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GOVERNMENT OF NEPAL
MINISTRY OF PHYSICAL INFRASTRUCTURE AND TRANSPORT
DEPARTMENT OF ROADS
BRIDGE BRANCH

STANDARD SUPERSTRUCTURE DRAWINGS FOR ROAD BRIDGES

15.0m Simply Supported Span, Cast - in - situ,

Reinforced Concrete Slab - Deck

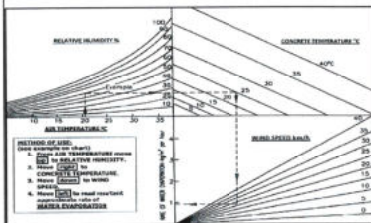
SKEW ANGLE : 0° to 15°

(CARRIAGE WIDTH - 6.0m WITH BOTH SIDE FOOTPATH - 1.25m = TOTAL WIDTH - 8.50m)

REFERENCE NOTES:

- All dimensions are in millimeters, unless stated otherwise.
- No dimension shall be scaled from the Drawings; only written dimensions shall be followed.
- Any doubtful Dimensions/Descriptions shall be brought to the attention of the Engineer-in-charge by any contractors if any before execution of work.
- Number of reinforcement bars shall not be counted from the Drawings. Only given spacing and/or specified numbers of bars, shall be provided.
- All materials and workmanship shall be in accordance with these NOTES and those in the stated Drawings and shall be generally in accord with the applicable Specifications and relevant Standards/Codes of Practice specified therein and Sound Engineering Practice, in that order.
- This Bridge Superstructure is designed for One Lane of IRC Class 70k Loading, Two Lanes of IRC Class A Loading, and One Lane of IRC Class A Loading, whichever powers, in addition to a Footpath Live Load corresponding to 500 kg/m². Of Footpath area as per Clause 26.3.3 of IRC - 6 (2017). However, the proposed Footpath slab has also been designed for a wheel Load of 4 Tones (distributed over a contact area of 300 mm dia) as per clause 206.4 of IRC - 6 (2017), allowing 25% increase in stresses due to flexure.
- The Contractor shall be responsible for constructing and maintaining all parts of the structure in stable, acceptable and serviceable condition, ensuring no part under construction is unduly stressed and unsafe.
- CONSTRUCTION SEQUENCE:** Entire Deck (i.e. the Superstructure comprising the cast in situ Reinforced Concrete slab and substructure) shall preferably be constructed in one operation in one day for one span. If it is not possible, then the four webs shall be cast one after the other (each up to about 150 mm below the top throat) on one day (if possible) otherwise on two successive days, one after the other, along with the Cross Girders, and then the rest cast on the next day. This entire Deck must be cast in situ on staying in span in no more than three successive days.
- CEMENT:**
 - A high strength Ordinary Portland Cement 53 Grade, conforming to IS - 12269 or 43 Grade conforming to IS - 8112, capable of achieving the required design concrete Strength and Durability, shall be used.
 - Cement shall be obtained from approved Manufacturers only.
 - Cement content in the Concrete Mix for Reinforced Concrete shall not be less than 350 kg/m³ and not more than 450 kg/m³.
- COARSE AND FINE AGGREGATES:**
 - Maximum size of Coarse Aggregate used shall be 20mm. Fineness Modulus of Sand (Fine Aggregate) shall not be less than 2.3. Both these Aggregates shall be of Approved Quality, from Approved Sources, and of Approved Gradients, etc. conforming to IS: 383 (1970) in zones of congestion in the structural sections, if absolutely necessary 12 mm down sized Coarse Aggregates may be used (but the Mix shall then be re-designed to suit).
 - In zones of congestion in the structural sections, if absolutely necessary, 12 mm down sized Coarse Aggregates may be used (but the Mix shall then be re-designed to suit).
- ADDITIONS:** To suitably improve workability and increase initial setting time of concrete and cement grout. Additives conforming to IS: 9103, and ASTM C-494 Type F water-reducing, high range admixtures, shall be permitted in appropriate dosages, subject to their satisfactory proven use.
- REINFORCEMENT:**
 - All reinforcing steel bars shall be high Yield Strength Deformed type and Thermally Mechanically Treated, having specified minimum 0.2 per cent proof stress of 500 MPa conforming to IS: 1786.
 - Minimum lap length of reinforcement bars shall be 65d where d is the dia. of the smaller bar to be lapped (unless otherwise specified).
 - Not more than 50 percent of reinforcement crossing a section shall be lapped at that location.
 - All laps in reinforcement shall be properly staggered and minimum distance between the laps shall be 1.3 times the lap length.
 - Bending of reinforcement bars shall be as per IS: 2502.
- WATER:** Water for concrete and for its curing shall be of potable quality and presence of any salts, soaps and pollutants like chlorides, sulphates, alkalis, etc., shall be well within their limits specified in the relevant Specifications.
- CONCRETE AND CURING:**
 - WATER-CEMENT RATIO by weight, shall not exceed 0.45 for Reinforced concrete.
 - MINIMUM CLEAR CONCRETE COVER to reinforcement bars shall be 40mm.
- CONTROL OF SURFACE EVAPORATION**

SURFACE EVAPORATION FROM PLASTIC CONCRETE



Use the graphical Figure below to estimate and control the loss of water through surface evaporation in the laid concrete. One or more of the following actions shall be taken to reduce the surface evaporation rate to not more than one kilogram of water per square meter of surface area per hour:

- Contract Windbreakers to effectively reduce the wind velocity (to suit) in the area of concrete placement. The construction of windbreakers or enclosures should not proceed without approval of the Engineer with respect to their structural design relative to safety, stability, adverse loads, and vibrations in the future work.
- Install stationary Fog Sprayers upwind of the concreting operation to effectively increase the relative humidity in the area of concrete placement.

- When necessary, effectively reduce the temperature of concrete (to suit) by cooling one or more of its components as well as lightly spraying and the shutter and the foot reinforcement, i.e., if added to the mix-water, shall be completely melted prior to using that water.

- GRADES OF CONCRETE**
The structural components involved in this Bridge Deck shall be suitably designed as High Strength Concrete Mixes having 28 days minimum work Cube Crushing Strength in Compression on 150 mm Standard Cubes as follows:

For the cast in situ (old) Reinforced Concrete 3-Webbed Sub-Superstructure (i.e. for its Stems/Girders, Slab and Cross-girders)	55 MPa (i.e. M-50 Grade Concrete)
For the Reinforced Concrete-In-Place Precast Footing Slabs	55 MPa (i.e. M-50 Grade Concrete)
Piercap Slabs and their Bases	
Retard Mortar	

- CONSTRUCTION JOINTS:**
As far as possible the location of Construction Joints shall be as shown in the Drawings, but if not shown on the Drawings but found absolutely necessary, they shall be planned in advance and the placing of concrete carried out continuously from Joint to Joint.

- A Construction Joint should not be located near the centroid level of the section as transverse shear stress is highest. The Joint should be nearly perpendicular to the principal lines of tensile stress and in general be located at points of minimum shear and minimum Moment, as far as possible.
- Where doors, reinforcing bars, or other adequate ties are not shown at Construction Joints in the Drawings, 'keys' should be formed at reasonable spacing by embedding water-soaked banded timbers into the concrete as it is poured.
- These keys should be sized as may be shown in the details, or as directed by the Engineer, and these key-forming timbers shall be removed when the concrete has initially set.

- In resuming concreting work, the surface of the concrete previously placed shall first be thoroughly cleaned of dirt, loose material, loosely protruding aggregates and any other fluff, debris, etc., with wire brushes, etc., if deemed necessary by the Engineer, by hand blasting.
- The concrete surface shall then be thoroughly soaked with clean water (just before further concreting) and the free water, etc. allowed away, and the cleaned concrete surface painted with a thin layer of cement slurry, and only then further concrete poured.

- "Wet-mat" and other similar items do not provide a proper construction joint, and they shall not be used.

- OLD JOINTS:**

- When a planned 'continuous' placement of concrete in any structural member is interrupted or delayed, for any reason, for a period long enough for the previously partially placed concrete to take its initial set, the Engineer may declare such a joint as a Cold Joint and the Contractor shall immediately remove the previously partially placed concrete from the Forms.
- However, where feasible, the previously partially placed concrete may instead be suitably and carefully hatched and its hatched end brought into low shear low moment zone as far as possible, and given shear key depressions after bringing it nearly perpendicular to the principal lines of tensile stress (for example brought to vertical or nearly vertical in a beam with principal bending reinforcement horizontal) and thereafter some treatment shall be given to it as to a Construction joint and only then the concreting resumed (making sure all reinforcements are as per the approved Drawings and the Shuttering has been brought to line and plumb tightly).

CURING AND PROTECTION OF YOUNG CONCRETE:

- All structural concrete shall be cured for a period of time required to obtain the specified strength, but for not less than fourteen consecutive days (six nights) beginning immediately after initial setting of concrete (which is when it sets to surface finish).

- Curing (Membrane-curing or Water-curing) of laid concrete shall be carried out as generally explained below:

Membrane-Curing the Concrete:

- Except for at Construction Joints and surfaces sealed by Forms, liquid membrane curing compound can be used for curing the concrete as follows:
- On bridge deck top surface and other exposed surfaces, liquid membrane curing compound shall be applied soon after initial setting and as the Surface Slab has disappeared and the concrete is still slightly damp (not wet).
- On shuttered or formed vertical surfaces, Forms shall be stripped as soon as practical (generally after 24 hours) and liquid membrane curing compound applied immediately except in the areas that require rubbing or finishing during the curing period.
- These areas shall be kept water-tight until their finishing is completed, where after the liquid curing membrane shall be uniformly applied on them also when their surface is damp.
- White-pigmented liquid membrane curing compound shall be used for all surfaces where the structure temperature during curing period is likely to reach about 35°C or more.

- For bridge decks which are to receive an asphaltic overlay, residual curing membrane (after curing) shall be removed prior to the overlaying.
- Removal methods and results should be approved by the Engineer.

- The membrane curing compound used shall be of longer lasting duration and in accordance with the requirements specified for curing membrane material, AASHTO M 148 or the equivalent IS Specification.
- The curing membrane shall be applied in two applications one immediately following the other.

- The rate of each application of curing compound shall be as prescribed by the manufacturer, with a spreading rate per application of at least one liter of liquid per five square meters of concrete surface.

- If the concrete has dried up or has become dry, it shall be thoroughly wetted with water and the curing compound applied just as the surface film of water disappears and the surface is damp.

- During curing operations any unexposed surfaces shall be kept cured with wetted Hessian cloth, and sprayed with the curing compound when Surface is damp (not wet).

- Any curing membrane material on Construction Joints and/or on reinforcing steel shall be completely removed before the following concrete pour.
- Hand operated spraying equipment shall be capable of applying curing compound and uniform pressure to provide uniform and even distribution of the curing membrane at the rates required.

- The curing compound shall be kept thoroughly mixed at all times during usage / application.
- No traffic of any kind shall be permitted on the curing membrane until the curing period is completed, design permitting.

Water-Curing the Concrete:

- All concrete surfaces, unless still sealed by unrelieved Forms (which shall be kept from heating-up under ambient temperature) or submerged, shall be water-cured unless liquid membrane curing.

- Water curing shall begin just after initial setting of concrete (which generally occurs by about 60 minutes of placement of an unadorned concrete) and by about 120 to 180 minutes of placement of adorned concrete) and just after the surface water has disappeared.

- Surfaces water-cured shall be covered with wet sand, cotton mats, or double-thickness burlap (Luffa/Hessian) sheets.

- The Hessian material shall be placed lightly around and behind any projecting reinforcing steel in order to completely cover the fresh concrete surface.

- The Hessian material shall be completely saturated with water and kept continuously saturated throughout the curing period.

- After the initial setting, unless water is kept running, all surfaces shall be covered with thick polythene sheeting or other approved impervious material in order to protect/prevent drying-up of concrete surface being cure continuously.

- The sheeting shall be weighed down or secured well to prevent moisture loss but the surfaces of the concrete shall be readily available for inspection of the Engineer (or his Representative).

- The sheeting material shall be in good repair.

- Sheeting that contains holes or is otherwise damaged shall be repaired or replaced immediately.

- The Contractor shall be responsible for thoroughly inspecting and monitoring the concrete surfaces throughout the curing period to ensure continuous wet surface.

- Additional water shall be poured any areas where saturation is reduced.

- Operation of curing by the Contractor shall be conducted at least TEN times per day and night for the duration of the curing period - and even more often if ordered by the Engineer.

- The Engineer shall be advised of the curing inspection schedule and he (or his Representative) may accompany the workmen to verify the acceptability of curing.

"COLD-WEATHER" CURING:

- When concrete is placed and the air temperature is expected to drop below 5°C during the curing period, the Contractor shall provide suitable measures such as straw, additional burlap or other suitable insulating material and/or housing and artificial hot-air-curing to maintain the concrete temperature between 10°C and 32°C as measured on the surface of the concrete.

- The surface of the concrete shall be kept moist and warm by the use of an approved warm-moisture material or warm blankets (Burlap/Hessian).
- The moisture barrier should be maintained in intimate surface contact with the concrete during the entire curing period.

- After the completion of the curing during the entire required curing period, the Contractor shall stop the curing and remove the protection in such a manner that rapid-drying of the concrete will be prevented.

- When concrete is placed in "before" and subsequently flooded with ground water, the above curing conditions may be waived, provided the surface of the water is not permitted to freeze.

"CONCRETING" IN "ADVERSE WEATHER" CONDITIONS:

- "Concreting" in "Cold Weather,"**

- Concrete that freezes soon after placing, gains rather less strength and some permanent damage is certain to occur. Therefore, such concrete shall be removed and replaced immediately.

- Planning for Protection of fresh concrete, during placement, and until it has attained the minimum properties required for the environment and the loading to which it will be exposed, shall be done well in advance of concreting and approved by the Engineer.

- Appropriate equipment shall be made available in time for heating the concrete materials, for constructing enclosures and for maintaining favorable temperatures even after the concrete is placed.

- Concrete shall never be placed on cold or frost Form and cold steel.

- When the temperature of these items is below 5°C, the Contractor shall use means to raise their temperatures to above 10°C.

- When faced with prolonged cold temperatures, all aggregates, or mixing water, or both, shall be heated to about 25°C to 32°C.

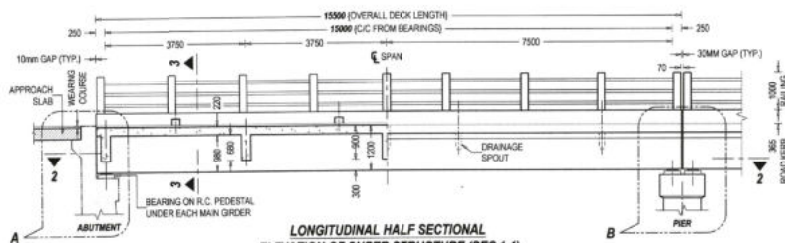
- At temperatures at least 10°C above freezing, it is seldom necessary to heat the Aggregate.

- At temperatures below or at freezing, often only the Fine Aggregate is heated to produce concrete of the required temperature, provided the Coarse Aggregate is free of frozen lumps and the Temperature of Water for the Mix is at least 10°C.

- If aggregate temperatures are above freezing, the desired concrete temperature usually can be obtained by heating only the mixing water.

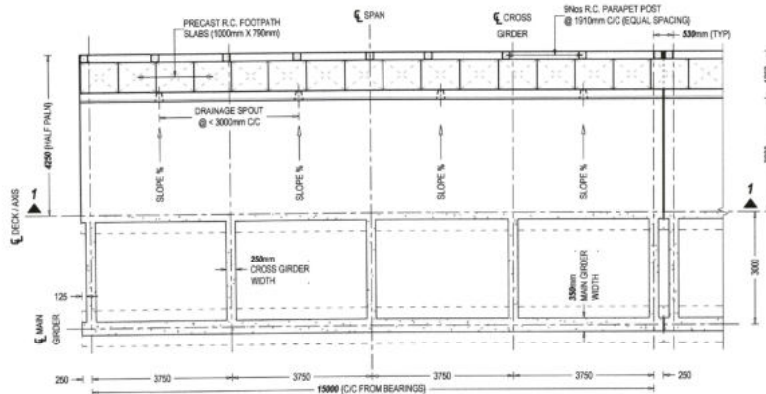
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GOVERNMENT OF NEPAL MINISTRY OF PHYSICAL INFRASTRUCTURE AND TRANSPORT DEPARTMENT OF ROADS BRIDGE DIVISION	
STANDARD SUPERSTRUCTURE DRAWING FOR ROAD BRIDGES	
Road Concrete Width: 7.5m with 2 Footpaths each 1.50m wide	Overall Deck Width: 10.50m
Effective Simply Supported Span (between Centre Lines): 15.0m and Reinforced Concrete Deck	LIVE LOAD: IRC Class A Lane of 70k or 1 T Lane of Class A, whichever governs, and Footpath Loading
Draw No.: 17 of 4-Webbed RC-Slab-Deck 15.0m SS Span	
Orig. TITLE: REFERENCE NOTES (1 Sheet) Sheet 10	
Reviewed by: Pradyumn Khatri (Engineer, Civil)	ForWARDED by: Ajay Kumar Thapa (S.D.O., D.O.F.)
Approved by: Dipak Ghoshal (D.O., D.O.F.)	Date: June 2021



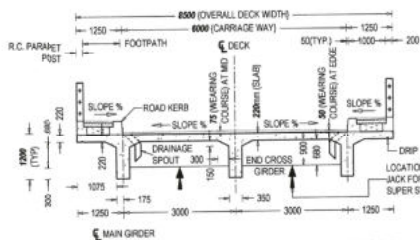
**LONGITUDINAL HALF SECTIONAL
ELEVATION OF SUPER STRUCTURE (SEC 1-1)**

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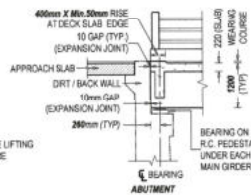
HALF SECTIONAL PLAN VIEW OF SUPER STRUCTURE (SEC 2-2)

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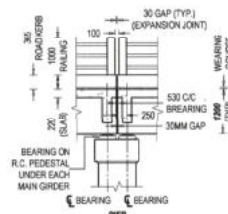
HALF SECTIONAL VIEW OF SUPER STRUCTURE (SEC 3-3)

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DETAIL AT - A

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DETAIL AT - B

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GENERAL NOTE:

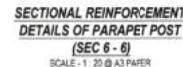
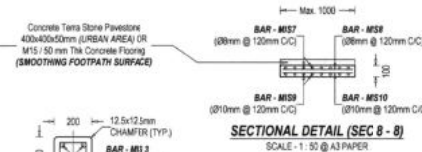
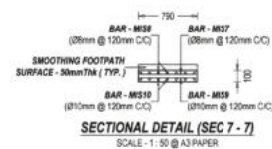
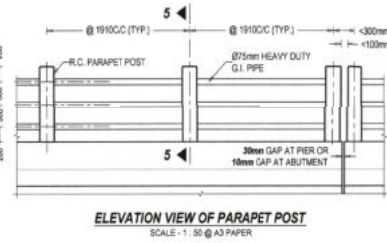
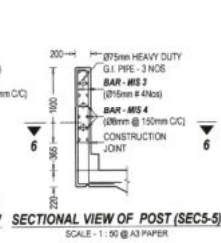
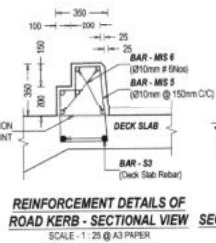
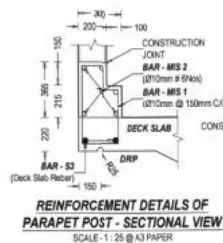
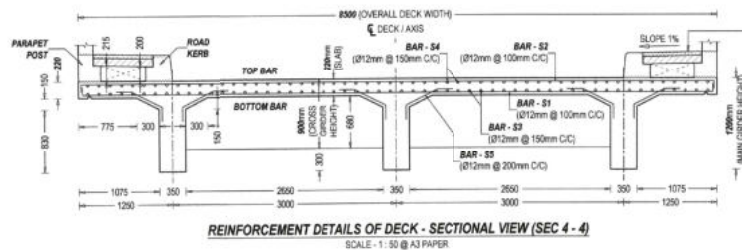
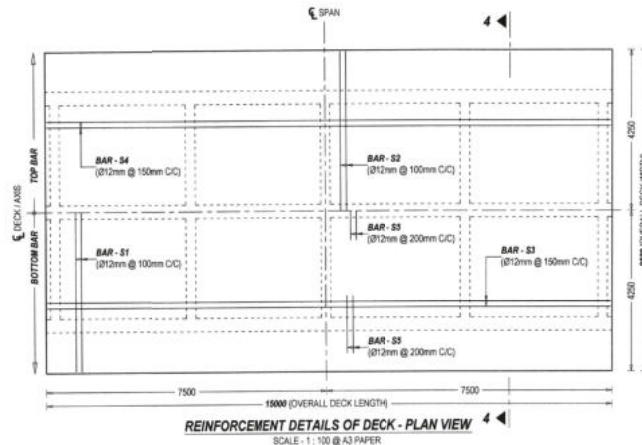
- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS STATED OTHERWISE.
- NO DIMENSIONS SHALL BE SCALE FROM DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- MATERIAL GRADE
A. CONCRETE GRADE : M35
B. STEEL GRADE : Fe500
C. COVER : 40mm
- CHAMFER 15mm x 15mm SHALL BE PROVIDED AT ALL JUNCTIONS OF THE FRAMEWORK UNLESS OTHERWISE SPECIFIED IN THE DRAWING.
- PROPERLY STIFFENED STEEL PLATES SHALL BE USED SHUTTERING FOR CASTING THE SLAB AND DECK.

S.N.	ITEM	QUANTITY
1.	M35 IN DECK AND SLAB	52.0 CU.M.
	M35 IN FOOTPATH SLAB, ROAD KERB AND PARAPET POST	10.6 CU.M.
2.	REINFORCEMENT (BARS 500 MPa (Fe 500))	13.6 TONNES
3.	ASPHALTIC / PREMK WEARING COURSE	93.0 SQ. M.
4.	75MM DIA GI PIPE (RAILING)	93.0 M.
5.	DRAINAGE SPOUTS EACH 450mm LONG Ø100mm G.I. PIPE	8 NOS
6.	BEARINGS : ELASTOMERIC BRIDGE BEARING	6 NOS
7.	40mm THICK CONCRETE TILES FOR FOOTPATH	25.0 SQ. M.
8.	EXPANSION JOINT	17.0 R.M.

NOTES:

- EXACT QUANTITIES SHALL BE CALCULATED BY THE CONCERNED ENGINEER FOR COSTING PURPOSES.
- TOTAL WEIGHT OF ENTIRE SUPERSTRUCTURE IN ONE SPAN = 176 Tonnes.
- CONCRETE TILES CAN BE REPLACED WITH M20 CONCRETE IN REMOTE AREAS.

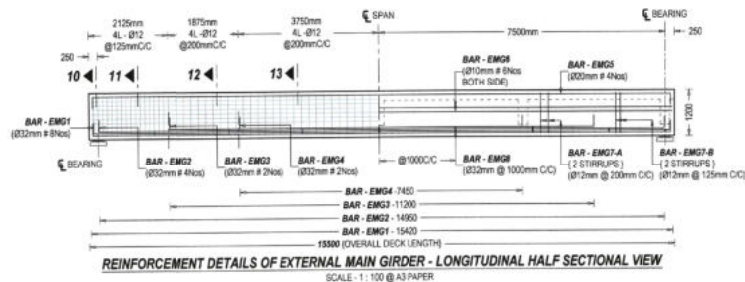
GOVERNMENT OF NEPAL MINISTRY OF PHYSICAL INFRASTRUCTURE AND TRANSPORT DEPARTMENT OF ROADS BRIDGE BRANCH		
STANDARD SUPERSTRUCTURE DRAWING FOR ROAD BRIDGES		
Road Carriageway Width: 7.5m with 2 Footpaths each 1.5m wide	Overall Deck Width: 11.00 m	
Effective Simply Supported Span (center to center of bearings) 15.0 m Reinforced Concrete Deck (see SECTION)	LIVE LOAD: RC 1 Lane of 70K or 1 or 2 Lanes of Class A, whichever governs, and Footpath Loading	
Dwg. No.: 37 of A-Webbed RC-Slab-Deck 15.0 m-Span		
Dwg. TITLE: SUPERSTRUCTURE OUTLINE & DIMENSIONS		
Reviewed by: Pradyumn Niraula (Engineer, DOR)	Forwarded by: Abhinav Mishra (S.O. DOR)	Date June, 2021
Recommended by: Dipak Shrestha (DGO, DOR)	Approved by: Arjun Jung Thapa (S.O, DOR)	Revision: 00



NOTES:

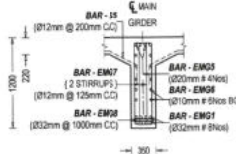
- Concrete flooring ties on footpaths in urban area and bituminous approach road. In other region 50 mm thick M20 Concrete flooring above concrete precast slab can be provided for smooth surface in footpaths.
- Maximum width of footpath slab is 1.0m and end footpath slab shall be of appropriate size.

GOVERNMENT OF NEPAL MINISTRY OF PHYSICAL INFRASTRUCTURE AND TRANSPORT DEPARTMENT OF ROADS BRIDGE BRANCH	
STANDARD SUPERSTRUCTURE DRAWING FOR ROAD BRIDGES	UNIVERSAL DRAWING NO: 11.00 m
Overall Deck Width: 7.5m with 2 Footpaths each 1.5m wide Effective Simply Supported Span (center to center of bearings): 10 m Reinforced Concrete Deck (see Note)	LIVE LOAD: IRC 1 Lane of TSS or 1 or 2 Lanes of Class A, whichever governs, and Footpath Loading
Fig. No.: 47 of 4-Webbed RC-Slab-Deck 15.0 m-S5 Span	
REINFORCEMENT DETAILS OF DECK SLAB, FOOTPATH SLAB, ROAD KERB & PARAPET POST	
Reviewed by: Praduman Niraula (Engineer, Draft)	Forwarded by: Jibendra Mishra (SOE, Draft)
Recommended by: Dipak Chandra (DO, Draft)	Approved by: Bijay Singh Thapa (DO, Draft)
Date: June, 2021	
Page No.: 00	



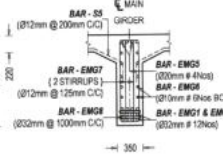
REINFORCEMENT DETAILS OF EXTERNAL MAIN GIRDER - LONGITUDINAL HALF SECTIONAL VIEW

SCALE - 1:100 @ A3 PAPER



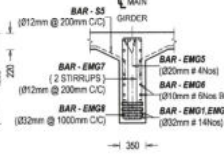
SECTIONAL DETAIL (SEC 10-10)

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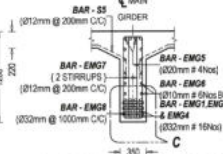
SECTIONAL DETAIL (SEC 11-11)

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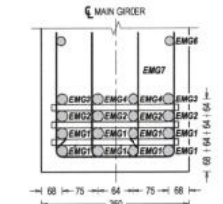
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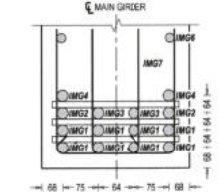
SECTIONAL DETAIL (SEC 13-13)

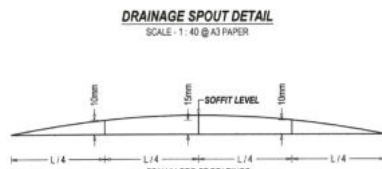
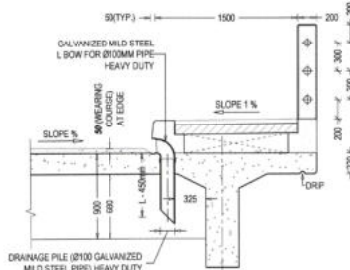
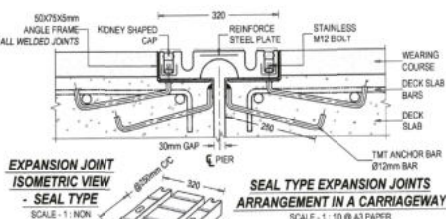
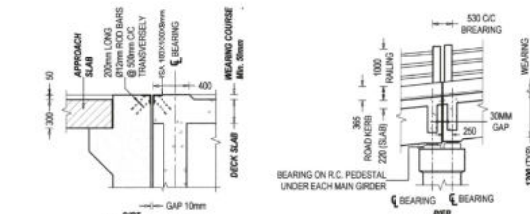
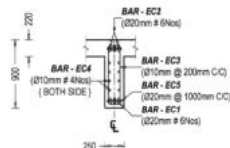
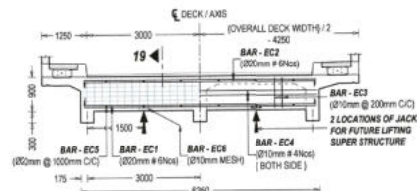
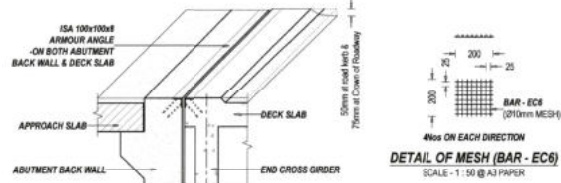
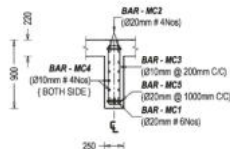
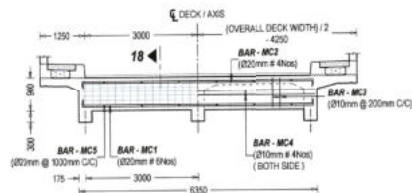
SCALE - 1:50 @ A3 PAPER



EXTERNAL MAIN GIRDER ARRANGEMENT DETAIL (DETAIL AT C)

SCALE - 1:10 @ A3 PAPER





Data for Substructure and Foundation Design				
Load Condition	Reaction (kN)			Remarks
	Right Exterior Girder	Inner Girder 1	Left Exterior Girder	
Dead Load (Slab and Girder)	191.83	216.22	191.83	
SIDL, Wearing Course	16.88	33.75	16.88	
SIDL, Railing and Utilities	66.17	na/gigible	66.17	
Pedestrian Load	34.34	na/gigible	34.34	
2 Lane of IRC Class A	201.21	206.37	211.53	Excluding I.F.
IRC Class 70 R (Tracked)	232.40	197.79	163.16	Excluding I.F.
IRC Class 70 R (Wheeled)	263.91	219.47	175.03	Excluding I.F.

DATA FOR BEARINGS		
Load Condition	Items	On each Nippon Bearing
Under Maximum Live Load	V	564 kN
	H ₁	91 +56 kN
	H ₂	59 kN
	θ	0.004684 Radian
	Δ	10 mm

NOTES:

- "V" = Vertical Load
- "H" = Longitudinal Horizontal Force
- "H"_L = Transverse Horizontal Force
- "R"_T = Rotation About Bridge Transverse Axis
- "Δ" = Longitudinal Movement for Design Purpose
- "S" = Shear Railing of Bearing

GOVERNMENT OF NERAL MINISTRY OF PHYSICAL INFRASTRUCTURE AND TRANSPORT DEPARTMENT OF ROADS BRIDGE BRANCH		
STANDARD SUPERSTRUCTURE DRAWING FOR ROAD BRIDGES		
Road Carriageway Width: 12m with 2 Footpaths each 1.50m wide		General Road Width: 13.00 m
Effective Simply Supported Span (Below Bridge Approach) 10.0 m (Actual Concrete Deck) 10.00m		LIVE LOAD: IRC 1 of 1984 or 1 or 1 Lane of Class A, wheel loads, and Point Load Loading
Obj. No. 67 of 4thBridg RC-Slab Deck 10.0 m Span		
REINFORCEMENT DETAILS OF CROSS GIRDER & MISCELLANEOUS DETAILS		
Reviewed by Prashant Virsala (Engineer Grade II)	Prepared by Jyotsna Mehta (J.E.C. Draft)	Date 06/11/2020
Checked by Dipak, Shivam (J.E.C. Draft)	Approved by Adarsh Jagu Thakur (J.E.C. Draft)	Revision No. 00

BAR BENDING SCHEDULE OF EXTERIOR MAIN GIRDER (1NO)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	EMG 1		32	15220	8	129.76	819.17
2	EMG 2		32	15730	4	63.00	397.72
3	EMG 3		32	12000	2	24.00	151.51
4	EMG 4		32	8250	2	16.50	104.16
5	EMG 5		20	16220	4	64.88	159.99
6	EMG 6		10	15420	12	185.04	114.17
7	EMG 7		12	5480	92	504.16	447.89
8	EMG 8		32	245	47	11.52	72.89
Total Weight (KG)						226.12	

BAR BENDING SCHEDULE OF INTERIOR MAIN GIRDER (1NO)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	IMG 1		32	16220	8	129.76	819.17
2	IMG 2		32	15730	2	31.50	198.86
3	IMG 3		32	12000	2	24.00	151.51
4	IMG 4		32	8250	2	16.50	104.16
5	IMG 5		20	16220	4	64.88	159.99
6	IMG 6		10	15420	12	185.04	114.17
7	IMG 7		12	5480	92	504.16	447.89
8	IMG 8		32	245	47	11.52	72.89
Total Weight (KG)						1986.27	

BAR BENDING SCHEDULE OF DECK SLAB (1NO)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	S1		12	8620	156	1344.72	1194.11
2	S2		12	8620	106	1344.72	1194.11
3	S3		12	15620	58	905.96	854.49
4	S4		12	15620	58	905.96	854.49
5	S5		12	1700	237	402.30	357.78
Total Weight (KG)						4354.98	

BAR BENDING SCHEDULE OF MID CROSS GIRDER (1NO)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	MC1		20	6570	6	39.42	97.21
2	MC2		20	6570	4	26.28	64.81
3	MC3		10	2050	32	65.60	40.48
4	MC4		10	6270	8	50.16	30.95
5	MC5		20	220	12	2.64	1.63
Total Weight (KG)						235.07	

BAR BENDING SCHEDULE OF END CROSS GIRDER (1NO)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	EC1		20	6570	6	39.42	97.21
2	EC2		20	6570	6	39.42	97.21
3	EC3		10	2050	32	65.60	40.48
4	EC4		10	6270	8	50.16	30.95
5	EC5		20	220	12	2.64	6.51
6	EC6		10	1600	2	3.20	1.97
Total Weight (KG)						274.33	

BAR BENDING SCHEDULE OF PARAPET POST BASE (1 SIDE)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	MS1		10	1470	104	152.88	94.33
2	MS2		10	15420	6	92.52	57.08
BAR BENDING SCHEDULE OF RAILING POST (1 SIDE = 9Nos)							
3	MS3		16	2170	36	78.12	123.98
4	MS4		8	560	83	35.28	13.04
Total Weight (KG)						289.32	

BAR BENDING SCHEDULE OF ROAD KERB (1 SIDE)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	MS5		10	1680	104	171.50	106.88
3	MS6		10	15420	6	92.52	57.08
Total Weight (KG)						152.96	

BAR BENDING SCHEDULE OF FOOTPATH PRE CAST SLAB (1NO)							
S.No.	Bar Mark	Shape of Bar (Not to scale) Dimensions are in mm	Dia. of Bar (mm)	Length of each Bar (mm)	No. of Bars	Total Length of Bars (m)	Weight (kg)
1	MS7		8	1270	9	10.89	4.30
2	MS8		8	920	7	6.44	2.54
3	MS9		10	1270	9	10.89	6.72
4	MS10		10	920	7	6.44	3.97
Total Weight (KG)						17.54	

GOVERNMENT OF NEPAL MINISTRY OF PHYSICAL INFRASTRUCTURE AND TRANSPORT DEPARTMENT OF ROADS BRIDGE DIVISION		
STANDARD SUPERSTRUCTURE DRAWING FOR ROAD BRIDGE		
Road Carriageway Width: 11.00 m with 2 Footpaths each 1.50 m wide	Overall Deck Width: 11.00 m	
Effective Simply Supported Span (center to center of Bearings): 13.3 m Reinforced Concrete Deck (no skew)	LIVE LOAD: IRC 1 Lane of 7500 or 1 of 2 Lanes of Class A, whichever governs, and Footpath Loading	
Drg. No.: 77 of 4-Webbed RC-Slab-Deck 15.0 m-SB Span		
BAR BENDING SCHEDULE		
Reviewed by: Praduman Pokhrel (Engineer, DOR)	Forwarded by: Jibendra Mahara (SCE, DOR)	Date: June, 2021
Recommended by: Dipak Shrestha (DGO, DOR)	Approved by: Arjun Jung Thapa (DGO, DOR)	Revisions:

इ. दिपक श्रेष्ठ
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