



**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH AT PUNE
ORIGINAL APPLICATION NO.40 OF 2020**

In the matter between:

Ganesh Suresh Borade

...Applicant

Versus

Union of India & 4 Ors.

...Respondents

ADDITIONAL AFFIDAVIT ON BEHALF OF RESPONDENT NO.4

i.e. National Highways Authority of India ('NHAI')

The Respondent No.4 most humbly submits as under:

1. The Respondent No.4 repeats, confirms and adopts the contents of the Reply dated 05.12.2020 in entirety as if the same are set out and reproduced in seriatim herein.
2. That this Hon'ble Tribunal vide its Order dated 25.05.2023 had directed this Respondent to file a report stating the actions taken by NHAI in the light of the recommendations listed in the Joint Committee Report (sent by Respondent No. 2 through e-mail dated 17.11.2022). Accordingly, this Respondent had filed an Additional Affidavit dated 07.08.2023.
3. Further, on perusal of the Additional Affidavit of this Respondent, this Hon'ble Tribunal vide its Order dated 11.08.2023 directed to file Reply as to the reason for not setting up underpasses for the wildlife at two other locations, i.e. Dolsane (K.M. 121+155)} and Velhale



(K.M. 154+902), for which the Forest Department had suggested that the existing 2 structures could be used as wildlife crossings with some sanitation and mitigation measures, as recorded by this Hon'ble Tribunal in its Order dated 11.08.2023.

4. That pursuant to the Order dated 11.08.2023 passed by this Hon'ble Tribunal, a Joint Inspection was conducted on 02.09.2023 by the Forest Department, NHAI and an Independent Engineer and a duly signed Joint Inspection Report was drawn. A copy of the said Joint Inspection Report is annexed herewith and marked as **Exhibit- A**.
5. The Respondent submits that the construction of the project road was completed in the year 2017, including construction of all types of crossings and structures. It has been observed that since the completion of the project, wild animals have been using the said crossings at multiple locations and are acquainted with the existing underpasses.
6. That during the joint visit on 02.09.2023, it was observed that the existing structures are used by the wild animals for crossing and that the new construction of underpasses should not disturb the existing passage of wild animals. It was also observed that construction of new passages for wild animals may hamper the current passage of wild animals as the construction work may take about 1.5 to 2 years as the existing road is the only road that connects Pune to Nashik and the road cannot be closed. In any event, for any new construction other than construction under the existing finished road, the traffic on one side at the least has to be closed. The location wise detailed observation in respect of all the four locations, as observed during the site visit is summarized as under:-

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- a. **At Malwadi** : a new underpass below the finished road for wildlife crossing having box size of 4mts (height) x 7mts (width) is proposed to be constructed. However, the existing box structures, as detailed below, are being used by wild animals for drinking water and crossing purposes:
- Minor Bridge at chainage-101.691 of size 3 spans of 4mts (height) x 8.9mts (width)
 - Pipe culverts at chainage 99.915 (1x1 mt dia), 99.138 (1x1 mt dia), 100.078 (1x1.2 mts dia) and 100.208 (4x1 mts dia).
- b. **At Khandarmalwadi**: a new underpass below the finished road for wildlife crossing having box size 2mts (height) x 3 mts (width) is proposed to be constructed. It has been noted that this is not a regular location of wildlife passage. However, it is observed that wild animals are attracted due to disposal of hotel waste at this location. The existing box structures, as detailed below, are being used by wild animals for drinking water and crossing purposes:
- Box culvert of 4.5 mts (height) x 1.5 mts (width) at chainage 114.060
 - Pipe culverts at chainage 113.587 (1 x 1.2 mts dia), at chainage 113.76 (2 x 1.2 mts dia) and at chainage 113.978 (1 x 1 mt dia)
- c. **At Dolsane**: an underpass for wildlife crossing having box size of 2mts (height) x 3mts (width) is proposed to be constructed. However, the existing box structures, as detailed below, are being used by wild animals for drinking water and crossing purposes:
- Existing structure at chainage 121.158 (2 x 1 mt dia)

ii. Pipe culverts at chainage 120.970 (1 x 1 mt dia) and at chainage 121.311 (1 x 1mt dia).

d. **At Velhale:** the existing box structures, as detailed below, are being used by wild animals for drinking water and crossing purposes:

- i. at chainage 154.916 with 3mts (height) x 2.7mts (width)
- ii. at chainage 154.466 with 1mt (height) x 1mt (width)
- iii. at chainage 155.475 with 3mts (height) x 10mts (width)

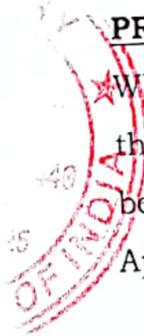
e. Apart from the four locations, one box structure, having box size of 2mts (height) x 3mts (width), has been proposed by Forest Field Staff to be constructed at Chandnapuri (Javalewasti) for wildlife crossing.

7. Therefore, invariably it is observed that due to the disposal of leftover food/flesh by the Restaurants adjacent to the project road, the wild animals get attracted to the locations other than the existing underpasses.

8. That the answering Respondent has already submitted a proposal along with requisite detailed estimates for construction of new underpasses for wildlife crossing at four locations i.e. Malwadi, Khandarmalwadi, Dolsane & Chandanapuri to the competent authority i.e. the Regional Office of the Respondent vide e-file dated 06.11.2023. A copy of the e-file is annexed herewith and marked as **Exhibit-B.**



PRAYER:



Wherefore, in the light of the facts and circumstances of the case, the Respondent No.4 most humbly prays that this Hon'ble Tribunal be pleased to pass appropriate orders and dispose off the Original Application, on account of compliance by the Respondent No.4.

All of which is respectfully submitted.

Place: Pune

Date: 17.11.23



FOR RESPONDENT NO.4 का.ई., पुणे

VERIFICATION

I, Abhijeet Aute, Manager (Tech), PIU-Pune on behalf of the Respondent No.4, having office at BIAF Bhawan Campus, Dr. Manibhai Desai Nagar, Warje, Pune-411 058, state on solemn affirmation that the contents of this Reply on behalf of the Respondent No.4 are true and correct and the same are based on the records maintained at our office and are correct to the best of my knowledge and belief.

In witness whereof, I have signed this day.

Place: Pune

Date: 17.11.23



For M.V.KINI Law Firm
Advocates for Respondent No.4

17 NOV 2023



FOR RESPONDENT NO.4
BEFORE ME

SHAIKH HARUN YASIN
ADVOCATE & NOTARY
GOVT. OF INDIA
Mitha Nagar, Kondhwa Kd., Pune-48

17 NOV 2023

Date: 02.09.2023

Joint Site Visit Report of DCF Ahmednagar along with Manager (T) NHAI PIU Pune & Independent Engineer dated 02.09.2023 regarding compliance of NGT order dated 11.08.2023 about Wild Life Crossings on Khed Sinnar.

Officers present during the joint visit:

Forest department:

1. Mrs.Suvarna Mane, Deputy Conservator of Forests Ahmednagar
2. Mr. S A Patil, Assistant Conservator of Forests Sangamner
3. Mr. Sachin Londhe, Range Forests Officer Sangamner-1

NHAI, PIU-Pune

1. Mr Abhijeet Aute, Manager(T)

Independent Engineer

1. Mr. C. D. Fakir, Team Leader
2. Mr. Dilip Shinde Senior Pavement Specialist.
3. Mr. Arun Kumar Chaudhary, Assistant Highway Engineer.

This is in response to NHAI PIU Pune Lr No 3411 dated 29.08.2023 regarding compliance of detailed order passed by Hon'ble National Green tribunal (NGT) Western Zone dated 11.08.2023 and the instructions by empanelled advocate of NHAI through e-mails dated 11.08.2023, 14.08.2023 & 22.08.2023 regarding joint inspection of proposed wildlife crossings with Forest officials.

It has been directed to NHAI to submit comprehensive affidavit and provide a thorough explanation for the decision for not to proceed with the construction of underpasses at Dolasne and Velhale. Additionally, in respect of existing structure to be used as wild life crossing, the tribunal has directed to disclose the exact technical specifications pertaining to the existing structures that is intended to serve as wildlife crossings along with the intended sanitation and mitigation measures, clear identification of type of wild animal anticipated to utilize these underpasses for crossing purpose in consultation with forest department.

In view of the above, the joint inspection was conducted on 02.09.2023 with the following observations and compliances;

1. As per earlier joint visit dated 20.02.2023 and subsequent submissions out of four locations two were to be constructed and in respect of balance two, existing crossings were to be used for crossing of wild life with some sanitation & mitigation measures.
2. However, as per latest order the entire stretch has been inspected considering site condition, practicability and under guidance of Forest Department.

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[Handwritten signature: C. D. Fakir TL]

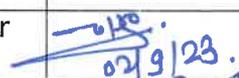
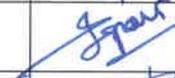
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3. Revised comments on the same are as follows:

SN	1	2	3	4
Village	Malwadi	Khandarmalwadi	Dolasne	Velhale
Location/chainage	99+900	113+500	121+158	154+916
As per site visit dated 02.09.2023	<p>The proposal for the new construction of Underpass structure below Finished Road Level having box size 1No x 4m Height x 7m width at said location has been submitted to NHAI HQ for approval.</p> <p>However, it is observed during site visit that, existing minor bridge at Ch.101.691 of size 3 spans of 8.9 m width and average 4m height (drawing attached) is also used by wild animals for crossings which is more favourable. In addition to above, existing nearby pipe culverts like at 99.915 (1x1m dia), 99.138 (1x1m dia), 100.078 (1x1.2m dia), 100.208 (4x1m dia) are being practically utilized by animals for drinking water and crossing purpose. This should not be disturbed.</p>	<p>The proposal for the new construction of Underpass structure below Finished Road Level having box size 1No x 2m Height x 3m width has been submitted to NHAI HQ for approval.</p> <p>However, it is observed that, wild animals are attracted due to dumped hotel waste at this location and it is not regular passage of wild animal. Box culvert of 1.5m width x 4.5 m height at Ch.114.060 is used for crossing of wild life.</p> <p>In addition nearby existing crossing with pipe culverts at 113.587(1x1.2m dia), at 113.756(2x1.2m dia)& at 113.978(1x1m dia) are being practically utilized by animals for drinking water and crossing purpose. This should not be disturbed.</p>	<p>It has been decided to consider new box structure of size 2m height x 3m width.</p> <p>However, it is observed that, existing structure at 121.158(2x1000) is being practically used by wild animals for drinking water, and crossing purpose. In addition to above, the wild animals are likely to utilise pipe culverts at 120.970(1x1000), at 121.311(1x1000) are being practically used by wild animals for drinking water and crossing purpose.</p>	<p>As reported earlier it is to bring into kind attention that, existing box structure at 154.916(1No x 2.7m width x 3 m height) is being practically used by animals. In addition to above, wild animals also use box at 154.466(1No x 1m width x 1m height) at 155.475(1x10 m width x 3m height) are being practically used by wild animals for drinking water and crossing purpose.</p>
Type of Animals	All local wild life.	All local wild life.	All local wild life.	All local wild life.
Additional requirement	As per the joint site visit and Forest field staff observations one box structure having size 2m height x 3m width shall be provided at Chandnapuri (Javalewasti) location for wild life crossing.			
Mitigation measures	<p>1. For Wildlife Crossings: Both the mouths/ends including approaches of existing crossings are cleaned in order to attract the wild life.</p> <p>2. Road Safety Measures: Speed reduction by providing traffic calming devices, public education, Wildlife warning sign boards are provided along the stretch.</p>			

AD STUCK • A. Harbhay ANEC
 D. P. ... TL
 [Signature]

Conclusive statement	Construction of this road has been completed in year 2017 including all types of crossings. Till date wild animals have been using the above said crossings at multiple locations and they are learned to be acquainted with the same as explained above. However, due to hotel dispose including flesh attracts animals at other locations also. All underpasses should be made as per guidelines issued by Wildlife Institute of India for linear Projects.
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Sr. No.	Name of Officer	Signature
1	Mrs. Suvarna Mane, Deputy Conservator of Forests, Ahmednagar	 02/9/23.
2	Mr. S A Patil , Assistant Conservator of Forests , Sangamner	
3	Mr. Sachin Londhe, Range Forests Officer Sangamner -1	
4	Mr. Abhijeet Aute, Manager (T)	
5	Mr. C D Fakir, IE, Team Leader	
6	Mr. Dilip Shinde Senior Pavement Specialist	
7	Mr. Arunkumar Chawdhary AHE	

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Exhibit - B

Note # 1

NHAI/PIU/Pune/NH-60/NGT/Forst/KS/2023/4102
21.10.2023

To,

The Chief General Manager (T) & Regional Officer,
National Highway Authority of India,
Regional Office Mumbai.
4th floor, MTNL Building,
Sector-11, Opp. CBD Belapur Railway Station,
CBD Belapur, Navi Mumbai-400614.

Sub: NHAI-PIU-Pune- Four Laning of Khed - Sinnar Section of NH-60 from Km 42.000 to Km 177.000 - **Submission of Cost estimate for the Construction of Wild life crossing structure on NH- 60 Khed Sinnar Section - NGT matter - Reg.**

Ref:-

- i. IE Lr No. SAICPL-DCS/Khed-Sinnar/IE/NH-50/2022/3716 Dated: 14.10.2023
- ii. Joint Inspection on dated 02.09.2023.
- iii. This office letter No. 3411 dt. 29.08.2023.
- iv. Hon'ble NGT (Principal Bench) Pune hearing order on dated 11.08.2023
- v. This office letter No. 2367 dt. 20.06.2023.
- vi. IE Lr No. SAICPL-DCS/Khed-Sinnar/IE/NH-50/2022/3580 Dated: 20.06.2023
- vii. This office letter No. 236 dt. 16.01.2023.
- viii. IE Lr No. SAICPL-DCS/Khed-Sinnar/IE/NH-50/2022/3408 Dated: 07.01.2023.

Sir,

1. With reference to above subject and in continuation to NGT order dated 11.08.2023 regarding joint inspection with Forest Department & submission of detailed report on finalization of wildlife crossing structures on Khed Sinnar section, joint inspection along with DCF Ahmendngar was conducted on 02.09.2023. Accordingly, it has been decided to construct four wildlife crossings.
2. As per joint inspection, the location four wild life crossing structures were finalized and IE team has submitted the estimate as per site condition vide their letter at ref (i) above and their comments are reproduced as below :-
 - i. *The Hon'ble NGT (Principal Bench) Pune vide order dated 26/08/2020 has constituted a committee consisting of i) Principal Chief Conservator of Forests, Maharashtra (ii) A representative of NHAI and iii) Additional Principal Chief Conservator of Forests (APCCF), MoEF & CC, Regional office, Nagpur and directed them to submit a factual and action taken report with regard to allegations made in the Original Application No.40/2020 (Shri. Ganesh Suresh Borhade Vs. Union of India & Ors). This committee visited the site during 28-30 January 2021 and suggested to take up the works like balance Avenue Plantation, Rain water harvesting and provide Underpasses /Overpasses for crossing of WildLife at four locations etc.*
 - ii. *Accordingly, it was proposed to construct new crossings at two locations and use*

existing culverts /bridges for crossing of wild life. Accordingly, the cost estimate for the wild life crossing structures at two new locations was considered under phase - III of balance work and submitted to Authority vide this office letter no 3408 dated 07.01.2022. The approval for the same is awaited.

- iii. However, in the mean time, during various hearings before Hon'ble NGT (Principal Bench) Pune the issue regarding number, size & type of structures and location was discussed. During the last hearing on dated 11.08.2023, Hon'ble NGT (Principal Bench) Pune instructed to submit the detailed report regarding number of structures, its location and size duly conducting the site visit jointly with the forest department. Accordingly, joint inspection has been carried out on dated 02.09.2023. The estimates are framed by this IE with the provisions, as finalised during the joint inspection with respect to the locations, size & type of structures etc. as per site condition & based on the state SOR for the current year 2022-23. The brief details of the estimate are as stated in the following table..

Sr.No	Location	Chainage	Type & Size of Structure	Amount in Rs
01	Malwadi	Km 99+900	RCC Underpass: 1Nos X 07m width X 04 m Height	3,97,34,471/-
02	Khandarmalwadi	Km 113+500	RCC Underpass: 1Nos X 03m width X 02 m Height	2,41,12,908/-
03	Dolasane	Km 121+158	RCC Underpass: 1Nos X 03m width X 02 m Height	2,12,45,277/-
04	Chandanapuri	Km 132+400	RCC Underpass: 1Nos X 03m width X 02 m Height	1,75,45,490/-
			Total (without GST)	10,26,38,146 /-

- iv. The detailed Drawings and estimate along with rate analysis are attached as [Annexure -I](#).
- v. The estimate costing to **Rs 10,26,38,146/-** is recommended herewith for obtaining the approval from competent Authority of NHAI. The works proposed are urgent nature concerning to the Hon NGT Hence could be executed by issuing COS orders to adjoining contractors who have been recently awarded the work of VUPs as per the prevailing practice of NHAI.

Comments of PIU:

1. The cost estimate for Construction of 4 Wildlife crossing structures amounting to Rs. 10.26 Cr. (excluding taxes) submitted by IE has been verified in this office and found to be in order.
2. Next date of hearing by NGT is on 21.11.2023. NGT expects concrete steps to be taken up by NHAI immediately.
3. The work may be executed through existing EPC contractors for at-grade junction removal work under Change of Scope as per Policy circular No. 18.91/2023 dated 03.11.2023 wherein powers have been delegated to Regional Officers for sanctioning the COS upto 20% for the tender floated in RO.
4. The cost estimate submitted and recommended by IE amounting to **Rs. 10,26,38,146/-**

is further recommended herewith for approval of Competent Authority. Also, it is requested to issue necessary directions regarding execution of the work.

06/11/2023 06:59 PM

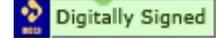
अभिजीत ॲटे|ABHIJEET AUTE
प्रबंधक (तकनीकी)|MANAGER(TECHNICAL)

Note # 2

In continuation to Note No.1, the proposal is submitted herewith for approval of Competent Authority, please.

07/11/2023 12:11 PM

संजय शिवाजी कडम|SANJAY SHIVAJI KADAM
पीडी पीआईयू- पुणे|PD PIU - PUNE



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WILD LIFE CROSSING STRUCTURES (NGT COMPLIANCE)
KHED SINNAR NH-60
Summary Sheet

Sr.No	Location	Chainage	Size of Stucture	Cost in Rs	Cost in Cr
1	Malwadi	Km 99+900	1Nos x 07m Width x 04m Height	39734471.44	3.97
2	Khandarmalwadi	Km 113+500	1Nos x 03m Width x 02m Height	24112907.7	2.41
3	Dolasane	Km 121+158	1Nos x 03m Width x 02m Height	21245276.78	2.12
4	Chandanpuri	Km 132+400	1Nos x 03m Width x 02m Height	17545490.3	1.75
	Total Amount		(WITHOUT GST)	102638146.2	10.26



List of Correspondences

Receipt No. / Issue No.	Subject	Type	Marked As	Attached On	Issued On	Pages	Remarks
E 816383/2023/PIU PUNE	Submission of Cost estimate for the Construction of Wild life crossing structure on NH- 60 Khed Sinnar Section – NGT matter - Reg	Receipt		06/11/2023 06:57 PM		1-22	NGT estimate

 In Association with 
SA INFRASTRUCTURE
CONSULTANTS PVT LTD
DHRUV CONSULTANCY
SERVICES PVT. LTD.

Project Office :
SAICPIL - DCS, Flat No 4 & 8, First Floor, DSK's Centre (Behind Hotel Indrayani), Manchar- 410503, (Pune, Maharashtra)
Phone No.: 02133-225191
Email: tl_50@sainfra.com

No. SAICPL-/Khed-Sinnar/IE/NH-60/2023/3716

Date 14th Oct 2023.

To,
The Deputy General Manager (T) & Project Director,
National Highways Authority of India,
Project Implementation Unit, Pune Warje- 411058.

Sub: Independent Engineer Services for four laning of Khed-Sinnar Section of NH-50 from km.42.000 To km. 177.000 (Design Length-137.946 Km) under NHDP Phase-IV in the State of Maharashtra on DBFOT Basis: **-Submission of cost estimate for the construction of Wild Life crossing structures on NH- 60 Khed Sinnar Section.**

Ref:

1. Joint Inspection with of officers from Forest, NHAI & IE on dated 02.09.2023.
2. This office letter no. 3408 dated 07.01.2023.
3. Hon'ble NGT (Principal Bench) Pune hearing order dated 11.08.2023.

Dear Sir,

This is in reference to the caption subject, regarding submission of Cost estimate for the Construction of Wild life crossing structure on NH- 60 Khed Sinnar Section. The joint inspection for the same was done on dated 02.09.2023 along with forest department official, Authority & IE team representative. During the joint inspection, the locations for wild life crossing structures have been finalized and instructed to IE team to frame the estimate of each crossing as per site condition. Accordingly, the estimate is prepared by the IE team with the comments as stated under.

1. The Hon'ble NGT (Principal Bench) Pune vide order dated 26/08/2020 has constituted a committee consisting of i) Principal Chief Conservator of Forests, Maharashtra (ii) A representative of NHAI and iii) Additional Principal Chief Conservator of Forests (APCCF), MoEF & CC, Regional office, Nagpur and directed them to submit a factual and action taken report with regard to allegations made in the Original Application No.40/2020 (Shri. Ganesh Suresh Borhade Vs. Union of India & Ors). This committee visited the site during 28-30 January 2021 and suggested to take up the works like balance Avenue Plantation, Rain water harvesting and provide Underpasses /Overpasses for crossing of Wildlife at four locations etc.
2. Accordingly, it was proposed to construct new crossings at two locations and use existing culverts /bridges for crossing of wild life. Accordingly, the cost estimate for the wild life crossing structures at two new locations was considered under phase -III of balance work and submitted to Authority vide this office letter no 3408 dated 07.01.2022. The approval for the same is awaited.
3. However, in the mean time, during various hearings before Hon'ble NGT (Principal Bench) Pune the issue regarding number, size & type of structures and location was discussed. During the last hearing on dated 11.08.2023, Hon'ble NGT (Principal Bench) Pune instructed to submit the detailed report regarding number of structures, its location and size duly conducting the site visit jointly with the forest department. Accordingly, joint inspection has been carried out on dated 02.09.2023. The estimates are framed by this IE with the provisions, as finalized during the joint inspection with respect to the locations, size & type of structures etc. as per site condition & based on the state SOR for the current year 2022-23. The brief details of the estimate are as stated in the following table..

Sr.No	Location	Chainage	Type & Size of Structure	Amount in Rs
01	Malwadi	Km 99+900	RCC Underpass: 1Nos X 07m width X 04 m Height	3,97,34,471/-
02	Khandarmalwadi	Km 113+500	RCC Underpass: 1Nos X 03m width X 02 m Height	2,41,12,908/-
03	Dolasane	Km 121+158	RCC Underpass: 1Nos X 03m width X 02 m Height	2,12,45,277/-
04	Chandanapuri	Km 132+400	RCC Underpass:1Nos X 03m width X 02 m Height	1,75,45,490/-
			Total (without GST)	10,26,38,146/-

4. The detailed P&P Drawings and estimate along with rate analysis are attached as **Annexure -I**.
5. The estimate costing to Rs 10,26,38,146/- is recommended herewith for obtaining the approval from competent Authority of NHAI. The works proposed are urgent nature concerning to the Hon NGT Hence could be executed by issuing COS orders to adjoining contractors who have been recently awarded the work of VUPs as per the prevailing practice of NHAI.

This is submitted for information and further needful in the matter.

Thanking you,

Yours Faithfully,

SA Infrastructure Consultant Pvt Ltd.

In association with

Dhruv Consultancy Services Pvt Ltd.




C. D. Fakir
(Team Leader)

Copy to: 1) M/s SAICPL Noida.

Encl: As above

WILD LIFE CROSSING STRUCTURES (NGT COMPLIANCE)
KHED SINNAR NH-60
Summary Sheet

Sr.No	Location	Chainage	Size of Stucture	Cost in Rs	Cost in Cr
1	Malwadi	Km 99+900	1Nos x 07m Width x 04m Height	39734471.44	3.97
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4	Chandanpuri	Km 132+400	1Nos x 03m Width x 02m Height	17545490.3	1.75
	Total Amount		(WITHOUT GST)	102638146.2	10.26



Work Related to the NGT (Wildlife Crossing)
Construction of Wild Life Underpass (1 No x 7 m x 4m) at Km 100+000 Alekhind (Malwadi) on NH-60

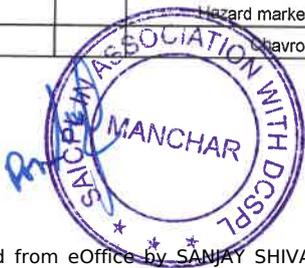
SL. NO.	DESCRIPTION	UNIT	QTY (WUP 7 X 4)	RATE	AMOUNT	Remark	
A	BOX Structure (1Nosx7mx4m)						
	Box Excavation	m^3	4,357.50				
	in Hard Murrum	m^3	2,178.75	247.50	5,39,240.63		
	in Chissaling	m^3	2,178.75	2,125.20	46,30,279.50		
	BOX PCC	M15 m^3	57.74	8,988.70	5,19,003.04		
	APPROACH SLAB PCC	M15 m^3		8,988.70	-		
	TOP SLAB	M30 m^3	226.59	11,541.00	26,15,075.19		
	TOP SLAB HAUNCH	M30 m^3	3.78	11,541.00	43,624.98		
	BOTTOM SLAB	M40 m^3	244.02	11,541.00	28,16,234.82		
	BOTTOM SLAB HAUNCH	M30 m^3	3.78	11,541.00	43,624.98		
	SIDE WALL	M30 m^3	83.20	11,541.00	9,60,211.20		
	MEDIAN WALL	M30 m^3	26.00	11,541.00	3,00,066.00		
	HYSD	MT	70.48	97,820.10	68,94,791.06		
	Total Cost Rs					1,93,62,151.40	1.94
B	CONCRETE QTY.for Retening /Retain wall on both Side						
	Excavation In Hard Murrum	m^3	480.00	247.50	1,18,800.00		
	PCC	M15 m^3	42.00	8,988.70	3,77,525.40		
	Raft	M30 m^3	140.00	8,393.20	11,75,048.00		
	Wall	M40 m^3	200.00	8,393.20	16,78,640.00		
	HYSD	MT	34.00	97,820.10	33,25,883.40		
					66,75,896.80		
	Total Cost Rs					66,75,896.80	0.67
C	Rework of MCW road work & Diversion Work QTY.						
	Embankment	m^3	3,618.80	578.30	20,92,752.04		
	Sub-Grade	m^3	1,300.00	1,230.60	15,99,780.00		
	Granuler Sub Base	m^3	520.00	2,684.70	13,96,044.00		
	Wet Mix Macadam	m^3	650.00	2,705.10	17,58,315.00		
	Primer Coat	Sqm	2,400.00	36.30	87,120.00		
	Dence Bituminus Macadam	m^3	192.00	11,194.60	21,49,363.20		
	Tack Caot	Sqm	2,400.00	23.10	55,440.00		
	Bituminus Concrete	m^3	96.00	12,249.30	11,75,932.80		
	Safety mesures for Diversion Work	LS			15,00,000.00		
	Total Cost Rs					1,18,14,747.04	1.18
D	Miscellaneous work QTY.						
	Plantatation	Rmt	100.00	1,000.00	1,00,000.00		
	Kerb	Rmt	200.00	598.40	1,19,680.00		
	Kerb painting	Sqm	100.00	28.60	2,860.00		
	Crash Barrier painting	Sqm		28.60	-		
	Thermoplastic paint	Sqm	280.00	531.30	1,48,764.00		
	Cate eyes	Nos	100.00	366.30	36,630.00		
	Safety Sign Boards	Nos					
	1.2x0.9	Nos	4.00	19,203.80	76,815.20		
	Circular -900mm	Nos	10.00	6,240.30	62,403.00		
	Triangle -900 mm	Nos	10.00	5,688.10	56,881.00		
	Hazard marker 0.9x0.3	Nos	10.00	8,264.30	82,643.00		
	Chavron	Nos	30.00	6,500.00	1,95,000.00		
	Total Cost Rs					8,81,676.20	0.09
E	Miscellaneous Forest Department Suggested Work QTY.						
	Comouflage and painting Work as per the direction of the Forest Department				10,00,000.00		
	Total Cost Rs					10,00,000.00	0.10
	Total Gross Cost Rs					3,97,34,471.44	3.97



Work Related to the NGT (Wildlife Crossing)

Construction of Wild Life Underpass (1 No x 7 m x 4m) at Km 100+000 Alekhind (Malwadi) on NH-60
Quantities Measurement Sheet

SL. NO.	DESCRIPTION	NOS.	UNIT	L	B	D	QUANTITY	Total Qty
A	BOX Structure (1Nosx7mx4m)							
	BOX (4m) for 100+000							
	Box Excavation	1	m^3	10.50	41.50	10.00	4,357.50	
	in Hard Murrum -50%	1	m^3				2,178.75	
	in Chissaling -50 %	1	m^3				2,178.75	
	BOX PCC	M15	1	9.10	42.30	0.15	57.74	
	TOP SLAB	M30	1	8.30	42.00	0.65	226.59	
	TOP SLAB HAUNCH	M30	2	21.00	0.300	0.30	3.78	
	BOTTOM SLAB	M30	1	8.30	42.00	0.70	244.02	
	BOTTOM SLAB HAUNCH	M30	2	21.00	0.300	0.30	3.78	
	SIDE WALL	M30	2	16.00	0.650	4.00	83.20	
	MEDIAN WALL	M30	2	5.00	0.650	4.00	26.00	
	STEEL	MT			587.37	120.00	70.48	
B	Retening /Retain wall	Side		From	To	Length	Total length	
		4				20	80	
	Excavation In Hard Murrum	1	m^3	80	4	1.5	480	
	PCC	M15	1	80	3.50	0.15	42.00	
	Raft	M20	1	80	3.50	0.50	140.00	
	Wall	M20	2	80	0.50	5.00	200.00	
	STEEL	MT			340.00	100.00	34.00	
D	Rework of MCW road work & Diversion Work QTY.	Side		From	To			
				100000	100100	100		
	Embankment	2	m^3	20	41.5	2.18	3618.8	
	Sub-Grade	2	m^3	100	13	0.5	1300	
	Granuler Sub Base	2	m^3	100	13	0.2	520	
	Wet Mix Macadam	2	m^3	100	13	0.25	650	
	Primer Coat	2	Sqm	100	12		2400	
	Dence Bituminus Macadam	2	m^3	100	12	0.08	192	
	Tack coat for DBM	2	Sqm	100	12		2400	
	Tack coat for BC	2	Sqm	100	12		2400	
	Bituminus Concrete	2	m^3	100	12	0.04	96	
G	Miscellaneous work QTY.							
	Plantation	1	Rmt	100			100	
	Kerb	2	Rmt	100			200	
	Kerb painting	2	Sqm	100	0.5		100	
	Thermoplastic paint	2	Sqm	100	1.4		280	
	Cate eyes		Nos				100	
	Safety Sign Boards		Nos					
	1.8x0.9		Nos				4	
	Circuler -900mm		Nos				10	
	Triangle -900 mm		Nos				10	
	Hazard marker 0.9x0.3		Nos				10	
	Chavron		Nos				30	



Work Related to the NGT (Wildlife Crossing)
Construction of Wild Life Underpass (1 No x 2m Height x 3m width) at Km 113+500 (Khandarmalwadi Village) on NH-60

SL. NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Remark	
A	BOX Structure (1Nosx2mx3m)						
	Box Excavation						
	in Hard Murrum	m^3	279.00	247.50	69,052.50		
	in Chissaling	m^3	837.00	2,125.20	17,78,792.40		
	BOX PCC	M15 m^3	27.28	8,988.70	2,45,243.20		
	APPROACH SLAB PCC	M15 m^3	23.94	8,988.70	2,15,189.48		
	TOP SLAB	M30 m^3	100.80	11,541.00	11,63,332.80		
	TOP SLAB HAUNCH	M30 m^3	7.56	11,541.00	87,249.96		
	BOTTOM SLAB	M30 m^3	100.80	11,541.00	11,63,332.80		
	BOTTOM SLAB HAUNCH	M30 m^3	7.56	11,541.00	87,249.96		
	SIDE WALL	M30 m^3	126.00	11,541.00	14,54,166.00		
	APPROACH SLAB	M30 m^3	102.90	11,541.00	11,87,568.90		
	HYSD	MT	53.47	97,820.10	52,30,871.16		
					1,26,82,049.15		
	Total Cost Rs					1,26,82,049.15	1.27
B	CONCRETE QTY.for Retening /Retain wall on both Side						
	Excavation In Hard Murrum	m^3	30.00	247.50	7,425.00		
	PCC	M15 m^3	4.50	8,988.70	40,449.15		
	Raft	M30 m^3	15.00	11,541.00	1,73,115.00		
	Wall	M30 m^3	54.00	11,541.00	6,23,214.00		
	Crash Barrier	M30 m^3	2.66	11,541.00	30,727.91		
	HYSD	MT	7.17	97,820.10	7,01,003.29		
					15,75,934.35		
	Total Cost Rs					15,75,934.35	0.16
C	Rework of MCW road work & Diversion Work QTY.						
	Embankment	m^3	840.00	578.30	4,85,772.00		
	Sub Grade	m^3	130.00	1,230.60	1,59,978.00		
	Granuler Sub Base	m^3	520.00	2,684.70	13,96,044.00		
	Wet Mix Macadam	m^3	650.00	2,705.10	17,58,315.00		
	Primer Coat	Sqm	1,850.00	36.30	67,155.00		
	Dence Bituminus Macadam	m^3	148.00	11,194.60	16,56,800.80		
	Tack Caot	Sqm	1,850.00	23.10	42,735.00		
	Bituminus Concrete	m^3	74.00	12,249.30	9,06,448.20		
	Safety mesures for Diversion Work	LS			15,00,000.00		
	Total Cost Rs					79,73,248.00	0.80
D	Miscellaneous work QTY. for Diversion & Construction						
	Plantatation	Rmt	100.00	1,000.00	1,00,000.00		
	Kerb	Rmt	200.00	598.40	1,19,680.00		
	Kerb painting	Sqm	100.00	28.60	2,860.00		
	Crash Barrier painting	Sqm		28.60	-		
	Thermoplastic paint	Sqm	280.00	531.30	1,48,764.00		
	Cate eyes	Nos	100.00	366.30	36,630.00		
	Safety Sign Boards	Nos					
	1.2x0.9	Nos	4.00	19,203.80	76,815.20		
	Circular -900mm	Nos	10.00	6,240.30	62,403.00		
	Triangle -900 mm	Nos	10.00	5,688.10	56,881.00		
	Hazard marker 0.9x0.3	Nos	10.00	8,264.30	82,643.00		
	Chavron	Nos	30.00	6,500.00	1,95,000.00		
	Total Cost Rs					8,81,676.20	0.09
E	Miscellaneous Forest Department Suggested Work QTY.						
	Some painting and painting Work as per the direction of the Forest Department				10,00,000.00		
	Total Cost Rs					10,00,000.00	0.10
	Total Gross Cost Rs					2,41,12,907.70	2.41



Work Related to the NGT (Wildlife Crossing)

Construction of Wild Life Underpass (1 No x 2 m Height x 3m width) at Km 113+500 (Khandarmalwadi Village) on NH-60
Quantities Measurement Sheet

SL. NO.	DESCRIPTION	NOS.	UNIT	L	B	D	QUANTITY	Total Qty
A	BOX Structure (1Nosx2m Height x3m width)							
	BOX							
	Box Excavation	1	m^3	6.20	45.00	4.00	1,116.00	
	in Hard Murrum	1	m^3	6.20	45.00	1.00	279.00	
	in Chissaling	1	m^3	6.20	45.00	3.00	837.00	
	BOX PCC	M15	1	m^3	4.30	42.30	0.15	27.28
	APPROACH SLAB PCC	M15	2	m^3	3.80	42.00	0.15	23.94
	TOP SLAB	M30	1	m^3	4.00	42.00	0.60	100.80
	TOP SLAB HAUNCH	M30	2	m^3	42.00	0.300	0.30	7.56
	BOTTOM SLAB	M30	1	m^3	4.00	42.00	0.60	100.80
	BOTTOM SLAB HAUNCH	M30	2	m^3	42.00	0.300	0.30	7.56
	SIDE WALL	M30	2	m^3	42.00	3.000	0.50	126.00
	APPROACH SLAB	M30	2	m^3	3.50	42.000	0.35	102.90
	STEEL	MT			445.62	120.00		53.47
B	Retening /Retain wall	Side		From	To	Length	Total length	
		4				5	20	
	Excavation in Hard Murrum	1	m^3	20	1.5	1	30	
	PCC	M15	1	m^3	20	1.50	0.15	4.50
	Raft	M20	1	m^3	20	1.50	0.50	15.00
	Wall	M20	2	m^3	20.00	0.50	5.40	54.00
	Crash Barrier	M30	2	m^3	3.55	0.50	1.50	2.66
	STEEL	MT			71.66	100.00		7.17
C	Rework of MCW road work & Diversion Work QTY.	Side		From	To			
				113480	113580	100		
	Embankment Refilling	1	m^3	20	42	1	840	
	Sub-Grade	1	m^3	20	13	0.5	130	
	Granuler Sub Base	2	m^3	100	13	0.2	520	
	Wet Mix Macadam	2	m^3	100	13	0.25	650	
	Primer Coat	2	Sqm	100	9.25		1850	
	Dence Bituminus Macadam	2	m^3	100	9.25	0.08	148	
	Tack coat for DBM	2	Sqm	100	9.25		1850	
	Tack coat for BC	2	Sqm	100	9.25		1850	
	Bituminus Concrete	2	m^3	100	9.25	0.04	74	
D	Miscellaneous work QTY. for Diversion & Construction							
	Kerb	2	Rmt	100			200	
	Kerb painting	2	Sqm	100	0.5		100	
	Plantation	1	Rmt	100			100	
	Thermoplastic paint	2	Sqm	100	1.4		280	
	Cate eyes		Nos				100	
	Safety Sign Boards		Nos					
	1.8x0.9		Nos				4	
	Circuler -900mm		Nos				10	
	Triangle -900 mm		Nos				10	
	Hazard marker 0.9x0.3		Nos				10	
	Chavron		Nos				30	



Work Related to the NGT (Wildlife Crossing)
Construction of Wild Life Underpass (1 No x 2m Height x 3m width) at Km 121+158 (Dolasane Village) on NH-60

SL. NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Remark
A	BOX Structure (1Nosx2mx3m)					
	Box Excavation					
	in Hard Murrum	m^3	223.20	247.50	55,242.00	
	in Chissaling	m^3	669.60	2,125.20	14,23,033.92	
	BOX PCC	M15 m^3	20.19	8,988.70	1,81,468.37	
	APPROACH SLAB PCC	M15 m^3	17.67	8,988.70	1,58,830.33	
	TOP SLAB	M30 m^3	74.40	11,541.00	8,58,650.40	
	TOP SLAB HAUNCH	M30 m^3	5.58	11,541.00	64,398.78	
	BOTTOM SLAB	M40 m^3	74.40	11,541.00	8,58,650.40	
	BOTTOM SLAB HAUNCH	M30 m^3	5.58	11,541.00	64,398.78	
	SIDE WALL	M30 m^3	93.00	11,541.00	10,73,313.00	
	APPROACH SLAB	M30 m^3	75.95	11,541.00	8,76,538.95	
	HYSD	MT	39.47	97,820.10	38,60,881.09	
					94,75,406.02	
	Total Cost Rs				94,75,406.02	0.95
B	CONCRETE QTY.for Retening /Retain wall on both Side					
	Excavation In Hard Murrum	m^3	30.00	247.50	7,425.00	
	PCC	M15 m^3	4.50	8,988.70	40,449.15	
	Raft	M30 m^3	15.00	11,541.00	1,73,115.00	
	Wall	M40 m^3	47.00	11,541.00	5,42,427.00	
	Crash Barrier	M30 m^3	2.66	11,541.00	30,727.91	
	HYSD	MT	5.17	97,820.10	5,06,023.38	
					13,00,167.44	
	Total Cost Rs				13,00,167.44	0.13
C	Rework of MCW road work & Diversion Work QTY.					
	Embankment	m^3	1,046.40	578.30	6,05,133.12	
	Sub Grade	m^3	650.00	1,230.60	7,99,890.00	
	Granuler Sub Base	m^3	520.00	2,684.70	13,96,044.00	
	Wet Mix Macadam	m^3	650.00	2,705.10	17,58,315.00	
	Primer Coat	Sqm	1,750.00	36.30	63,525.00	
	Dence Bituminus Macadam	m^3	140.00	11,194.60	15,67,244.00	
	Tack Coat	Sqm	1,750.00	23.10	40,425.00	
	Bituminus Concrete	m^3	70.00	12,249.30	8,57,451.00	
	Safety mesures for Diversion Work	LS			15,00,000.00	
	Total Cost Rs				85,88,027.12	0.86
D	Miscellaneous work QTY. for Diversion & Construction					
	Plantatation	Rmt	100	1,000.00	1,00,000.00	
	Kerb	Rmt	200.00	598.40	1,19,680.00	
	Kerb painting	Sqm	100.00	28.60	2,860.00	
	Crash Barrier painting	Sqm		28.60	-	
	Thermoplastic paint	Sqm	280.00	531.30	1,48,764.00	
	Cate eyes	Nos	100.00	366.30	36,630.00	
	Safety Sign Boards	Nos				
	1.2x0.9	Nos	4.00	19,203.80	76,815.20	
	Circuler -900mm	Nos	10.00	6,240.30	62,403.00	
	Triangle -900 mm	Nos	10.00	5,688.10	56,881.00	
	Hazard marker 0.9x0.3	Nos	10.00	8,264.30	82,643.00	
	Chavron	Nos	30.00	6,500.00	1,95,000.00	
	Total Cost Rs				8,81,676.20	0.09
E	Miscellaneous Forest Department Suggested Work QTY.					
	Comouflage and painting Work as per the direction of the Forest Department				10,00,000.00	
	Total Cost Rs				10,00,000.00	0.10
	Total Gross Cost Rs				2,12,45,276.78	2.12



Work Related to the NGT (Wildlife Crossing)

Construction of Wild Life Underpass (1 No x 2m Height x 3m width) at Km 121+158 (Dolasane Village) on NH-60
Quantities Measurement Sheet

SL. NO.	DESCRIPTION	NOS.	UNIT	L	B	D	QUANTITY	Total Qty
A	BOX Structure (1Nosx2m Height x3m width)							
	BOX							
	Box Excavation	1	m ³	6.20	36.00	4.00	892.80	
	in Hard Murrum	1	m ³	6.20	36.00	1.00	223.20	
	in Chissaling	1	m ³	6.20	36.00	3.00	669.60	
	BOX PCC	M15	1	m ³	4.30	31.30	0.15	20.19
	APPROACH SLAB PCC	M15	2	m ³	3.80	31.00	0.15	17.67
	TOP SLAB	M30	1	m ³	4.00	31.00	0.60	74.40
	TOP SLAB HAUNCH	M30	2	m ³	31.00	0.300	0.30	5.58
	BOTTOM SLAB	M30	1	m ³	4.00	31.00	0.60	74.40
	BOTTOM SLAB HAUNCH	M30	2	m ³	31.00	0.300	0.30	5.58
	SIDE WALL	M30	2	m ³	31.00	0.500	3.00	93.00
	APPROACH SLAB	M30	2	m ³	3.50	31.000	0.35	75.95
	STEEL	MT			328.91	120.00		39.47
B	Retening /Retain wall	Side		From	To	Length	Total length	
		4				5	20	
	Excavation In Hard Murrum	1	m ³	20	1.5	1	30	
	PCC	M15	1	m ³	20	1.50	0.15	4.50
	Raft	M20	1	m ³	20	1.50	0.50	15.00
	Wall	M20	2	m ³	20.00	0.50	4.70	47.00
	Crash Barrier	M30	2	m ³	3.55	0.50	1.50	2.66
	STEEL	MT			64.66	80.00		5.17
C	Rework of MCW road work & Diversion Work QTY.	Side		From	To			
				121100	121200	100		
	Embankment Back Filling	2	m ³	20	12	2.18	1046.4	
	Sub-Grade	1	m ³	100	13	0.5	650	
	Granuler Sub Base	2	m ³	100	13	0.2	520	
	Wet Mix Macadam	2	m ³	100	13	0.25	650	
	Primer Coat	2	Sqm	100	8.75		1750	
	Dence Bituminus Macadam	2	m ³	100	8.75	0.08	140	
	Tack coat for DBM	2	Sqm	100	8.75		1750	
	Tack coat for BC	2	Sqm	100	8.75		1750	
	Bituminus Concrete	2	m ³	100	8.75	0.04	70	
D	Miscellaneous work QTY. for Diversion & Construction							
	Kerb	2	Rmt	100			200	
	Kerb painting	2	Sqm	100	0.5		100	
	Plantation	1	Rmt	100			100	
	Thermoplastic paint	2	Sqm	100	1.4		280	
	Cate eyes		Nos				100	
	Safety Sign Boards		Nos					
	1.8x0.9		Nos				4	
	Circuler -900mm		Nos				10	
	Triangle -900 mm		Nos				10	
	azard marker 0.9x0.3		Nos				10	
	Chavron		Nos				30	



Work Related to the NGT (Wildlife Crossing)
Construction of Wild Life Underpass (1 No x 2m Height x 3m width) at Km 132+400 (Chandanpuri Village) on NH-60

SL. NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Remark	
A	BOX Structure (1Nosx2mx3m)						
	Box Excavation						
	in Hard Murrum	m ³	892.80	247.50	2,20,968.00		
	in Chissaling	m ³	-	2,125.20	-		
	BOX PCC	M15	20.19	8,988.70	1,81,468.37		
	APPROACH SLAB PCC	M15	17.67	8,988.70	1,58,830.33		
	TOP SLAB	M30	74.40	11,541.00	8,58,650.40		
	TOP SLAB HAUNCH	M30	5.58	11,541.00	64,398.78		
	BOTTOM SLAB	M40	74.40	11,541.00	8,58,650.40		
	BOTTOM SLAB HAUNCH	M30	5.58	11,541.00	64,398.78		
	SIDE WALL	M30	93.00	11,541.00	10,73,313.00		
	APPROACH SLAB	M30	75.95	11,541.00	8,76,538.95		
	HYSO	MT	39.47	97,820.10	38,60,881.09		
					82,18,098.10		
	Total Cost Rs					82,18,098.10	0.82
B	CONCRETE QTY.for Retening /Retain wall on both Side						
	Excavation In Hard Murrum	m ³	30.00	247.50	7,425.00		
	PCC	M15	4.50	8,988.70	40,449.15		
	Raft	M30	15.00	11,541.00	1,73,115.00		
	Wall	M40	47.00	11,541.00	5,42,427.00		
	Crash Barrier	M30	2.66	11,541.00	30,727.91		
	HYSO	MT	5.17	97,820.10	5,06,023.38		
					13,00,167.44		
	Total Cost Rs					13,00,167.44	0.13
C	Rework of MCW road work & Diversion Work QTY.						
	Eambankment	m ³	523.20	578.30	3,02,566.56		
	Sub Grade	m ³	130.00	1,230.60	1,59,978.00		
	Granuler Sub Base	m ³	520.00	2,684.70	13,96,044.00		
	Wet Mix Macadam	m ³	650.00	2,705.10	17,58,315.00		
	Primer Coat	Sqm	1,750.00	36.30	63,525.00		
	Dence Bituminus Macadam	m ³	140.00	11,194.60	15,67,244.00		
	Tack Coat	Sqm	1,750.00	23.10	40,425.00		
	Bituminus Concrete	m ³	70.00	12,249.30	8,57,451.00		
	Safety mesures for Diversion Work	LS			15,00,000.00		
	Total Cost Rs					61,45,548.56	0.61
D	Miscellaneous work QTY. for Diversion & Construction						
	Plantatation	Rmt	100.00	1,000.00	1,00,000.00		
	Kerb	Rmt	200.00	598.40	1,19,680.00		
	Kerb painting	Sqm	100.00	28.60	2,860.00		
	Crash Barrier painting	Sqm		28.60	-		
	Thermoplastic paint	Sqm	280.00	531.30	1,48,764.00		
	Cate eyes	Nos	100.00	366.30	36,630.00		
	Safety Sign Boards	Nos					
	1.2x0.9	Nos	4.00	19,203.80	76,815.20		
	Circuler -900mm	Nos	10.00	6,240.30	62,403.00		
	Triangle -900 mm	Nos	10.00	5,688.10	56,881.00		
	Hazard marker 0.9x0.3	Nos	10.00	8,264.30	82,643.00		
	Chavron	Nos	30.00	6,500.00	1,95,000.00		
	Total Cost Rs					8,81,676.20	0.09
E	Miscellaneous Forest Department Suggested Work QTY.						
	Comouflage and painting Work as per the direction of the Forest Department				10,00,000.00		
	Total Cost Rs					10,00,000.00	0.10
	Total Gross Cost Rs					1,75,45,490.30	1.75



Work Related to the NGT (Wildlife Crossing)

Construction of Wild Life Underpass (1 No x 2m Height x 3m width) at Km 132+400 (Chandapuri Village) on NH-60
Quantities Measurement Sheet

SL. NO.	DESCRIPTION	NOS.	UNIT	L	B	D	QUANTITY	Total Qty
A	BOX Structure (1Nosx2m Height x3m width)							
	BOX							
	Box Excavation	1	m ³	6.20	36.00	4.00	892.80	
	in Hard Murrum	1	m ³	6.20	36.00	4.00	892.80	
	in Chissaling	0	m ³	5.00	32.00	3.00		
	BOX PCC	M15	1	m ³	4.30	31.30	0.15	20.19
	APPROACH SLAB PCC	M15	2	m ³	3.80	31.00	0.15	17.67
	TOP SLAB	M30	1	m ³	4.00	31.00	0.60	74.40
	TOP SLAB HAUNCH	M30	2	m ³	31.00	0.300	0.30	5.58
	BOTTOM SLAB	M30	1	m ³	4.00	31.00	0.60	74.40
	BOTTOM SLAB HAUNCH	M30	2	m ³	31.00	0.300	0.30	5.58
	SIDE WALL	M30	2	m ³	31.00	0.500	3.00	93.00
	APPROACH SLAB	M30	2	m ³	3.50	31.000	0.35	75.95
	STEEL	MT			328.91	120.00		39.47
B	Retening /Retain wall	Side		From	To	Length	Total length	
		4				5	20	
	Excavation In Hard Murrum	1	m ³	20	1.5	1	30	
	PCC	M15	1	m ³	20	1.50	0.15	4.50
	Raft	M20	1	m ³	20	1.50	0.50	15.00
	Wall	M20	2	m ³	20.00	0.50	4.70	47.00
	Crash Barrier	M30	2	m ³	3.55	0.50	1.50	2.66
	STEEL	MT			64.66	80.00		5.17
C	Rework of MCW road work & Diversion Work QTY.	Side		From	To			
				121100	121200	100		
	Embankment Back Filling	1	m ³	20	12	2.18	523.2	
	Sub-Grade	1	m ³	20	13	0.5	130	
	Granuler Sub Base	2	m ³	100	13	0.2	520	
	Wet Mix Macadam	2	m ³	100	13	0.25	650	
	Primer Coat	2	Sqm	100	8.75		1750	
	Dence Bituminus Macadam	2	m ³	100	8.75	0.08	140	
	Tack coat for DBM	2	Sqm	100	8.75		1750	
	Tack coat for BC	2	Sqm	100	8.75		1750	
	Bituminus Concrete	2	m ³	100	8.75	0.04	70	
D	Miscellaneous work QTY. for Diversion & Construction.							
	Kerb	2	Rmt	100			200	
	Kerb painting	2	Sqm	100	0.5		100	
	Plantation	1	Rmt	100			100	
	Thermoplastic paint	2	Sqm	100	1.4		280	
	Cate eyes		Nos				100	
	Safety Sign Boards		Nos					
	1.8x0.9		Nos				4	
	Circuler -900mm		Nos				10	
	Triangle -900 mm		Nos				10	
	Hazard marker 0.9x0.3		Nos				10	
	Chavron		Nos				30	



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

RATE ANALYSIS AS PER SSR 2022-23

LEAD CHART

Material Required	Lead km	Initial Lead	Head Lead	Lead Char	Net Lead
Sand	10	0.05	9.95	330.77	330.77
Cement	50	0.05	49.95	645.00	645.00
Cr.Metal Below 40 mm	10	0.05	9.95	345.15	345.15
Murum	10	0.05	9.95	330.77	330.77
Asphalt	250	0.05	249.95	306.84	306.84
NP4 Pipe 1200	50	0.05	49.95	645.00	645.00
Steel	100	0.05	99.95	645	645.00

VG30 VG40 Emulsion

Asphalt SSR 21-22 E 32877 41503 30495

Road Work

R.A. No. 1: Excavation for roadway in earth, soil of all sorts, sand, gravel or soft murum including dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading for embankment or stacking as directed.

SSR Rate Schedule 2022-23, Pg.No.23 Item No.2.11

		Rs	119.00 /Cum
Total	=	Rs.	119.00 /Cum
Add 10 % for Hilly Area	=	Rs.	11.90 /Cum
Total	=	Rs.	130.90 /Cum
SAY		Rs	130.90 /Cum

R.A. No. 2: Excavation for roadway in earth, soil of all sorts, sand, gravel or Hard murum including dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading for embankment or stacking as directed.

SSR Rate Schedule 2022-23, Pg.No.23 Item No.2.13

		Rs	139.00 /Cum
Total	=	Rs.	139.00 /Cum
Add 10 % for Hilly Area	=	Rs.	13.90 /Cum
Total	=	Rs.	152.90 /Cum
SAY		Rs	152.90 /Cum

R.A. No. 2: Excavation for foundation in hard rock by chiselling and wedging or line drilling including shoring and strutting, dewatering as necessary and disposing off excavated stuff as directed etc. complete

SSR Rate Schedule 2022-23, Pg.No.103 Item No.12.11

		Rs	1932.00 /Cum
Total	=	Rs.	1932.00 /Cum
Add 10 % for Hilly Area	=	Rs.	193.20 /Cum
Total	=	Rs.	2125.20 /Cum
SAY		Rs	2125.20 /Cum

R.A. No. 3: Dismantling of Existing BT Surface (Flexible Pavment) upto 50mm thick and conveying the excavated materials with all lifts upto a lead of 50m.

SSR Rate Schedule 2022-23, Pg.No.28 Item No.3.28

		Rs	28.00 /Sqm
Total	=	Rs.	28.00 /Sqm
Add 10 % for Hilly Area	=	Rs.	2.80 /Sqm
Total	=	Rs.	30.80 /Sqm



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

RATE ANALYSIS AS PER SSR 2022-23

		SAY	Rs	30.80 /Sqm
R.A. No. 4:	Providing earth work in Embankment with approved materials obtained from other sources upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller with V-			
	SSR Rate Schedule 2022-23, Pg.No.24 Item No.2.27	=	Rs.	225.00 /Cum
	Add lead charges for	=	Rs.	330.77 /Cum
	Murum 1.00 X 330.77	=	Rs.	555.77 /Cum
		Total rate=	Rs.	555.77 /Cum
		Total	=	Rs. 555.77 /Cum
	Add 10 % for Hilly Area	=	Rs.	22.50 /Cum
		SAY	=	Rs 578.30 /Cum
R.A. No. 5:	Construction of Sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2			
	SSR Rate Schedule 2022-23, Pg.No.24 Item No.2.36	=	Rs.	818.00 /Cum
	Add lead charges for	=	Rs.	330.77 /Cum
	Murum 1.00 x 330.77	=	Rs.	1148.77 /Cum
		Total rate=	Rs.	1148.77 /Cum
		Total	=	Rs. 1148.77 /Cum
	Add 10 % for Hilly Area	=	Rs.	81.80 /Cum
		SAY	=	Rs 1230.60 /Cum
R.A. No. 6:	Construction of Granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader/ Paver on prepared surface and compacting with vibratory roller to achieve the desired density,			
	SSR Rate Schedule 2022-23, Pg.No.26 Item No.3.01	=	Rs.	2039.00 /Cum
	Add lead charges for	=	Rs.	441.79 /Cum
	Crushed M 1.28 x 345.15	=	Rs.	441.79 /Cum
		Total rate=	Rs.	2480.79 /Cum
		Total	=	Rs. 2480.79 /Cum
	Add 10 % for Hilly Area	=	Rs.	203.90 /Cum
		SAY	=	Rs 2684.70 /Cum
R.A. No. 7:	Wet Mix Macadam -- Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base			
	SSR Rate Schedule 2022-23, Pg.No.28 Item No.3.23	=	Rs.	2045.00 /Cum
	Add lead charges for	=	Rs.	455.60 /Cum
	Crushed M 1.32 x 345.15	=	Rs.	455.60 /Cum
		Total rate=	Rs.	2500.60 /Cum
		Total	=	Rs. 2500.60 /Cum
	Add 10 % for Hilly Area	=	Rs.	204.50 /Cum
		SAY	=	Rs 2705.10 /Cum
R.A. No. 8:	Prime coat - Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including cleaning of road surface and spraying, primer at the rate of 0.60 kg/sqm using mechanical means.			
	SSR Rate Schedule 2022-23, Pg.No.28 Item No.3.29		Rs	33.00 /Sqm
		Total rate=	Rs.	33.00 /Sqm
		Total	=	Rs. 33.00 /Sqm
	Add 10 % for Hilly Area	=	Rs.	3.30 /Sqm
		SAY	=	Rs 36.30 /Sqm
R.A. No. 9:	Providing and applying tack coat on the prepared surface heating by fumes in Boiler and spraying bitumen set footed in bitumen boiler on B.T. surface 2.5 kg/10 sqm.(VG-30 bulk bitumen rates are considered			
	SSR Rate Schedule 2022-23, Pg.No.28 Item No.3.31		Rs	21.00 /Sqm
		Total	=	Rs. 21.00 /Sqm
	Add 10 % for Hilly Area	=	Rs.	2.10 /Sqm
		SAY	=	Rs 23.10 /Sqm



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

RATE ANALYSIS AS PER SSR 2022-23

R.A. No. DENSE BITUMINOUS MACADAM: Providing and laying dense bituminous macadam using crushed aggregates of Grading 1, premixed with bituminous binder of specified grade of Bitumen @ 4.50 per cent by weight of total mix and filler, transported to site with VTS , laid over a previously prepared

SSR Rate Schedule 2022-23, Pg.No.30 Item No.3.44		Rs	9664.00 /Cum
Add lead charges for			
Asphalt 0.1200 x	306.84	Rs	36.82 /Cum
Crushed M 1.5280 x	345.15	Rs	527.39 /Cum
		Total rate=	Rs. 10228.21 0
		Total	= Rs. 10228.21 0
Add 10 % for Hilly Area		=	Rs. 966.40 0
		SAY	= Rs 11194.60 0

R.A. No. BITUMINOUS CONCRETE:--Providing and laying bituminous concrete using crushed aggregate of grading 1, premixed with bituminous binder @5.40% by weight of total mix and filler, transported at site with VTS, laid over a previously prepared surface, finished to the required grade ,level,

SSR Rate Schedule 2022-23, Pg.No.31 Item No.3.48		Rs	10599.00 /Cum
Add lead charges for			
Asphalt 0.1560 x	306.84	Rs	47.87 /Cum
Crushed M 1.5720 x	345.15	Rs	542.58 /Cum
		Total rate=	Rs. 11189.44 /Cum
		Total	= Rs. 11189.44 /Cum
Add 10 % for Hilly Area		=	Rs. 1059.90 /Cum
		SAY	= Rs 12249.30 /Cum

Structure Work

R.A. No. Excavation for foundation in earth, soils of all types, sand, gravel, soft murum including shoring and strutting, dewatering as necessary and disposing off excavated stuff as directed etc. complete. (By Mechanical Means)

A) Upto 1.50m lift Normal Rate
SSR Rate Schedule 2022-23, Pg.No.44 Item No.10.02BR3(A)

		Rs	225.00 /Cum
		Total	= Rs. 225.00 /Cum
Add 10 % for Hilly Area		=	Rs. 22.50 /Cum
		SAY	= Rs 247.50 /Cum

R.A. No. Providing and laying in PCC M15 grade leveling course below approach slab complete with fully automatic micro processor PLC with SCADA enabled reversible drum type mixer/ concrete batch mix plant (pan mixer) as per drawings and Technical specifications etc. complete with fine aggregates of

SSR Rate Schedule 2022-23, Pg.No.65 Item No. 12.25

Add lead charges for		Rs	7576.00 /Cum
Cement 0.3300 x	645.00	Rs	212.85 /Cum
Crushed M 0.8500 x	345.15	Rs	293.38 /Cum
Sand 0.4500 x	330.77	Rs	148.85 /Cum
		Total rate=	Rs. 8231.07 /Cum
		Total	= Rs. 8231.07 /Cum
Add 10 % for Hilly Area		=	Rs. 757.60 /Cum
		SAY	= Rs 8988.70 /Cum

R.A. No. Providing and laying in PCC M20 grade leveling course below approach slab complete with fully automatic micro processor PLC with SCADA enabled reversible drum type mixer/ concrete batch mix plant (pan mixer) as per drawings and Technical specifications etc. complete with fine aggregates of

SSR Rate Schedule 2022-23, Pg.No.66 Item No. 12.32

Add lead charges for		Rs	6976.00 /Cum
Cement 0.4300 x	645.00	Rs	277.35 /Cum
Crushed M 0.8500 x	345.15	Rs	293.38 /Cum
Sand 0.4500 x	330.77	Rs	148.85 /Cum
		Total rate=	Rs. 7695.57 /Cum
		Total	= Rs. 7695.57 /Cum
Add 10 % for Hilly Area		=	Rs. 697.60 /Cum
		SAY	= Rs 8393.20 /Cum

R.A. No. Providing and laying in situ / ready mix controlled grade of M25 of trap /granite /quartzite /gneiss metal for RCC works in cut off walls / curtain walls
04: including necessary scaffolding, centering, compacting by vibrator, finishing and curing etc. complete. (with fully automatic micro processor based PLC



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

RATE ANALYSIS AS PER SSR 2022-23

SSR Rate Schedule 2022-23, Pg.No.66 Item No. 12.34			Rs	7057.00 /Cum
Add lead charges for				
Cement	0.4000 x	645.00	Rs	258.00 /Cum
Crushed M	0.9800 x	345.15	Rs	338.25 /Cum
Sand	0.3650 x	330.77	Rs	120.73 /Cum

Total rate= Rs. 7773.98 /Cum

Add 10 % for Hilly Area

Total = Rs. 7773.98 /Cum
 = Rs. 705.70 /Cum
SAY = Rs 8479.70 /Cum

R.A. No. 05: Providing and laying in situ / ready mix controlled grade of **M-30** of trap /granite /quartzite /gneiss metal for RCC works in cut off walls / curtain walls including necessary scaffolding, centering, compacting by vibrator, finishing and curing etc. complete. (with fully automatic micro processor based PLC

SSR Rate Schedule 2022-23, Pg.No.74 Item No. 14.49			Rs	9840.00 /Cum
Add lead charges for				
Cement	0.4000 x	645.00	Rs	258.00 /Cum
Crushed M	0.9800 x	345.15	Rs	338.25 /Cum
Sand	0.3650 x	330.77	Rs	120.73 /Cum

Total rate= Rs. 10556.98 /Cum

Add 10 % for Hilly Area

Total = Rs. 10556.98 /Cum
 = Rs. 984.00 /Cum
SAY = Rs 11541.00 /Cum

R.A. No. 06: Providing, cutting, bending, hooking, tying and laying in position **TMT FE 500** steel bars for reinforcement for all RCC works as per detailed drawings etc. complete.

SSR Rate Schedule 2022-23, Pg.No.71 Item No. 14.01			Rs	88341.00 /MT
Add lead charges for				
Steel	1.0000 x	645.00	Rs	645.00 /MT

Total rate= Rs. 88986.00 /MT

Add 10 % for Hilly Area

Total = Rs. 88986.00 /MT
 = Rs. 8834.10 /MT
SAY = Rs 97820.10 /MT

R.A. No. 07: Providing and laying weep holes of 100 mm diameter PVC pipes as per drawing for abutment returns, return walls etc. Complete.

SSR Rate Schedule 2022-23, Pg.No.127 Item No. 17.37			Rs	533.00 /Rmt
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Total rate= Rs. 533.00 /Rmt

Add 10 % for Hilly Area

Total = Rs. 533.00 /Rmt
 = Rs. 53.30 /Rmt
SAY = Rs 586.30 /Rmt

R.A. No. 08: Providing Reinforced cement **Concrete Crash Barrier** at the edges of the road, approaches to bridge structures and medians, constructed with R.C.C. M 40 Grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with

SSR Rate Schedule 2022-23, Pg.No.57 Item No. 7.37			M30	Rs	4234.00 /Rmt
Add lead charges for					
Cement	0.5000 x	645.00	Rs	322.50 /Rmt	
Crushed M	0.8500 x	345.15	Rs	293.38 /Rmt	
Sand	0.4000 x	330.77	Rs	132.31 /Rmt	

Total rate= Rs. 4982.19 /Rmt

Add 10 % for Hilly Area

Total = Rs. 4982.19 /Rmt
 = Rs. 423.40 /Rmt
SAY = Rs 5405.60 /Rmt



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

RATE ANALYSIS AS PER SSR 2022-23

R.A. No. 09: Providing 100mm diameter GI water spouts as per detailed drawings in RCC slab and wearing surface / kerb etc. complete.

SSR Rate Schedule 2022-23, Pg.No.74 Item No. 14.50		Rs	1127.00 /No
	Total	=	Rs. 1127.00 /No
Add 10 % for Hilly Area		=	Rs. 112.70 /No
	SAY	=	Rs 1239.70 /No

R.A. No. 10: Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 50029, prepared by using mastic cooker and laid to required level and slope after cleaning the surface including providing

SSR Rate Schedule 2022-23, Pg.No.74 Item No.14.55a		Rs	496.00 /Sqm
	Total	=	Rs. 496.00 /Sqm
Add 10 % for Hilly Area		=	Rs. 49.60 /Sqm
	SAY	=	Rs 545.60 /Sqm

R.A. No. 11: Construction of Reinforced Earth Wall in M-35 Block Facia by Providing and Laying CE marked Knitted and PVC coated Polyester Uniaxial Geogrid (Techgrid) of Techfab India indigenously manufactured from selected high tenacity polyester yarn with high molecular weight (> 25000 g/mol), and c) RE Wall Height 6 to 8 meter

SSR Rate Schedule 2022-23, Pg.No.330 Item No. 50.45.c		Rs	6085.00 /Sqm
Add lead cl Considering panel Thickness 180 mm			
Cement 0.0828 x	645.00	Rs	53.41 /Sqm
Crushed M 0.1773 x	345.15	Rs	61.20 /Sqm
Sand 0.0657 x	330.77	Rs	21.73 /Sqm
	Total rate=	Rs.	6221.33 /Sqm
	Total	=	Rs. 6221.33 /Sqm
Add 10 % for Hilly Area		=	Rs. 608.50 /Sqm
	SAY	=	Rs 6829.80 /Sqm

R.A. No. 12: Providing and laying of filter media with granular materials/ stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2 of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the

SSR Rate Schedule 2022-23, Pg.No.69 Item No. 12.72		Rs	1212.00 /Cum
Add lead charges for			
Crushed M 1.0000 x	345.15	Rs	345.15 /Cum
	Total rate=	Rs.	1557.15 /Cum
	Total	=	Rs. 1557.15 /Cum
Add 10 % for Hilly Area		=	Rs. 121.20 /Cum
	SAY	=	Rs 1678.40 /Cum

R.A. No. 13: Providing and laying cement concrete pipe of IS 458:2003 NP-4 class of 1200mm diameter in proper line, level and slope etc. complete.

SSR Rate Schedule 2022-23, Pg.No.63 Item No. 11.21		Rs	12983.00 /Rmt
Add lead charges for			
Cement 0.0130 x	645.00	Rs	8.39 /Rmt
NP-4 Pipe 1.00 x	645.00	Rs	645.00 /Rmt
Sand 0.0180 x	330.77	Rs	5.95 /Rmt
	Total rate=	Rs.	13642.34 /Rmt
	Total	=	Rs. 13642.34 /Rmt
Add 10 % for Hilly Area		=	Rs. 1298.30 /Rmt
	SAY	=	Rs 14940.60 /Rmt

Miscellaneous Work

R.A. No. 14: Providing and casting in situ or precast tapering R.C.C. M-20 Barrier type Kerb without gutter (as per IRC 86 1983) embedded 125mm below ground level over M-10 PCC finished neatly with C.M. 1:2, setting the same in C.M. 1:2, including the required excavation in any strata and removing

SSR Rate Schedule 2022-23, Pg.No.53 Item No. 7.01		Rs	544.00 /Rmt
	Total rate=	Rs.	544.00 /Rmt
	Total	=	Rs. 544.00 /Rmt



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

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	Add 10 % for Hilly Area	=	Rs.	54.40 /Rmt
	SAY	=	Rs	598.40 /Rmt
R.A. No. 15:	Metal Beam Crash Barrier -- Type - A, W : Metal Beam Crash Barrier (Providing and erecting a W metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to			
	SSR Rate Schedule 2022-23, Pg.No.55 Item No. 7.30		Rs	4912.00 /Rmt
	Total rate=		Rs.	4912.00 /Rmt
	Add 10 % for Hilly Area	=	Rs.	4912.00 /Rmt
	SAY	=	Rs	5403.20 /Rmt
R.A. No. 16:	Road Marking with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms per Square Metre area, thickness of 2.5 mm is exclusive of			
	SSR Rate Schedule 2022-23, Pg.No.40 Item No. 6.12		Rs	483.00 /Sqm
	Total rate=		Rs.	483.00 /Sqm
	Add 10 % for Hilly Area	=	Rs.	483.00 /Sqm
	SAY	=	Rs	531.30 /Sqm
R.A. No. 17:	Supplying and Fixing of Molded Shank Raised Pavement Markers / Cat's Eye made of polycarbonate and ABS Moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000Kilogramtested			
	SSR Rate Schedule 2022-23, Pg.No.40 Item No. 6.09		Rs	333.00 /No
	Total	=	Rs.	333.00 /No
	Add 10 % for Hilly Area	=	Rs.	33.30 /No
	SAY	=	Rs	366.30 /No
R.A. No. 18:	Providing and fixing stream lined M-20 grade RCC guard stone including mild steel bar reinforcement etc.complete.			
	SSR Rate Schedule 2022-23, Pg.No.63 Item No. 11.27		Rs	963.00 /No
	Total	=	Rs.	963.00 /No
	Add 10 % for Hilly Area	=	Rs.	96.30 /No
	SAY	=	Rs	1059.30 /No
R.A. No.19:	Providing and fixing including conveyance charges upto a distance of 200 Km. precast concrete post delinators, post of size 130 x 90 x 1300 millimetre consisting of 4 B.T. wires with 14,000 Kilogram/cm2 C.C. M-20 grade 16mm dia. hold fast, including excavation and C.C. 1:4:8 foundation block, oil			
	SSR Rate Schedule 2022-23, Pg.No.52 Item No. 6.21		Rs	545.00 /No
	Total	=	Rs.	545.00 /No
	Add 10 % for Hilly Area	=	Rs.	54.50 /No
	SAY	=	Rs	599.50 /No
R.A. No.20:	Tringle 900mm			
	SSR Rate Schedule 2022-23, Pg.No.44 Item No. 6.29 F		Rs	5171.00 /No
	Total	=	Rs.	5171.00 /No
	Add 10 % for Hilly Area	=	Rs.	517.10 /No
	SAY	=	Rs	5688.10 /No
R.A. No.21:	Circular 900mm			
	SSR Rate Schedule 2022-23, Pg.No.43 Item No. 6.27 F		Rs	5673.00 /No
	Total	=	Rs.	5673.00 /No
	Add 10 % for Hilly Area	=	Rs.	567.30 /No
	SAY	=	Rs	6240.30 /No



Name of Work : Construction of Wild Life Underpass on NH-60 Khed Sinnar section

RATE ANALYSIS AS PER SSR 2022-23

R.A. Overhead Sign Board
No.22:

SSR Rate Schedule 2022-23, Pg.No.46 Item No. 6.27 F		Rs	11389.00 /Sqm
	Total	=	Rs. 11389.00 /Sqm
Add 10 % for Hilly Area		=	Rs. 1138.90 /Sqm
	SAY	=	Rs 12527.90 /Sqm

R.A. Information Sign Bords = 1.8x0.9
No.23:

SSR Rate Schedule 2022-23, Pg.No.48 Item No. 6.41		Rs	17458.00 /No
	Total	=	Rs. 17458.00 /No
Add 10 % for Hilly Area		=	Rs. 1745.80 /No
	SAY	=	Rs 19203.80 /No

R.A. Hazard Marker
No.24:

SSR Rate Schedule 2022-23, Pg.No.49 Item No. 6.47		Rs	7513.00 /No
	Total	=	Rs. 7513.00 /No
Add 10 % for Hilly Area		=	Rs. 751.30 /No
	SAY	=	Rs 8264.30 /No

R.A. Painting
No.25:

SSR Rate Schedule 2022-23, Pg.No.58 item No. 8.22		Rs	26.00 /No
	Total	=	Rs. 26.00 /No
Add 10 % for Hilly Area		=	Rs. 2.60 /No
	SAY	=	Rs 28.60 /No

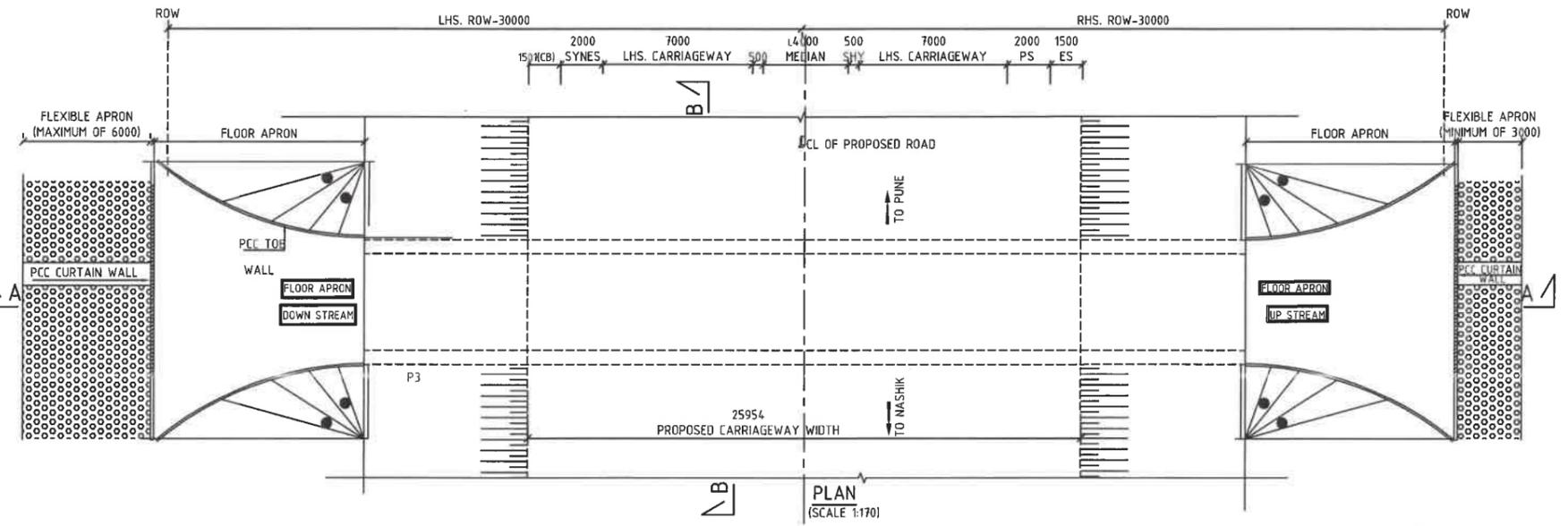
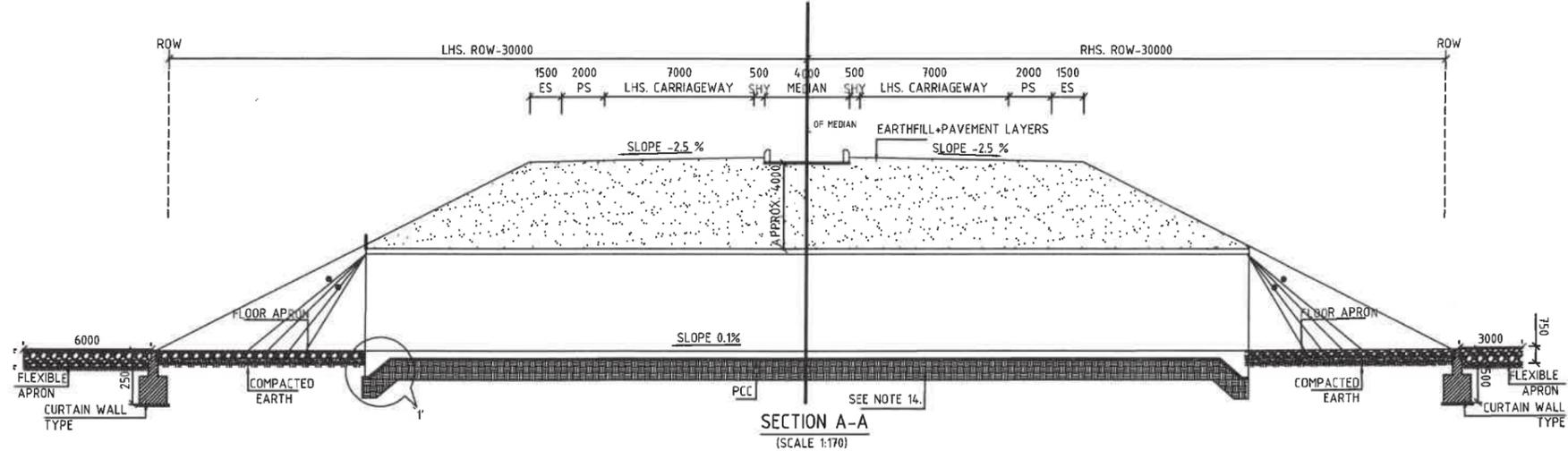
R.A. No. 03: Providing and laying in PCC M20 grade leveling course below approach slab complete with fully automatic micro processor PLC with SCADA enabled reversible drum type mixer/ concrete batch mix plant (pan mixer) as per drawings and Technical specifications etc. complete with fine aggregates of

SSR Rate Schedule 2022-23, Pg.No.66 Item No. 12.32		Rs	3976.00 /Cum
Add lead charges for			
Cement 0.1500 x 645.00		Rs	96.75 /Cum
Crushed M 0.4000 x 345.15		Rs	138.06 /Cum
Sand 0.1000 x 330.77		Rs	33.08 /Cum
	Total rate=	Rs.	4243.89 /Cum
	Total	=	Rs. 4243.89 /Cum
Add 10 % for Hilly Area		=	Rs. 397.60 /Cum
	SAY	=	Rs 4641.50 /Cum



NOTES:-

1. ALL DIMENSIONS ARE IN mm AND LEVELS ARE IN METERS UNLESS MENTIONED OTHERWISE
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. CONCRETE MIX SHALL BE DESIGN MIX AND SHALL HAVE MAXIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:
 - (i) RCC BOX.....M30 (SEVERE EXPOSURE CONDITION)
 - (ii) RCC CRASH BARRIER.....M40
 - (iii) RCC RETAINING WALL.....M30 (SEVERE EXPOSURE CONDITION)
 - (iv) PCC LEVELING COURSE..... M15
 - (v) PCC CURTAIN WALLM20
4. GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFORMING TO IS: 1786.
5. 600mm FILTER MEDIA SHALL BE PROVIDED BEHIND RCC BOX AND RETAINING WALL.
6. THE BACK FILL MATERIAL BEHIND RCC BOX / RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi 30^\circ$, $\gamma=2.0$ T/Cum.
7. SEISMIC ZONE - III.
8. REQUIRED SAFE BEARING CAPACITY AT FOUNDING LEVEL FOR BOX CULVERT IS $15t/m^2$, FOR INDEPENDENT RETAINING WALL IS $15t/m^2$. SAME SHALL BE ENSURED AT SITE WITH BRIDGE ENGINEER.
9. FLOW DIRECTION SHOWN IN THE PLAN IS INDICATIVE ONLY, BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION THE SITE.
10. FLEXIBLE APRON SHALL BE PROVIDED BASED ON SITE CONDITION AND SHALL BE DECIDED BY ENGINEER-IN-CHARGE WHEREVER ROCK IS AVAILABLE AT TOP LEVEL FLEXIBLE APRON SHALL BE DISPENSED
11. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
12. DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWING FOR FRL, INVERT LEVEL, GL, CROSS LOPE, LONGITUDINAL GRADIENT, ROAD WAY DETAILS ETC.
13. PITCHING / REVTMENT ON SLOPES TO BE PROVIDED AS PER MORTH SPECIFICATION.
14. IF THE FREE SWELL INDEX OF FOUNDATION SOIL IS MORE THAN 50 OR BC SOIL IS ENCOUNTERED AT SITE. THEN SUITABLE SOIL STABILIZATION SHALL BE PROVIDED AS PER IRC:SP:13-2004.
15. SOFT AND LOOSE PATCHES IN THE BEARING AREA SHALL BE REPLACED BY COMPACTED GRANULAR FILLS AND SHALL BE PROPERLY COMPACTED WITH LAYERS NOT EXCEEDING 200mm BEFORE LAYING PCC OVER IT.
16. PCC LEVELING COURSE:
 - BELOW BOX STRUCTURE - 150 THK.(MINIMUM)
 - BELOW FLOOR APRON - 150 THK.
17. STRUCTURE HAS BEEN DESIGNED FOR
 - i) 6 LANES OF CLASS A
 - ii) 4 LANES OF CLASS A + 1 LANE OF 70R
 - iii) 2 LANE OF CLASS A + 2 LANE OF 70R (whichever is governing)
18. CONSTRUCTION JOINTS:
 - i) THE LOCATION AND PROVISION OF CONSTRUCTION JOINTS SHALL BE AS PER THE DRAWING AND THE SAME SHALL BE APPROVED BY THE ENGINEER-IN-CHARGE.
 - ii) THE CONCRETE SURFACE AT THE JOINT SHALL BE BRUSHED WITH A STIFF BRUSH AFTER CASTING WHILE THE CONCRETE IS STILL FRESH AND IT HAS ONLY SLIGHTLY HARDENED UNDER.
 - iii) BEFORE NEW CONCRETE IS POURED THE SURFACE OF OLD CONCRETE SHALL BE PREPARED AS
 - (a) FOR HARDENED CONCRETE, THE SURFACE SHALL BE THOROUGHLY CLEANED TO REMOVE DEBRIS/ LAITANCE AND MADE ROUGH SO THAT 14 OF THE SIZE OF THE AGGREGATE IS EXPOSED
 - (b) FOR PARTIALLY HARDENED CONCRETE, THE SURFACE SHALL BE TREATED BY WIREBRUSH FOLLOWED BY AN AIR JET
 - (c) THE OLD SURFACE SHAL BE SOAKED WITH WATER WITHOUT LEAVING PUDDLES IMMEDIATELY, BEFORE STARTING CONCRETING TO PREVENT THE ABSORPTION OF WATER FROM NEW CONCRETE.
 - iv) NEW JOINT SHALL BE THOROUGHLY COMPACTED IN THE REGION OF THE JOINT
19. WEEP HOLE SHALL BE 100 MM DIA 1M C/C HORIZONTALLY & VERTICALLY IN STAGGERED POSITION.
20. EXPANSION JOINT SHALL BE FILLER TYPE.
21. MINIMUM CLEAR COVER TO REINFORCEMENT
 - a) SOIL FACE = 75mm
 - b) AWAY FORM SOIL FACE = 45mm (SEVERE EXPOSURE CONDITION)



REV.	DDMMYY DATE	DESCRIPTION	DES. DRN.	INIT. SIGN. CHECKED	INIT. SIGN. APPROVED

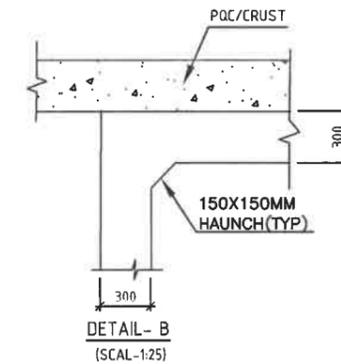
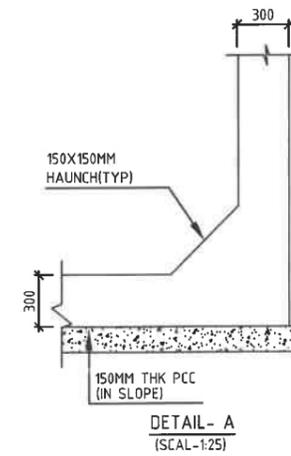
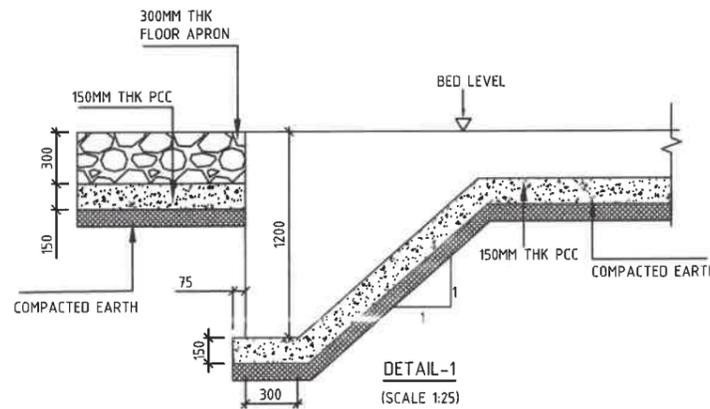
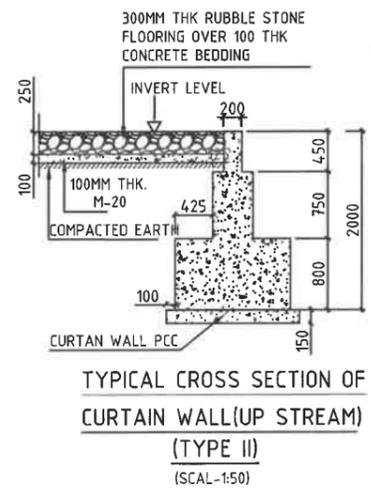
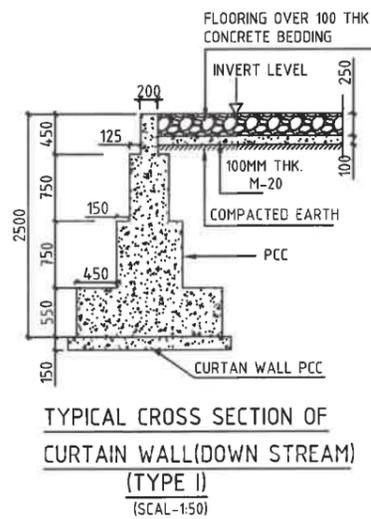
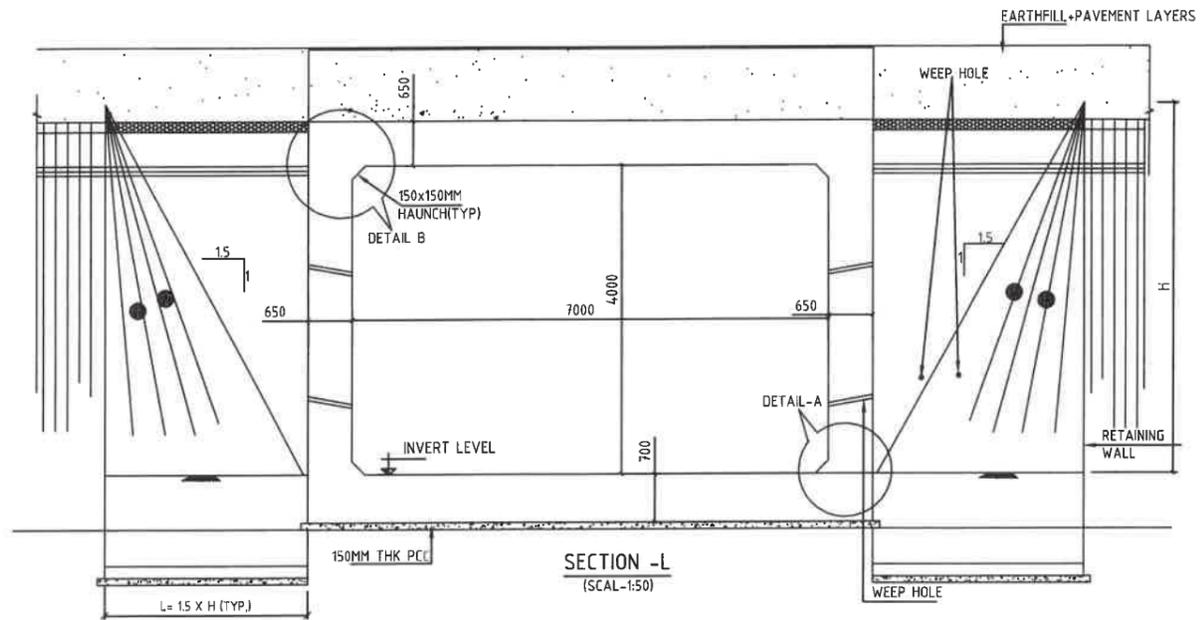
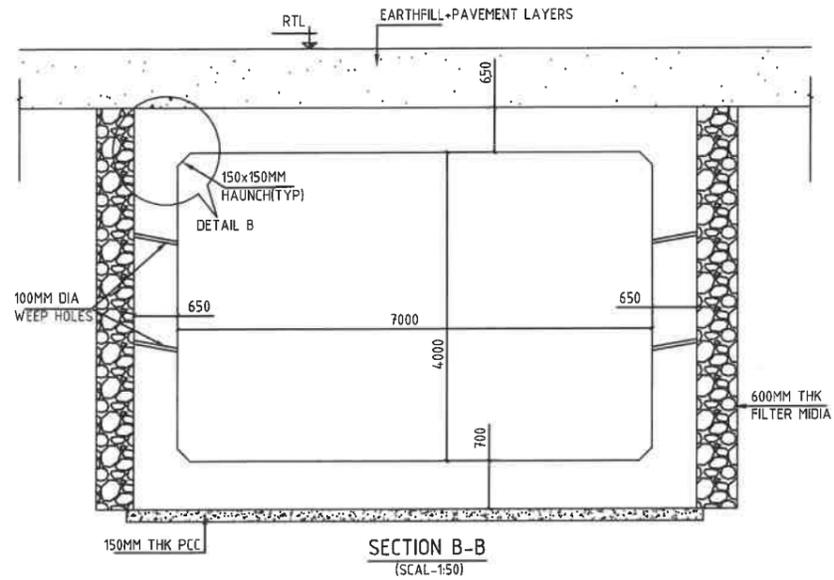
CLIENT

National Highways Authority of India
 Government of India

PROJECT:
 Animal Underpass Proposal at CH 99+900 at Pune-Nashik Section of NH-50

TITLE:
 GAD of BOX CULVERT at CH 99+900

DRAWING No. RD-K X-99900-GAD-01	REVISION 0	SCALE 0
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REV.	DDMMYY DATE	DESCRIPTION	DES. DRN.	INIT. SIGN. CHECKED	INIT. SIGN. APPROVED

REVISIONS

CLIENT
 **National Highways Authority of India**
 Government of India

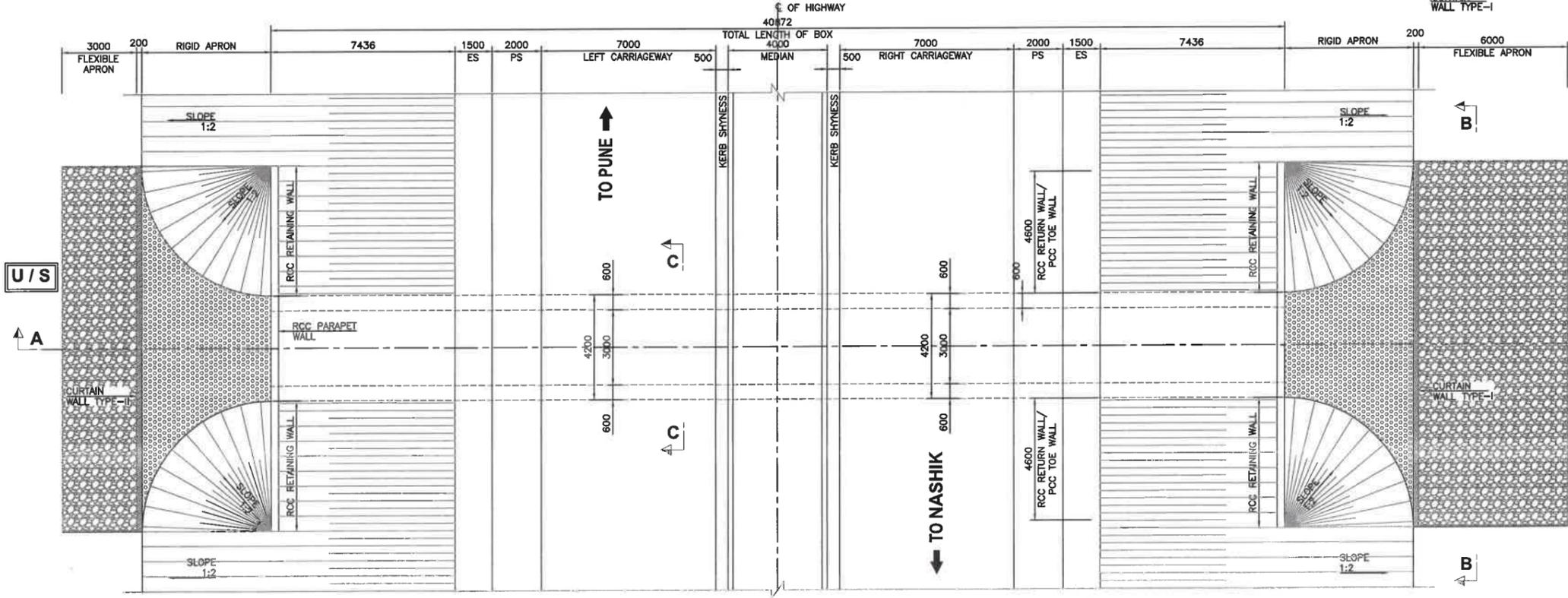
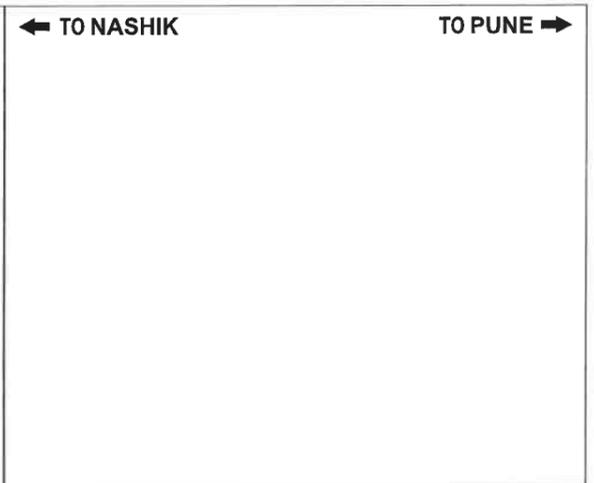
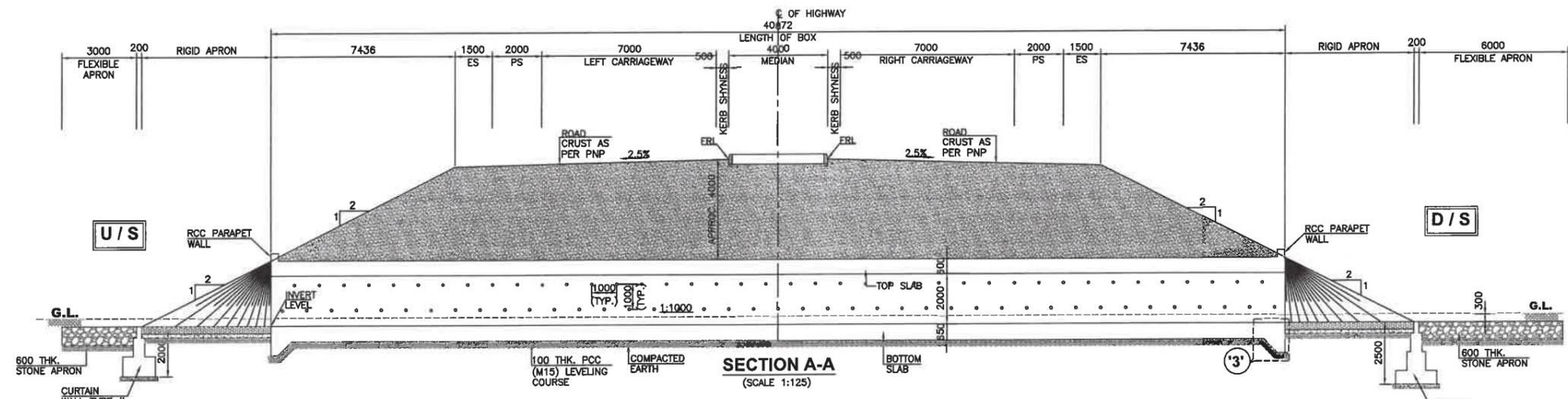
PROJECT: Animal Underpass Proposal at CH 99+900 at Pune-Nashik Section of NH-50

TITLE: GAD of BOX CULVERT at CH 99+900

DRAWING No. RD-KSE-BOX-99900-SECTION

REVISION 0





- NOTES:-**
- ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS IN METERS AND CHAINAGES ARE IN KILOMETERS UNLESS OTHERWISE MENTIONED.
 - DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - THE CARRIAGEWAY OF PROPOSED CULVERT IS DESIGNED AS PER IRC: 6-2017.
 - OVERLAY COURES AS PER PNP.
 - CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
 - RCC BOX CELL (MCW) M30
 - RCC PARAPET WALL M30
 - PCC LEVELLING COURSE M15
 - REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS. (GRADE DESIGNATION Fe 500D) CONFORMING TO IS:1786.
 - CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW:-
 - TOP SLAB (SR) 40mm
 - VERTICAL WALL (EARTH FACE) 75mm
 - VERTICAL WALL (NON EARTH FACE) 50mm
 - BOTTOM SLAB/FOUNDATION 75mm
 - 600 THICK FILTER MEDIA/GEO COMPOSITE DRAIN SHALL BE PROVIDED BEHIND VERTICAL WALLS, AS PER "MORT&H" SPECIFICATION.
 - 100 ϕ WEEP HOLES SPACED AT 1000mm c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN VERTICAL WALLS.
 - BACK FILLING BEHIND ABUTMENT AND RETURN WALL SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX:6 OF IRC:78-2000 HAVING PROPERTIES C=0, $\phi \geq 30^\circ$, $\delta=20^\circ$ & $\gamma_d = 2.0 \text{ T/m}^3$.
 - ALL DIMENSIONS & LEVELS TO BE VERIFIED AT SITE BEFORE EXECUTION OF WORK.
 - LAYING COMPACTION AND EXTENT OF BACK FILL BEHIND EARTH RETAINING WALLS SHALL CONFORM TO SPECIFICATIONS IN APPENDIX 6 OF IRC: 78-2014.
 - SOIL DENSITY ON THE BACKFILL AND EARTH CUSHION SHOULD CONFIRM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
 - SAFE BEARING CAPACITY OF 10 T/M^2 AT FOUNDING LEVEL OF BOX SHALL BE ASCERTAINED BEFORE EXECUTION OF FOUNDATION.
 - THE DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW ANGLE, FRL & CAMBER/SUPER ELEVATION.
 - CLEAR SPAN, HEIGHT & GROUND LEVEL SHALL BE VERIFIED BEFORE EXECUTION OF WORK. IN CASE OF VARIATION SAME SHALL BE BROUGHT TO THE NOTICE OF DESIGNER.
 - FOR RETAINING WALL, REFER SEPARATE DRAWING.

LEGENDS:-

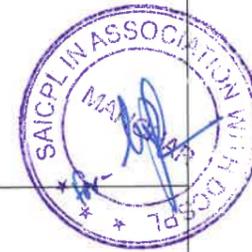
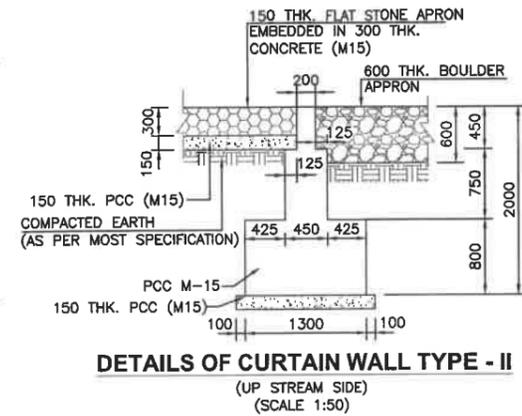
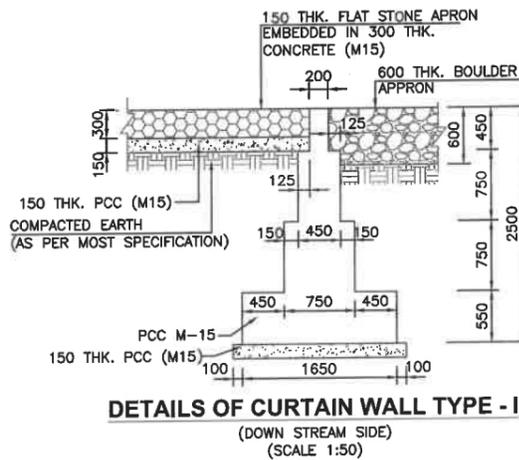
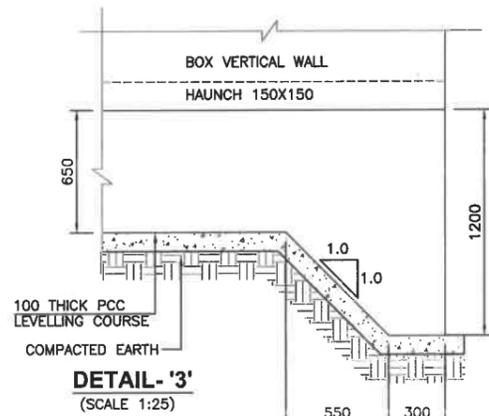
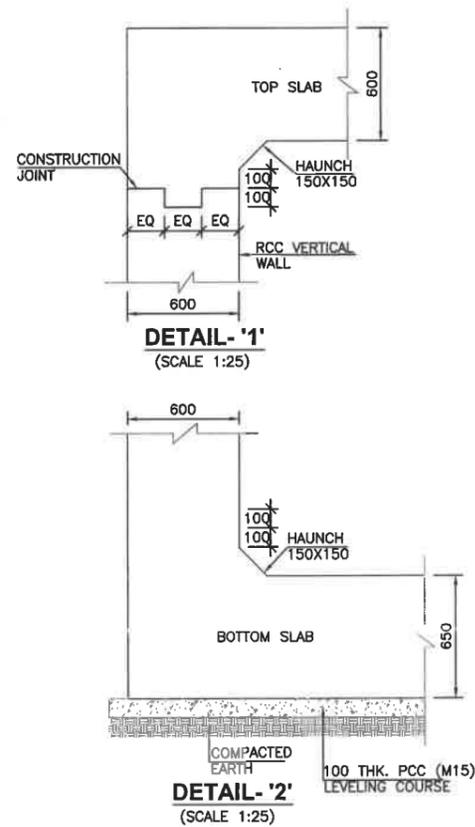
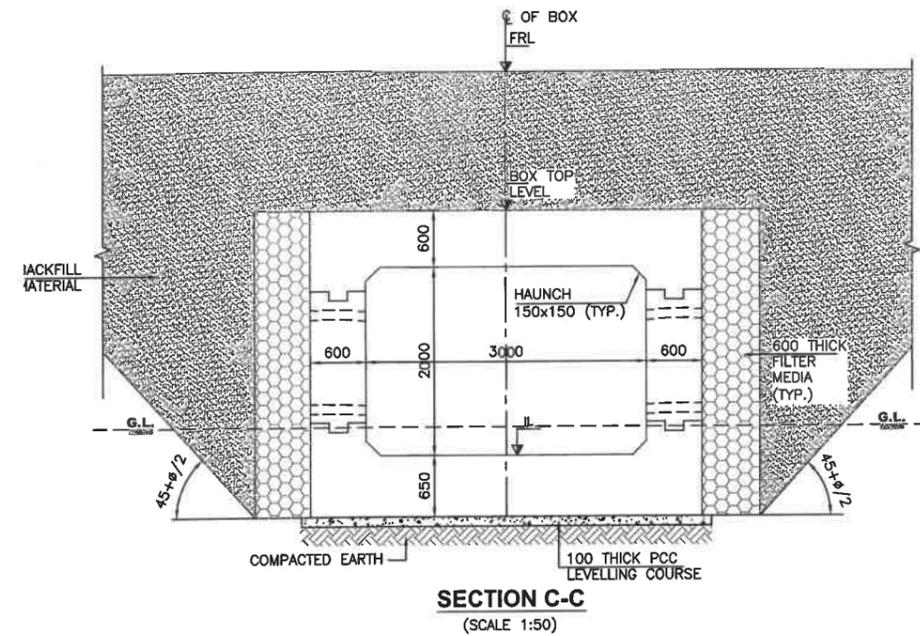
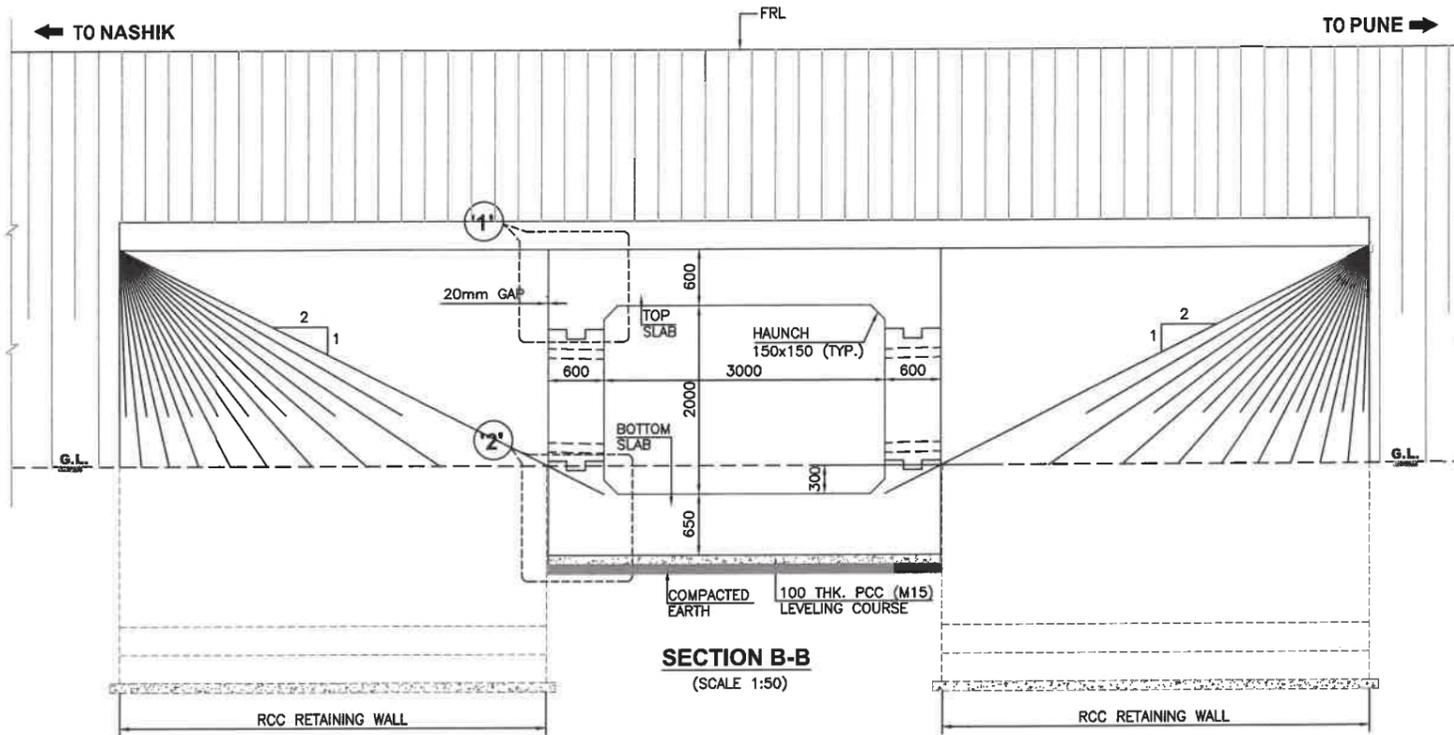
U/S	UP STREAM
D/S	DOWN STREAM
G.L.	GROUND LEVEL
PS	PAVED SHOULDER
ES	EARTHEN SHOULDER



TYPICAL GENERAL ARRANGEMENT DRAWING OF BOX CULVERT (1x3x2)

NOV. 2023
AS SHOWN

01 OF 02



TYPICAL GENERAL ARRANGEMENT DRAWING OF BOX CULVERT (1x3x2)

NOV. 2023
AS SHOWN
02 OF 02