH PROJECT MANAGER.
TYPICAL FRONT VIEW OF DEBRIS DISPOSAL SITE

TYPICAL CROSS SECTIONS

TENDER PURPOSE ONLY

SUGGESTED DEBRIS DISPOSAL LOCATIONS

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT. LTD.

SUGGESTED DEBRIS DISPOSAL LOCATIONS

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT. LTD.

SUGGESTED DEBRIS DISPOSAL LOCATIONS

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT. LTD.
NOTE: -

1. THE ABOVE LOCATIONS ARE INDICATIVE ONLY. THE CONTRACTOR HAS TO IDENTIFY
DEBRIS DISPOSAL LOCATION LOCATIONS ON HIS OWN AS PER RELEVANT
SPECIFICATIONS AND STANDARDS AND IN CONSULTATION WITH PROJECT MANAGER.
Specifications

1. 2.5x2.5m for Bio Toilets.
2. Providing Six Bio Toilets (Three for Men / Three for Women)
TITLE: TYPICAL GENERAL ARRANGEMENT
EROSION CONTROL MEASURES

PROJECT: CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KMS. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KMS. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HP STT) IN THE STATE OF HIMACHAL PRADESH

ROAD NAME: PACKAGE - 3 : DADHOL - LADROUR

DRAWING NO.: HP/DAD-LAD/EC-01

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD.
HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

TENDER PURPOSE ONLY
TENDER PURPOSE ONLY

TYPICAL DETAILS OF
SEPTIC TANK & OIL INTERCEPTOR

SEPTIC TANK AND OIL INTERCEPTOR

FIGURE. SEPTIC TANK SPECIFICATIONS

FIGURE. OIL INTERCEPTOR

NOTES:

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 3000 KMS. AND
DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD
SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KMS ROAD LENGTH AND
MAINTENANCE WORKS OF 1350 KMS ROAD LENGTH OF CORE ROAD NETWORK OF
HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION
PROJECT (HPSTRP) IN THE STATE OF HIMACHAL PRADESH

HIMACHAL PRADESH ROAD
AND OTHER INFRASTRUCTURE DEVELOPMENT
CORPORATION LIMITED.
### SCHEDULE OF REINFORCEMENT

<table>
<thead>
<tr>
<th>Height (H1) Bar Code</th>
<th>Shape of Bars</th>
<th>1000</th>
<th>2000</th>
<th>3000</th>
<th>4000</th>
<th>5000</th>
<th>6000</th>
<th>7000</th>
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</thead>
<tbody>
<tr>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
<td>Bar Dia &amp; Spacing</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>100 C/C</td>
<td>12</td>
<td>120 C/C</td>
<td>16</td>
<td>200 C/C</td>
<td>16</td>
<td>120 C/C</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>200 C/C</td>
<td>10</td>
<td>200 C/C</td>
<td>10</td>
<td>110 C/C</td>
<td>12</td>
<td>100 C/C</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>150 C/C</td>
<td>16</td>
<td>150 C/C</td>
<td>20</td>
<td>150 C/C</td>
<td>25</td>
<td>120 C/C</td>
</tr>
<tr>
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<td>12</td>
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<td>12</td>
<td>200 C/C</td>
<td>12</td>
<td>200 C/C</td>
<td>12</td>
<td>180 C/C</td>
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<td>12</td>
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<td>12</td>
<td>200 C/C</td>
<td>12</td>
<td>180 C/C</td>
<td>12</td>
<td>180 C/C</td>
</tr>
<tr>
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<td>10</td>
<td>200 C/C</td>
<td>10</td>
<td>200 C/C</td>
<td>10</td>
<td>150 C/C</td>
<td>10</td>
<td>150 C/C</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>200 C/C</td>
<td>10</td>
<td>250 C/C</td>
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<td>200 C/C</td>
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<td>8</td>
<td>1400</td>
<td>1800</td>
<td>1800</td>
<td>2000</td>
<td>2700</td>
<td>4200</td>
<td></td>
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**NOTES:**
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.

---

**TENDER PURPOSE ONLY**

**DRAWING NO:** HP/DAD-LAD/CR-01

**PROJECT:** CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 450 KM, ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

**SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD**

**HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED**
HIGHWAY STANDARD DETAILS DRAWINGS
NOTES:-
1. GRADE OF CONCRETE IS M25.
2. CLEAR COVER TO OUTERMOST BAR IN TOP SLAB,WALLS AND BOTTOM SLAB SHALL BE 25 mm.
3. CROSS SAFE BEARING CAPACITY AT FOUNDING LEVEL SHALL NOT BE LESS THAN 10.0 T.K.
4. WHEN EXISTING PAVEMENT EDGE IS NOT NEARRAIN 1500 HP-3PIPE 20m C/C SHALL BE USED FOR COLLECTING SURFACE WATER AND RELEASING IT TO DRAINS.
5. FOR TYPE OF WIDENING AND TYPICAL HIGHWAY/ROAD CROSS SECTIONS PLEASE REFER HIGHWAY DRAWINGS.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Proposed</th>
<th>Length</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chainage in Km</td>
<td>in m.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0+000</td>
<td>520</td>
<td>both</td>
</tr>
<tr>
<td>2</td>
<td>1+176</td>
<td>250</td>
<td>both</td>
</tr>
<tr>
<td>3</td>
<td>1+685</td>
<td>610</td>
<td>both</td>
</tr>
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<td>4</td>
<td>1+730</td>
<td>1250</td>
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<td>5</td>
<td>2+100</td>
<td>210</td>
<td>both</td>
</tr>
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<td>6</td>
<td>2+750</td>
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<td>both</td>
</tr>
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<td>7</td>
<td>3+500</td>
<td>270</td>
<td>both</td>
</tr>
<tr>
<td>8</td>
<td>4+000</td>
<td>100</td>
<td>both</td>
</tr>
<tr>
<td>9</td>
<td>5+350</td>
<td>100</td>
<td>both</td>
</tr>
<tr>
<td>10</td>
<td>5+600</td>
<td>90</td>
<td>LSF</td>
</tr>
<tr>
<td>11</td>
<td>5+960</td>
<td>100</td>
<td>both</td>
</tr>
<tr>
<td>12</td>
<td>6+650</td>
<td>40</td>
<td>LSF</td>
</tr>
<tr>
<td>13</td>
<td>7+850</td>
<td>200</td>
<td>both</td>
</tr>
<tr>
<td>14</td>
<td>8+750</td>
<td>350</td>
<td>both</td>
</tr>
<tr>
<td>15</td>
<td>9+700</td>
<td>520</td>
<td>both</td>
</tr>
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</table>

TOTAL LENGTH 4900
### Bar Bending Schedule

<table>
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<tr>
<th>SL NO.</th>
<th>TYPE OF M.S.BAR</th>
<th>NO. OF BARS</th>
<th>SHAPE OF BARS</th>
<th>DIA (in mm)</th>
<th>LENGTH OF M.S. BAR INCLUDING HOOKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MAIN BARS</td>
<td>2</td>
<td></td>
<td>6</td>
<td>1.84m</td>
</tr>
<tr>
<td>2</td>
<td>TOPMOST STIRRUP</td>
<td>1</td>
<td></td>
<td>8</td>
<td>370mm</td>
</tr>
<tr>
<td>3</td>
<td>STIRRUP(PRINT FROM TOP)</td>
<td>1</td>
<td></td>
<td>6</td>
<td>405mm</td>
</tr>
<tr>
<td>4</td>
<td>STIRRUP(SECOND FROM TOP)</td>
<td>1</td>
<td></td>
<td>6</td>
<td>440mm</td>
</tr>
<tr>
<td>5</td>
<td>STIRRUP(THIRD FROM TOP)</td>
<td>1</td>
<td></td>
<td>6</td>
<td>475mm</td>
</tr>
<tr>
<td>6</td>
<td>BOTTOM MOST STIRRUP</td>
<td>1</td>
<td></td>
<td>6</td>
<td>810mm</td>
</tr>
</tbody>
</table>

### Plan

**Typical Boundary Stone**

**Design with R.C.C as Material**

**Location of Kilometre, 541 km & 200 Metre Stone**

(Intermediate Lane Sections)
TYPICAL ARRANGEMENT
(ALL WELDED CONSTRUCTION)

ALTERNATIVE POST DETAIL
NOTE: FOR EASE OF SITE FIXING
BOLTED IF PANELS CAN BE ADOPTED
AS SHOWN ABOVE

TENDER PURPOSE ONLY

HIMACHAL PRADESH ROAD
AND OTHER INFRASTRUCTURE DEVELOPMENT
CORPORATION LIMITED.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND
DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD
SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM ROAD LENGTH AND
MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF
HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION
PROJECT INITIATING THE STATE OF HIMALAYAN PRADESH

DRAWING NO: HP/DAD-LADMISC-003

ROAD NAME: PACKAGE - 3: DADHOL - LADROUR

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD.
TENDER PURPOSE ONLY

NOTES:
1. ALL THE DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED.
2. CORRODED METAL BEAM SHALL BE 6MM THICK.
3. W-BEAM SHALL BE CORROSION-RESISTANT STEEL.
4. ALL NUTS AND BOLTS SHALL BE 8MM.
6. B-POSTING W/SPOKE SHOULDER SHALL BE PROVIDED OF 63MM DIAMETER.
7. FOR STANDING THE W-BEAM AT EACH LOCATION 8 MM BOLT HEAD BOLTS M16 X 160 MM LONG SHALL BE USED.
8. THE ENDS OF POSTS ARE TO BE GRATED BY PACIFIC OPERATOR TO ENSURE THAT THE Bolts ARE NOT REMOVABLE.
9. STUDS WILL BE NEEDED AFTER JOINING W-BEAM & SPACER.
10. ALL THE THREADS SHALL CONFORM TO IS 2010 (A) AS PER IS 2010 (A).
11. ALL OPERATIONS SHALL CONFORM WITH MORTH CAUSE NO 810.1

HIMACHAL PRADESH ROAD
AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.
HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT IN THE STATE OF HIMACHAL PRADESH

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

NOTE:
1. ALL THE DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFIED.
2. CONCRETE W/IN FORM SHALL BE 28 DAYS.
3. W/BEAM SHALL BE CAST RIGID FURRED SECTION.
4. ALL SPACING SHALL COMPLY TO IS 4565-3 & 4565-42 NOT OR CHAMFERED TO 50 MM.
6. IN POSTING W/BEAM SPACING SHALL BE PROVIDED OF SIZE 200mmX200mm X1000mm.
7. FOR SPACING THE W/BEAM AT EACH LOCATIONS IF NOT RIGID RIGID W/BEAM 350, 500 mm LONG SHALL BE USED.
8. THE EDGE OFuard Rails to be fixed by precast operation to ensure that the rails are not removable.
9. POSTS SHALL BE MILD STEEL COLD DRAWN & SPACERS.
10. ALL THE DETAILS SHALL CONFORM TO IS 4565 CLAUSES 6.8.
11. ALL SPACERS SHALL COMPARE WITH LEAVE NO. 810.

TENDER PURPOSE ONLY

DRAWING NO.: HP/DAD-LADMISC-004
ROAD NAME: PACKAGE - 3 : DADHOL - LADROUR

DETAILS OF DOUBLE W-BEAM CRASH BARRIER

SECTION A-A

CROSS SECTION OF W-BEAM

DETAILED DRAWING NO. 4570

NOTE:

1. ALL THE DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFIED.
2. CONCRETE W/IN FORM SHALL BE 28 DAYS.
3. W/BEAM SHALL BE CAST RIGID FURRED SECTION.
4. ALL SPACING SHALL COMPLY TO IS 4565-3 & 4565-42 NOT OR CHAMFERED TO 50 MM.
6. IN POSTING W/BEAM SPACING SHALL BE PROVIDED OF SIZE 200mmX200mm X1000mm.
7. FOR SPACING THE W/BEAM AT EACH LOCATIONS IF NOT RIGID RIGID W/BEAM 350, 500 mm LONG SHALL BE USED.
8. THE EDGE OFuard Rails to be fixed by precast operation to ensure that the rails are not removable.
9. POSTS SHALL BE MILD STEEL COLD DRAWN & SPACERS.
10. ALL THE DETAILS SHALL CONFORM TO IS 4565 CLAUSES 6.8.
11. ALL SPACERS SHALL COMPARE WITH LEAVE NO. 810.

TENDER PURPOSE ONLY
PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 200 KMS AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH.

TITLE:
TYPICAL PLAN OF BUS BAY

NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. FOR DETAILED DESIGN REFER IRC 2018.
3. ADEQUATE MARKINGS FOR ENSURE VISTANCE OF THE BUS STOP AND STOPPING AREA.
4. STAND-BY MARKINGS SHOULD BE PROVIDED AS INDICATED ON THE DRAWING. THE MARK BUS STOP SHOULD BE HAND AT THE ENTRANCE AT THE ENTRANCE TO THE BUS STOP.
5. THE BUS STOP SHOULD BE MARKED TO PROTECT FOOTPATH AS MARKED ON THE DRAWING. THE JUNCTION BETWEEN PARAPET AND FOOTPATH SHOULD BE SLIGHTLY WIDENED BY A 50 mm.
6. AREA FOR BUS STOP = 240 X 50 sqm.

TENDER PURPOSE ONLY
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SAFEGUARDS FOR UPGRADATION WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT IN THE STATE OF HIMACHAL PRADESH.

TYPICAL DETAILS OF ROAD MARKINGS IN RURAL & URBAN SECTION

- Normal Section
- Arrow Marking for Route Direction
- Chevrons for Sharp Curve
- Chevrons for Normal Section
- No-Overtaking Section
- Pedestrian Crossings

TENDER PURPOSE ONLY

DRAWING NO: HP/DAD-LADMISC-007

PROJECT: CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SAFEGUARDS FOR UPGRADATION WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT IN THE STATE OF HIMACHAL PRADESH.

HIMALA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

PACKAGE - 3: DADHOL - LADOUR

TENDER PURPOSE ONLY
ROAD STUDS DETAILS

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Description of Sections</th>
<th>Length of Section to be Provided with Studs</th>
<th>Spacing of Studs</th>
<th>Location of Studs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All Sections of project Road where vertical grade is steeper than 2 percent</td>
<td>6m</td>
<td>Center of the Carriageway</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>All Sections of project Road where vertical grade is steeper than 5 percent</td>
<td>5m</td>
<td>Edge of the Carriageway</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>All Major/Minor juctions and median openings</td>
<td>5m</td>
<td>Edge of the Carriageway</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Uncontrolled pedestrian crossing</td>
<td>Length of built-up area</td>
<td>One row of studs across crossing the main carriageway</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. THE STUD MAY BE SUBSTITUTE IN NON-CONTRACTING TENDERS.
3. THE STUDS MUST BE BURIED AT LEAST 50mm DEEP.
4. THE STUDS MUST BE BURIED AT LEAST 20mm DEEP AND NON-CONTRACTING STUDS IS 25mm.
5. ALL THE STUDS MUST COMPLY WITH THE CANDIDATE PROVIDING.
6. THE STUDS SHOULD BE BURIED AT LEAST 75mm DEEP WITH TWO WOODEN BEAMS CONNECTED TO ITS END.

TENDER PURPOSE ONLY
MANDATORY / REGULATORY SIGNS

STOP
Fig. 14.01

GIVE WAY
Fig. 14.02

OVER TAKING PROHIBITED
Fig. 14.03

RIGHT TURN PROHIBITED
Fig. 14.04

LEFT TURN PROHIBITED
Fig. 14.05

SPEED LIMIT
Fig. 14.06

ONE WAY
Fig. 14.07

NO PARKING AND NO STOPPING
Fig. 14.08

COMPULSORY KEEP LEFT
Fig. 14.09

COMPULSORY KEEP RIGHT
Fig. 14.10

BEEP PROHIBITED
Fig. 14.11

NO PARKING
Fig. 14.12

COMPULSORY AHEAD
Fig. 14.13

RUN WAY
Fig. 14.14

COMPULSORY AHEAD ON LEFT TURN
Fig. 14.15

COMPULSORY AHEAD ON RIGHT TURN
Fig. 14.16

NOTE:
1) FOR ROAD SIGNS, COLORS AND DIMENSIONS OF LETTERING REFER BC 87-2012 "CODE OF PRACTICE FOR ROAD SIGNS"
2) MATERIAL, COLORS, SIZE AND STYLE FOR ROAD SIGNS SHALL BE AS PER BC 87-2012
3) CONCESSIONAIRES SHALL PREPARE SHOP DRAWINGS WITH ALL SAFETY FEATURES AND CUT
4) MATERIALS OF SIGNS / ENGRAVINGS MANDATORY SIZE ENLARGED
5) SIGNS AND ROAD MARKINGS SHOWN ARE ONLY DESCRIPTIVE AND CONCESSIONAIRES SHALL PREPARE SHOP DRAWINGS IN ACTUAL SIZE CONFORMING

TENDER PURPOSE ONLY

ROAD SIGNS (MANDATORY SIGNS)

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SUGGESTIONS FOR UPGRADE WORKS OF 850 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 3350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

DRAWING NO.: HPSRTP/HP/DAD/MISC-010
ROAD NAME: PACKAGE - 3: DADHOL - LADOUR

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.
MEN AT WORK

END

TITLE :  DRAWING NO :

NOTES:

NOTES:

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

PROJECT : CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY GUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMALACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

TENDER PURPOSE ONLY

NOTE :
1) MATERIALS, SIZE, SHAPE, SIZE, SHAPE, AND DIMENSIONS OF LETTERING IN THE DRAWING SHALL BE AS PER IRC: 67-2012
2) CONCESSIONAIRE SHALL PREPARE SHOP DRAWINGS SHOWING ALL SAFETY FEATURES AND OBTAIN APPROVAL FROM HRD INCHARGE BEFORE EXECUTION
3) ROAD SIGNS (WARNING SIGNS) SHALL BE IN ACCORDANCE WITH IRC-67-2012 "CODE OF PRACTICE FOR ROAD SIGNS"
4) CONCESSIONAIRE SHALL PREPARE SHOP DRAWINGS SHOWING ALL SAFETY FEATURES AND OBTAIN APPROVAL FROM HRD INCHARGE BEFORE EXECUTION
5) ROAD SIGNS (WARNING SIGNS) SHALL BE IN ACCORDANCE WITH IRC-67-2012 "CODE OF PRACTICE FOR ROAD SIGNS"

ROAD NAME : PACKAGE - 3 : DADHOL - LADOUR

DRAWING NO : HP/DAD-LAD/MISC-011

TENDER PURPOSE ONLY

NOTE :
1) MATERIALS, SIZE, SHAPE, SIZE, SHAPE, AND DIMENSIONS OF LETTERING IN THE DRAWING SHALL BE AS PER IRC: 67-2012
2) CONCESSIONAIRE SHALL PREPARE SHOP DRAWINGS SHOWING ALL SAFETY FEATURES AND OBTAIN APPROVAL FROM HRD INCHARGE BEFORE EXECUTION
3) ROAD SIGNS (WARNING SIGNS) SHALL BE IN ACCORDANCE WITH IRC-67-2012 "CODE OF PRACTICE FOR ROAD SIGNS"
4) CONCESSIONAIRE SHALL PREPARE SHOP DRAWINGS SHOWING ALL SAFETY FEATURES AND OBTAIN APPROVAL FROM HRD INCHARGE BEFORE EXECUTION
5) ROAD SIGNS (WARNING SIGNS) SHALL BE IN ACCORDANCE WITH IRC-67-2012 "CODE OF PRACTICE FOR ROAD SIGNS"
HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT WITHIN THE STATE OF HIMACHAL PRADESH.

PACKAGE - 3: DADHOL - LADROUR

TYPICAL DETAILS OF ELECTRICAL POLE (9m Height)

NOTES:
1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. GRADE OF CONCRETE SHALL BE M20.
3. GRADE OF STEEL SHALL BE PHA.
4. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 25 MM.

TENDER PURPOSE ONLY

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<tr>
<th>S.No</th>
<th>Proposed Chainage in Kms</th>
<th>Length in m.</th>
<th>Remarks</th>
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<td>0+000</td>
<td>0 to 200</td>
<td>Both</td>
</tr>
<tr>
<td>2</td>
<td>1+150</td>
<td>1 to 400</td>
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</tr>
<tr>
<td>3</td>
<td>1+880</td>
<td>2 to 500</td>
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</tr>
<tr>
<td>4</td>
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<td>4 to 800</td>
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<td>7+500</td>
<td>7 to 1000</td>
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<td>8 to 100</td>
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<td>12</td>
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<td></td>
<td>Total Length</td>
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TENDER PURPOSE ONLY
TYPICAL MINOR JUNCTION DETAILS

MINOR JUNCTION TYPE-1

MINOR JUNCTION TYPE-2

MINOR JUNCTION TYPE-3

SECTION A-A ACCESS PROFILE

Notes:
1. All Dimensions are in Millimeters unless specified.
2. L1 = Level of Approach Depends upon level difference between main carriageway & access road.
3. Earthen Transition to the minor road with 8% gradient will be provided for 25m from the Earthen Shoulder and bituminous improvement on minor road for 15m.
4. Access culverts with 300mm dia NF-4 type culverts to be provided matching with the side drain.
5. Standard road marking/road sign Boards shall be as per standard road furniture drawing.
6. Transition length of the access road shall be amended by the Resident Engineer to suite the site condition.

SECTION B-B

LIST OF MINOR JUNCTIONS

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<tr>
<th>S.No</th>
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<th>Type of Junction</th>
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TENDER PURPOSE ONLY
TYPICAL DRAWING FOR TRAFFIC SIGN POSTS

HP/DAD-LAD/MISC-014

TENDER PURPOSE ONLY

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 3000 KMS. AND DETAILS ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM, ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF HIKACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIKACHAL PRADESH.
TYPICAL DETAIL OF PCC TOE WALL

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<th>HEIGHT (m)</th>
<th>a</th>
<th>b</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>H1</th>
<th>H2</th>
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<td>0.50</td>
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TYPICAL CUT BENCHING DETAILS

HILL

VALLEY

TENDER PURPOSE ONLY

DRAWING NO.: HP/DAD-LAD/MISC-015

ROAD NAME: PACKAGE 3 - DADHOL - LADOUR

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.
### Wall Construction

**Remarks:**

1. Wall construction requires special skills and practical labour. Curing of masonry walls generally not feasible in hills due to paucity of water.

2. The typical dimensions shown rely both on well-drained backfill and good foundation conditions.

3. Detailed design is necessary in case of soil slopes and walls higher than 6m and poor foundation conditions.

4. Gabion walls should be used in case of poor foundation/seeage conditions. They can take considerable differential settlement and some slope movement.

5. Other measures should also be taken, for example, check drains, turfing, benching of cut slopes in soft rocks, sealing of cracks. All preventive measures should be implemented in one season. Total system of measures is far more effective than individual measures.

6. All the details / design of breast walls as per is 14458(part 1):1998 shall be followed.
FRONT SLOPE 1H :3V
FRONT SLOPE 1H :6V

BANDED STONE MASONRY IN 1:3 CEMENT & SAND MORTAR
RANDOM RUBBLE STONE MASONRY DRY

PCL

CARRIAGEWAY
INTERMEDIATE LANE

2.5%
3.0%
HILL

PROPOSED BREAST WALL

3.0%

LINED "V" DRAIN
CC 100MM  THK.

CARRIAGEWAY
INTERMEDIATE LANE

2.5%

LINED "V" DRAIN
CC 150MM  THK.

PROPOSED BREAST WALL

3.0%

PCC M-15 _ 150MM THK

CARRIAGEWAY
INTERMEDIATE LANE

2.5%

PCC M-15

H/6+0.6

450 (TYP)

300/450

300/450

300/450

BANDED MASONRY IN 1:3 CEMENT & SAND MORTAR
RANDOM RUBBLE STONE MASONRY DRY

NOTES:
1. ALL DIMENSIONS ARE IN "MM" UNLESS OTHERWISE INDICATED.
3. REFER STANDARD DRAWINGS FOR THE WALL / RETAINING WALL DETAILS.

TENDER PURPOSE ONLY

TYPICAL DETAILS OF BREAST WALL

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 3000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SUGGESTIONS FOR UPGRADE WORKS OF 650 KM ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF HIMALAYAN ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

ROAD NAME : HIMACHAL PRADESH ROAD
PACKAGE - 3 : DADHOL - LAADOUR

NOTE:

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 3000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL, AND ROAD SAFETY SUGGESTIONS FOR UPGRADE WORKS OF 650 KM ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF HIMALAYAN ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

ROAD NAME : HIMACHAL PRADESH ROAD
PACKAGE - 3 : DADHOL - LAADOUR

NOTE:

TYPICAL DETAILS OF BREAST WALL

TITLE : TYPICAL DETAILS OF BREAST WALL

DRAWING NO : HP/DAD-LADMISC-017

ROAD NAME : HIMACHAL PRADESH ROAD
PACKAGE - 3 : DADHOL - LAADOUR

NOTE:

TYPICAL DETAILS OF BREAST WALL

TITLE : TYPICAL DETAILS OF BREAST WALL

DRAWING NO : HP/DAD-LADMISC-017

ROAD NAME : HIMACHAL PRADESH ROAD
PACKAGE - 3 : DADHOL - LAADOUR

NOTE:
TENDER PURPOSE ONLY

NOTES:
1. THE DESIGN OF ROAD HUMP IS IN ACCORDANCE WITH IRC: 51-1988 GUIDE LINES.
2. ROAD HUMP IS PROPOSED AT UNCONTROLLED INTERSECTIONS OF HIGH ROADS WITH OTHER ROADS ON THE MINOR ROAD.
3. THE WIDTH OF HUMP SHOULD BE OF THE DESIGN HUMP ON HIGH ROAD AS GIVEN IN IRC: 51-1988 ESSENTIAL INSTALLATION AT SPECIFIED DISTANCE AHEAD OF ROAD HUMP.
4. PAINT SHALL BE APPLIED THERMOPLASTIC MATERIAL CONTINUOUS TO EXIST IN 2 SIDES.
5. ROAD HUMP ARE PROVIDED AT VILLAGE AND URBAN APPROACHES.
6. HEIGHT OF ROAD HUMP IS 100MM
7. MATERIAL OF CONSTRUCTION FOR ROAD HUMP IS HARD-GRADED GRANULAR MIXTURE AS PER TECHNICAL CL 512
8. MATERIAL OF CONSTRUCTION FOR ROAD HUMP IS DENSE GRANULAR MIXTURE AS PER TECHNICAL CL 519
9. REFLECTIVE PAVEMENT MARKERS ARE PROVIDED AS SHOWN IN DRAWING NO. 1314/1.
10. IN THE ABSENCE OF PAVED SHOULDER, BOTH OF THE ROAD HUMP & RUMBLE STRIP SHALL BE EMERGED TO CURBSTONE EDGE.
STRUCTURAL DRAWINGS
# Culvert Schedules

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<th>Design Change</th>
<th>Type of Structure</th>
<th>No of Spans</th>
<th>Span</th>
<th>Type of Proposal</th>
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**TENDER PURPOSE ONLY**
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FOR DETAIL PROJECT REPORT
PKG 3 DADHOL-LADROUR

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**TENDER PURPOSE ONLY**
PIPE CULVERTS
TENDER PURPOSE ONLY

S.No | Existing Change | Design Change | Design PBC | Chamber (LHS) | Chamber (RHS) | Flow direction | IL LHS (m) | IL RHS (m) | Size of Pipe | Cushion(m) (LHS) | Cushion(m) (RHS) | Lengths of Pipe (m) | Improvement Proposals |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
1 | 3+140 | 3+130 | 769.54 | -2.50 | -1.43 | L-R | 797.87 | 792.96 | 1 | 1.0 | 0.115 | 0.265 | 0.311 | 10.00 | 3.65 | 3.65 | 0.93 | 1.02 | 6.50 | Reconversion |
2 | 4+493 | 785.77 | -7.00 | 7.90 | R-L | 785.14 | 785.15 | 1 | 1.0 | 0.115 | 0.265 | 0.311 | 10.00 | 3.65 | 3.65 | 0.51 | 1.51 | 6.50 | Reconversion |
3 | 5+130 | 5+130 | 798.85 | -2.50 | -2.50 | L-R | 797.02 | 792.01 | 1 | 1.0 | 0.115 | 0.265 | 0.311 | 10.00 | 3.65 | 3.65 | 0.85 | 0.87 | 6.50 | Reconversion |
4 | 11+450 | 11+450 | 916.31 | -7.00 | 7.00 | R-L | 916.59 | 916.60 | 1 | 1.0 | 0.115 | 0.265 | 0.311 | 10.00 | 3.65 | 3.65 | 0.69 | 1.70 | 6.50 | Reconversion |
PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSTRP) IN THE STATE OF HIMACHAL PRADESH

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

NOTES:
SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.
SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD

TENDER PURPOSE ONLY
NOTES:

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADATION WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HImACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

PROJECT: CONSULTANCY SERVICES FOR DETAILED FEASIBILITY AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR ORGANISATION WORKS OF 650 KM, ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK.

TENNANT PURPOSE ONLY

TENDER PURPOSE ONLY

DATE: 11-15-2004

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

HP/DAV-LAD/STR/PCITP/103

TITLE: TYP GAD FOR NEW/RECONSTRUCTION OF 1 ROW PIPE CULVERT WITH CUSHION - TCS-2A

ROAD NAME: PACKAGE - 3: DADHOL - LADOUR

S.No Existing Chalenge Design Chalenge Design FRL @ PCU Camber e (HLS) Camber e (RHS) Flow direction L.LHS (m) L.RHS (m) Size of Pipe No of Pipes Dia of Pipe " D " Thk of Pipe " E " Cushion (m) (LHS) ECL Cushion (m) (RHS) ECR Lengths of Pipe (m) Improvement Proposals

1 1+910 1+909 748.34 4.10 4.10 L-R 746.33 746.33 1 1.0 0.115 0.726 1.062 6.25 3.00 3.00 Reconstruction

2 2+160 754.84 4.70 4.70 L-R 752.93 752.93 1 1.0 0.115 0.982 0.614 6.25 3.00 3.00 New Construction

3 6+860 864.93 3.90 3.90 R-L 862.95 863.00 1 1.0 0.115 0.781 0.929 6.25 3.00 3.00 Reconstruction

4 7+631 885.08 4.40 4.40 R-L 882.55 882.56 1 1.0 0.115 1.236 1.580 6.25 3.00 3.00 Reconstruction

5 12+100 961.81 -0.30 -3.50 L-R 959.82 959.79 1 1.0 0.115 0.686 0.606 6.25 3.00 3.00 New Construction

SHEET 1 OF 1
BOX CULVERTS
TYPICAL GENERAL ARRANGEMENT DRAWING
FOR NEW/RECONSTRUCTION OF
SINGLE CELL
BOX CULVERT (FOR TCS-1B)

BC/TYP/101

TITLE:
DRAWING NO:
HP/DAD-LAD/STR/...

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND
DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD
SAFETY SAFEGUARDS. FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND
MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF
HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROAD TRANSFORMATION
PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

HIMACHAL PRADESH ROAD
AND OTHER INFRASTRUCTURE DEVELOPMENT
CORPORATION LIMITED.

ROAD NAME:
PACKAGE - 3 : DADHOL - LADROUR

TENDER PURPOSE ONLY

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS AND ARE IN HORIZONTAL PLAN VIEW UNLESS NOTED OTHERWISE.
2. ELEVATION OF CURVATURE SHALL BE AS PER PICS.
3. RC CURVATURE WILL BE CONTINUOUS CURVE.
4. ROAD TO BE LAYERED WITH DENSITY COLLECTIVE T.C.30.
5. ROAD TO BE LAYERED WITH DENSITY COLLECTIVE T.C.30.
6. ROAD TO BE LAYERED WITH DENSITY COLLECTIVE T.C.30.
7. ROAD TO BE LAYERED WITH DENSITY COLLECTIVE T.C.30.
8. ROAD TO BE LAYERED WITH DENSITY COLLECTIVE T.C.30.
9. ROAD TO BE LAYERED WITH DENSITY COLLECTIVE T.C.30.

TENDER PURPOSE ONLY
TYPICAL GENERAL ARRANGEMENT DRAWING FOR NEW/RECONSTRUCTION OF SINGLE CELL BOX CULVERT (FOR TCS-1B)

BC/TYP/101

TITLE: TYPICAL GENERAL ARRANGEMENT DRAWING FOR NEW/RECONSTRUCTION OF SINGLE CELL BOX CULVERT (FOR TCS-1B)

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM. ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM. ROAD LENGTH OF CORE ROAD NETWORK OF HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROAD TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

ROAD NAME: PACKAGE - 3: DADHOL - LADROUR

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD
HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

DRAWING NO: HP/DAD-LAD/STR/BC/TYP/101

TENDER PURPOSE ONLY
**Title:** TYPICAL GENERAL ARRANGEMENT DRAWING FOR NEW/RECONSTRUCTION OF SINGLE CELL BOX CULVERT (FOR TCS-4)

**Drawing No:** HP/DAD-LAD/STR/BC/TYP/103

**Package:** 3: DADHOL - LADORU

**Notes:**

1. All dimensions are in millimeters and levels are in meters unless otherwise specified.
2. Grade of concrete shall be as follows:
   - RC: Grade - M20
   - Finishing wall - M20
   - Curb wall: Top - Layout = 0.5m
   - Foundation = 1.0m
   - Sidewall outer face = 0.5m

3. Drainage works shall be as per the standard layout.
4. Drainage works shall be as per the standard layout.
5. Grade of concrete shall be as follows:
   - RC: Grade - M20
   - Finishing wall - M20
   - Curb wall: Top - Layout = 0.5m
   - Foundation = 1.0m

6. All dimensions and levels are subject to engineering and construction supervision.
7. The depth of lay of each wall shall be as follows:
   - Curb wall: 0.5m
   - Sidewall outer face: 0.5m
   - Sidewall inner face: 0.5m
   - Floor drain: 1.0m

**Project:**

Consultancy services for detailed feasibility of about 2000 km, and detailed engineering design including social, environmental, and road safety safeguards for upgradation works of 650 km road length and maintenance works of 1350 km road network of Himachal Pradesh for the proposed H.P. State Roads Transformation Project (HPSRTP) in the State of Himachal Pradesh.
TYPICAL GENERAL ARRANGEMENT DRAWING
FOR NEW/RECONSTRUCTION OF
SINGLE CELL BOX CULVERT (FOR TCS-4)

BC/TYP/103

TITLE:
DRAWING NO:

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND
DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD
SAFETY SAFEGUARDS FOR UPGRADATION WORKS OF 650 KM ROAD LENGTH AND
MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF
HIMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROADS TRANSFORMATION
PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

TENDER PURPOSE ONLY
TYPICAL GENERAL ARRANGEMENT DRAWING
FOR NEW/RECONSTRUCTION OF SINGLE CELL BOX CULVERT (FOR GHAT SECTION)

BC/TYP/104

TITLE:
DRAWING NO: HP/DAD-LAD/STR/SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT.LTD.
PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM ROAD LENGTH OF CORE ROAD NETWORK OF HImACHAL PRADESH FOR THE PROPOSED H.P. STATE ROAD TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

ROAD NAME:
PACKAGE - 3: DADHOL - LADROUR

TENDER PURPOSE ONLY
1. All dimensions are in millimeters and levels in meters unless otherwise mentioned.

2. Only written dimensions shall be followed. Drawings shall not be scaled.

3. The grade of concrete for RC Box & Retaining Wall: M30
   Crash Barrier: M40

4. Clear cover to reinforcement for:
   - Side Wall Earth Face: 75mm
   - Side Wall Other Face: 40mm
   - Top Slab: 40mm
   - Box Bottom Slab: 75mm
   - FLY WING WALL: 75mm

5. Laps shall be staggered minimum lap length and anchorage length shall be as per IRC:112-2011


7. Lap length & development length shall be:

<table>
<thead>
<tr>
<th>Concrete Grade Mpa</th>
<th>M20</th>
<th>M25</th>
<th>M30</th>
<th>M35</th>
<th>M40</th>
<th>M45</th>
<th>M50</th>
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<tbody>
<tr>
<td>Development Length</td>
<td>54ø</td>
<td>47ø</td>
<td>40ø</td>
<td>36ø</td>
<td>34ø</td>
<td>32ø</td>
<td>29ø</td>
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<table>
<thead>
<tr>
<th>Lap Length</th>
<th>&gt; 50% Lapped Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20</td>
<td>71.5ø</td>
</tr>
<tr>
<td>M25</td>
<td>60.5ø</td>
</tr>
<tr>
<td>M30</td>
<td>48.5ø</td>
</tr>
<tr>
<td>M35</td>
<td>43.5ø</td>
</tr>
<tr>
<td>M40</td>
<td>42.5ø</td>
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</tbody>
</table>
TENDER PURPOSE ONLY

NOTES:

FOR REINFORCEMENT DETAILS REFER BAR BENDING SCHEDULE OF CATCH PIT

**

SECTION DETAILS OF CATCH PIT

SCALE 1:20

SECTION 3-3

SCALE 1:20

SECTION 4-4

SCALE 1:20

PCC PARAPET

SCALE 1:20

FOR REINFORCEMENT DETAILS REFER BAR BENDING SCHEDULE OF CATCH PIT

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

SATRA INFRASTRUCTURE MANAGEMENT SERVICES PVT LTD

PROJECT:

CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 3000 KMS. AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE OF 650 KMS., ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KMS. ROAD LENGTH OF CORE ROAD NETWORK OF HIMALACHAL PRADESH FOR THE PROPOSED H.P. STATE ROAD TRANSFORMATION PROJECT (HPSTP) IN THE STATE OF HIMALACHAL PRADESH

RADM NAME : PACKAGE - 3: DADHOL - LADROUR

DRAWING NO : HP/DAD-LAD/STR/BC/TYP/201

TENDERS PURPOSE ONLY

FOR SINGLE CELL BOX CULVERTS

TYPICAL REINFORCEMENT DETAILS FOR SINGLE CELL BOX CULVERTS

157
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED.
2. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. DRAWINGS SHALL NOT BE SCALED.
3. THE GRADE OF CONCRETE FOR RCC U SHAPE WING WALL & RETAINING WALL: M25
4. CLEAR COVER TO REINFORCEMENT FOR SIDE WALL EARTH FACE: 75mm
   SIDE WALL OTHER FACE: 40mm
   BOTTOM SLAB: 75mm
   RCC U SHAPE RETAINING WALL: 75mm
5. LAPS SHALL BE STAGGERED MINIMUM LAP LENGTH AND ANCHORAGE LENGTH SHALL BE AS PER IRC:112-2011
7. LAP LENGTH & DEVELOPMENT LENGTH SHALL BE FOR HYSD BARS Fe 500D & Fe 500D Ø ≤ 32mm

TENDER PURPOSE ONLY

HIMACHAL PRADESH ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED.

PROJECT:
CONSULTANCY SERVICES FOR DETAILED FEASIBILITY OF ABOUT 2000 KMS AND DETAILED ENGINEERING DESIGN INCLUDING SOCIAL, ENVIRONMENTAL AND ROAD SAFETY SAFEGUARDS FOR UPGRADE WORKS OF 650 KM, ROAD LENGTH AND MAINTENANCE WORKS OF 1350 KM ROAD NETWORK OF HAMACHAL PRADESH FOR THE PROPOSED H.P. STATE ROAD TRANSFORMATION PROJECT (HPSRTP) IN THE STATE OF HIMACHAL PRADESH

ROAD NAME: PACKAGE - 3: DADHOL - LADROUR

DRAWING NO: HP/DAD-LAD/STR/BC/202

TENDER PURPOSE ONLY
MINOR BRIDGE
1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS MENTIONED OTHERWISE.
2. GRADE OF CONCRETE SHALL BE AS FOLLOWS.
   PORTAL FRAME - M35
   FLYING WALL - M25
   RETAINING WALL - M25
   CURTAIN WALL, TOE WALL & LEVELING COURSE P.C.C - M15
3. CLEAR COVER FOR ANY REINFORCEMENT SHALL BE
   TOP SLAB - 40mm
   SIDE WALL EARTH FACE - 75mm
   SIDE WALL OTHER FACE - 40mm
4. REQUIRED SAFE BEARING CAPACITY FOR SOIL IS MINIMUM 40T/ SQM
5. GRANULAR BACK FILL MATERIAL CONFORMING TO IRC:78-2014 SHALL BE USED.
6. DIMENSIONS & LEVELS MAY VARY AS PER SITE CONDITIONS.
7. REINFORCEMENT BAR SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (DENOTED AS ) DESIGNED FE:500 AND CONFORMING TO IS: 1786
8. ONLY WRITTEN DIMENSIONS ARE SHALL BE FOLLOWED, NO DIMENSION SHALL BE SCALED.
9. REFER DRAWING NO. NHAI/BIR-BAR/- FOR RETAINING WALL DETAILS
10. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY & STRUCTURAL DRAWINGS

NOTES:
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED.
2. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. DRAWINGS SHALL NOT BE SCALING.
3. THE GRADE OF CONCRETE FOR:
   - PORTAL FRAME: M35
   - FLY WING WALL & RETAINING WALL: M25
   - CRASH BARRIER: M40
4. CLEAR COVER TO REINFORCEMENT FOR:
   - SIDE WALL EARTH FACE: 75mm
   - SIDE WALL OTHER FACE: 40mm
   - TOP SLAB: 40mm
   - FLY WING WALL: 75mm
5. LAPS SHALL BE STAGGERED MINIMUM LAP LENGTH AND ANCHORAGE LENGTH SHALL BE AS PER IRC:112-2011
6. REINFORCEMENT BAR SHALL BE THERMO MECHANICALLY TREATED HYSD BARS (DESIGNER FE:500 & CONFORMING TO IS:1786)
7. REQUIRED SAFE BEARING CAPACITY FOR SOIL IS MINIMUM 50T/ SQM
8. LAP LENGTH & DEVELOPMENT LENGTH SHALL BE

CONCRETE GRADE Mpa
- DEVELOPMENT LENGTH
- LAP LENGTH > 50% LAPPED BARS

<table>
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<tr>
<th>CONCRETE GRADE</th>
<th>400</th>
<th>425</th>
<th>450</th>
<th>475</th>
<th>500</th>
<th>525</th>
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<th>575</th>
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<tbody>
<tr>
<td>LAP LENGTH</td>
<td>540</td>
<td>470</td>
<td>400</td>
<td>250</td>
<td>200</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>DEVELOPMENT</td>
<td>540</td>
<td>470</td>
<td>400</td>
<td>250</td>
<td>200</td>
<td>150</td>
<td>100</td>
<td>50</td>
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TENDER PURPOSE ONLY
SECTION 2-2

SECTION 3-3
MISCELLANEOUS
TYPICAL DETAILS OF PROTECTION WORKS

NOTE:

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TENDER PURPOSE ONLY
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<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
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<tbody>
<tr>
<td>Data 1</td>
<td>Data 2</td>
<td>Data 3</td>
<td>Data 4</td>
<td>Data 5</td>
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</tbody>
</table>

**SECTIONAL ELEVATION**

**REINFORCEMENT DETAILS**

**SCHEDULE OF REINFORCEMENT**

**DIMENSION AND REINFORCEMENT DETAILS OF RCC RETAINING WALL (TYPE-II)**

**MISC/608**

**TITLE:**

**DRAWING NO:** HP/DAD-LAD/STR/...