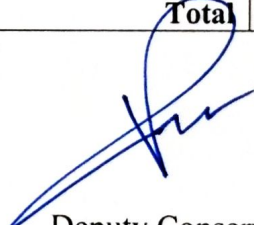


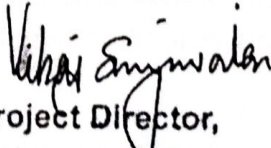
ABSTRACT OF MITIGATION MEASURES WITH APPROX. COST ESTIMATE

SR.NO	LOCATION	GPS COORDINATES	MITIGATION MEASURES	APPROX. AMOUNT
1	NARLA	31°52'3.92"N, 76°55'46.74"E,	4 No's of Spur Structures are being proposed on this Nalla.	8,00,000.
2	KUNNU	31°50'40.40"N, 76°55'43.90"E,	6 No's of Gully Plugging & 4 No's of Spur Structures are being Proposed on This Nalla	11,40,000
3	MANA	31°49'40.67"N, 76°56'30.12"E,	WHS 1 No. and Gully Plugging Structures 5 No's and restoration of Bawari are being Proposed.	6,53,000
4	MEHAR	31°46'49.31"N, 76°56'24.57"E,	Relocation of the Bawari will be undertaken.	4,68,000
5	MATHA NEUL	31°45'55.37"N, 76°56'19.00"E	Rejuvenation of the Bawari will be undertaken.	38,000
6	MAIGAL	31°45'41.53"N, 76°56'34.19"E	3 No's of Check Dams are being proposed on the Maigal Nalla.	3,00,000
7	BIJNI NALA	31.7387"N,76.9388" E,	3 No's of Check Dam Structures are being proposed on this Nalla.	3,00,000.
8	LAVANDI NALA 1	31.7509"N, 76.9434"E,	4 No's of Check Dam Structures are being Proposed on This Nalla	4,00,000.
9	LAVANDI NALA 2	31.7537"N, 76.9441"E,	5 No's of Check Dam Structures are being Proposed on This Nalla	5,00,000.
10	NEOL NALA	31.7567"N,76.9432" E,	6 No's of Check Dam Structures are being Proposed on This Nalla	3,00,000.
11	NEOL BAWARI	31.7569"N, 76.1430"E	Re-Location of the Bawari will be undertaken.	3,00,000.
Total				52,99,000


Deputy Conservator of Forests,
Mandi Forest Division, Mandi (H.P)

**UNDERTAKING TO PAY COST TOWARDS THE MITIGATION
MEASURES/PLAN INTENDED TO PREVENT THE DEPLETION/EXTINCTION
OF WATER RESOURCES, EXISTING WITHIN OR ADJECENT TO PROPOSED
DIVERSION AREA**

I, Project Director National Highway Authority of India (Ministry of Road Transport and Highways) PIU- Palampur, do hereby, furnish undertaking that User Agency shall pay the entire cost incurred towards the mitigation measures/plan intended to prevent the depletion/extinction within or adjacent to proposed diversion area.


Project Director,
N.H.A.I. PIU, Palampur

Deputy Conservator
Mandi

Diversion of 19,5896 hectare of forest Land, for Rehabilitation and Upgradation to Two Lane with Paved Shoulder configuration & Strengthening of Padhar to Bijni (Package-VA) from Km 180.00 to Km 202.815 (Design Length 19.050 KM) of Pathankot-Mandi Section in the State of Himachal Pradesh Online Proposal No. FP/HP/Road/154466/2022.

MITIGATION MEASURES/PLAN INTENDED TO PREVENT THE DEPLETION/EXTINCTION OF WATER RESOURCES, EXISTING WITHIN OR ADJACENT TO THE PROPOSED DA.

As per the additional information sought by the O/o Sub-Office, Shimla (Regional Office, Chandigarh), where in the Conservator of Forest (CF) concerned is directed to provide the comments regarding the mitigation measures/plan intended to prevent the depletion/extinction of water resources, existing within or adjacent to the proposed DA.

In this regard on dated 23-11-2023 the Field Staff of the User Agency and The Forest Department, on the Direction of Deputy Conservator of Forest Mandi, Jointly inspected all the Water Bodies/ Bawaries/ Natural Springs/ Nallahs. The detail report of the sites visited and mitigation Measures proposed are being submitted below.

DRANG RANGE

A. Project Detail: The Site

- I. The Site of the Project comprises the section of National Highway-20 (New NH-154) commencing from Km 180.000 to Km 208.000 (Old Alignment) i.e. from Padhar to Mandi, Package-V in the State of Himachal Pradesh. The Proposed alignment starts at R/D 159/760 and ends at R/D 176/300.

B. Site: Narla

The Proposed Road starts at Km. 159/760 at Narla (Drang Block). The first water Body/ Nalla falls at Narla Location at R/D 160/00. The proposed Road bifurcates at the distance of approx.50 meters from the existing NH. The Location map is mentioned as below.

LOCATION MAP



[Signature]
**Range Forest Officer
Drang Forest Range
Drang (H.P.)**

SITE

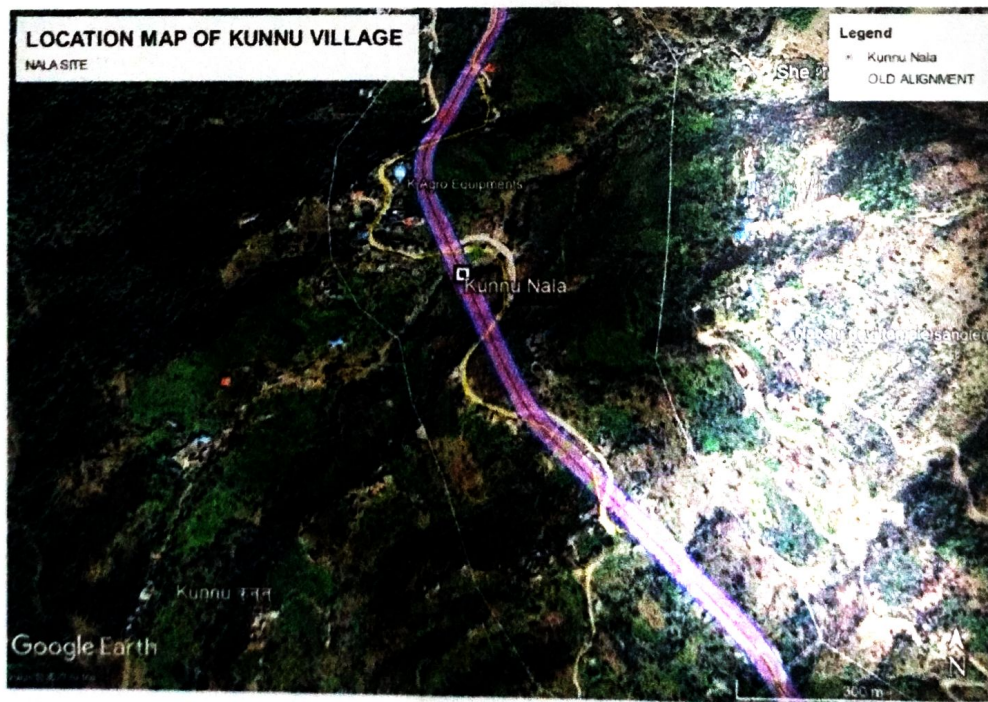


As per the above pictures and the site location map it was concluded that a bridge is proposed at the proposed location, the design of the Bridge includes the construction of Crates wire work on the both side of the Bridge to protect the Abutment of the Bridge. No impact on the Nalla was found due to the construction of the Bridge. Further it was found that mitigation measures were already implemented in this site. Further the present Nalla is not feeding any Water Supply Scheme. The present water body does not feed any type of utility to the general public of the surrounding area. Hence after proper survey of the Nala 4 no's of Spur Structure are being proposed as mitigation measures are being proposed to deflect flowing water away to prevent erosion of the bank. Further the present water body does not feed any requirement of Potable water or irrigation requirement of the population residing in the surrounding area.

Site: Kunnu

Second Water Body inspected was Kunnu Nala at R/D 163/100 . The proposed Road bifurcates at the distance of approx. 60 meters from the existing NH. The Location map is mentioned as below.

Location Map



**Range Forest Officer
Drang Forest Range
Drang (H.P.)**

SITE



As per the above pictures and the site location map it was concluded that a bridge is proposed at the distance of approx. 60 mtrs from the old Alignment. The abutments of the Bridge Proposed at this site are approx. 40 meters away from the bank of the Nalla. There will be no impact on the Water Body due to the construction of the Bridge. The present Nalla is not feeding any Water Supply Scheme. The present water body does not feed any type of utility to the general public of the surrounding area. Hence for the treatment/ mitigation measures are concerned, 6 no's of Gully Plugging & 4 No's of Spur Structures are being proposed/ recommended . At present water body does not feed any requirement of Potable water or irrigation requirement of the population residing in the surrounding area.

Site: **Mana:**

Third Water Body inspected was Mana Nala & Mana Bawari at R/D 164/900 & 165/300. The proposed Road is following the Old Alignment .The Location map is mentioned as below.

Location Map



For
Range Forest Officer
Drang Forest Range
Drang (H.P.)

SITE (NALA)



SITE (MANA BAWARI)



As per the above pictures and the site location map it was concluded that a bridge is proposed at the same site on old Alignment. After carefully examining the Site, construction of WHS 1 No's & Gully Plugging 5 No's are being proposed. There will be no impact on the Water Body due to the construction of the Bridge. The present Nalla is not feeding any Water Supply Scheme. The present water body does not feed any type of utility to the general public of the surrounding area. Hence no mitigation measures are being proposed/ recommended as the present water body does not feed any requirement of Potable water or irrigation requirement of the population residing in the surrounding area.

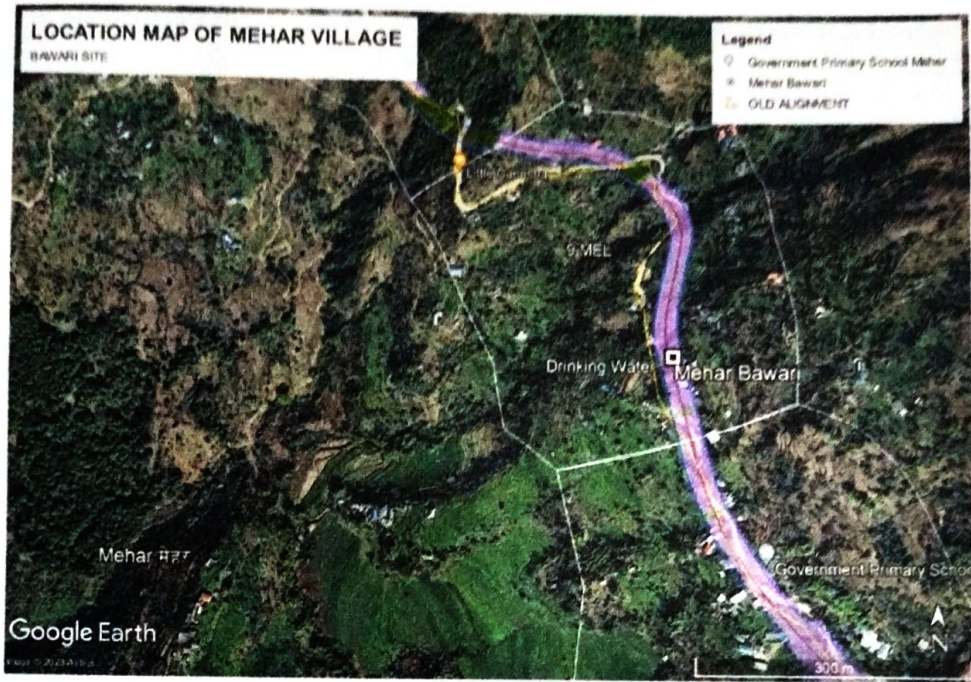
Another water body adjacent to the proposed road was found approx 40 meters away from the road on which the local public is dependent. There will be no direct impact on this Bawari. But still if any indirect impact is found. The appropriate measures will be taken into account.

Site: **Mehar**

Fourth Water Body inspected was Mehar Bawari at R/D 172/450. The proposed Road is following the Old Alignment at this location. The Bawari is coming on the Edge of the proposed Road. Location map is mentioned as below.

Kamir
Range Forest Officer
Drang Forest Range
Drang (H.P.)

Location Map



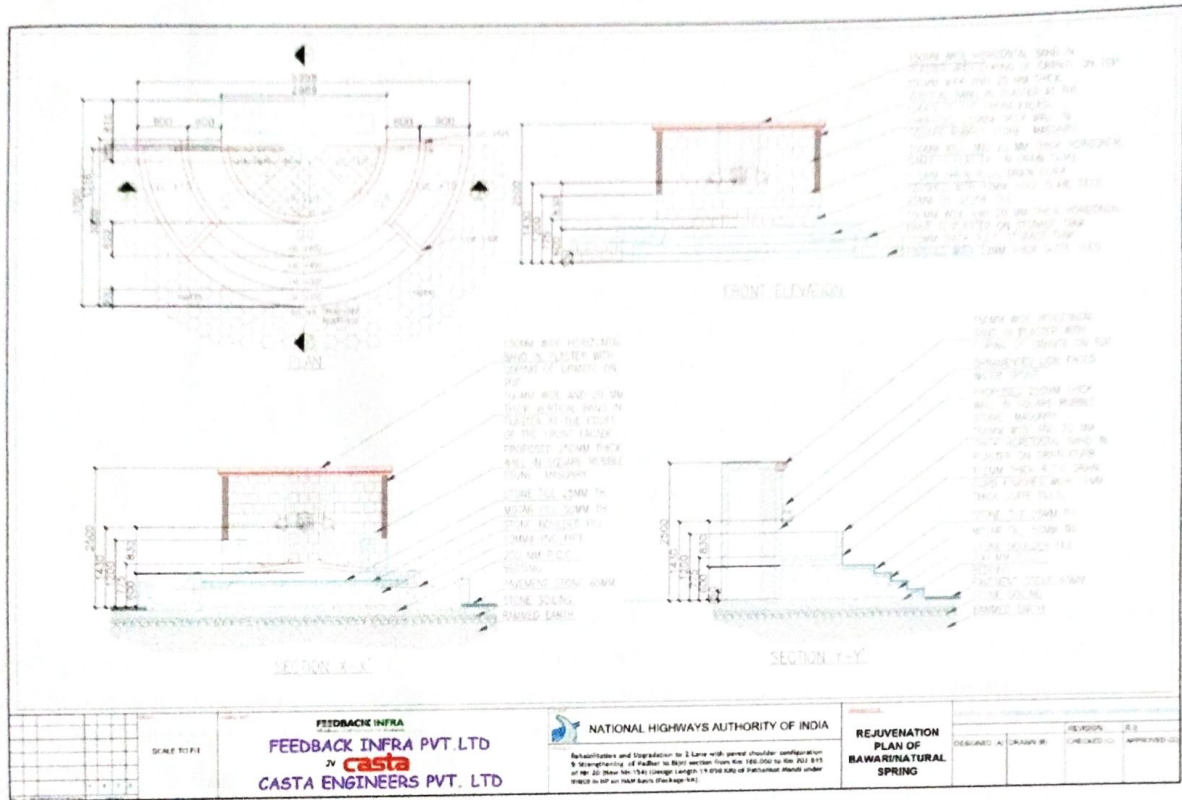
Site



This bawari is located on the edge of PRow, All the possible measures will be taken secure the Bawari Site and utmost care will be taken that no damage is done to the water body while the construction of the road. Since Local Public is dependent on this water body, if needed the bawari will be Re- Located. The appropriate measures will be taken if needed which are discussed as below:

[Signature]
Range Forest Officer
Drang Forest Range
Drang (H.P.)

LAY OUT PLAN



As per Plan the Site will be re located at the cost of the user agency as per the above design given above.

Site: **Matha Neul**

Fifth Water Body inspected was Matha Neul Bawari. The Bawari is located approx. 20 meters away from the Dumping Site. Location map is mentioned as below.

Location Map



Range Forest Officer
Drang Forest Range
Drang (H.P.)

SITE



This bawari is located on the edge of proposed Dumping Site, though there will be no Direct Impact on the Bawari but still it may be affected indirectly due to the construction of the Road. Since Local Public is dependent on this water body, the appropriate measures will be taken to Re-Hebetate the Bawari. The appropriate measures taken are discussed as below:

Site: **Maigal**

The Proposed Road starts at Km. 159/760 at Narla (Drang Block). The first water Body/ Nalla falls at Narla Location at R/D 160/00. The proposed Road bifurcates at the distance of approx. 50 meters from the existing NH. The Location map is mentioned as below.

LOCATION MAP



As per the above site location map it was concluded that a bridge is proposed at the proposed location, the design of the Bridge includes the construction of Crates wire work on the both side of the Bridge to protect the Abutment of the Bridge. No impact on the Nalla was found due to the construction of the Bridge. The present water body does not feed any type of utility to the general public of the surrounding area but some Traditional Gharats are functional on the upstream. Though no direct impact

[Signature]
Range Forest Officer
Drang Forest Range
Drang (H.P.)

due to construction of Road was observed, but after proper survey of the Nala 4 no's of Check Dams are being proposed as mitigation measures are being proposed to deflect flowing water away to prevent erosion of the bank. Further the present water body does not feed any requirement of Potable water or irrigation requirement of the population residing in the surrounding area.

The detail of mitigation measures along with the approx. cost estimate is being given in the below table:

SR.NO	LOCATION	GPS COORDINATES	MITIGATION MEASURES	APPROX. AMOUNT
1	NARLA	31°52'3.92"N, 76°55'46.74"E,	4 No's of Spur Structures are being proposed on this Nalla.	8,00,000.
2	KUNNU	31°50'40.40"N, 76°55'43.90"E,	6 No's of Gully Plugging & 4 No's of Spur Structures are being Proposed on This Nalla	11,40,000
3	MANA	31°49'40.67"N, 76°56'30.12"E,	WHS 1 No. and Gully Plugging Structures 5 No's and restoration of Bawari are being Proposed.	6,53,000
4	MEHAR	31°46'49.31"N, 76°56'24.57"E,	Relocation of the Bawari will be undertaken.	4,68,000
5	MATHA NEUL (Repaired in 2022-23 under JICA Community work)	31°45'55.37"N, 76°56'19.00"E	Rejuvenation of the Bawari will be undertaken.	38,000
6	MAIGAL	31°45'41.53"N, 76°56'34.19"E	3 No's of Check Dams are being proposed on the Maigal Nalla.	3,00,000
Total				34,99,000

Hence as per the site visit conducted and the mitigation measures discussed and proposed approx Rs. 34, 99,000 will be incurred. The User Agency has provided an undertaking to pay the cost of Rs. 34, 99,000 towards the restorations of Bawari's and other SMC related Works.


Range Forest Officer
Drang Forest Range
Drang (H.P.)

Mandi Range, Rehardhar Block, Bijni Beat

A. Project Detail: **The Project**

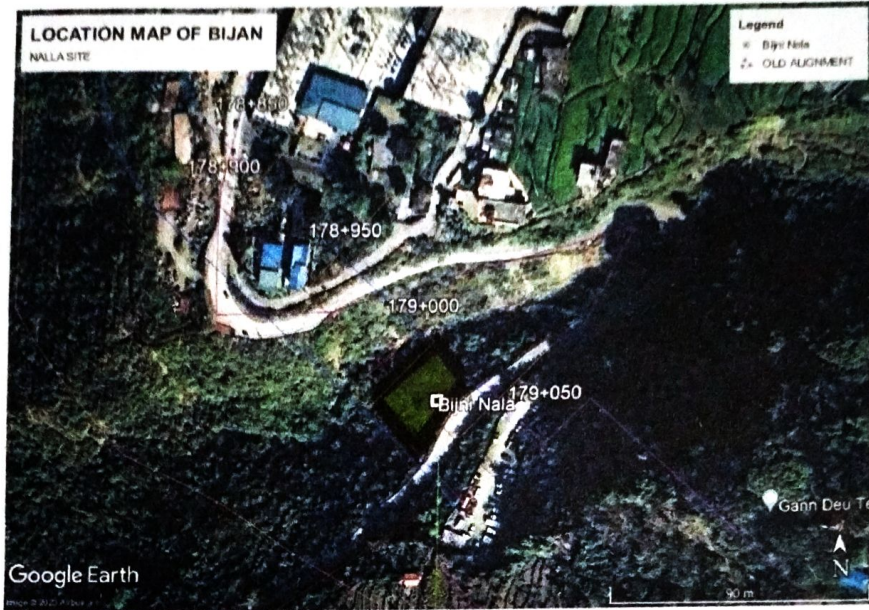
- I. The Site of the Project comprises the section of National Highway-20 (New NH-154) commencing from Km 180.000 to Km 208.000 (Old Alignment) i.e. from Padhar to Mandi, Package-V in the State of Himachal Pradesh. The Proposed alignment starts at R/D 159/760 and ends at R/D 176/300.

B. Site: **Bijni**

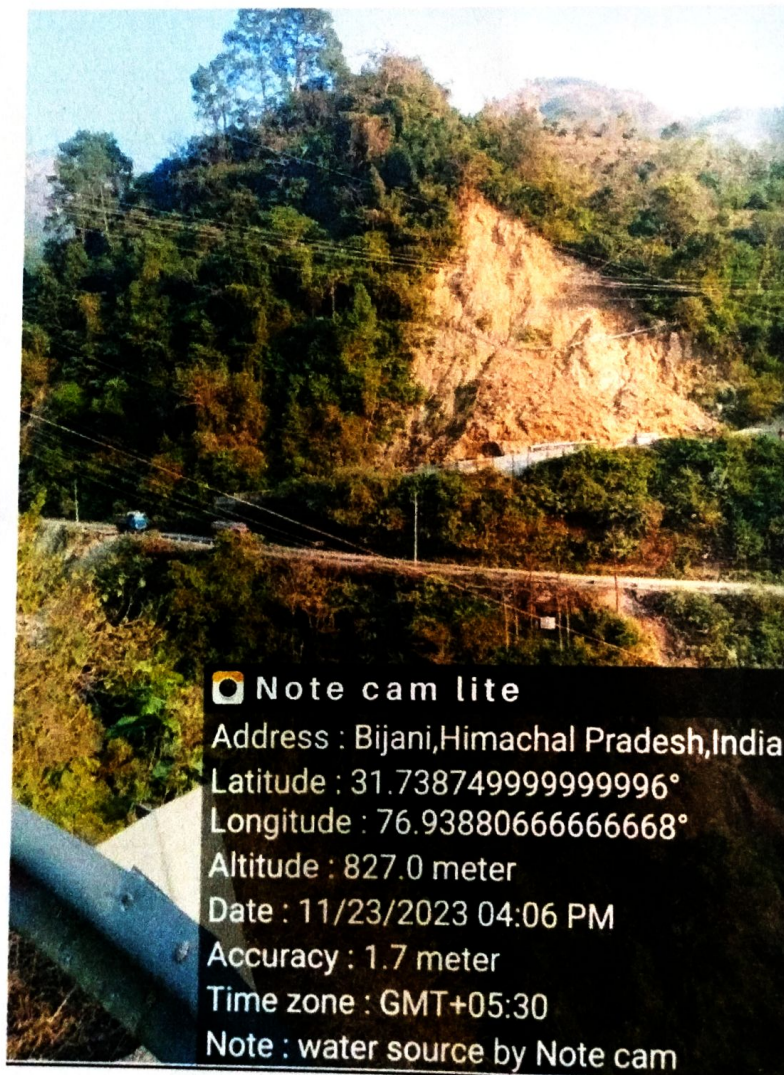
The first water Body/ Nalla falls at Bijni Location at R/D 179/00. The Location map is mentioned as below.


Range Forest Officer
Mandi Forest Range

LOCATION MAP



SITE



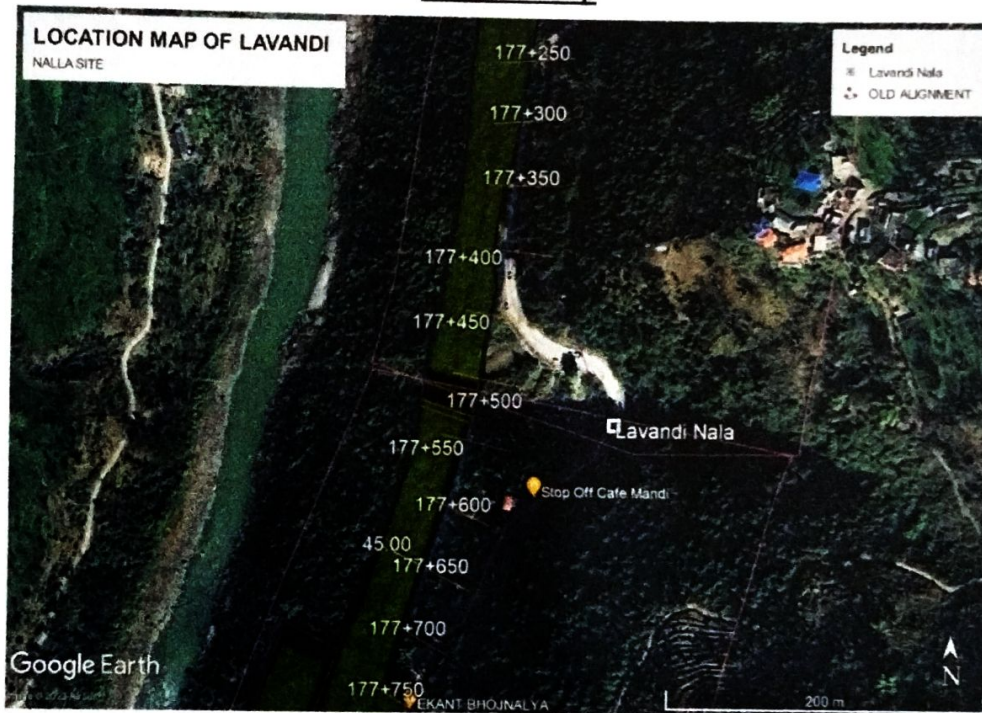
Range Forest Officer
Mandi Forest Range

As per the above pictures and the site location map it was concluded that a bridge is proposed on the Bijni Nala, the design of the Bridge includes the construction of Crates wire work on the both side of the Bridge to protect the Abutment of the Bridge. Hence after proper survey of the Nala3 no's of Check Dam Structure are being proposed as mitigation measures are being proposed to deflect flowing water away to prevent erosion of the bank.

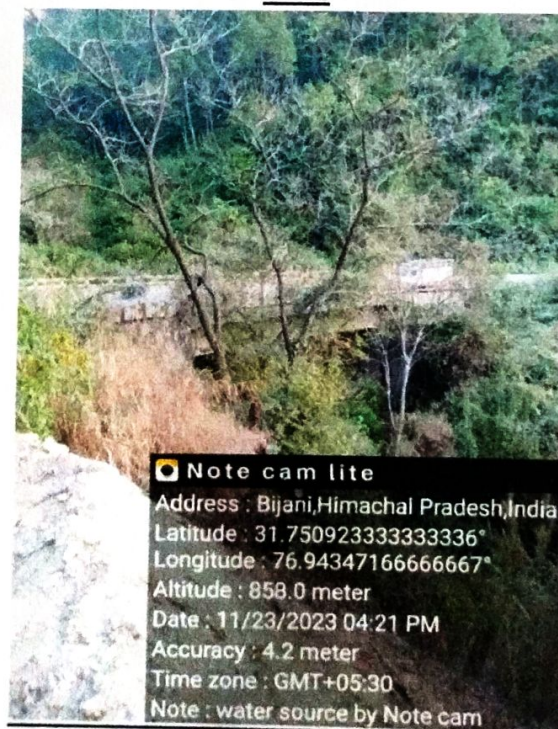
Site: Lavandi

Second Water Body inspected was Lavandi Nala at R/D 177/150. The proposed Road bifurcates at the distance of approx. 60 meters from the existing NH. The Location map is mentioned as below.

Location Map



SITE



[Signature]
Range Forest Officer
Bijani Forest Range

As per the above pictures and the site location map it was concluded that a bridge is proposed at the distance of approx. 60 mtrs from the old Alignment. Since there is a village and agricultural land along side of the Nalla at Upstream and also the Nalla is passing through the Dense Forest Land. Hence for the treatment/ mitigation measures are concerned, 4 no's of Check Dam Structures are being proposed/ recommended as mitigation measures to deflect flowing water away to prevent erosion of the bank.

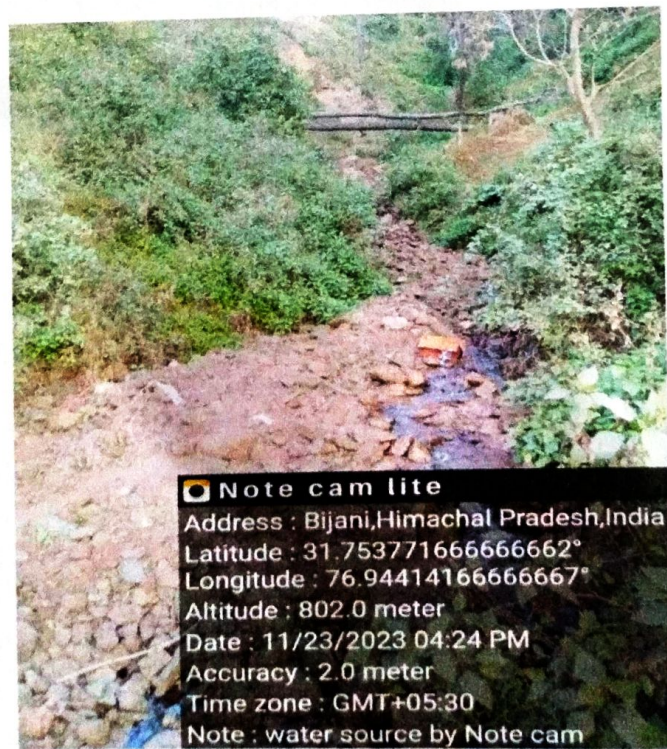
Site: **Lavandi 2:**

Third Water Body inspected was Lavandi Nala 2 at R/D 177/150. The Location map is mentioned as below.

Location Map



SITE (LAVANDI NALA 2)



[Signature]
 Range Forest Officer
 Mandi Forest Range

As per the above pictures and the site location map it was concluded that a bridge is proposed at the distance of approx. 70 mtrs from old Alignment. After carefully examining the Site, construction of 4 no's of Check Dam Structures are being proposed/ recommended as mitigation measures are being proposed to deflect the flowing water away to prevent erosion of the bank. Hence mitigation measures as described above are being proposed/ recommended.

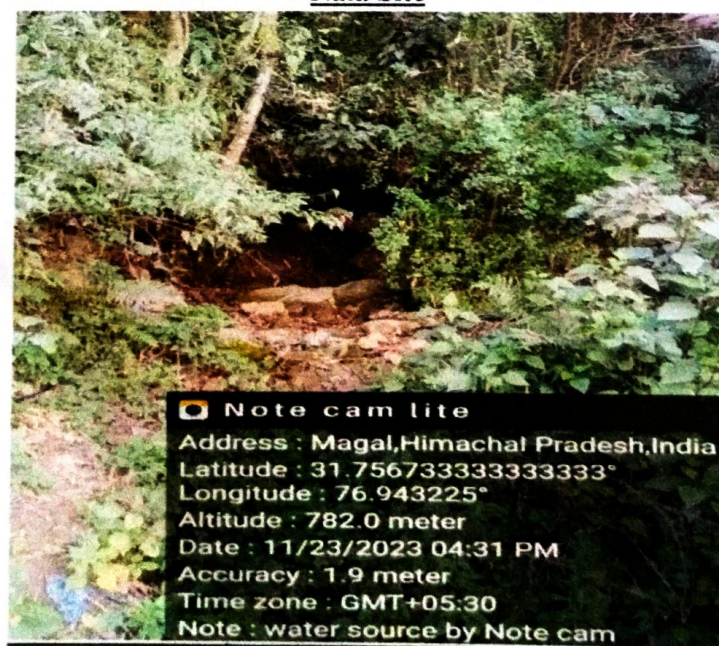
Site: **Neol Nala & Neol Bawari**

Fourth Water Body inspected was Neol Nala & Neol Bawari at R/D 176/850. The proposed Road is approx. 30 mtrs away from the old alignment. The Bawari is coming in the center of the proposed Road. Location map is mentioned as below.

Location Map



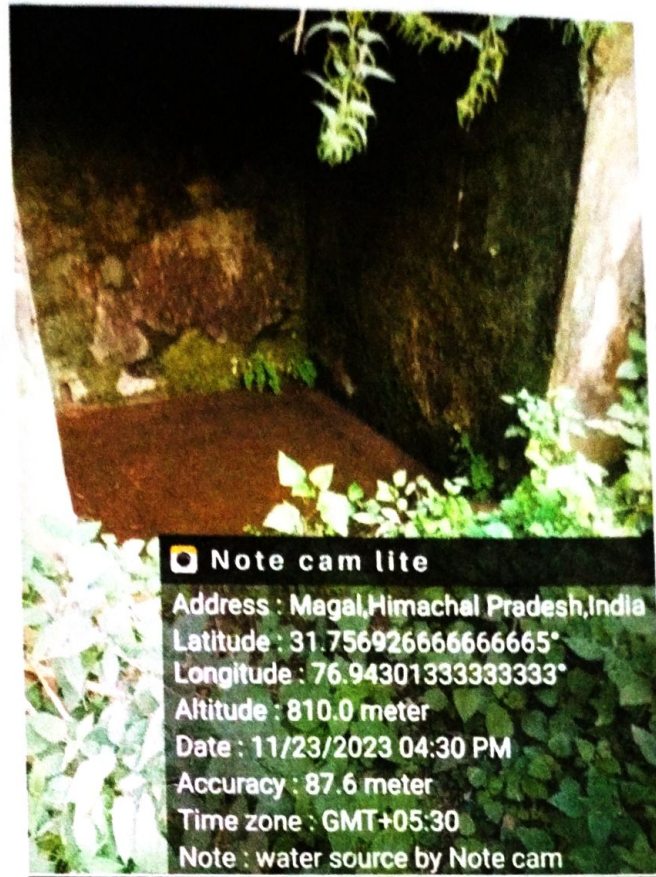
Nala Site



Bawari Site

[Signature]
Range Forest Officer
Mandi Forest Range

[Signature]
Range Forest Officer
Mandi Forest Range



This Bawari is located in the center of PROW, Hence the Bawari will be relocated. The Nalla passes through the Agricultural Land on the upstream and it helps in maintaining the moisture of the Agricultural Land. Hence as surveyed 6 No's Check Dam Structures are being proposed/ recommended as mitigation measures are being proposed to deflect flowing water away to prevent erosion of the bank and to retain soil Moisture.

Hence as inspected and as per the detail report of Mitigation Measures provided by the Block Officer Rehardhar and Forest Guard, Forest Beat Bijni. The detail of mitigation measures along with the approx. cost estimate is being given in the below table:

SR.NO	LOCATION	GPS COORDINATES	MITIGATION MEASURES	APPROX. AMOUNT
1	BIJNI NALA	31.7387"N, 76.9388" E,	3 No's of Check Dam Structures are being proposed on this Nalla.	3,00,000.
2	LAVANDI NALA 1	31.7509"N, 76.9434"E,	4 No's of Check Dam Structures are being Proposed on This Nalla	4,00,000.
3	LAVANDI NALA 2	31.7537"N, 76.9441"E,	5 No's of Check Dam Structures are being Proposed on This Nalla	5,00,000.
4	NEOL NALA	31.7567"N, 76.9432" E,	6 No's of Check Dam Structures are being Proposed on This Nalla	3,00,000.
5	NEOL BAWARI	31.7569"N, 76.1430"E	Re-Location of the Bawari will be undertaken.	3,00,000.
Total				18,00,000.

[Signature]
 Range Forest Officer
 Mandi Forest Range