INDEX

ANIMAL PASSAGE PLAN

Widening Reconstruction & Re-align of
Gulganj – Amanganj – Pawai – Katni Road (NH-43 Ext.)
Package – 5 Km 43.00 to Km 77.00 Length - 34 KM
(17 KM passing Through) under Panna Reserve Tiger Buffer Zone in Panna District of Madhya Pradesh

Proposed By:

Office of:
The Executive Engineer,
MPPWD (NH) Division,
SAGAR, MADHYA PRADESH

ANIMAL PASSAGE PLAN

1.1 BACKGROUND :

MPPWD(NH) DIV Sagar under Government of Madhya Pradesh looks after all the activities pertaining to planning, construction and maintenance of all categories of Roads in the State of Madhya Pradesh. These activities constitute a vital component of developmental work in the State.

Office of the Executive Engineer, NHPWD Division, Sagar (MORTH) has decided to undertake widening and strengthening of existing Gulganj – Amanganj – Pawai – Katni Road (NH-43 Ext.) Package – 5 Km 43.00 to Km 77.00 under Panna Reserve Tiger Buffer Zone in Panna District of Madhya Pradesh. The proposed road will play a vital role in socio-economic up-liftment of surrounding tribal villages. As per the strategic long-term vision of NHPWD, Government of Madhya Pradesh with respect to the improvement, operation and maintenance of road infrastructure in Madhya Pradesh, the need is identified to upgrade the existing road.

1.2 About Panna Tiger Reserve

Panna Tiger Reserve (PTR) is located in the Vindhyan ranges that extend from south west to north east in the civil districts of Panna, Chattarpur and Damoh. **Panna Tiger Reserve** is an Indian national park in Panna and Chhatarpur Districts of Madhya Pradesh with an area of 542.67 km^2 (209.53 sq mi). It was declared in 1994 as the twenty second Tiger reserve of India and the fifth in Madhya Pradesh. It is home to an incredible variety of fauna, the prime attractions being the Royal Bengal Tiger and the long-nosed gharial. However, the park is also home to an incredible variety of flora, with its dense vegetation working to enhance its beauty as a whole. Due to the prevalence of hot and dry climate, the vegetation in this region is mostly of the dry deciduous type characterized by thorny woodlands, shrubs and tall grasses. Some of the trees which are commonly found inside the park are Tendu, Achar, Seja Mahua, Saja, Salai, Bel and others. The National Park supports mammals, species of aves, species of reptiles, species of amphibian and species of fishes as per the Wildlife Census Report of Year:

- **Mammals:** Tiger (*Panthera tigris tigris*), Leopard (*Panthera pardus*), Wild dog (*Cuon alpinus*), Wolf (*Canis lupus*), Hyaena (*Hyaena hyaena*), Sloth Bear (*Melursus ursinus*), Barking Deer, Sambar (*Cervus unicolor*), Langur (*Presbytis entellus*), Nilgai (*Boselaphus tragocamelus*), Chital (*Axis axis*), Chinkara (*Gazella bennetti*), wild pig (*Sus scrofa*).
- **Birds:** Indian Sandgrouse, Malabar Pied Hornbill, Plum Headed Parakeet, Crested Serpent Eagle, Green Bee eater, Tickle's Blue Flycatcher, Brahminy Starling, Yellow footed green pigeon, Asian Paradise fly catcher, Emerld Dove.
- **Reptiles**: Python, Russel's Viper, Saw Scaled Viper, Indian Cobra, Banded

Krait, Indian Monitor Lizard, Indian Garden Lizard, Fan Throated Lizard, Marsh Mugger, Common Rat Snake.

1.3 OBJECTIVES OF ANIMAL PASSAGE PLAN:

The objectives of animal passage plan are:

- To incorporate the needs of wildlife into transportation projects.
- To maintain the habitat connectivity.
- To reduce human wildlife conflict, improving awareness, safety and reducing collisions.

Achieving these goals will include restoring connections where they have been removed and ensuring that existing connections remain as the project road expands.

1.4 PASSAGE PLAN:

There are several types of crossing structures that are used to mitigate impacts of highway and railway corridors on animal movement and safety, each with different levels of effectiveness and cost. Fundamentally, these structures are designed either to allow animals to travel below the infrastructure (underpasses) or over it (Overpasses). The crossing structures are primarily about maintaining connectivity and animal movement, and less about reducing animal mortality. Animals move between habitats in order to survive by finding food, mates and areas of refuge. As urban area continue to expand and highway network and traffic volumes increase there is threat to animals while crossing the roads. All proposals for highways, railway tracks, canals and power lines passing through wildlife sanctuaries or national parks and protected areas willnow have to include a plan to provide for safe movement of wildlife and allocate budget for animal passage as per NBWL proceedings Dt. 25th Jan. 2018.

Mitigation measures are as per site environment, interaction with the local villagers and recommendations of Forest Officials. So the proper mitigation measures are taken for the fauna which are expected to be affected to the best of our knowledge. During the planning stage of proposed project it has been identified the surroundings and/or conflicting regional and local land uses. The animal passage plan is developed based on the "***Eco friendly measures to mitigate impacts of linear infrastructure on Wildlife"*** published byWildlife Institute of India.

The Animal Passage Plan for 31.9 ha. for widening and strengthening of existing Gulganj – Amanganj (NH -43 Ext.) Road Km 43.00 to Km 77.00 passing through Panna Tiger Reserve Buffer Zone, has been drafted. Certain structures have been proposed which will act as passes for wild animals for crossing the Highway without any hurdles/incidents.

For the safe movement of the animals, the Office of Executive Engineer has planned to provide culverts, overpasses & underpasses at suitable locations.

Project Corridor:

The proposed diversion for widening and strengthening of existing road has very negligible or null effect to the project. On critical analysis/observation of this project, it is observed that:

- The length of the project is merely 34 Kms out of which initial 17 Kms is passing through protected area.
- The land required for the proposed project is 31.9 ha. from Panna Tiger Reserve (Buffer Zone).
- There is no fear of in breeding resulting genetic drift.
- The speed limit of the vehicles will be strictly restricted to 80KM/H.
- Speed Regulating barriers will be installed at regular intervals.
- Noise and light effect will be substantially checked by the plantation.
- The loss of vegetation due to construction is compensated by plantingof local species along the site of the roads.

C/S
S.D.O.
W.D. (N.H.) Sub. Division
Chhatarpur (M.P.)

कार्यपालन यंत्री
लो.नि.वि.रा.रा. संभाग
सागर

Name of Project: Reconstruction and Widening of two - lane with paved shoulder section Km 43.00 to Km 77.00 on Gulganj – Amanganj – Pawai –Katni Road (NH – 43 Ext.)

Proposal No.: FP/MP/ROAD/121709/2021.

UNDERTAKING FOR ANIMAL PASSAGE PLAN

The Executive Engineer, NHPWD Division-Sagar gives Undertaking that,

As per minutes of meeting of 16th State Board for Wildlife held on 08/07/2019, theboard has recommended to National Board for Wildlife for consideration and necessary clearance subject to condition that Office of Executive Engineer, NHPWD Division, Sagar (User Agency) will prepare Wildlife Mitigation Plan/Animal Passage Plan in consultation with Chief Wildlife Warden, Madhya Pradesh State and get it approved, before starting the work.

The budget for the same shall be made available separately.

We shall ensure best possible practices to mitigate impacts on wildlife.

C/S
S.D.O.
W.D. (N.H.) Sub. Division
Chhatarpur (M.P.)

कार्यपालन यंत्री
लो.नि.वि.रा.रा. संभाग
सागर

1.5 Chhatarpur and Panna DISTRICT:

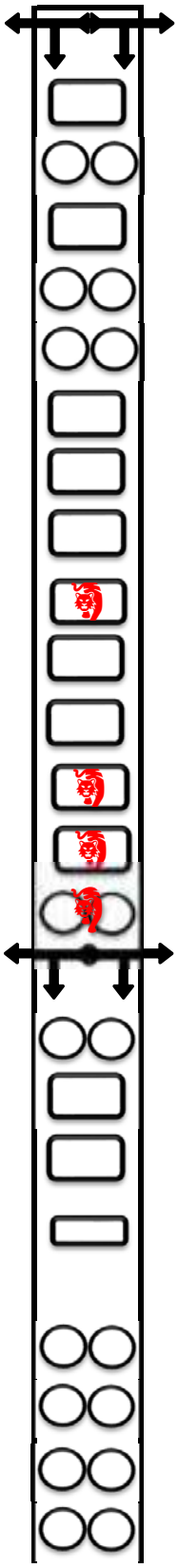
c/s
S.D.O.
W.D. (N.H.) Sub. Division
Chhatarpur (M.P.)

कार्यपालन यंत्री
लो.नि.वि.रा.रा. संभाग
सागर

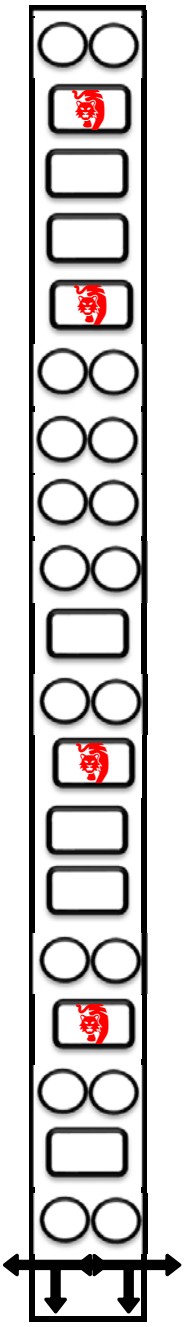
1.6 PROJECT LOCATION :

C/S
S.D.O.
W.D. (N.H.) Sub. Division
Chhatarpur (M.P.)

कार्यपालन यंत्री
लो.नि.वि.रा.रा. संभाग
सागर

Chainage		Type of Structure2	Remark
43+460		PSC T-Beam Bridge	
43+935		RCC Box Culvert	
44+080		HPC	
44+225		RCC Box Culvert	
44+670		HPC	
44+730		HPC	
44+930		RCC Box Culvert	
45+150		RCC Box Culvert	
45+250		RCC Box Culvert	
45+350		Animal Underpass	**Tiger Crossing**
45+740		RCC Box Bridge	Proposed Realignment
46+125		RCC Box Bridge	
46+350		Animal Underpass	**Tiger Crossing**
46+850		Animal Underpass	**Tiger Crossing**
47+820		HPC	
48+170		PSC T-Beam Viaduct	Proposed Realignment
48+475		HPC	
48+950		RCC Box Culvert	
49+300		RCC Box Culvert	Proposed Realignment
49+700		Animal Overpass	**Tiger Crossing**
49+950			Abondened
51+190		HPC	
51+385		HPC	
52+160		HPC	
52+750		HPC	Proposed Kishangarh bypass

Chainage		Type of Structure2	Remark
53+150		RCC Box Bridge	
53+600		VUP	
53+650		HPC	
54+500		HPC	
54+750		HPC	
54+870		RCC Box Bridge	
55+100		RCC Box Culvert	
55+350		RCC Box Culvert	
55+550		Animal Underpass	**Tiger Crossing**
55+950		RCC Box Culvert	
56+015		RCC Box Culvert	
56+100		RCC Box Culvert	Proposed Realignment
56+140		RCC Box Culvert	
56+315			
56+600		HPC	
56+755		HPC	
56+950		HPC	Proposed Realignment
57+875		RCC Box Culvert	
58+200		RCC Box Culvert	
59+615		RCC Box Culvert	
59+810		RCC Box Culvert	
60+680		RCC Box Bridge	
61+670		RCC Box Culvert	
61+680		HPC	
62+780		HPC	

Chainage		Type of Structure2	Remark
64+200		HPC	
65+240		Animal Underpass	**Tiger Crossing**
65+720		RCC Box Culvert	
67+230		RCC Box Culvert	
67+500		Animal Underpass	**Tiger Crossing**
68+085		HPC	
68+240		HPC	
68+400		HPC	
69+515		HPC	
69+650		RCC Box Culvert	
70+420		HPC	
70+820		Animal Underpass	**Tiger Crossing**
71+410		RCC Box Culvert	
71+600		RCC Box Culvert	
72+050		HPC	Proposed Realignment
72+900		Animal Underpass	**Tiger Crossing**
74+300		HPC	
74+310		RCC Box Culvert	
74+600		HPC	
76+100		PSC T-Beam Bridge	Proposed Realignment

Construction of 2-L+P.S Flexible Pavement from Km 43.000 to Km 77.00 of Gulganj - Katni NH-43 Extn. (Length 34.0 Kms) in the State of Madhya Pradesh on EPC Mode

2-Lane Paved Shoulders

Length= 34.000 Kms.

GENERAL ABSTRACT

Sr. No.	Sub Head	Cost of one time improvement (Rs. in Crore)	Cost of two lane with paved shoulders (Rs. in Crore)	Total Cost (Rs. in Crore)	Cost per Km (Cr.)
1	Site-Clearance		0.22	0.22	
2	Earthwork		10.36	10.36	
3	Sub-base, Base Courses		21.51	21.51	
4	Flexible Pavement	0.04	27.93	27.97	
5	Rigid Pavement (0.700 Km in built-ups + one time improvement with Conventional White Topping)	1.12	2.66	3.78	
6	Traffic Signs, Marking and Road Appurtenances		11.57	11.57	
7	Drainage & Protection Work		17.25	17.25	
8	Junction Improvement		2.82	2.82	
9	HPC (Nos.:36)		1.49	1.49	
10	Box culverts(Nos.:24)		9.47	9.47	
11	Minor Bridge (Nos.:5)		5.68	5.68	
12	Animal Under Pass (Nos.:8)		58.77	58.77	
13	Animal Over Pass (Nos.:1)		2.64	2.64	
14	Viaduct (PSC T-Beam) (Nos.:1)		6.08	6.08	
15	Vehicular Underpass (Nos.:1)		4.23	4.23	
16	Major Bridges (Nos.:2)		45.79	45.79	
17	Pick-up Bus Stops with Passenger Shelters (2x4 Nos)		0.66	0.66	
18	Miscelleneous Works (RWH, Avenue Tree Plantation)		0.89	0.89	
A	**Total Civil Construction Cost**	**1.16**	**230.02**	**231.18**	**6.80**
i	GST @ 18% on (A)	0.21	41.40	41.61	
ii	Contingencies @ 1.0% on (A)	0.01	2.30	2.31	
iii	Agency Charges @ 3% on (A)	0.03	6.90	6.93	
iv	Supervision Consulatncy Charges @ 3% on (A)	0.03	6.90	6.93	
v	Price Escalation@ 2.5% on (A)	0.03	5.75	5.78	
vi	Post Construction Maintenance @ 2.5%	0.03	6.79	6.82	
B	**Total Cost of Centages**	**0.34**	**70.04**	**70.38**	**2.07**
	Total Civil Construction Cost i/c Centages	**1.50**	**300.06**	**301.56**	**8.87**
i	Land Acquisition and R&R Cost (17.244Ha)		1.20	1.20	
ii	Forest Diversion Cost (31.90 Ha)		7.98	7.98	
iii	Shifting of Electrical Utilities		3.14	3.14	
iv	Shifting of Water Supply Utilities		1.36	1.36	
v	EMP Cost (Tree Plantation 2 times of tree cutting)		0.31	0.31	
C	**Total Cost of Preconstruction Activites**	**0.00**	**13.99**	**13.99**	**0.41**
D	**Total Capital Cost of the Project = A+B+C**	**1.50**	**314.05**	**315.55**	**9.28**

Construction of 2-L+P.S Flexible Pavement from Km 43.000 to Km 77.00 of Gulganj - Katni NH-43 Extn. (Length 34.0 Kms) in the State of Madhya Pradesh on EPC Mode							
Details of Quantity Calculation of Road Work							
Sr. No.	**Item**	**Unit**	**Nos.**	**Length**	**Width**	**Height**	**Quantity**
27	**Direction and Place Identification signs upto 0.9 sqm size board.** Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT&H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT&H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT&H specification of in the clause IRC 6.8 of the	sqm	30	1.00	0.90		27.00
28	Supply and fixing tubular gantry mounted Overhead/cantilever signs. All components of signs & supports, other than the reflective portion shall be thoroughly descaled, cleaned, primed and painted with two coats of epoxy paints. The sign back side shall be with grey colour and post shall be in black & white alternate bands. The post below ground shall be painted with three coats of red lead paint. The sign shall be made as per IRC-67-2012 and Technical Specification Section 800.						
i)	Erection of overhead gantry/cantilever structure as per drawing including steel work in trusses, steel tubes cutting, fixing in position with welding and bolted complete in all respect and type as per structural design requirements and approved plans including cost of excavation, concerte and steel for foundations.	tonnes					
	Overhead Gantry		1	2.31	Wt.		2.31
	Cantilever Gantry		5	0.91	Wt.		4.55
					Total		**6.86**
ii)	The sign board made out of 2 mm thick alluminium sheet, face to be fully covered by high intensity grade white retro reflective sheeting of encapsulated lens type. The background/border /simples/legend/arrows shall be made by transparent overlay film of desired colour as per sign details except those in black which shall be of non reflective type. The sign place shall be fixed with 6 mm dia alluminium rebate on MS angle iron frame. The angle iron frame shall be made with angle of size 75 mm x 75 mm x 6 mm with additional bracing at every 600 mm c/c, if any dimension in more than 1200 mm.	sqm					
	Overhead Gantry		2	16.80	Area		33.60

Construction of 2-L+P.S Flexible Pavement from Km 43.000 to Km 77.00 of Gulganj - Katni NH-43 Extn. (Length 34.0 Kms) in the State of Madhya Pradesh on EPC Mode							
Details of Quantity Calculation of Road Work							
Sr. No.	**Item**	**Unit**	**Nos.**	**Length**	**Width**	**Height**	**Quantity**
	TRAFFIC SIGNS, MARKINGS AND ROAD APPURTENANCES						
26	**Retro- reflectorised Traffic signs** Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign board as per IRC 67-2012 made of high intensity Micro-Prismatic Grade Sheeting (Type IV) vide IRC: 67:2012 clause 6.7.3.2 and clause 801.3.3 of MoRT &H fixed over Aluminum composite material sheet with thermoplastic core of Low density polyethylene (LDPE) between two thick skins/sheets of aluminum with overall thickness of 4mm and aluminum skin of thickness 0.3 on both side, the ACM shall conform to Table 6.1 of IRC:67:2012 and Table 800-1 of MoRT &H specification and High Intensity Micro Prismatic Grade Sheeting shall conform to Table 6.6 of IRC:67:2012 and Table 800-3 of MoRT &H specification of in the clause IRC 6.8 of the IRC 67-2012 and clause 801.3.7 of MORTH message legend numerical letter etc. and borders shall be screen printed on high intensity micro prismatic sheeting shall conform to clause 801.3.7 with digital printing ink or of cutout from transparent durable overlay or cutout from the same type of reflecting sheeting for cautionary/ mandatory/ signs, supported on MS sign post of size 75mm x75mm x 6mm of 3.60 meter over all length and fix to ground by means of properly designed foundation of dimension 450x450x600mm with M20 grade concrete. The ACM sheet shall be fixed to the post with four minimum four number breakaway bolts. & supported with a back support frame of 25mmx25mmx3mm angle. 7 years warranty for Retro Reflection Sheeting to be provided from the original sheeting manufacture as per clause 6.9 of IRC: 67:2012 & a certified copy for three years for outdoor exposure report from an independent test lab as per clause 6.7 of IRC: 67:2012 for the product offered shall be submitted by the contractor. Note:- Manufacture name and date of manufacture is to be printed (Embossed) at the backside						
i)	90 cm equilateral triangle Cautionary/Warning Sign	each	134				**134.00**
ii)	60 cm circular (Mandatory/Regulatory Signs) Speed Restriction Sign	each	6				**6.00**
iii)	80 cm x 60 cm rectangular Informatory Signs	each	62				**62.00**
iv)	60 cm x 45 cm rectangular Informatory Signs/Cheveron Sign + Route Marker Sign + Object Hazard Marker	each	1122				**1122.00**

Forest Land Diversion Details for Panna Reserve Tiger

under NH - 43 Ext. Gulganj - Amanganj - Pawai - Katni Road (PWD-NH, Div.- Sagar, Sagar)

Proposal no. SW/280598/2022

FP/MP/ROAD/121709/2021

Sr. No.	Plot No.	Proposed RoW	CH. From	CH. To	Length (M)	Required Width (M)	Area (Hact)	DETAILS	Nearest Village
1	2	3	4	5	6	7	8	9	10
Wildlife Century (Panna Reserve Tiger Buffer Zone) Kishungarh									
1	519 or 521	25	43.90	43.95	50	25	0.13	Kisungarh Buffer Zone	Salaiya Veer
2		25	43.95	44.10	150	17	0.25	Kisungarh Buffer Zone	Salaiya Veer
3		25	44.10	44.15	50	25	0.12	Kisungarh Buffer Zone	Salaiya Veer
4		25	44.15	45.70	1550	17	2.64	Kisungarh Buffer Zone	Salaiya Veer
5	521	35	45.70	46.09	390	35	1.37	Kisungarh Buffer Zone	Salaiya Veer
6	520 or 514	35	46.09	46.17	80	35	0.28	Kisungarh Buffer Zone	Raipura
7	514	35	46.17	46.45	280	27	0.76	Kisungarh Buffer Zone	Raipura
8	514	25	46.45	47.70	1250	17	2.13	Kisungarh Buffer Zone	Raipura
9	514	35	47.70	48.00	300	27	0.81	Kisungarh Buffer Zone	Raipura
10	514	35	48.00	48.12	120	35	0.42	Kisungarh Buffer Zone	Raipura
11	520	35	48.12	48.50	380	35	1.33	Kisungarh Buffer Zone	Salaiya Veer
12	520	35	48.50	48.73	230	27	0.62	Kisungarh Buffer Zone	Salaiya Veer
13	520	25	48.73	49.30	570	17	0.97	Kisungarh Buffer Zone	Salaiya Veer
14	520	25	49.30	49.40	100	17	0.17	Kisungarh Buffer Zone	Salaiya Veer
15	520	25	49.40	49.60	200	17	0.34	Kisungarh Buffer Zone	Salaiya Veer
16	520	25	49.60	49.70	100	17	0.17	Kisungarh Buffer Zone	Salaiya Veer
17	520	25	49.70	49.85	150	17	0.25	Kisungarh Buffer Zone	Salaiya Veer
18	454	25	49.85	50.85	1000	17	1.70	Kisungarh Buffer Zone	Raipura
19	458	25	54.90	54.95	50	17	0.09	Kisungarh Buffer Zone	Kishungarh
20	459	25	54.90	56.35	1450	17	2.47	Kisungarh Buffer Zone	Kishungarh
21	479	25	64.75	68.00	3250	17	5.53	Kisungarh Buffer Zone	Patna
22	475	25	68.00	69.70	1700	17	2.89	Kisungarh Buffer Zone	Ghori
Kisungarh Range					**13400.00**		**25.42**		
Wildlife Century (Panna Reserve Tiger Buffer Zone) Amanganj									
23	1283	25	69.70	70.61	910	17	1.55	Amanganj Buffer Zone	Udla
24	1283	25	70.61	70.75	140	25	0.35	Amanganj Buffer Zone	Udla
25	1283	25	70.75	71.40	650	17	1.11	Amanganj Buffer Zone	Udla
26	1284	25	71.40	71.50	100	25	0.25	Amanganj Buffer Zone	Udla
27	1284	25	71.50	73.35	1850	17	3.14	Amanganj Buffer Zone	Udla
Amanganj Range					**3650.00**		**6.40**		
Total PRT Buffer					**17050.00**		**31.81**		

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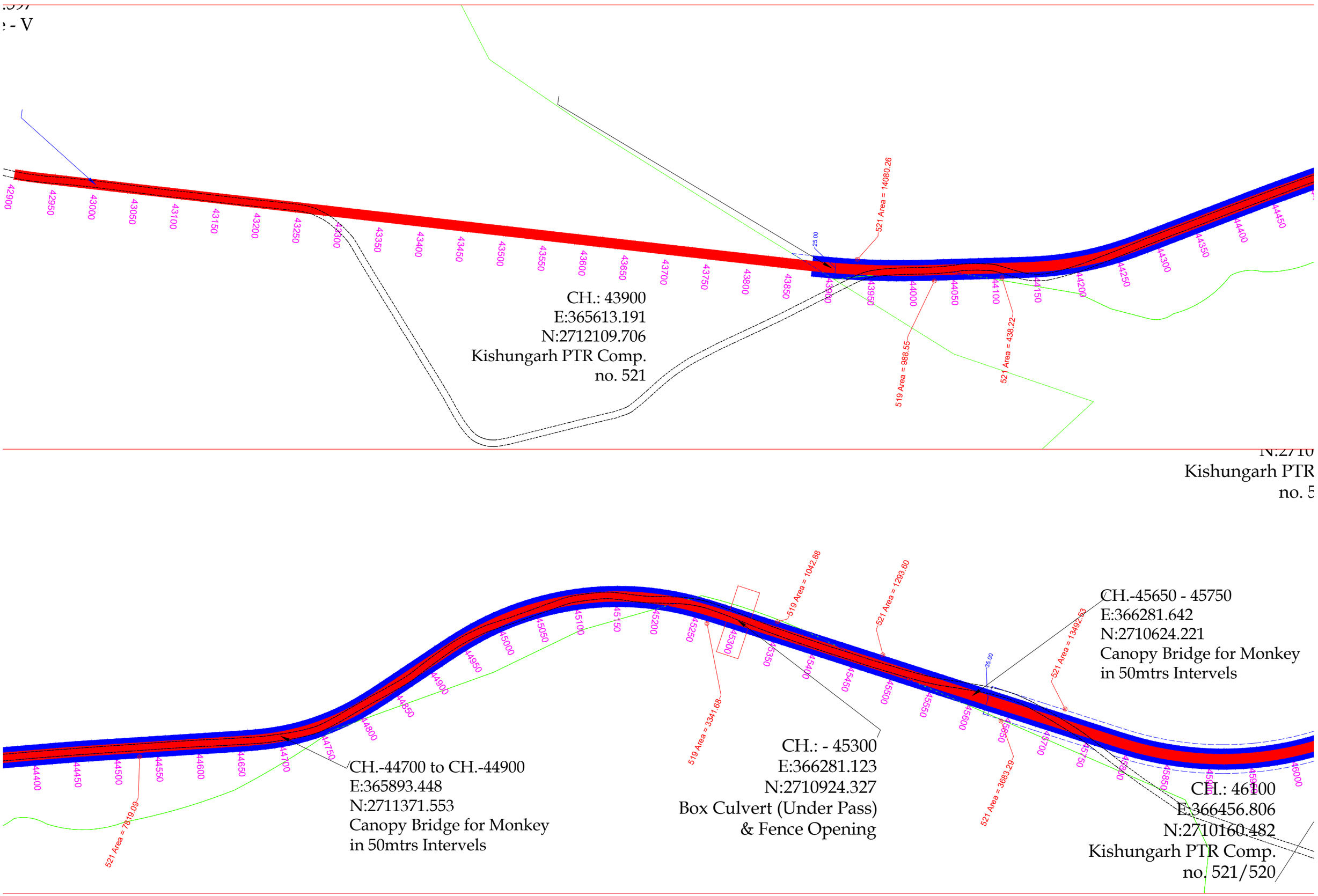
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Kishungarh PTR Comp.
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46000
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Canopy Bridge for Monkey
in 50mtrs Intervels
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Box Culvert (Under Pass)
& Fence Opening
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Canopy Bridge for Monkey
in 50mtrs Intervels
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in 50mtrs intervels E:366478.562
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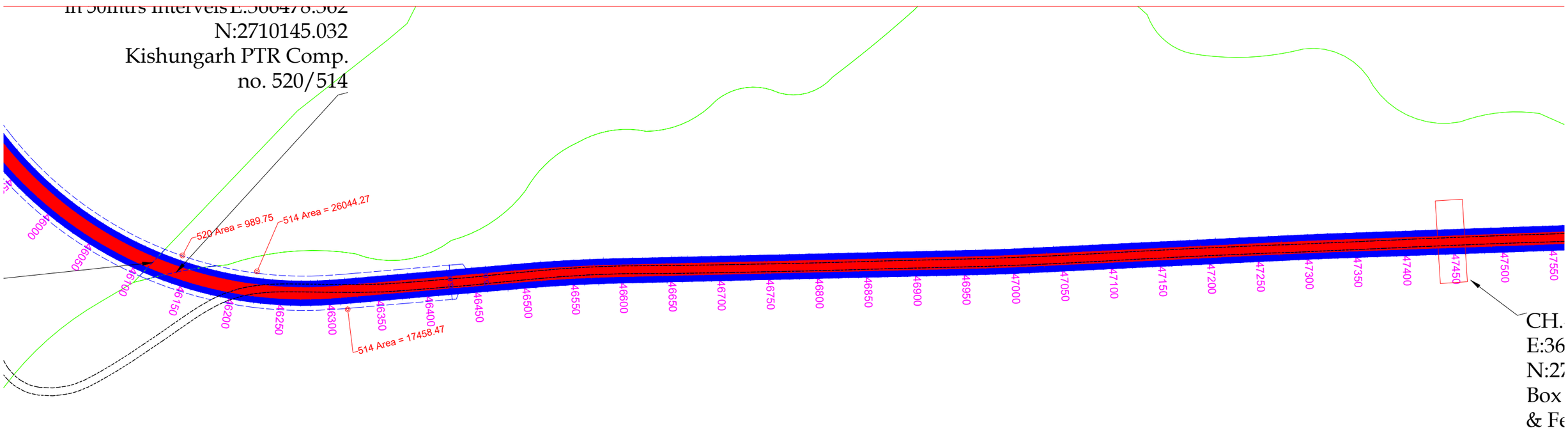
no. 520/514



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Box
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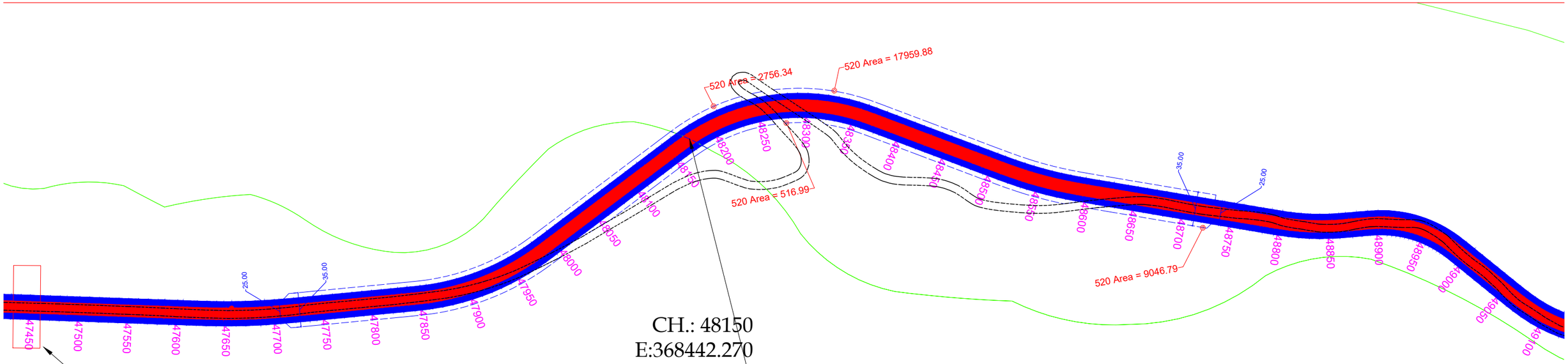
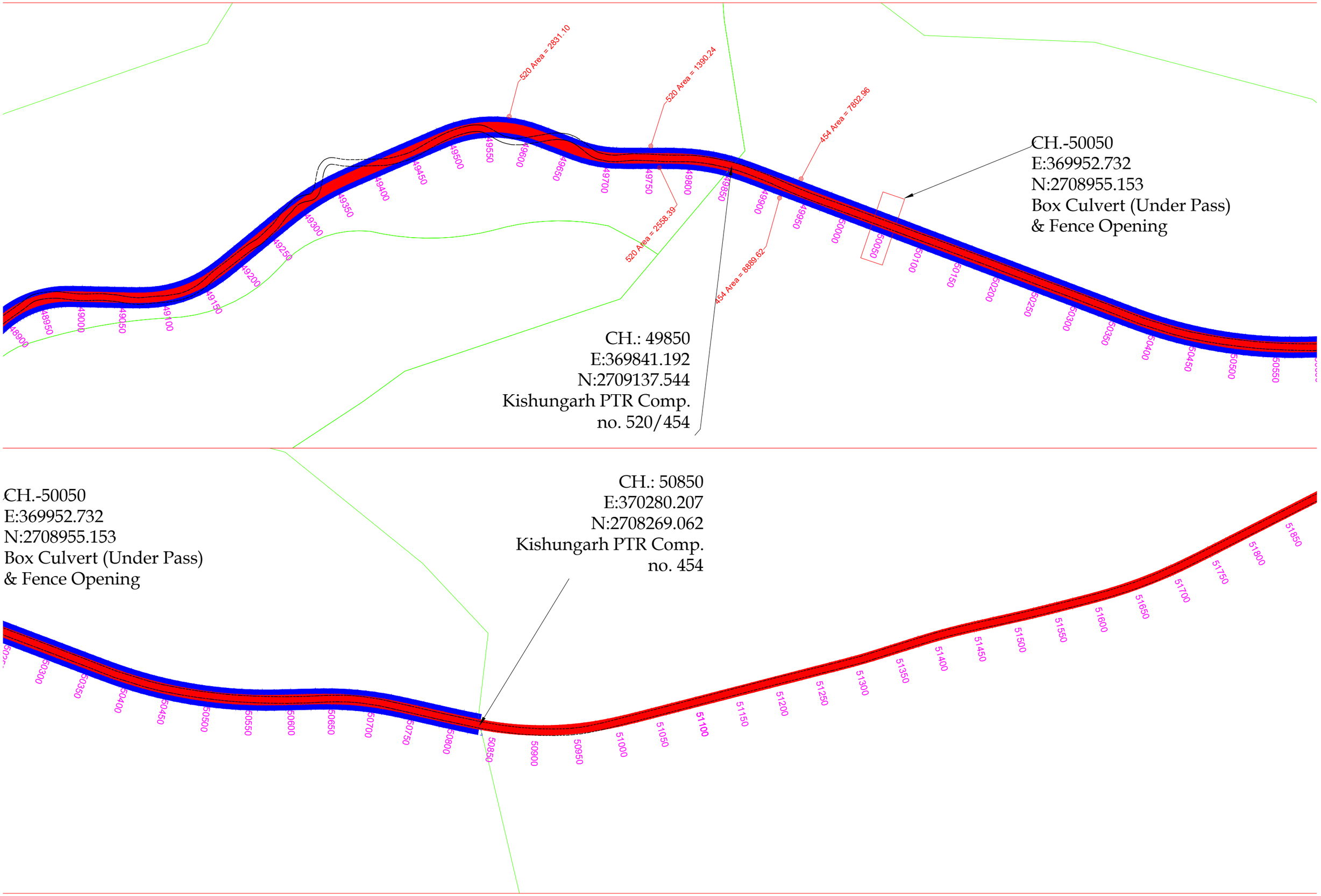
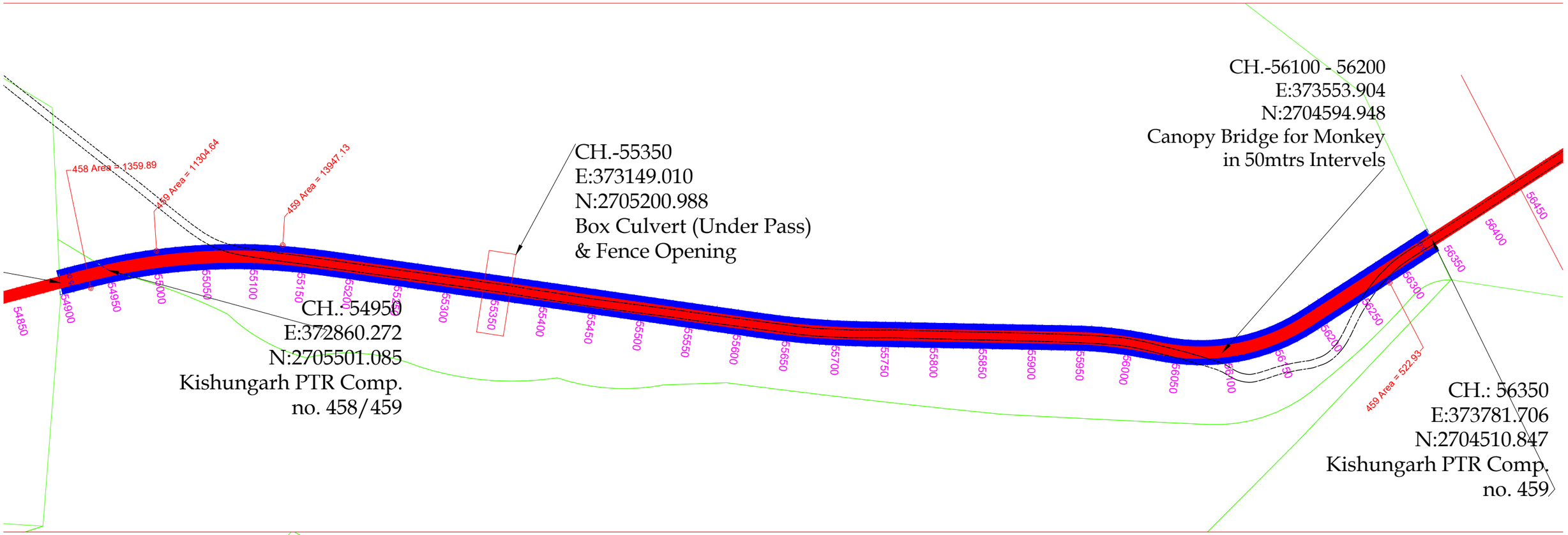
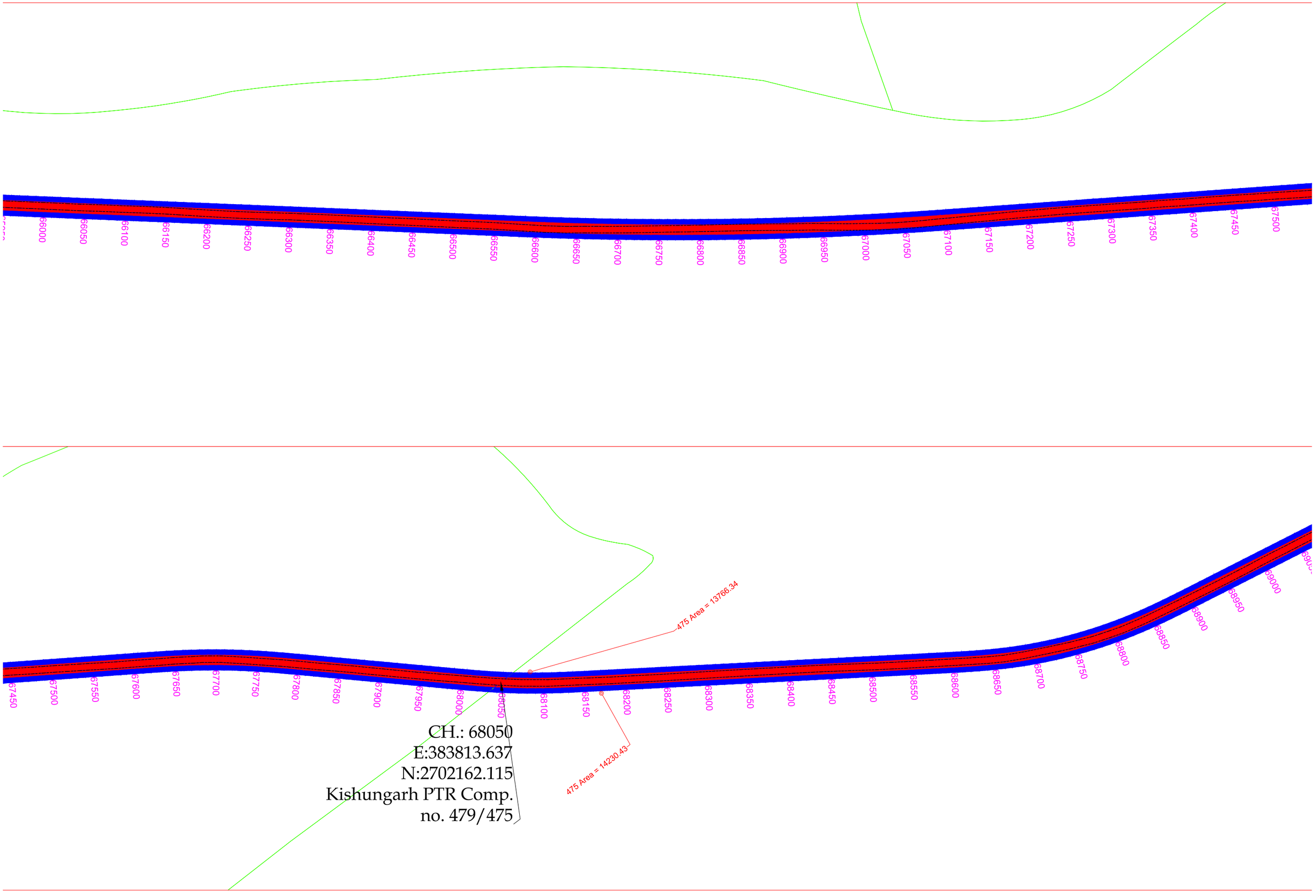


CH.-47450
E:367754.855
N:2709801.207
Box Culvert (Under Pass)
& Fence Opening

CH.: 48150
E:368442.270
N:2709888.096
Kishungarh PTR Comp.
no. 514/520


520 Area = 2831.10
520 Area = 1390.24
454 Area = 7802.96
520 Area = 2558.39
454 Area = 8889.62
CH.-50050
E:369952.732
N:2708955.153
Box Culvert (Under Pass)
& Fence Opening
CH.: 49850
E:369841.192
N:2709137.544
Kishungarh PTR Comp.
no. 520/454
CH.-50050
E:369952.732
N:2708955.153
Box Culvert (Under Pass)
& Fence Opening
CH.: 50850
E:370280.207
N:2708269.062
Kishungarh PTR Comp.
no. 454


458 Area = 1359.89
459 Area = 11304.64
459 Area = 13947.13
CH.-55350
E:373149.010
N:2705200.988
Box Culvert (Under Pass)
& Fence Opening
CH.-56100 - 56200
E:373553.904
N:2704594.948
Canopy Bridge for Monkey
in 50mtrs Intervels
CH.: 54950
E:372860.272
N:2705501.085
Kishungarh PTR Comp.
no. 458/459
459 Area = 522.93
CH.: 56350
E:373781.706
N:2704510.847
Kishungarh PTR Comp.
no. 459
CH.: 64750
E:381211.179
N:2704199.465
Kishungarh PTR Comp.
no. 479
479 Area = 28258.99


475 Area = 13766.34
475 Area = 14230.43
CH.: 68050
E:383813.637
N:2702162.115
Kishungarh PTR Comp.
no. 479/475

CH.-69515
E:385144.128
N:2701605.699
Box Culvert (Under Pass)
& Fence Opening

CH.: 69700
E:385317.632
N:2701562.390
Kishungarh PTR Comp.
no. 475
Amaganj PTR Comp. no.
1283

1283 Area = 16526.15

1283 Area = 7467.09

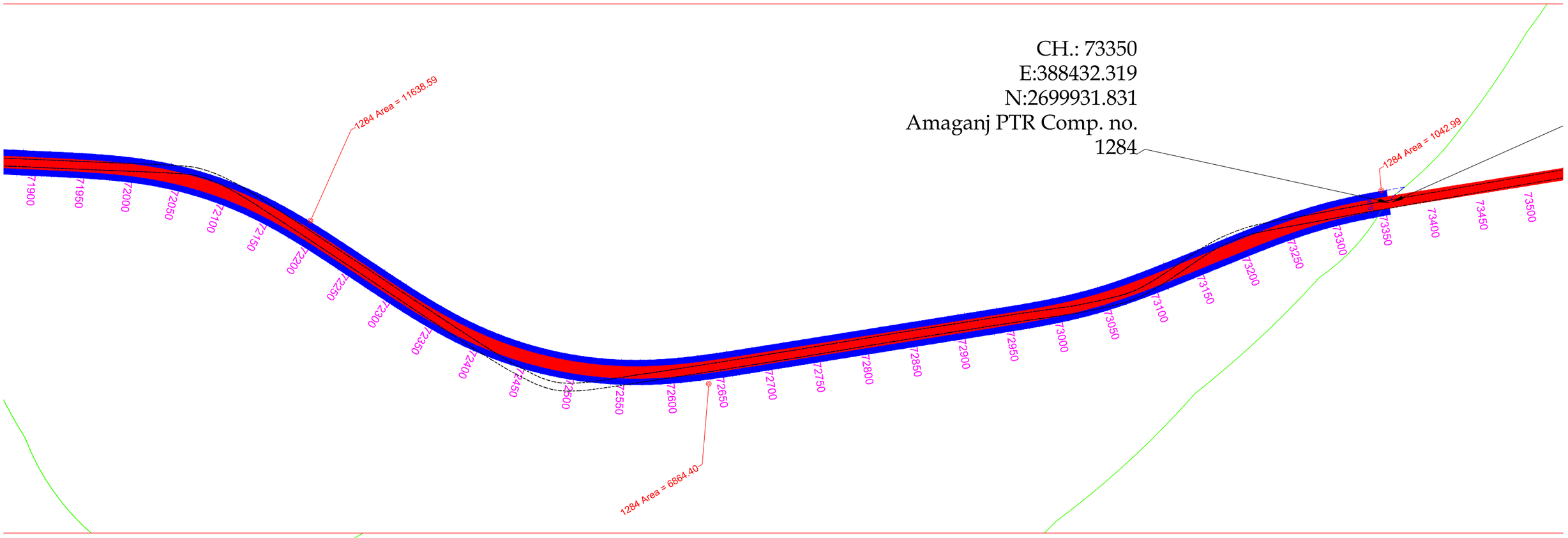
CH.: 71350
E:386799.338
N:2700950.257
Amaganj PTR Comp. no.
1283/1284

1284 Area = 678.10

1284 Area = 4295.64

1284 Area = 10419.01

1283 Area = 4916.82


CH.: 73350
E:388432.319
N:2699931.831
Amaganj PTR Comp. no.
1284
1284 Area = 11638.59
1284 Area = 1042.99
1284 Area = 6864.40
71900
71950
72000
72050
72100
72150
72200
72250
72300
72350
72400
72450
72500
72550
72600
72650
72700
72750
72800
72850
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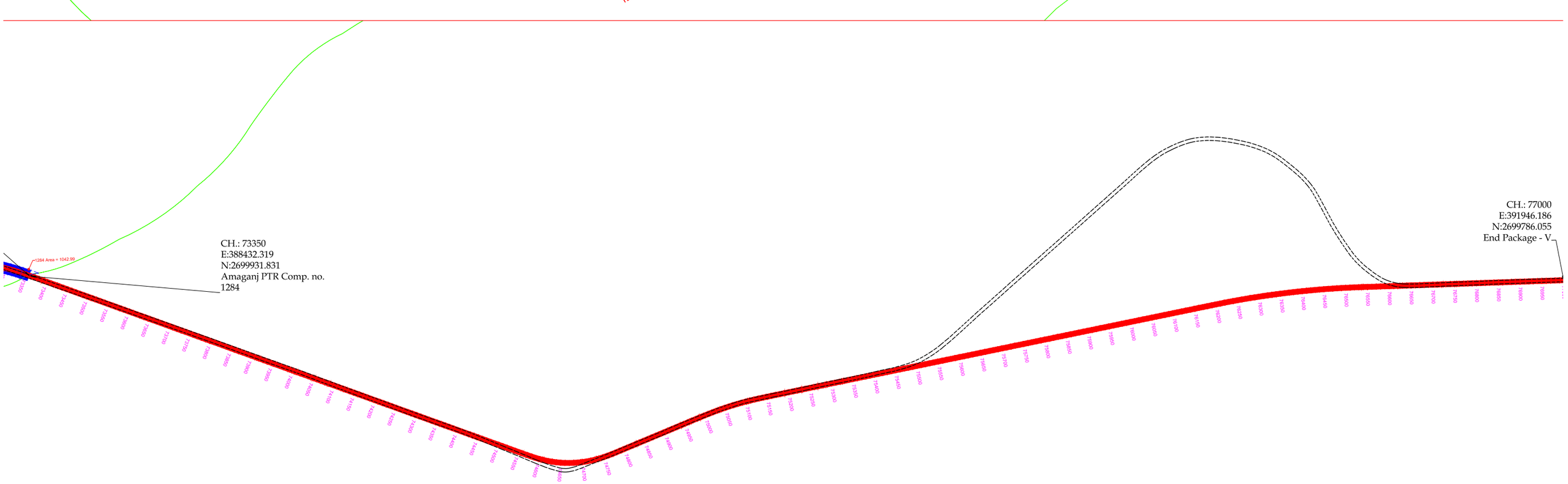
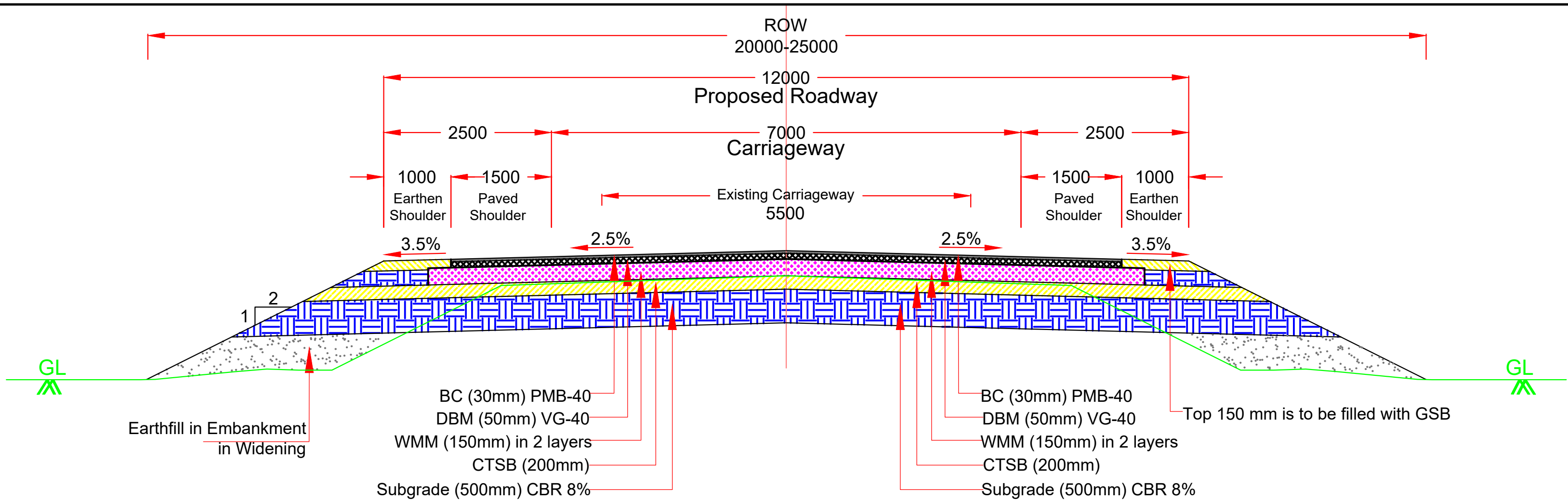
73450
73500

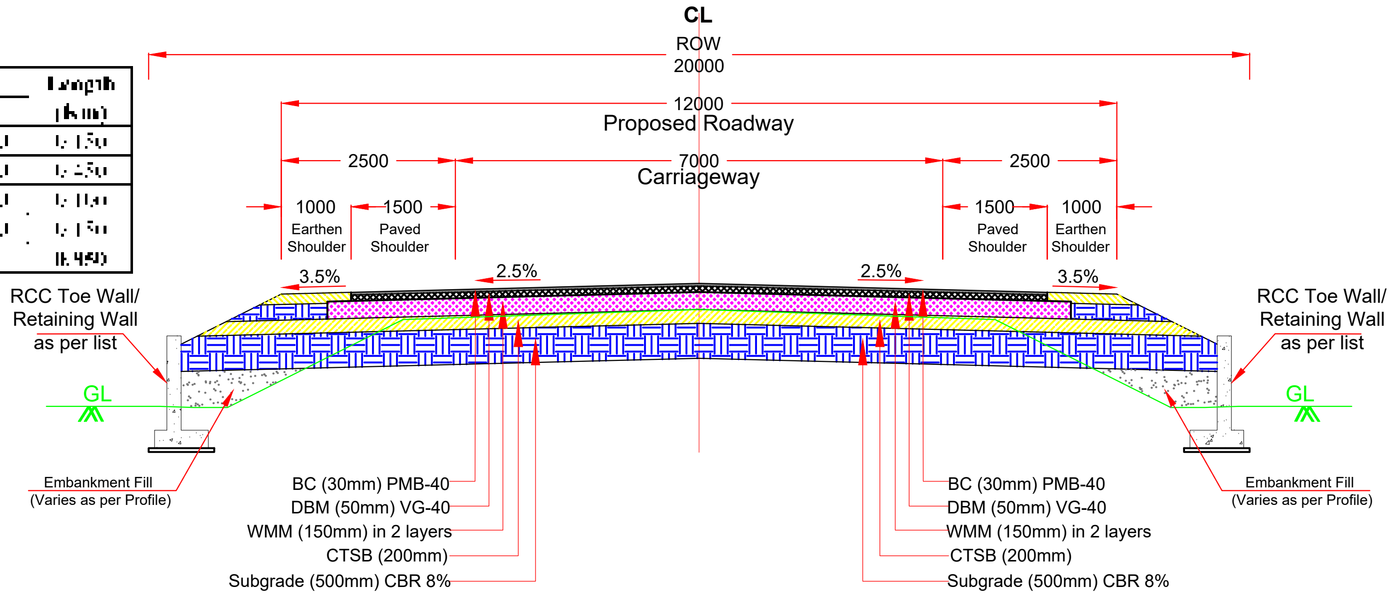

CH.: 73350
E:388432.319
N:2699931.831
Amaganj PTR Comp. no.
1284
1284 Area = 1042.99
CH.: 77000
E:391946.186
N:2699786.055
End Package - V

Sr. No.	Chainage From	Chainage To	Length (km)
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
	Total		[illegible]



TCS-I-A: RECONSTRUCTION OF EXISTING INTERMEDIATE LANE CARRIAGEWAY TO 2-LANE CARRIAGEWAY WITH PAVED SHOULDERS
FLEXIBLE PAVEMENT IN OPEN COUNTRY
ALL DIMENSIONS ARE IN MM

Sr. No.	Chainage From	Chainage To	Length (km)
1	43.100	43.250	0.150
2	47.250	47.500	0.250
3	74.900	75.000	0.100
4	76.650	76.800	0.150
	Total		[illegible]



TCS-I-B RECONSTRUCTION OF EXISTING INTERMEDIATE LANE CARRIAGEWAY TO 2-LANE CARRIAGEWAY WITH PAVED SHOULDERS FLEXIBLE PAVEMENT IN OPEN COUNTRY (PROVISION OF TOE WALL/ RETAINING WALL TO RESTRICT TOE LINE)
ALL DIMENSIONS ARE IN MM

CONSULTANT :
K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar,
Nagpur 440 033 (M.H.)
Tel: 91 712 2556402, 2557031
Fax: 91 712 2556403
Email: contact@knjprojects.com
Web: www.knjprojects.com

CLIENT :
MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

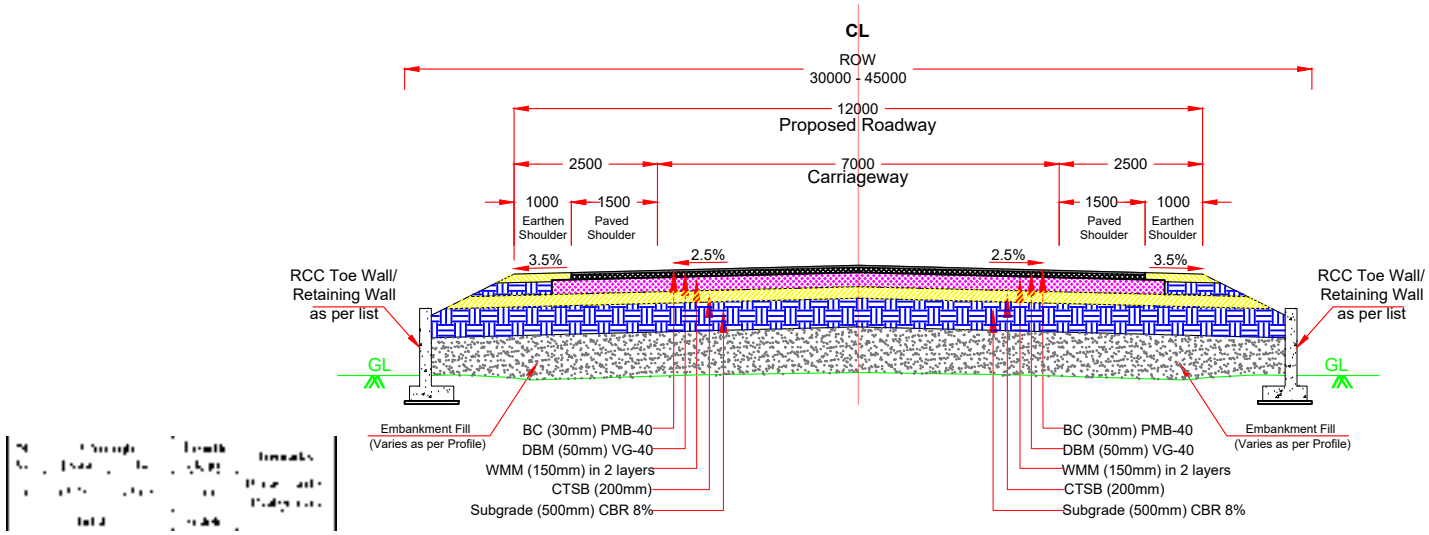
PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

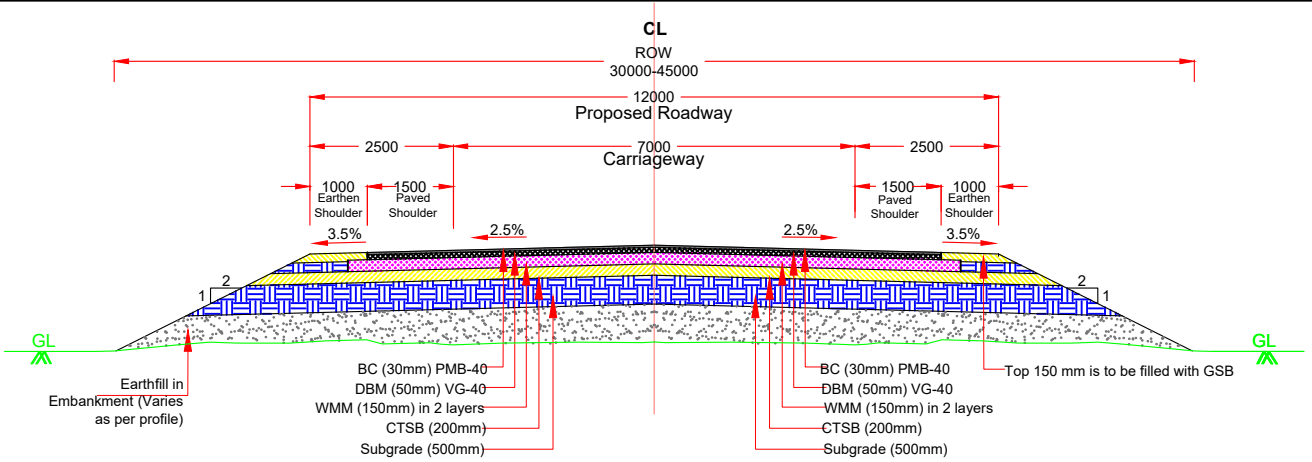
	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
Km 43+000 to 77+000
TYPICAL CROSS SECTION

DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V) (1)



TCS-II-A NEW CONSTRUCTION OF 2-LANE WITH PAVED SHOULDERS FLEXIBLE PAVEMENT IN OPEN COUNTRY
(PROVISION OF TOE WALL/ RETAINING WALL TO RESTRICT TOE LINE)
ALL DIMENSIONS ARE IN MM



TCS-II-B: NEW CONSTRUCTION OF 2-LANE CARRIAGEWAY WITH PAVED SHOULDERS FLEXIBLE PAVEMENT ON REALIGNMENTS
ALL DIMENSIONS ARE IN MM

CONSULTANT :
K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar,
Nagpur 440 033 (M.H.)
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CLIENT :
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Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
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PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

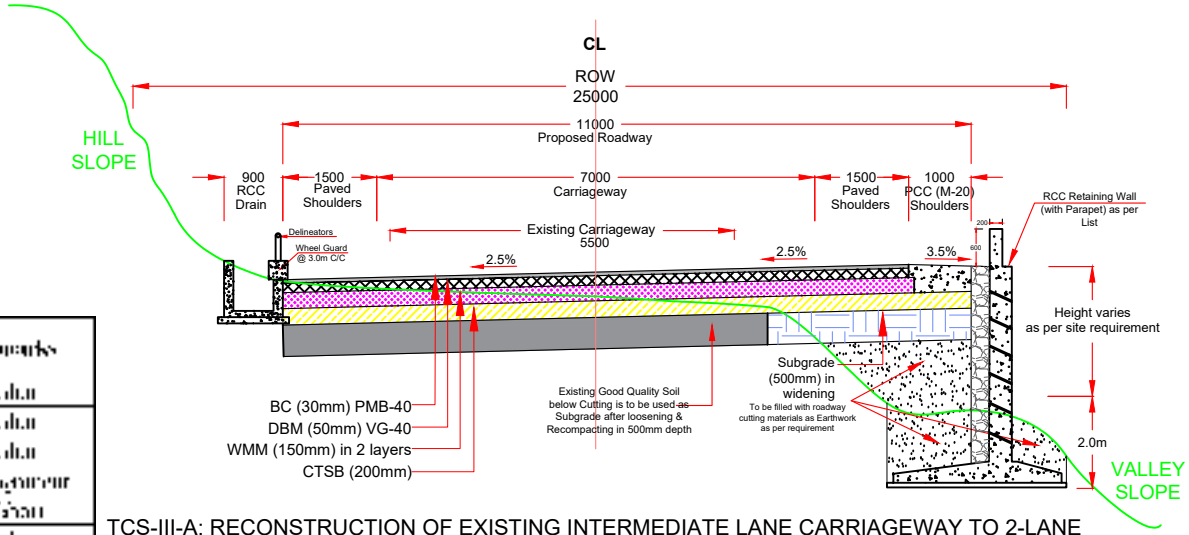
REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

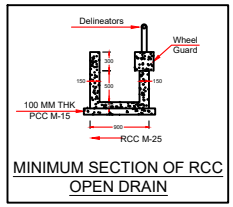
	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E) Km 43+000 to 77+000
TYPICAL CROSS SECTION

DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V) (2)

Sr. No.	Chainage From	Chainage To	Length (Km)	Remarks
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	Realignment (Ghat)
5	[illegible]	[illegible]	[illegible]	[illegible]
	Total		[illegible]	



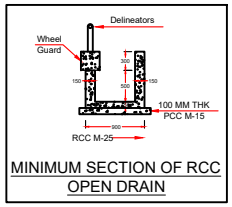


MINIMUM SECTION OF RCC OPEN DRAIN

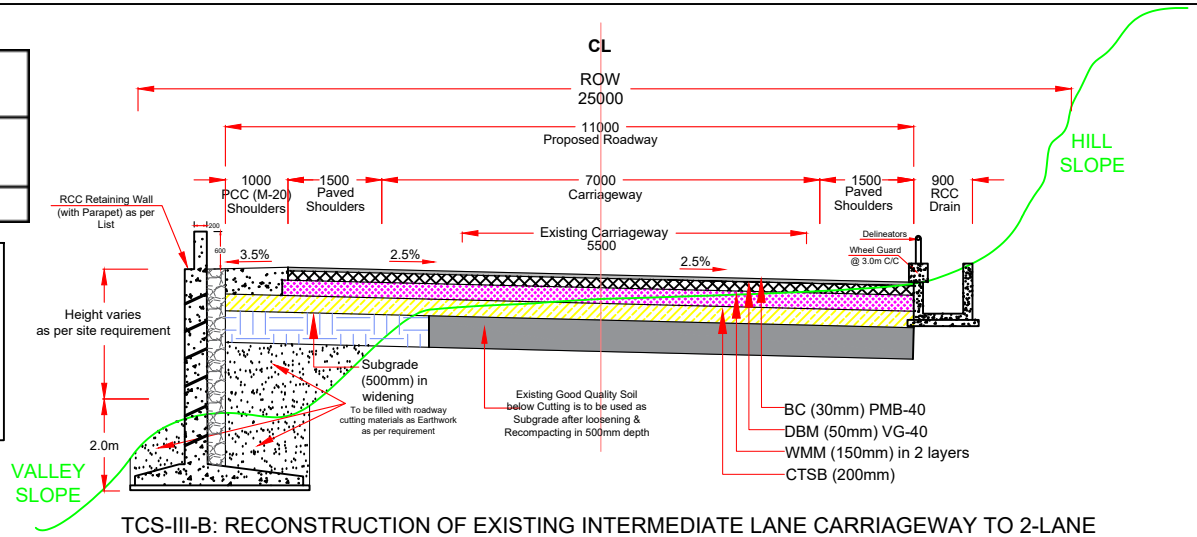
TCS-III-A: RECONSTRUCTION OF EXISTING INTERMEDIATE LANE CARRIAGEWAY TO 2-LANE CARRIAGEWAY WITH PAVED SHOULDERS FLEXIBLE PAVEMENT IN GHAT SECTIONS (RETAINING WALL ON RHS)

ALL DIMENSIONS ARE IN MM

Sr. No.	Chainage From	Chainage To	Length (Km)	Remarks
1	19.520	49.550	0.230	Realignment (Ghat)
	Total		0.230	



MINIMUM SECTION OF RCC OPEN DRAIN



TCS-III-B: RECONSTRUCTION OF EXISTING INTERMEDIATE LANE CARRIAGEWAY TO 2-LANE CARRIAGEWAY WITH PAVED SHOULDERS FLEXIBLE PAVEMENT IN GHAT SECTIONS (RETAINING WALL ON LHS)

ALL DIMENSIONS ARE IN MM

CONSULTANT :

K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar,
Nagpur 440 033 (M.H.)
Tel: 91 712 2556402, 2557031
Fax: 91 712 2556403
Email: contact@knjprojects.com
Web: www.knjprojects.com

CLIENT :

MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

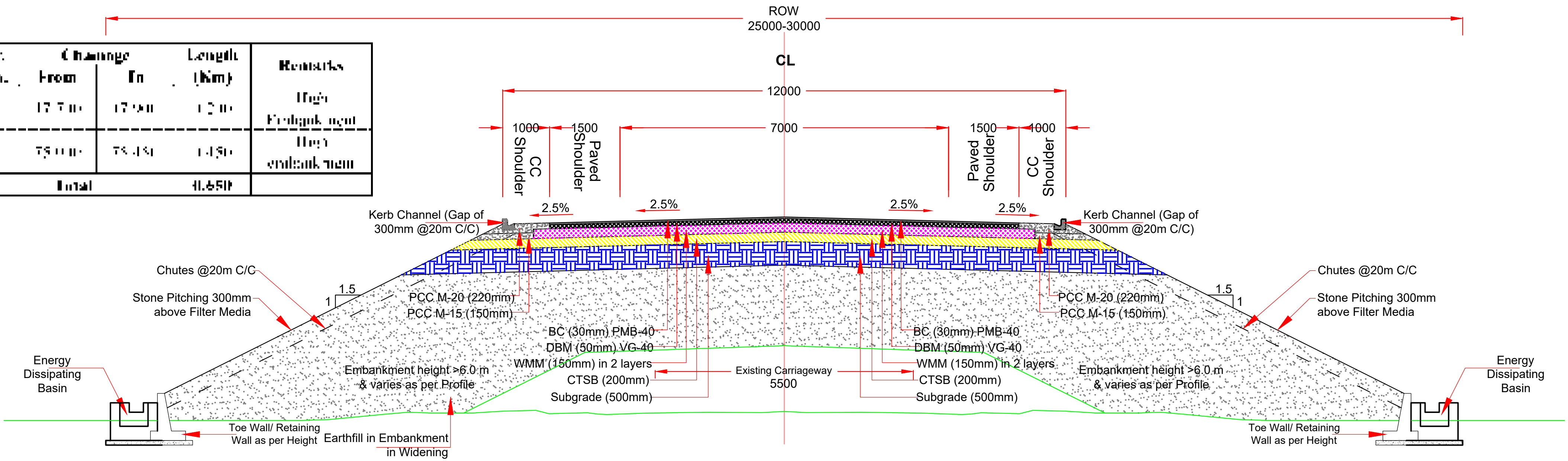
REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
Km 43+000 to 77+000
TYPICAL CROSS SECTION

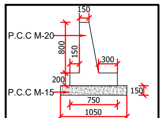
DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V) (3)

Sr. No.	Chainage From	Chainage To	Length (Km)	Remarks
1	[illegible]	[illegible]	[illegible]	High Embankment
2	[illegible]	[illegible]	[illegible]	High embankment
Total			0.650	

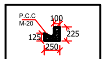


TCS-IV: RECONSTRUCTION OF EXISTING INTERMEDIATE LANE CARRIAGEWAY TO 2-LANE CARRIAGEWAY WITH PAVED SHOULDERS FLEXIBLE PAVEMENT IN OPEN COUNTRY (EMBANKMENT HEIGHT >6.0 M)

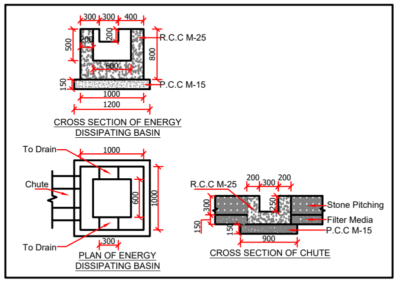
ALL DIMENSIONS ARE IN MM



DETAILS OF PCC TOE WALL



DETAILS OF KERB CHANNEL



CROSS SECTION OF ENERGY DISSIPATING BASIN

PLAN OF ENERGY DISSIPATING BASIN

CROSS SECTION OF CHUTE

CONSULTANT :

K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar,
Nagpur 440 033 (M.H.)
Tel: 91 712 2556402, 2557031
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CLIENT :

MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

PROJECT TITLE :

UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

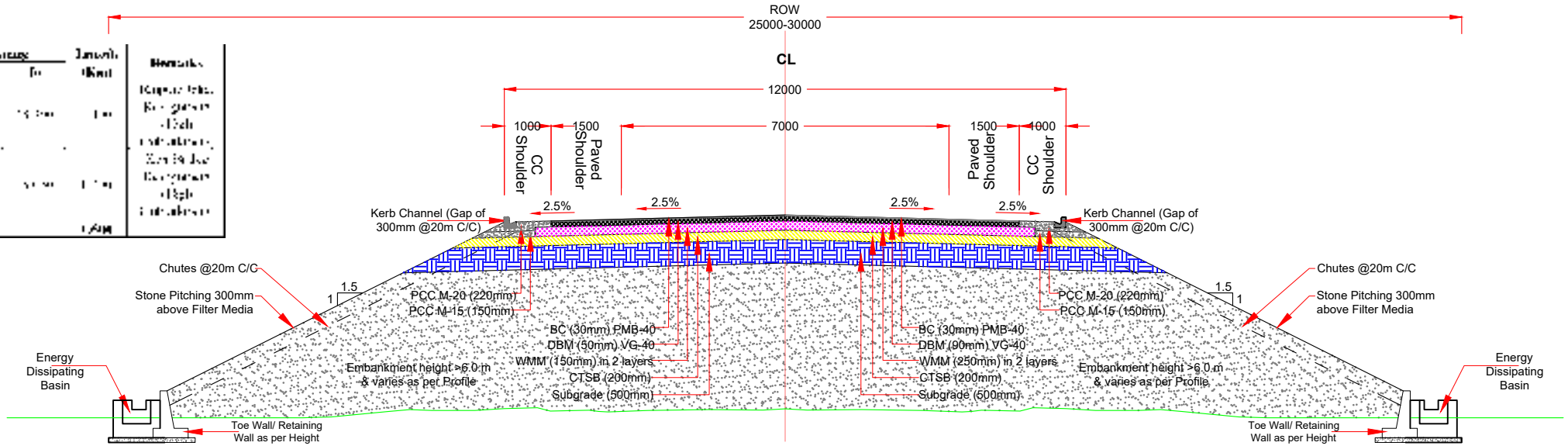
DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
Km 43+000 to 77+000

TYPICAL CROSS SECTION

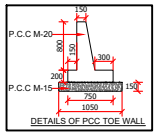
DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V) (4)

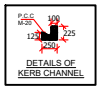
Sr. No.	Chainage From	Chainage To	Length (Km)	Remarks
	Total			

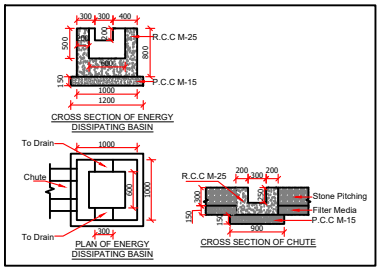


TCS-V: NEW CONSTRUCTION OF 2-LANE PAVED SHOULDERS CARRIAGEWAY WITH FLEXIBLE PAVEMENT ON REALIGNMENTS (EMBANKMENT HEIGHT >6.0 M)

ALL DIMENSIONS ARE IN MM







CONSULTANT :

K&J PROJECTS PVT. LTD.
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Nagpur 440 033 (M.H.)
Tel: 91 712 2556402, 2557031
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CLIENT :

MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

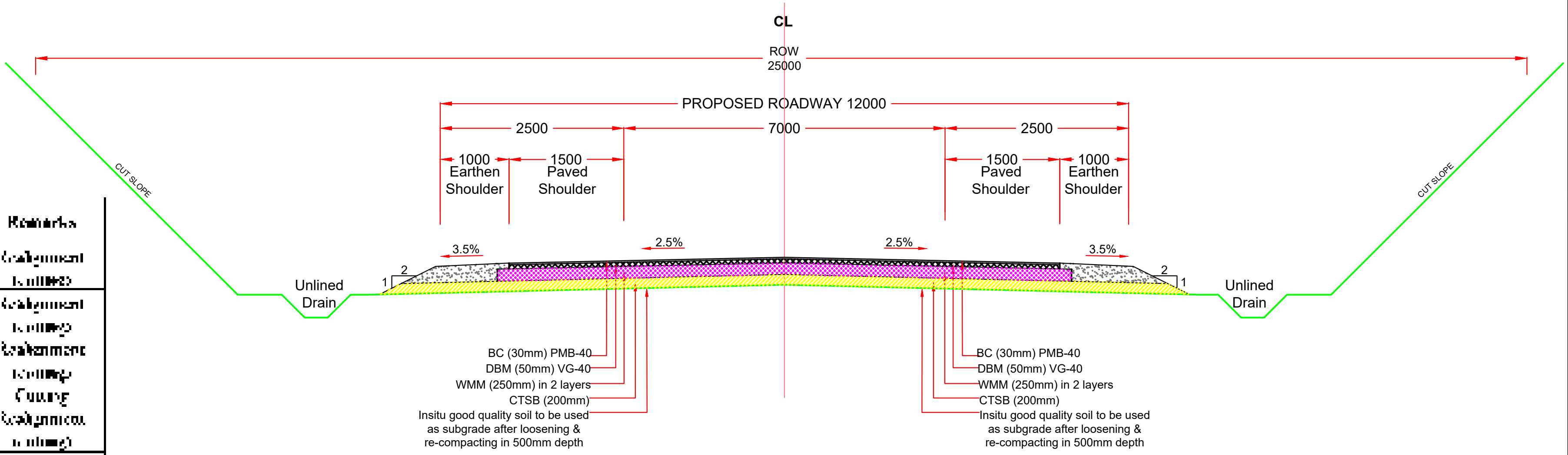
REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
Km 43+000 to 77+000
TYPICAL CROSS SECTION

DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V) (5)

Sr. No.	Chainage From	Chainage To	Length (Km)	Remarks
1	[illegible]	[illegible]	[illegible]	Realignment (cutting)
2	[illegible]	[illegible]	[illegible]	Realignment (cutting)
3	[illegible]	[illegible]	[illegible]	Realignment (cutting)
4	[illegible]	[illegible]	[illegible]	Cutting
5	[illegible]	[illegible]	[illegible]	Realignment (cutting)
6	[illegible]	[illegible]	[illegible]	Cutting
Total			2.150	



TCS-VI: CONSTRUCTION OF 2-LANE WITH PAVED SHOULDERS FLEXIBLE PAVEMENT IN OPEN COUNTRY (IN CUTTING)

ALL DIMENSIONS ARE IN MM UNLESS SPECIFIED

CONSULTANT :
K&J PROJECTS PVT. LTD.
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Nagpur 440 033 (M.H.)
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CLIENT :
MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

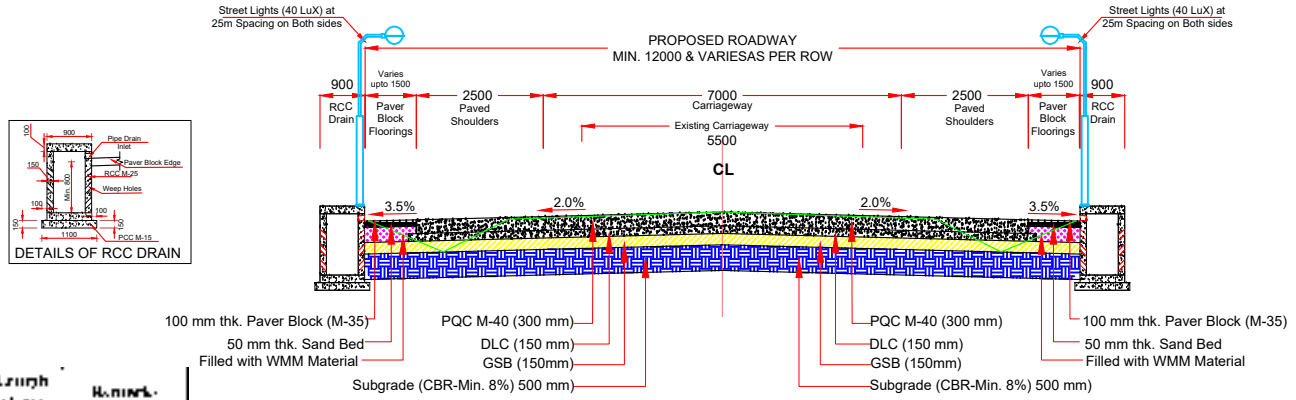
REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E) Km 43+000 to 77+000
TYPICAL CROSS SECTION

DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V)

(6)

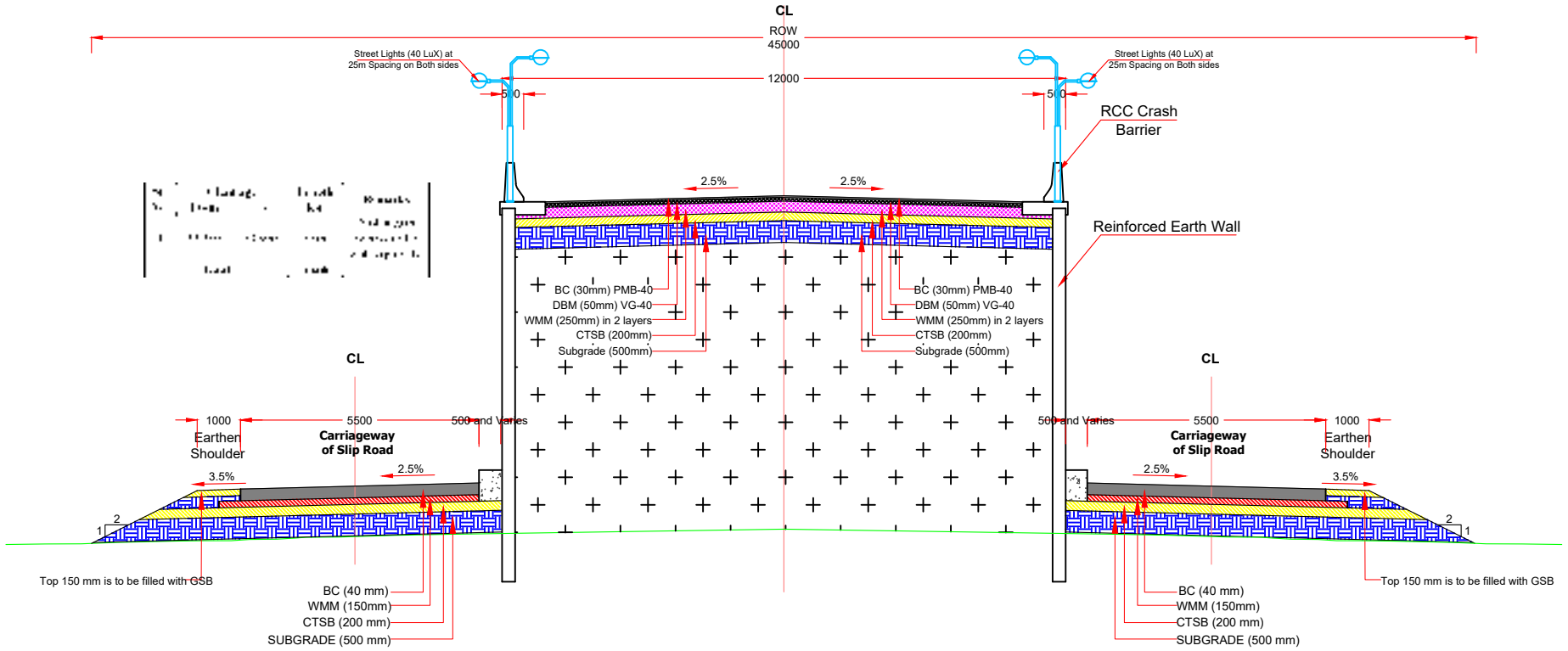


DETAILS OF RCC DRAIN

Sr. No.	Chainage	Length (km)	Remarks

TCS-VII: RECONSTRUCTION OF EXISTING INTERMEDIATE LANE ROAD TO 2-LANE PAVED SHOULDERS RIGID PAVEMENT INCLUDING PAVER BLOCK FLOORINGS & RCC DRAINS IN BUILT-UPS

ALL DIMENTIONS ARE IN MM



Sr. No.	Chainage	Length (km)	Remarks

TCS-VIII: CONSTRUCTION OF APPROACHES OF GRADE SEPARATED STRUCTURE WITH SLIP ROADS BOTH SIDES

ALL DIMENTIONS ARE IN MM

CONSULTANT :
K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar,
Nagpur 440 033 (M.H.)
Tel: 91 712 2556402, 2557031
Fax: 91 712 2556403
Email: contact@knjprojects.com
Web: www.knjprojects.com

CLIENT :
MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

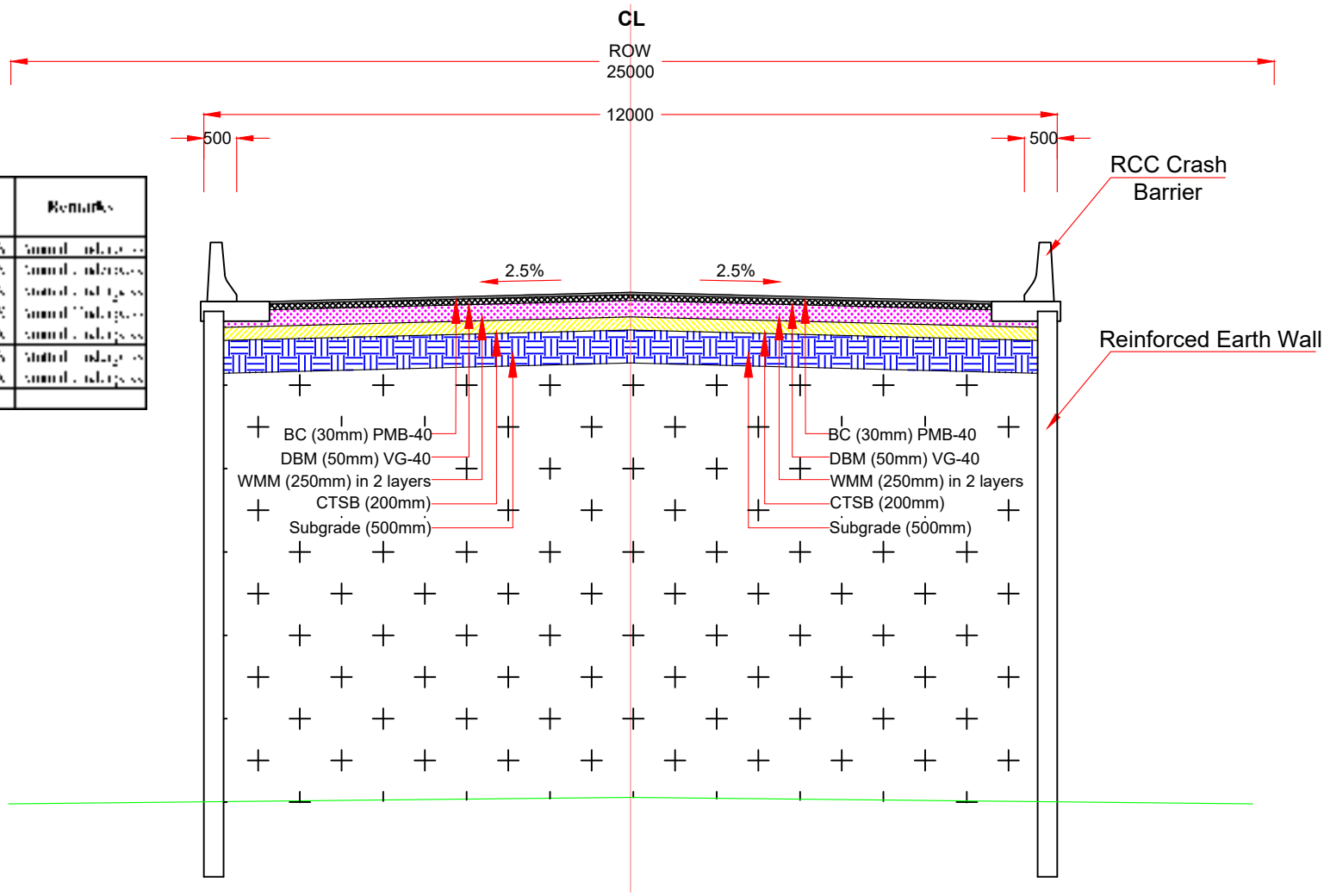
REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
Km 43+000 to 77+000
TYPICAL CROSS SECTION

DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V) (7)

Sr. No.	Chainage From	Chainage To	Length (Km)	LHS	Remarks
Total					



TCS-IX: CONSTRUCTION OF APPROACHES OF ANIMAL UNDERPASS STRUCTURE WITHOUT SLIP ROADS

ALL DIMENTIONS ARE IN MM

CONSULTANT :

K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar,
Nagpur 440 033 (M.H.)
Tel: 91 712 2556402, 2557031
Fax: 91 712 2556403
Email: contact@knjprojects.com
Web: www.knjprojects.com

CLIENT :

MADHYA PRADESH PUBLIC WORKS DEPARTMENT (NH ZONE BHOPAL)
Nirman Bhawan, Arera Hills, Bhopal, Madhya Pradesh
Pin - 462004

PROJECT TITLE :
UPGRADATION AND RECONSTRUCTION OF EXISTING INTERMEDIATE LANE TO 2-LANE WITH PAVED SHOULDERS CONFIGURATION FROM KM 43.000 (BARNA RIVER) TO KM 77.000 (KEN RIVER), LENGTH 34.000 KM ON GULGANJ- AMANGANJ- PAWAI-KATNI NH-43 EXT. ALONG WITH ONE TIME IMPROVEMENT IN 01 NO OF BYPASSED BUILT-UP AREA IN A TOTAL LENGTH OF 1.55 KM IN THE STATE OF MADHYA PRADESH ON EPC MODE.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
		A.W.	T.D.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E) Km 43+000 to 77+000
TYPICAL CROSS SECTION

DRAWING NO :-
K&J/MPRDC/DPR/GAPK/TCS (Pkg.-V)

TO GULGANJ

TO KATNI

CHHATARPUR

RAJNAGAR

SATTI

KHAJURAHO

RANEH FALL

AJAYGARH

S.H.46 To Ajaygarh

JHINNA

BAMITHA

N.H.75 To Khajuraho & Jhansi

CHANDRANAGAR

RAJGARH

KARNAWATI

PANDAV FALL

PANNA

RANGUWAN

Budhor

MOTACHAUKAN

KAIMASAN FALL

HINOTA

N.H.75 To Satna

AKOLA

GANGAU

DHAUDHAN

BHARAR

PALKOHAN

KHARYANI

BILHATA

Talgaon

RAMPURA

KANDWARA

SUKWAHA

KADWARA

KISHANGARH

RAMPUR

AMANGANJ

S.H.46 To Katni & Sagar

AKPURA

JAITPUR

S.H.46 To Sagar

S.H.46 To Katni

NPURA

PATHA

Legend

- Road metalled others
- MARHIADO_BUFFER
- River / Watter bodies
- Kenghariyal Sanctuary
- Core Boundary
- Gangau Sanctuary
- Buffer Boundary
- Airport
- Railway
- Proposed_Area
- Forest Land
- EXISTING CENTER LINE
- PROPOSED CENTER LINE

Map Showing of the CORE & BUFFER Zone of Panna Tiger Reserve

Print Paper Size - ISO A0 (841.00 X 1189.00 MM) Scale - 1:100,000

CONSULTANT :

KAWARE & JAWADE PROJECTS PVT. LTD.

Shivam, 16 NIT Layout, Ravi Nagar, Nagpur 440 033 (M.H.), India

Tel: 91 712 2556402, 2557031 Fax: 91 712 2556403

Email: contact@knjprojects.com Web: www.knjprojects.com

CLIENT :

MPPWD (NH), Bhopal, Madhya Pradesh

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
R-0	2021	A.W.	A.S.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD NH- 43E

PKG-V: From CH. 43+00 to CH. 77+00 Near Barana River (Kupi Village) to Ken River (Near Amanganj)

PANNA TIGER RESERVE

FOREST LAND DIVERSION BUFFER ZONE

DRAWING NO :-

K&J/MPRDC/GAPK/PKG-V

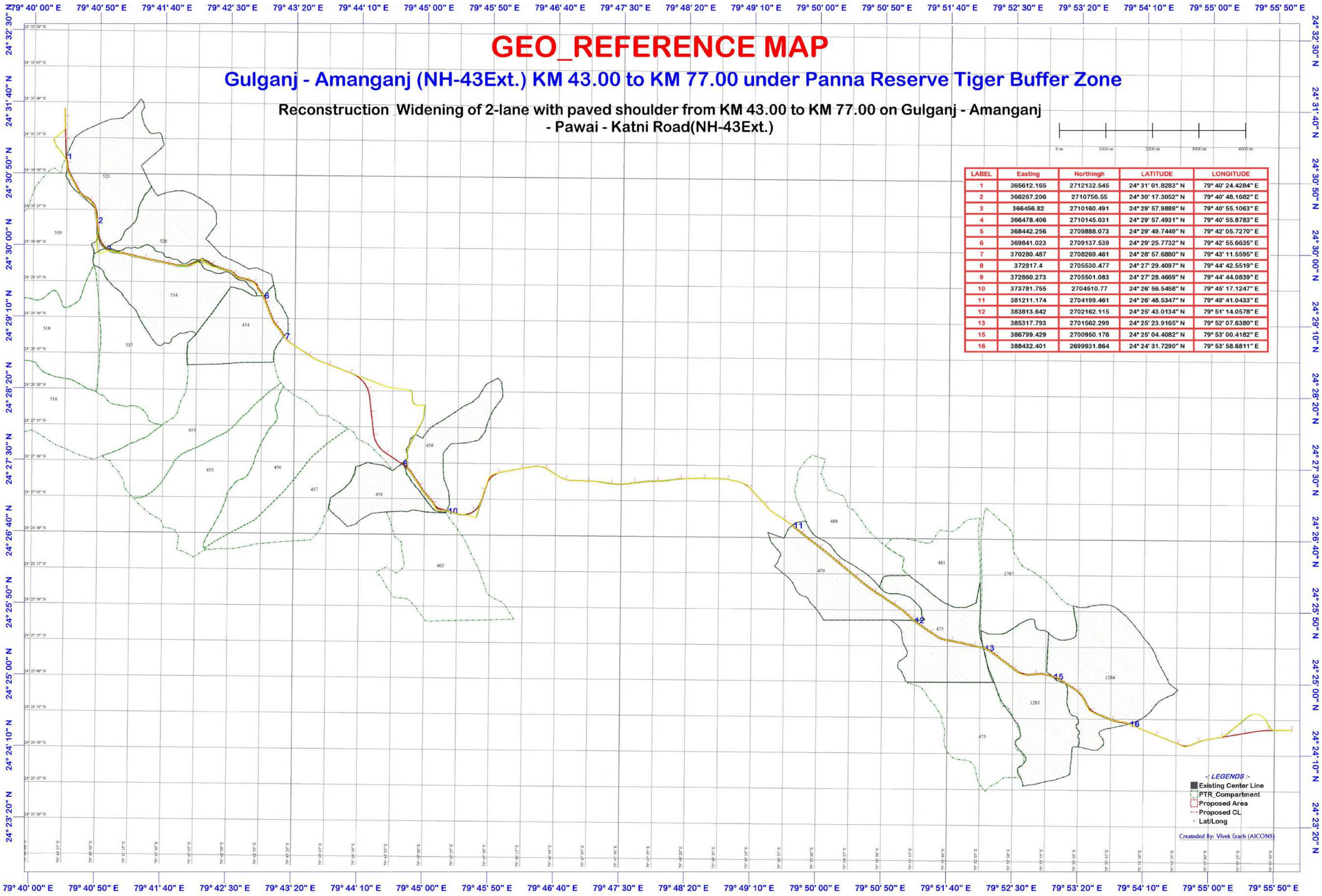
← TO GULGANJ

TO KATNI →

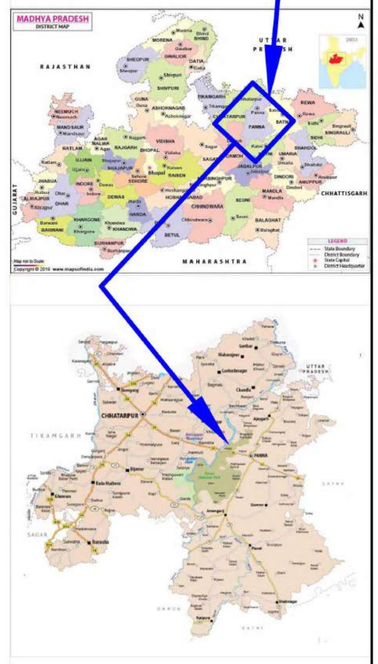
GEO_REFERENCE MAP

Gulganj - Amanganj (NH-43Ext.) KM 43.00 to KM 77.00 under Panna Reserve Tiger Buffer Zone

Reconstruction Widening of 2-lane with paved shoulder from KM 43.00 to KM 77.00 on Gulganj - Amanganj - Pawai - Katni Road(NH-43Ext.)



LABEL	Easting	Northingh	LATITUDE	LONGITUDE
1	365612.165	2712132.545	24° 31' 01.8283" N	79° 40' 24.4284" E
2	366267.206	2710756.55	24° 30' 17.3052" N	79° 40' 48.1682" E
3	366456.82	2710160.491	24° 29' 57.9889" N	79° 40' 55.1063" E
4	366478.406	2710145.031	24° 29' 57.4931" N	79° 40' 55.8783" E
5	368442.256	2709888.073	24° 29' 49.7449" N	79° 42' 05.7270" E
6	369841.023	2709137.539	24° 29' 25.7732" N	79° 42' 55.6635" E
7	370280.487	2708269.461	24° 28' 57.6880" N	79° 43' 11.5595" E
8	372817.4	2705530.477	24° 27' 29.4097" N	79° 44' 42.5519" E
9	372860.273	2705501.083	24° 27' 28.4669" N	79° 44' 44.0839" E
10	373781.755	2704510.77	24° 26' 56.5458" N	79° 45' 17.1247" E
11	381211.174	2704199.461	24° 26' 48.5347" N	79° 49' 41.0433" E
12	383813.642	2702162.115	24° 25' 43.0134" N	79° 51' 14.0578" E
13	385317.793	2701562.299	24° 25' 23.9165" N	79° 52' 07.6380" E
15	386799.429	2700950.176	24° 25' 04.4082" N	79° 53' 00.4182" E
16	388432.401	2699931.864	24° 24' 31.7290" N	79° 53' 58.6811" E



Proposed_Area

Forest Land

EXISTING CENTER LINE

PROPOSED CENTER LINE

Map Showing of the CORE & BUFFER Zone of Panna Tiger Reserve

Print Paper Size - ISO A0 (841.00 X 1189.00 MM) Scale - 1:30,000

CONSULTANT :

KAWARE & JAWADE PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar, Nagpur 440 033 (M.H.), India
Tel: 91 712 2556402, 2557031 Fax: 91 712 2556403
Email: contact@knjprojects.com Web: www.knjprojects.com

CLIENT :

MPPWD (NH), Bhopal, Madhya Pradesh

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
R-0	2021	A.W.	A.S.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD NH- 43E

PKG-V: From CH. 43+00 to CH. 77+00
Near Barana River (Kupi Village) to Ken River (Near Amanganj)

PANNA TIGER RESERVE
FOREST LAND DIVERSION BUFFER ZONE

DRAWING NO :-
K&J/MPRDC/GAPK/PKG-V

TO GULGANJ

TO KATNI

GEO_REFERENCE MAP

Gulganj - Amanganj (NH-43Ext.) KM 43.00 to KM 77.00 under Panna Reserve Tiger Buffer Zone

Reconstruction Widening of 2-lane with paved shoulder from KM 43.00 to KM 77.00 on Gulganj - Amanganj - Pawai - Katni Road(NH-43Ext.)

LABEL	Easting	Northingh	LATITUDE	LONGITUDE
1	365612.165	2712132.545	24° 31' 01.8283" N	79° 40' 24.4284" E
2	366267.206	2710756.55	24° 30' 17.3052" N	79° 40' 48.1682" E
3	366456.82	2710160.491	24° 29' 57.9889" N	79° 40' 55.1063" E
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5	368442.256	2709888.073	24° 29' 49.7449" N	79° 42' 05.7270" E
6	369841.023	2709137.539	24° 29' 25.7732" N	79° 42' 55.6635" E
7	370280.487	2708269.461	24° 28' 57.6880" N	79° 43' 11.5595" E
8	372817.4	2705530.477	24° 27' 29.4097" N	79° 44' 42.5519" E
9	372860.273	2705501.083	24° 27' 28.4669" N	79° 44' 44.0839" E
10	373781.755	2704510.77	24° 26' 56.5458" N	79° 45' 17.1247" E
11	381211.174	2704199.461	24° 26' 48.5347" N	79° 49' 41.0433" E
12	383813.642	2702162.115	24° 25' 43.0134" N	79° 51' 14.0578" E
13	385317.793	2701562.299	24° 25' 23.9165" N	79° 52' 07.6380" E
15	386799.429	2700950.176	24° 25' 04.4082" N	79° 53' 00.4182" E
16	388432.401	2699931.864	24° 24' 31.7290" N	79° 53' 58.6811" E

Proposed_Area
Forest Land
EXISTING CENTER LINE
PROPOSED CENTER LINE

- LEGENDS :-
- Existing Center Line
- PTR_Compartment
- Proposed Area
- Proposed CL
- Lat/Long

Created By: Vivek Erach (AICONS)

Map Showing of the CORE & BUFFER Zone of Panna Tiger Reserve

Print Paper Size - ISO A0 (841.00 X 1189.00 MM) Scale - 1:30,000

CONSULTANT :

KAWARE & JAWADE PROJECTS PVT. LTD.
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CLIENT :

MPPWD (NH), Bhopal, Madhya Pradesh

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
R-0	2021	A.W.	A.S.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD NH- 43E

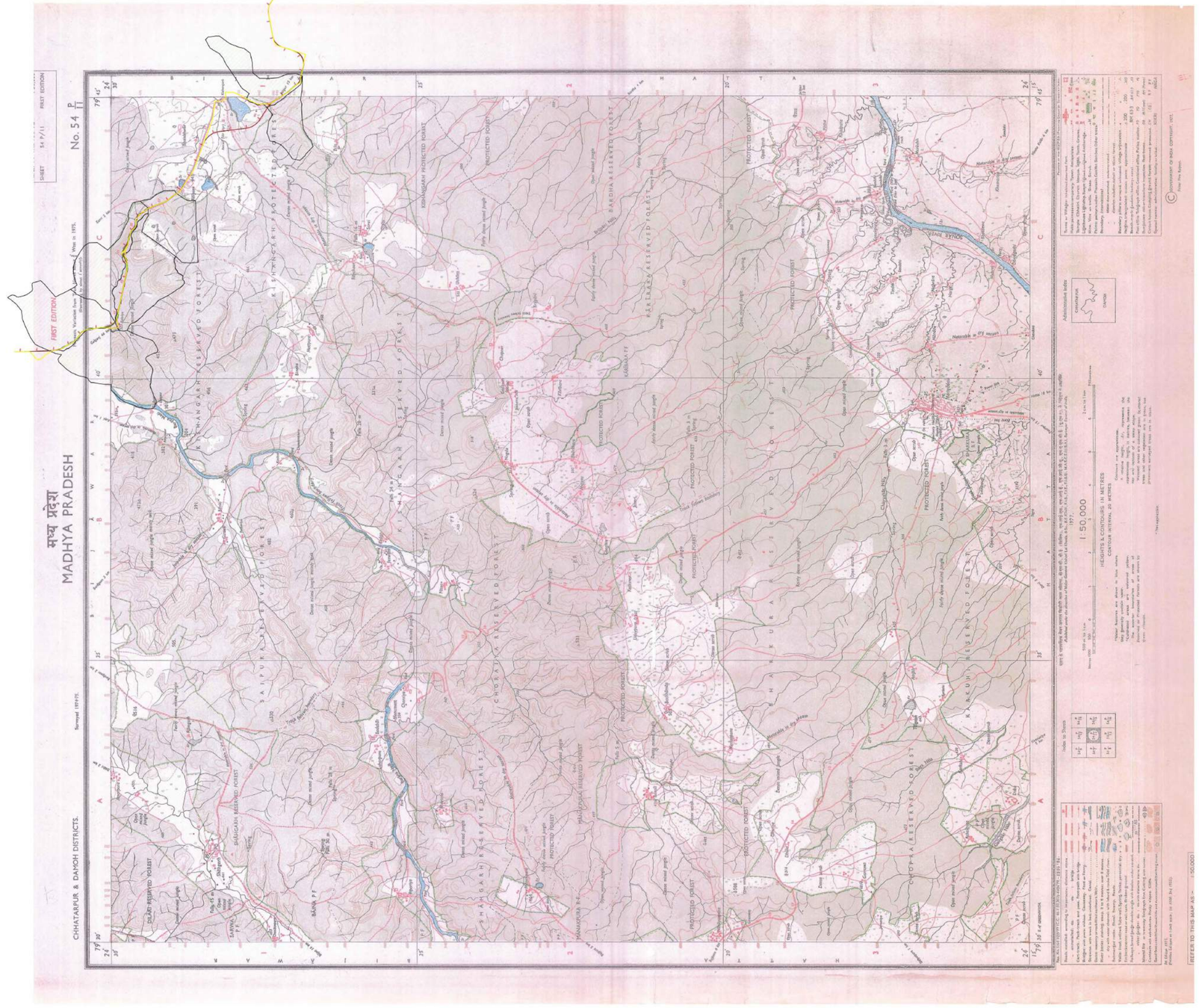
PKG-V: From CH. 43+00 to CH. 77+00 Near Barana River (Kupi Village) to Ken River (Near Amanganj)

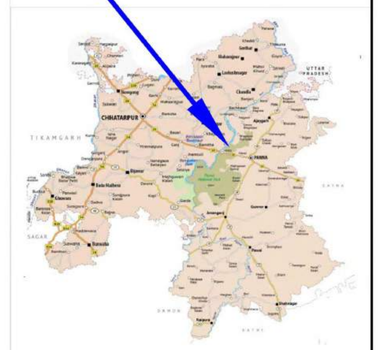
PANNA TIGER RESERVE
FOREST LAND DIVERSION BUFFER ZONE

DRAWING NO :-
K&J/MPRDC/GAPK/PKG-V

TO GULGANJ

TO KATNI





TOPO_SHEET NO.:- 54/P/11

Proposed_Area

Forest Land

EXISTING CENTER LINE

PROPOSED CENTER LINE

Map Showing of the CORE & BUFFER Zone of Panna Tiger Reserve

Print Paper Size - ISO A0 (841.00 X 1189.00 MM) Scale - 1:50,000

CONSULTANT :

KAWARE & JAWADE PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar, Nagpur 440 033 (M.H.), India
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CLIENT :

MPPWD (NH), Bhopal, Madhya Pradesh

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
R-0	2021	A.W.	A.S.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD NH- 43E

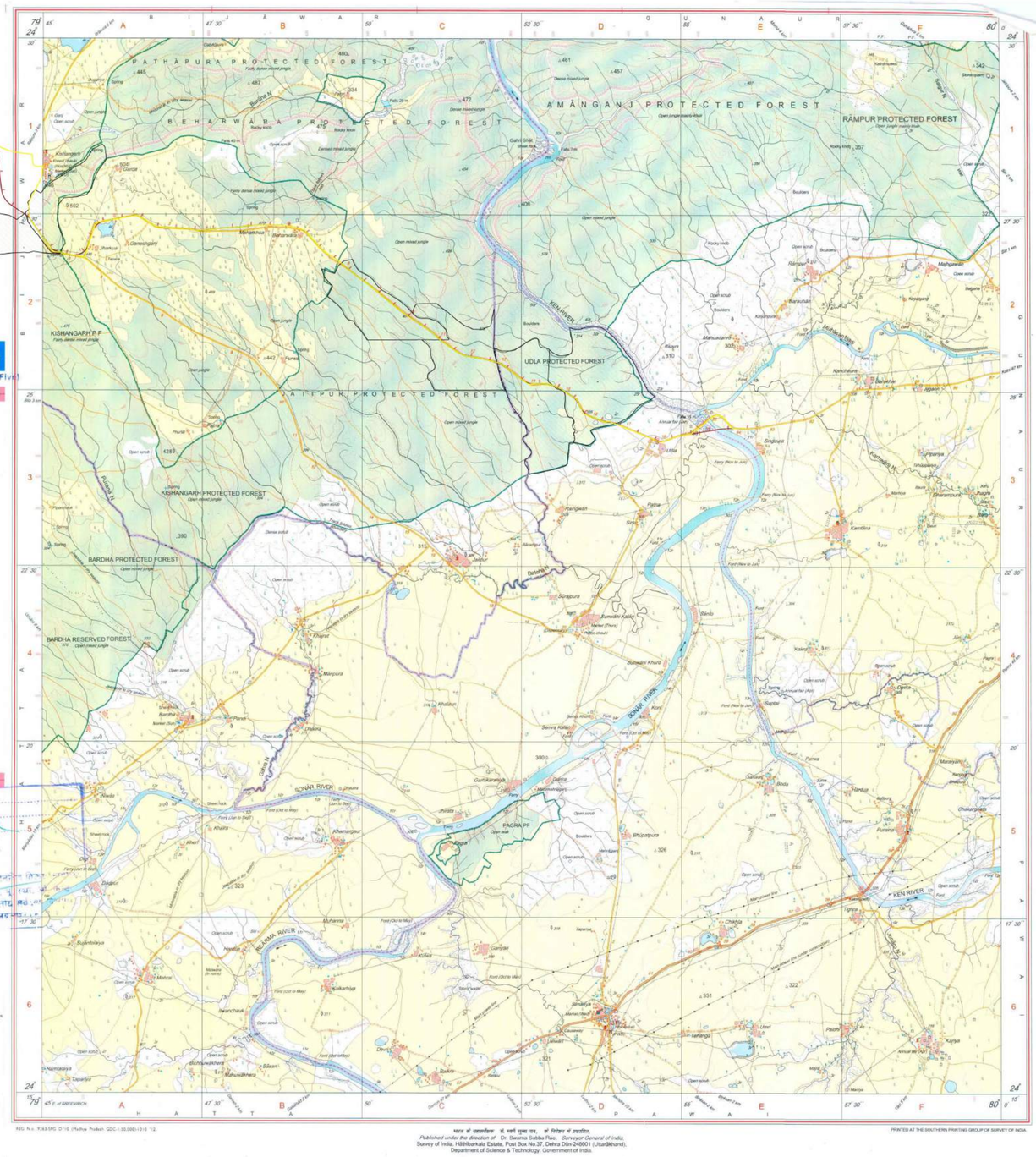
PKG-V: From CH. 43+00 to CH. 77+00
Near Barana River (Kupi Village) to Ken River (Near Amanganj)

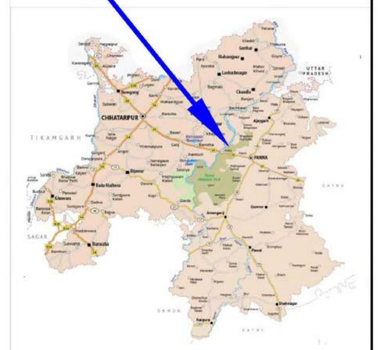
PANNA TIGER RESERVE
FOREST LAND DIVERSION BUFFER ZONE

DRAWING NO :-
K&J/MPRDC/GAPK/PKG-V

← TO GULGANJ

TO KATNI →





TOPO_SHEET NO.:- 54/P/15

Proposed_Area

Forest Land

EXISTING CENTER LINE

PROPOSED CENTER LINE

Map Showing of the CORE & BUFFER Zone of Panna Tiger Reserve

Print Paper Size - ISO A0 (841.00 X 1189.00 MM) Scale - 1:50,000

CONSULTANT :

KAWARE & JAWADE PROJECTS PVT. LTD.
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CLIENT :

MPPWD (NH), Bhopal, Madhya Pradesh

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
R-0	2021	A.W.	A.S.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD NH- 43E

PKG-V: From CH. 43+00 to CH. 77+00 Near Barana River (Kupi Village) to Ken River (Near Amanganj)

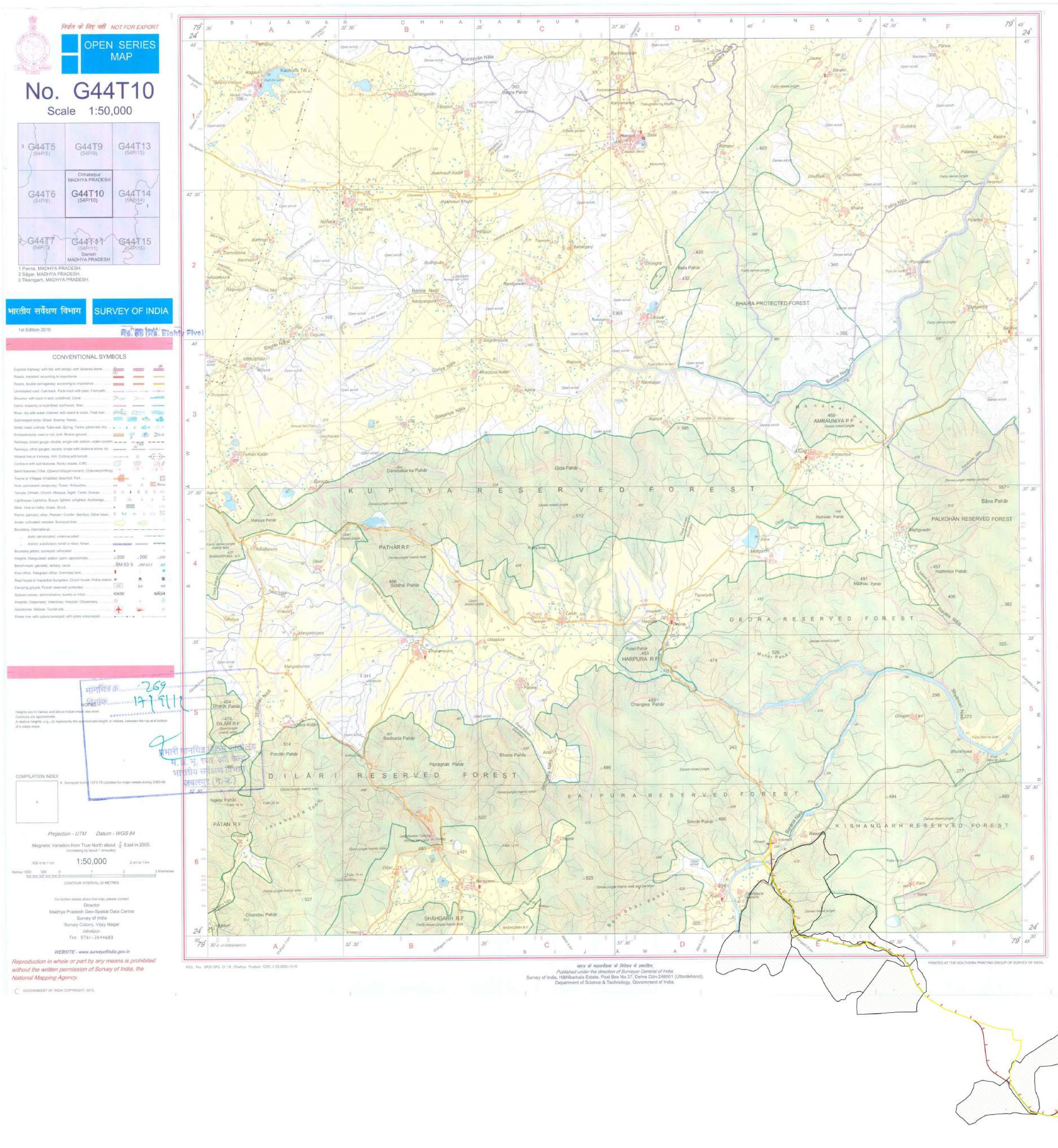
PANNA TIGER RESERVE

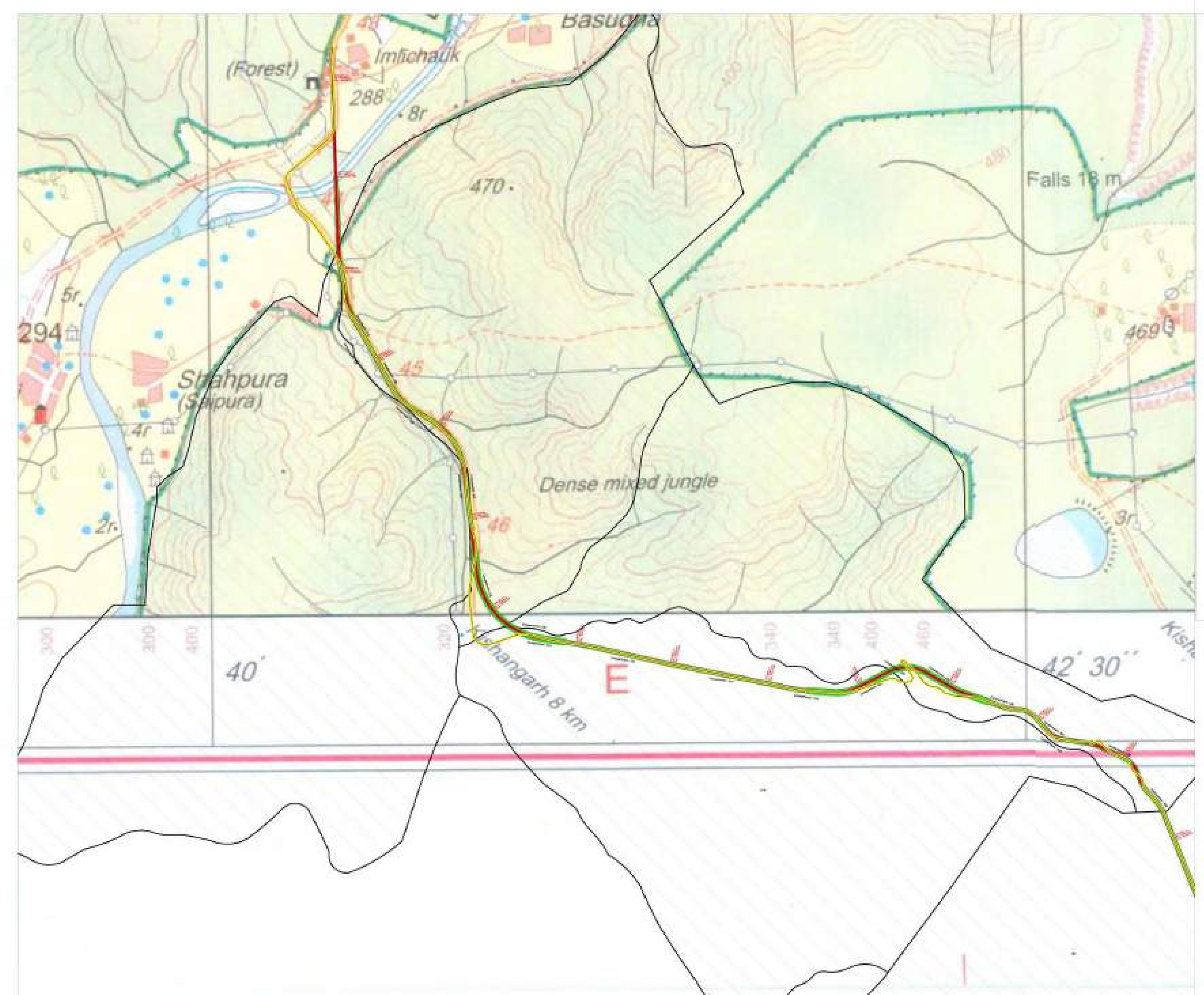
FOREST LAND DIVERSION BUFFER ZONE

DRAWING NO :- K&J/MPRDC/GAPK/PKG-V

TO GULGANJ

TO KATNI





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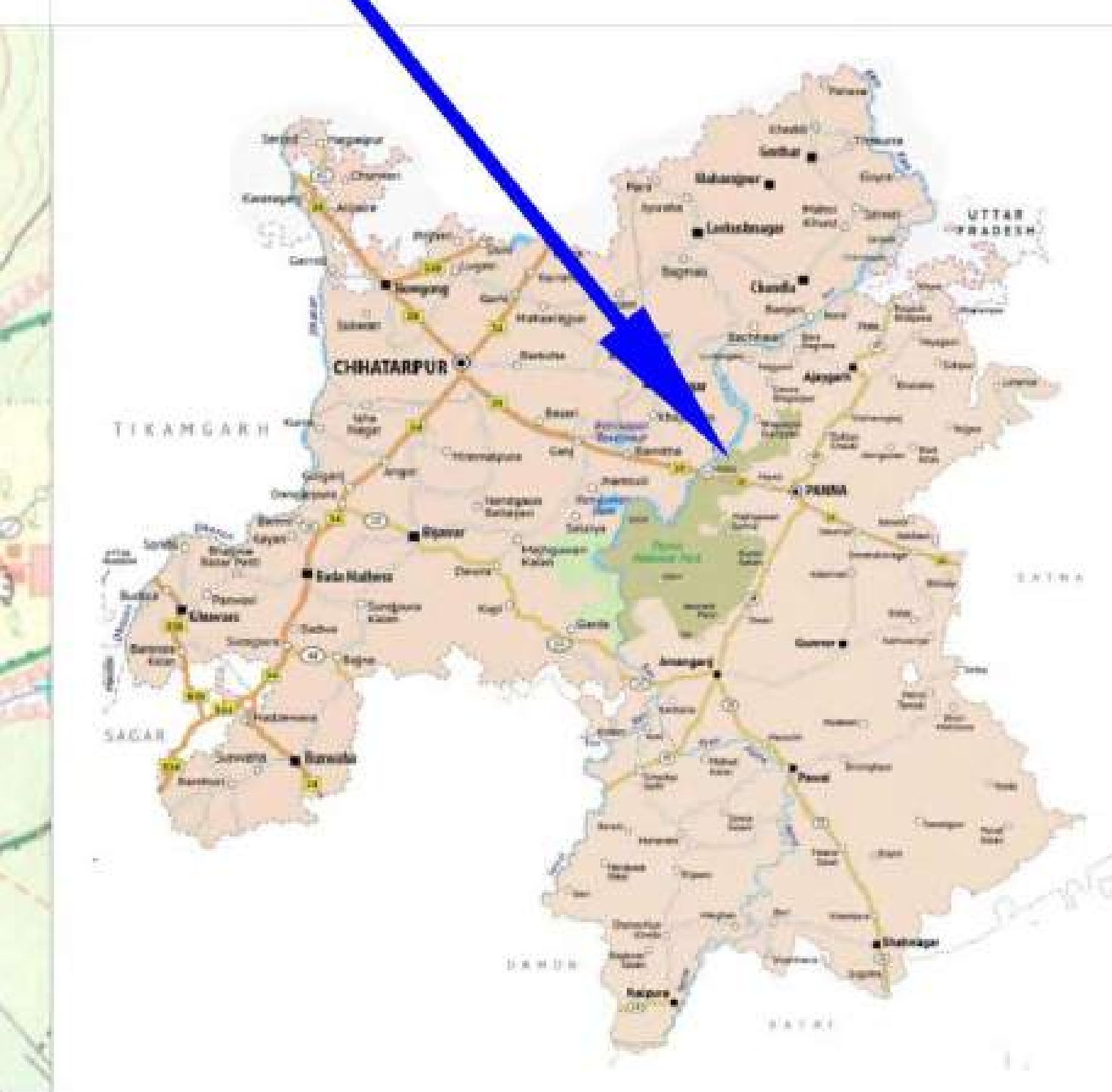

TOPO_SHEET NO.:- 54/P/10

- Proposed_Area
- Forest Land
- EXISTING CENTER LINE
- PROPOSED CENTER LINE

Map Showing of the CORE & BUFFER Zone of Panna Tiger Reserve

Print Paper Size - ISO A0 (841.00 X 1189.00 MM) Scale - 1:50,000

CONSULTANT :

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REV	DATE	DRAWN BY	CHECKED BY	APPROVED BY
R-0	2021	A.W.	A.S.	V.M.

	NAME	SIG.
DGN.		
DRAWN		
CHECKED		
APPROVED		

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD NH- 43E

PKG-V: From CH. 43+00 to CH. 77+00 Near Barana River (Kupi Village) to Ken River (Near Amanganj)

PANNA TIGER RESERVE

FOREST LAND DIVERSION BUFFER ZONE

DRAWING NO :-
K&J/MPRDC/GAPK/PKG-V

PROJECT TITLE: GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (New NH - 43E)

Toposheet indicating boundary of forest land proposed to be diverted

Sr. No.	Chainage	Latitude	Longitude
1	43.000	24°31'30.32"	79°40'23.39"
2	43.500	24°31'14.08"	79°40'23.98"
3	44.000	24°30'57.85"	79°40'24.87"
4	44.500	24°30'42.87"	79°40'31.23"
5	45.000	24°30'31.28"	79°40'43.06"
6	45.500	24°30'16.23"	79°40'48.31"
7	46.000	24°30'00.06"	79°40'52.25"
8	46.500	24°29'54.53"	79°41'08.12"
9	47.000	24°29'51.03"	79°41'25.46"
10	47.500	24°29'47.74"	79°41'42.85"
11	48.000	24°29'47.21"	79°42'00.25"
12	48.500	24°29'47.13"	79°42'16.41"
13	49.000	24°29'41.31"	79°42'32.73"
14	49.500	24°29'34.87"	79°42'48.05"
15	50.000	24°29'21.26"	79°42'57.64"
16	50.500	24°29'06.35"	79°43'04.61"
17	51.000	24°28'53.73"	79°43'15.61"
18	51.500	24°28'44.85"	79°43'30.48"
19	52.000	24°28'38.02"	79°43'46.51"
20	52.500	24°28'32.25"	79°44'03.11"
21	53.000	24°28'21.66"	79°44'15.93"
22	53.500	24°28'05.72"	79°44'18.99"
23	54.000	24°27'49.58"	79°44'21.11"
24	54.500	24°27'36.45"	79°44'30.69"
25	55.000	24°27'27.47"	79°44'45.48"
26	55.500	24°27'14.47"	79°44'56.05"
27	56.000	24°27'01.07"	79°45'06.99"
28	56.500	24°26'55.21"	79°45'22.59"
29	57.000	24°26'57.37"	79°45'39.27"
30	57.500	24°27'12.01"	79°45'46.45"
31	58.000	24°27'23.72"	79°45'57.42"
32	58.500	24°27'26.07"	79°46'14.88"
33	59.000	24°27'27.07"	79°46'32.28"
34	59.500	24°27'19.03"	79°46'47.79"
35	60.000	24°27'18.21"	79°47'05.48"
36	60.500	24°27'16.57"	79°47'23.13"
37	61.000	24°27'17.33"	79°47'40.81"
38	61.500	24°27'18.68"	79°47'58.49"
39	62.000	24°27'20.44"	79°48'16.13"
40	62.500	24°27'20.86"	79°48'33.88"
41	63.000	24°27'20.21"	79°48'51.06"
42	63.500	24°27'14.76"	79°49'08.02"
43	64.000	24°27'02.92"	79°49'20.18"
44	64.500	24°26'52.99"	79°49'34.01"
45	65.000	24°26'43.17"	79°49'48.24"
46	65.500	24°26'33.26"	79°50'02.31"
47	66.000	24°26'23.15"	79°50'16.21"
48	66.500	24°26'12.83"	79°50'29.92"
49	67.000	24°26'02.99"	79°50'44.05"
50	67.500	24°25'54.12"	79°50'58.92"
51	68.000	24°25'44.03"	79°51'12.78"
52	68.500	24°25'34.65"	79°51'27.26"
53	69.000	24°25'28.65"	79°51'43.49"
54	69.500	24°25'25.39"	79°52'00.88"
55	70.000	24°25'19.06"	79°52'16.97"
56	70.500	24°25'09.37"	79°52'31.22"
57	71.000	24°25'05.95"	79°52'47.94"
58	71.500	24°25'02.86"	79°53'05.15"
59	72.000	24°24'54.00"	79°53'20.02"
60	72.500	24°24'40.87"	79°53'30.17"
61	73.000	24°24'34.27"	79°53'46.32"
62	73.500	24°24'30.03"	79°54'03.38"
63	74.000	24°24'24.05"	79°54'19.89"
64	74.500	24°24'18.08"	79°54'36.39"
65	75.000	24°24'19.77"	79°54'53.26"
66	75.500	24°24'22.98"	79°55'10.64"
67	76.000	24°24'25.76"	79°55'28.13"
68	76.500	24°24'27.81"	79°55'45.71"
69	77.000	24°24'27.88"	79°56'03.46"

Legend -

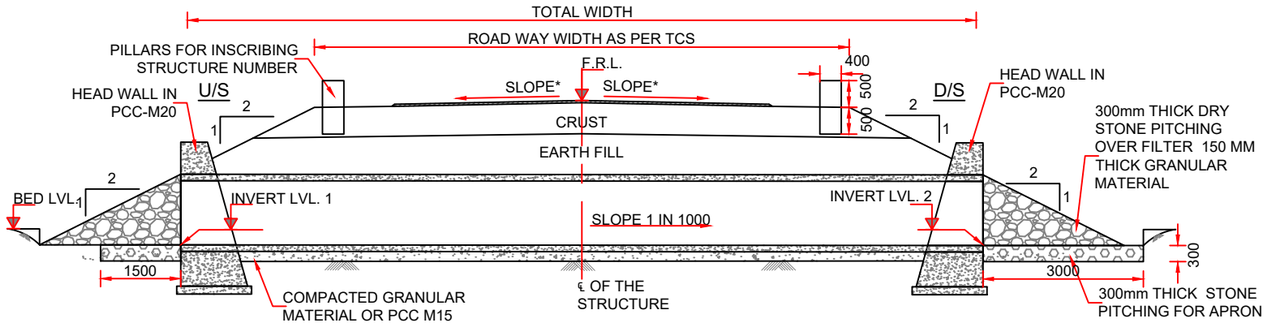
FOREST BOUNDARY:

Existing Center Line:

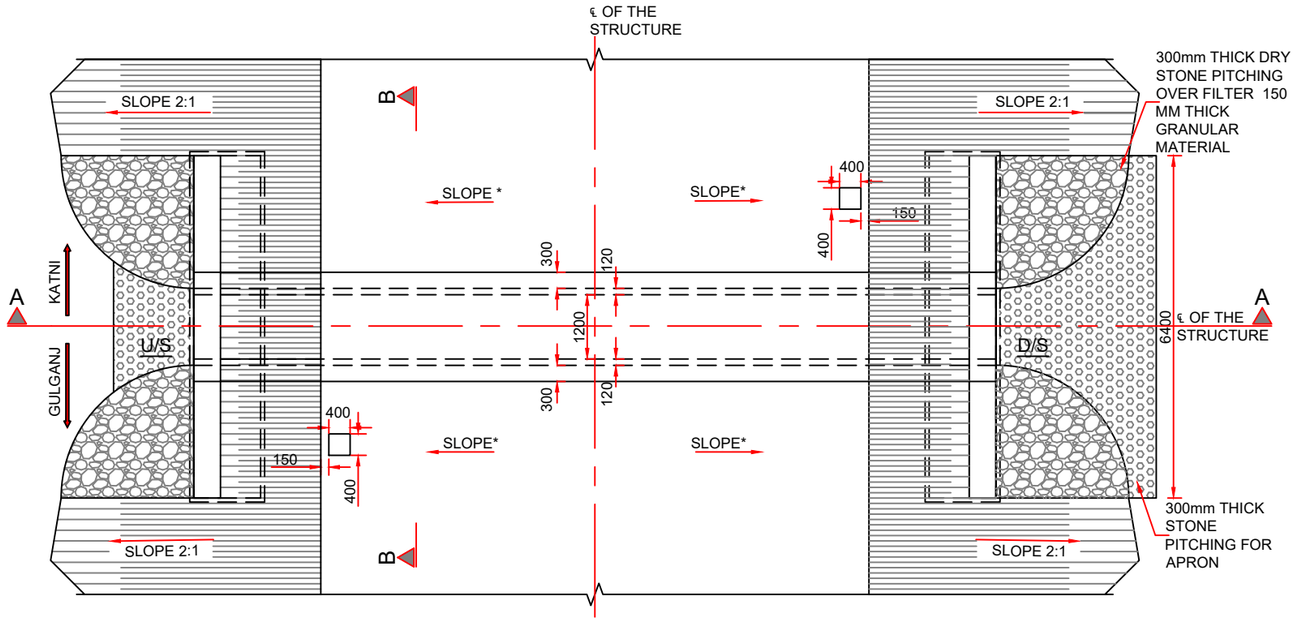
Proposed Center Line:

Proposed Area to be Diverted:

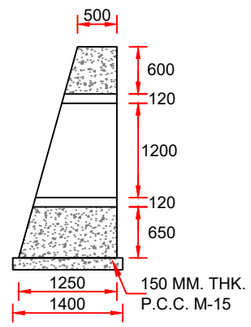
Panna National Park:



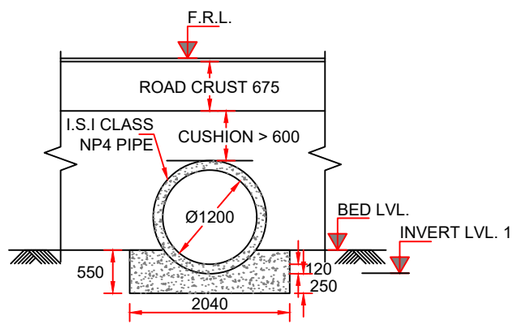
SECTION A-A



PLAN



DETAILS OF HEAD WALL



SECTION B-B

NOTES:-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
3. LOOSE/ UNSTABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
4. CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
5. FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
6. THE PIPE SHALL BE RCC NP4 NON PRESSURE PIPE. THE SPECIFICATION OF PIPE SHALL BE AS PER IS-458 OF 2003.
7. PIPE SHALL BE JOINED BY INTERNAL FLUSH JOINT AS PER I.S.458 OF 2003.
8. THE JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR 1 CEMENT TO 2 SAND, MIXED SUFFICIENTLY DRY TO REMAIN IN POSITION WHEN FORCED WITH TROWEL OR RAMMER / AS PER THE DIRECTION OF ENGINEER.
9. FIRST CLASS BEDDING MAY BE USED FOR MAXIMUM HEIGHT OF FILL OF 4 m HEIGHT. BEYOND 4m HEIGHT OF FILL PCC BEDDING SHALL BE USED.
10. LONGITUDINAL SLOPE SHALL BE 1 IN 1000 (MINIMUM).
11. FOR DETAIL OF HALF PIPE DRAIN NEAR TOP OF THE RETAINING WALL/TOE WALL REFER SEPARATE DRAWING.
12. SKIN REINFORCEMENT OF 8Ø@200c/c BOTH WAYS SHALL BE PROVIDED ON ALL EXPOSED SURFACES OF PCC HEAD WALL.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH APPROVED PLAN & PROFILE DRAWING. FRL & CAMBER, SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE APPROVED PLAN & PROFILE DRAWING.
14. DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.

SCHEDULE OF PROPOSED STRUCTURES ON ALIGNMENT

S. No.	DESIGN CHAINAGE (km)	PROPOSAL	WIDTH (W) (mm)	FINISHED ROAD LEVEL (FRL)	INVERT LEVEL
1	44+080	Reconstruction	20.00	298.106	294.696
2	44+670	Reconstruction	20.00	303.206	299.867
3	44+730	Reconstruction	17.50	303.047	300.056
4	47+820	Reconstruction	20.00	360.450	357.265
5	48+475	New Proposed	17.50	385.5640	382.983
6	51+190	Reconstruction	20.00	443.256	440.216
7	51+385	Reconstruction	20.00	442.165	438.591
8	52+160	Reconstruction	17.50	428.072	425.237
9	52+750	New Proposed	20.00	422.8300	419.243
10	53+650	New Proposed	20.00	428.5330	425.272
11	54+750	New Proposed	20.00	429.2660	425.663
12	56+600	Reconstruction	17.50	480.862	478.237
13	56+755	New Proposed	20.00	484.617	481.024
14	56+950	New Proposed	17.50	489.3400	486.752
15	61+680	Reconstruction	20.00	463.3880	460.321
16	62+780	New Proposed	17.50	477.7460	475.159
17	64+200	Reconstruction	17.50	466.806	464.193
18	68+085	Reconstruction	20.00	387.441	384.420
19	68+240	Reconstruction	17.50	384.602	382.035
20	68+400	Reconstruction	17.50	384.498	381.937
21	69+515	Reconstruction	20.00	369.7870	366.626
22	70+420	Reconstruction	17.50	357.9170	355.280
23	72+050	New Proposed	20.00	330.2440	326.785
24	74+300	Reconstruction	20.00	311.9430	308.399
25	74+600	Reconstruction	17.50	310.176	307.561

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CLIENT :
PUBLIC WORKS DEPARTMENT
NATIONAL HIGHWAY ZONE BHOPAL
Nirman Bhawan, Arera Hills, Bhopal,
Madhya Pradesh 462004

PROJECT TITLE :
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
GENERAL ARRANGEMENT DRAWING OF PIPE CULVERT 1X1.20 M
(SHEET 1 OF 1)
DRAWING NO :NH/NH(PW BPL)/NH-43E/PKG.-5/GAD/ 01

	REV		
	DATE		
		NAME	SIG.
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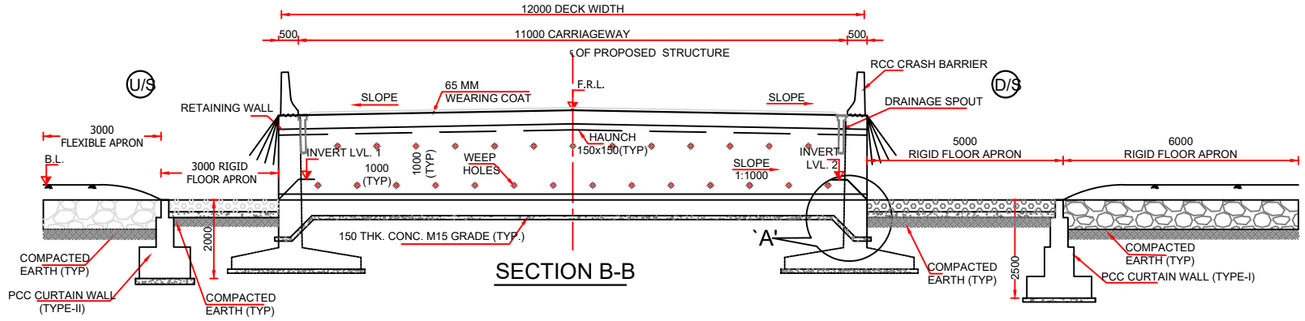
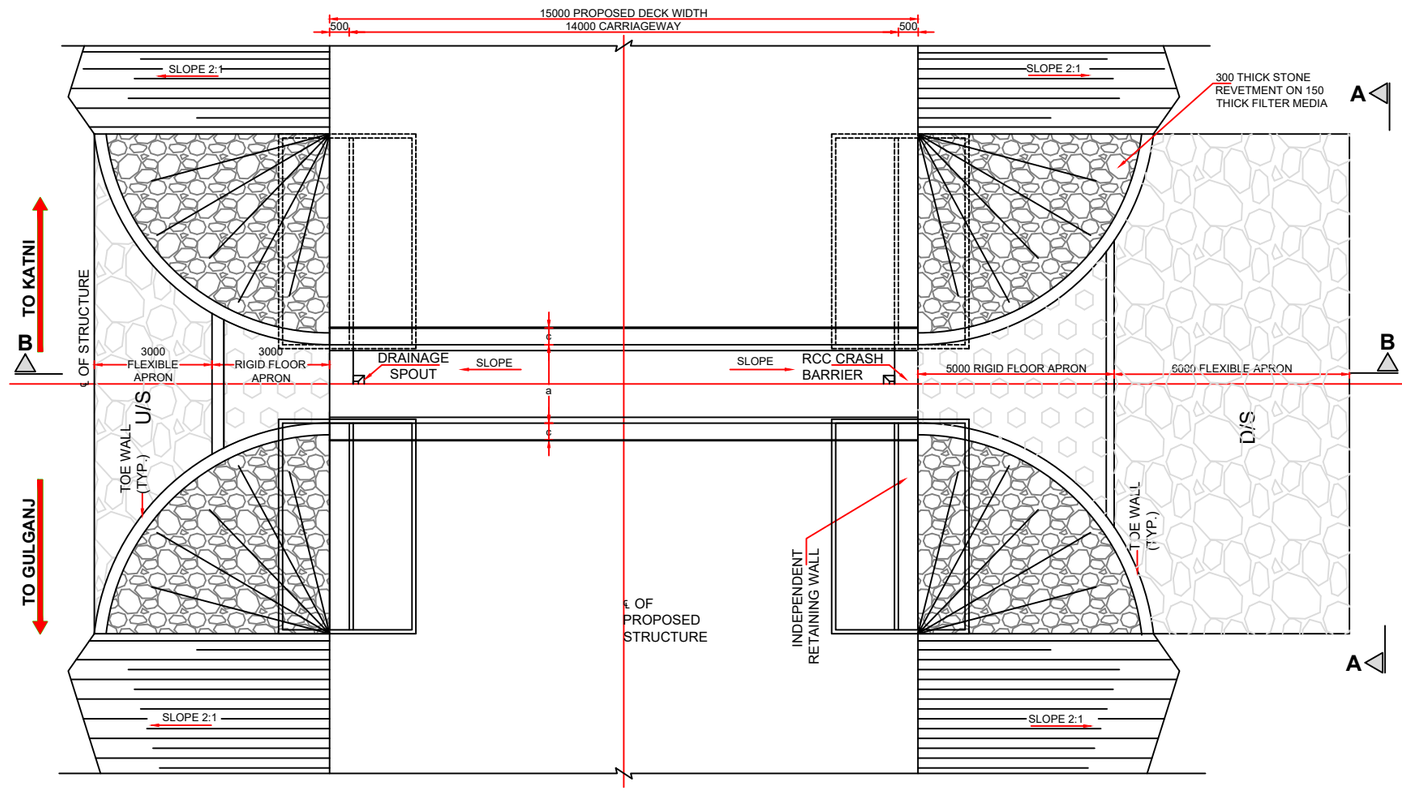
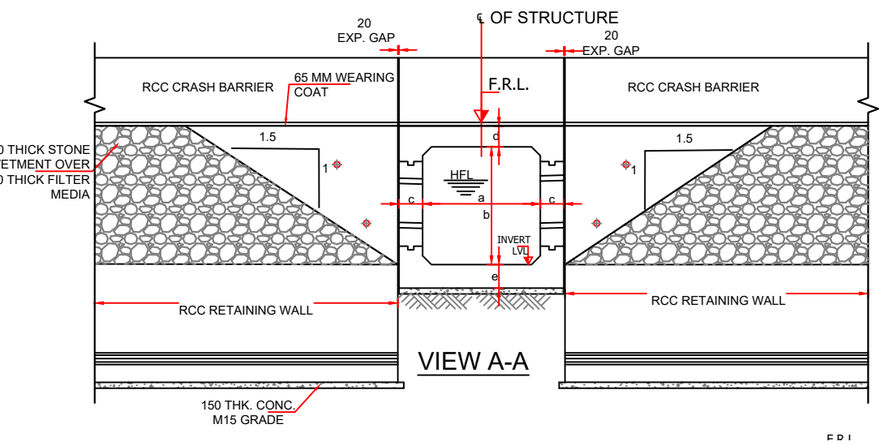
DGN.			
CHECKED			
APPROVED			

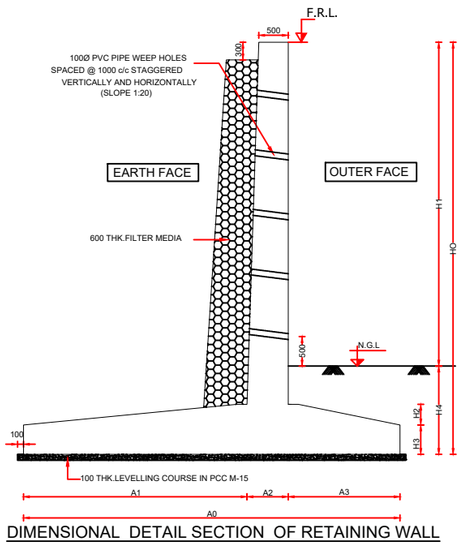


SECTION B-B





VIEW A-A



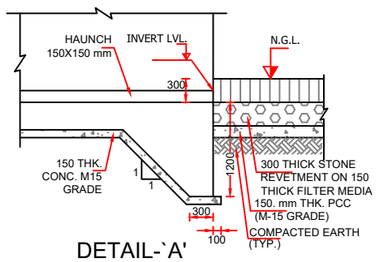
DIMENSIONAL DETAIL SECTION OF RETAINING WALL (*REFER SEPERATE DRAWING FOR DIMENSIONS*)

NOTES:-

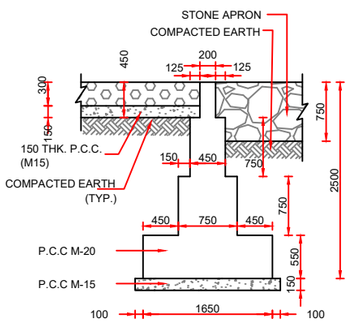
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS MENTIONED OTHERWISE.
2. DIMENSIONS ARE NOT BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED FOR LOCATION OF CULVERT REFER HIGHWAY DRAWING.
3. CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
   a. RCC BOX -M30
   b. RCC CRASH BARRIER -M40
   c. RETAINING WALL -M30
   d. PCC LEVELING COURSE -M15
4. GRADE OF UNTENSIONED STEEL SHALL BE Fe 500D, CONFIRMING TO IS:1786:2008.
5. 600mm THK FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
6. THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES Ø=30°, g= 2.0 T/Cum.
7. THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS 12T/M ANY VARIATION ON SITE SHOULD BE INFORMED TO THE DESIGN ENGINEER FOR NECESSARY ACTION.
8. THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoR&TH. SPECIFICATIONS FOR DETAIL OF CAMBER/SUPER ELEVATION REFER LATEST PLAN AND PROFILE DRAWING.
9. FLOW DIRECTION SHOWN IN THE DRAWING IS INDICATIVE ONLY BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
10. FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
11. DISCREPANCY IF ANY IS TO BE IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
12. 100mm Ø PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE WITH RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.

LEGEND:-

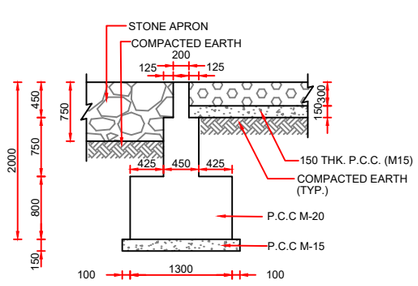
FRL	-FINISHED ROAD LEVEL
GL.	-GROUND LEVEL
LVL.	-LEVEL.
IL	-INVERT LEVEL
H/W	-HIGHWAY



DETAIL-`A'



DETAILS OF CURTAIN WALL TYPE - I



DETAILS OF CURTAIN WALL TYPE - II

SCHEDULE OF BOX STRUCTURE

S.No.	DESIGN CHAINAGE (km)	PROPOSAL	TYPE	DIMENSION DETAIL OF BOX					PROPOSED LEVELS			LENGTH OF THE RETAINING WALL
				a	b (min.)	c	d	e	FRL	GL	IL	
1	45+150	Reconstruction	Box	2000	4900	425	325	425	311.012	305.930	305.630	RE Wall
2	45+250	Reconstruction	Box	2000	5950	425	325	425	313.433	307.303	307.003	RE Wall
3	55+100	Reconstruction	Box	2000	6300	425	325	425	433.446	426.931	426.631	RE Wall
4	55+350	Reconstruction	Box	2000	7200	425	325	425	439.682	432.281	431.981	RE Wall
5	55+950	Reconstruction	Box	2000	2250	425	325	425	456.954	454.482	454.182	3500
6	56+015	Reconstruction	Box	2000	1600	425	325	425	459.752	457.974	457.674	3500
7	56+100	New Construction	Box	2000	1650	425	325	425	463.411	461.543	461.243	3500
8	56+140	New Construction	Box	2000	1600	425	325	425	465.132	463.350	463.050	3500
9	65+720	Reconstruction	Box	2000	6300	425	325	425	442.226	435.746	435.446	RE Wall
10	67+230	Reconstruction	Box	2000	3450	425	325	425	401.744	398.081	397.781	RE Wall

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contact@knjprojects.com Web: www.knjprojects.com

CLIENT :
PUBLIC WORKS DEPARTMENT
NATIONAL HIGHWAY ZONE BHOPAL
Nirman Bhawan, Arera Hills, Bhopal,
Madhya Pradesh 462004

PROJECT TITLE :
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
GENERAL ARRANGEMENT DRAWING OF BOX CULVERTS 1X2.0
(SHEET 1 OF 2)
DRAWING NO :NH/NH(PW BPL)/NH-43E/PKG.-5/GAD/ 03

	NAME	SIG.
REV		
DATE		
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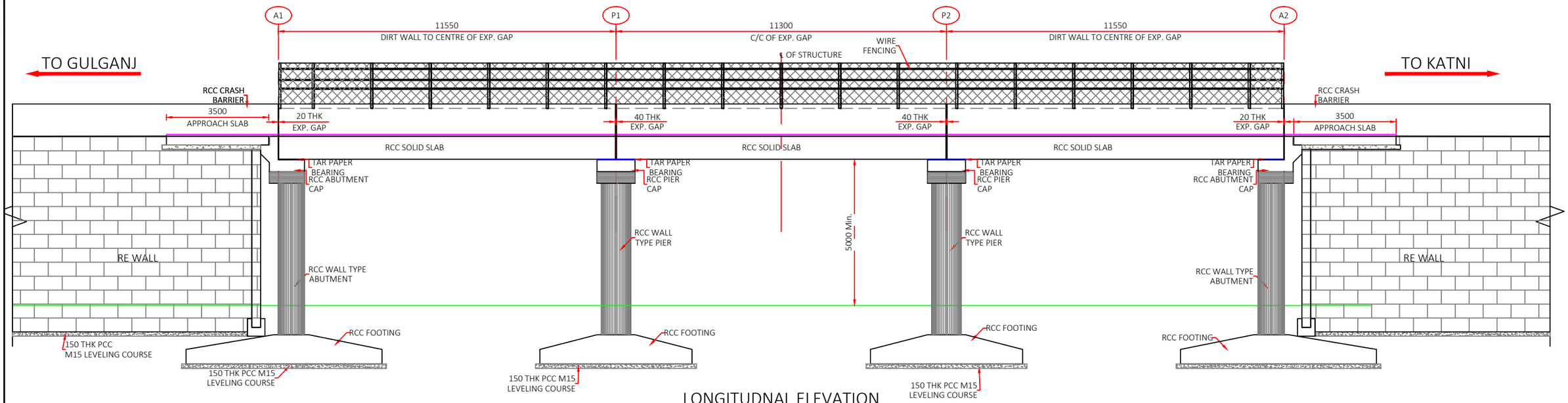
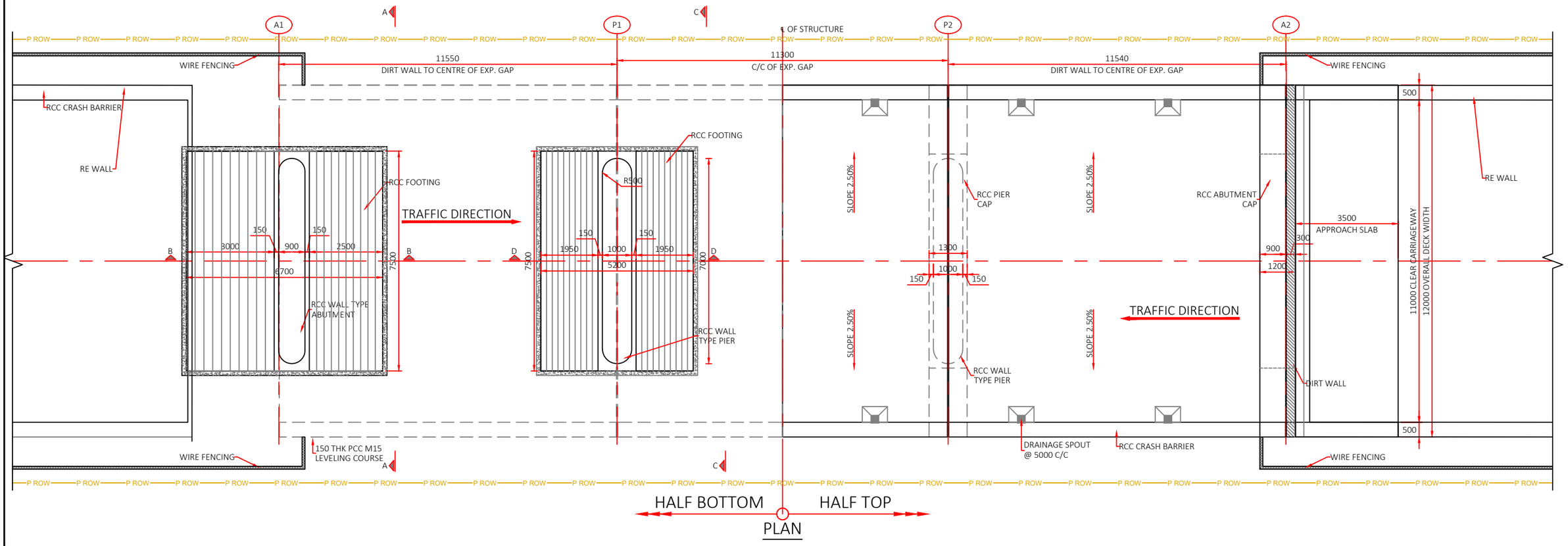
APPROVED		



LONGITUDNAL ELEVATION



PLAN

CONSULTANT :
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PROJECT TITLE :
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

DRAWING TITLE :-
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)
GENERAL ARRRANGEMENT DRAWING FOR RECONSTRUCTION OF ANIMAL UNDERPASS 3X10.0 M
(SHEET 1 OF 2)
DRAWING NO :NH/NH(PW BPL)/NH-43E/PKG.-5/GAD/ 13

	NAME	SIG.
REV		
DATE		
DRAWN		
DGN.		
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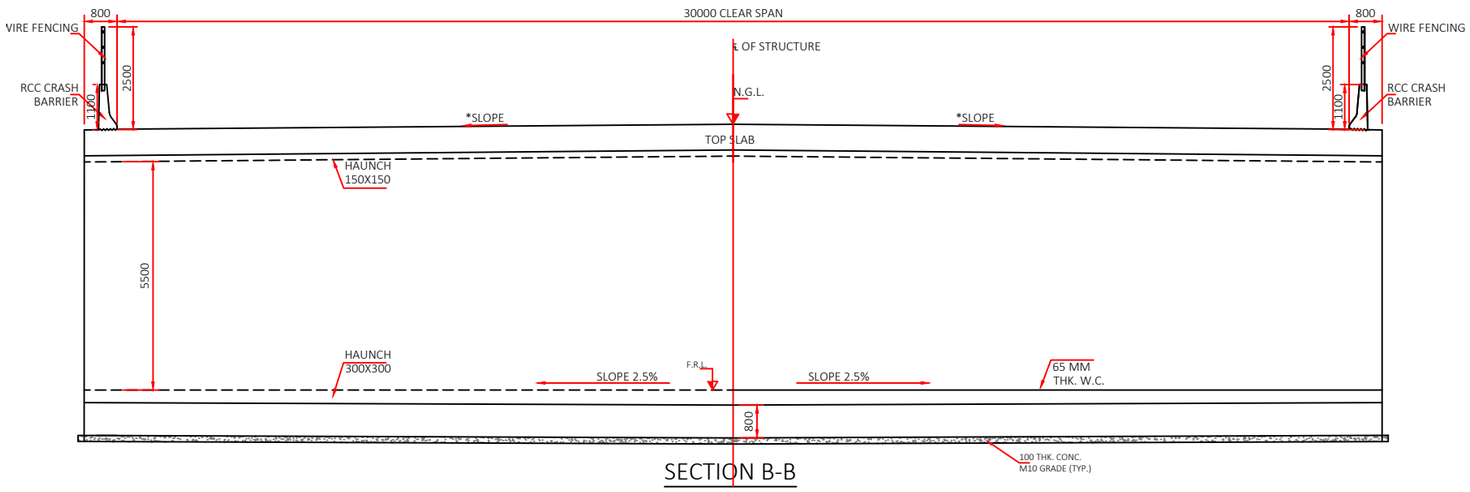
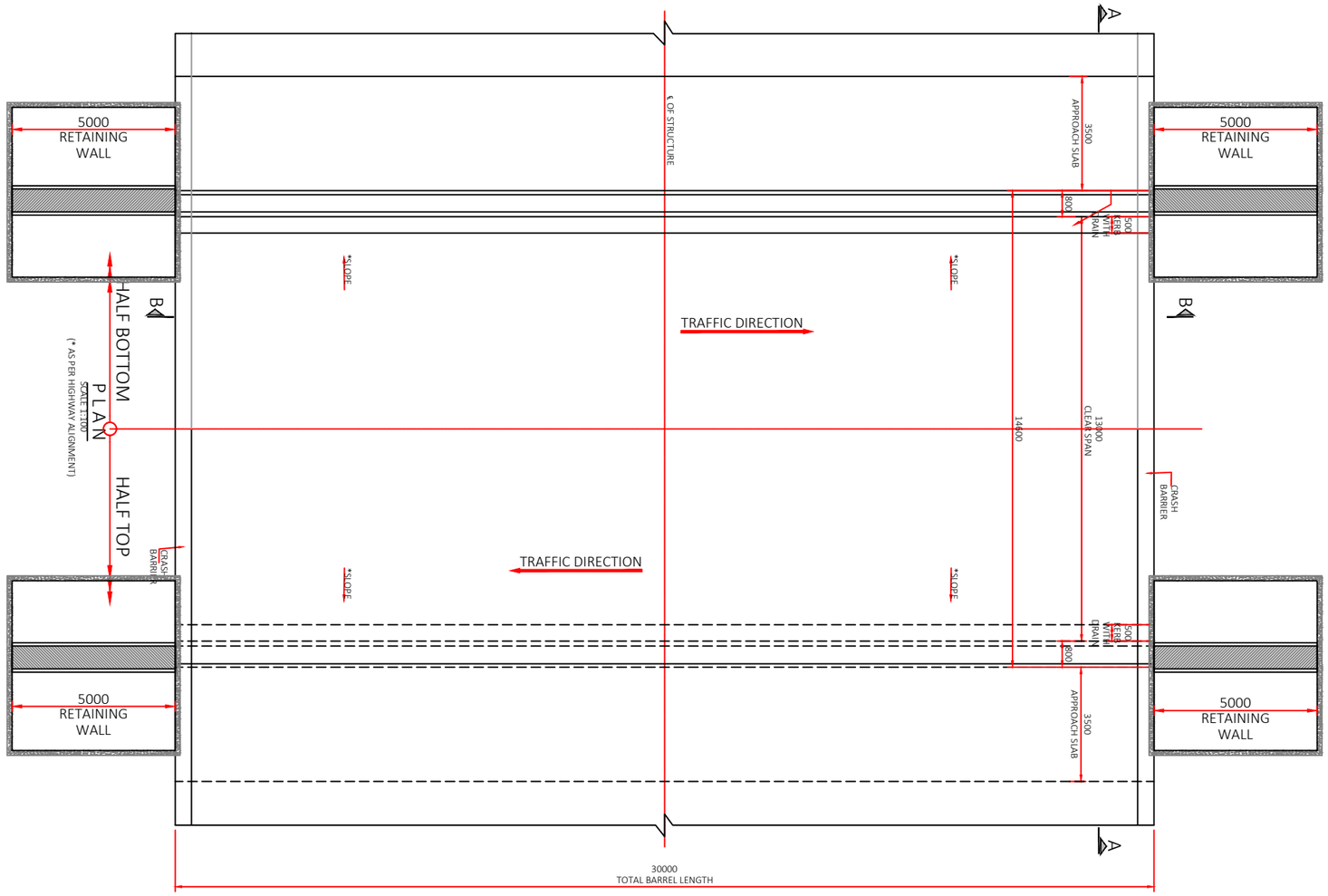
APPROVED		



SECTION B-B

(* AS PER HIGHWAY ALIGNMENT)

SCALE 1:100



NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. LEVELS ARE IN METERS.
2. PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R LOADING FOR EVERY TWO LANES OR TWO LANES OF CLASS A LOADING ON THE REMAINING LANE OR THREE LANES OF CLASS A LOADING, WHICHEVER GOVERNS WITH APPROPRIATE LANE REDUCTION FACTOR.
3. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
4. GRADE OF CONCRETE:
   - RCC BOX M-35
   - RCC CRASH BARRIER M-40
   - APPROACH SLAB M-30
   - PCC M-15
5. ALL H.Y.S.D. BARS SHALL CONFORM TO IS:1786 GRADE Fe 500-D.
6. WEARING COURSE SHALL BE 40mm THK. BITUMINOUS CONCRETE OVER 25mm THIK BITUMEN MASTIC LAYER AS PER MOSRT&H SPECIFICATIONS.
7. BACK FILLING BEHIND BOX SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX :6 OF IRC:78-2014 HAVING PROPERTIES C=0, Ø=30°, **δ=20 AND γd=20 KN/M³.**
8. **FORMATION LEVEL, BED LEVEL, CAMBER/SUPER ELEVATION AND LAYOUT SHALL BE VERIFIED AT SITE AND SHALL BE PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING. IN CASE OF ANY DISCREPANCY. IT SHALL BE BROUGHT IN TO THE NOTICE OF DESIGN CONSULTANT.**
9. **NET SAFE BEARING CAPACITY OF THE SOIL AT THE FOUNDING LEVEL OF THE BOX HAS BEEN CONSIDERED AS 12 T/m².**
10. **WEEP HOLES 100mm DIA WITH SLOPE ABOUT 1V:20H, SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER.**
11. **ALL DIMENSION ARE INDICATIVE ONLY AND WILL BE FINALIZED AFTER DETAIL DESIGN.**

LEGEND:-

LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
FND. LVL.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL

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Nirman Bhawan, Arera Hills, Bhopal,
Madhya Pradesh 462004

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

DRAWING TITLE :-

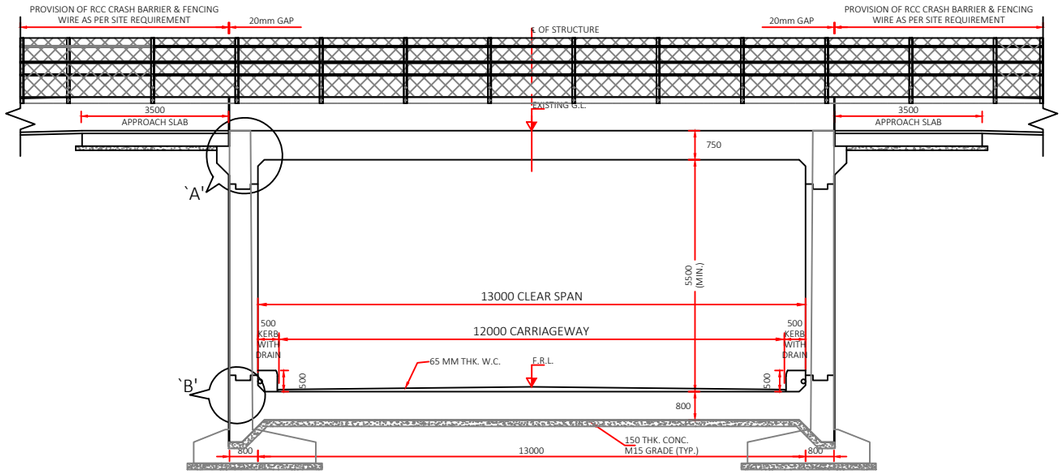
GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)

GENERAL ARRANGEMENT DRAWING OF ANIMAL OVERPASS 1X13.0

(SHEET 1 OF 1)

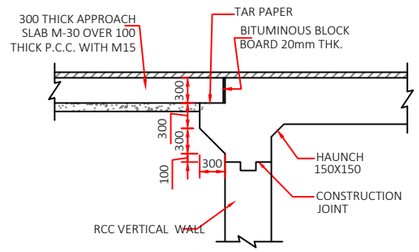
DRAWING NO :NH/NH(PW BPL)/NH-43E/PKG.-5/GAD/ 14

	REV	
	DATE	
	NAME	SIG.
DRAWN		
DGN.		
CHECKED		
APPROVED		



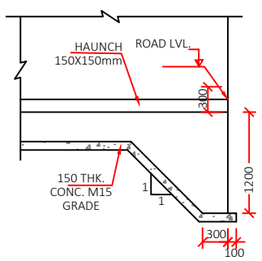
VIEW A-A

SCALE 1:100



DETAIL - A

SCALE 1:50



DETAIL-'B'

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. LEVELS ARE IN METERS.
2. PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R LOADING FOR EVERY TWO LANES OR TWO LANES OF CLASS A LOADING ON THE REMAINING LANE OR THREE LANES OF CLASS A LOADING, WHICHEVER GOVERNS WITH APPROPRIATE LANE REDUCTION FACTOR.
3. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
4. GRADE OF CONCRETE:
   - RCC BOX M-35
   - RCC CRASH BARRIER M-40
   - APPROACH SLAB M-30
   - PCC M-15
5. ALL H.Y.S.D. BARS SHALL CONFORM TO IS:1786 GRADE Fe 500-D.
6. WEARING COURSE SHALL BE 40mm THK. BITUMINOUS CONCRETE OVER 25mm THIK BITUMEN MASTIC LAYER AS PER MOSRT&H SPECIFICATIONS.
7. BACK FILLING BEHIND BOX SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX :6 OF IRC:78-2014 HAVING PROPERTIES C=0, Ø=30°, **δ=20 AND γd=20 KN/M³.**
8. **FORMATION LEVEL, BED LEVEL, CAMBER/SUPER ELEVATION AND LAYOUT SHALL BE VERIFIED AT SITE AND SHALL BE PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING. IN CASE OF ANY DISCREPANCY. IT SHALL BE BROUGHT IN TO THE NOTICE OF DESIGN CONSULTANT.**
9. **NET SAFE BEARING CAPACITY OF THE SOIL AT THE FOUNDING LEVEL OF THE BOX HAS BEEN CONSIDERED AS 12 T/m².**
10. **WEEP HOLES 100mm DIA WITH SLOPE ABOUT 1V:20H, SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER.**
11. **ALL DIMENSION ARE INDICATIVE ONLY AND WILL BE FINALIZED AFTER DETAIL DESIGN.**

LEGEND:-

LVL.	- LEVEL
FRL	- FINISHED ROAD LEVEL
THK.	- THICK
FND. LVL.	- FOUNDING LEVEL
G.L.	- GROUND LEVEL

SCHEDULE OF STRUCTURE

S.No.	DESIGN CHAINAGE (km)	PROPOSAL	TYPE	DIMENSION DETAIL OF BOX					PROPOSED LEVELS	
				a	b (min.)	c	d	e	FRL	IL
1	60+680	Reconstruction	Box	13000	5500	800	750	800	440.069	439.769

CONSULTANT :
K&J PROJECTS PVT. LTD.
Shivam, 16 NIT Layout, Ravi Nagar, Nagpur 440 033 (M.H.), India
Tel: 91 712 2556402, 2557031 Fax: 91 712 2556403 Email: contact@knjprojects.com Web: www.knjprojects.com

CLIENT :
PUBLIC WORKS DEPARTMENT
NATIONAL HIGHWAY ZONE BHOPAL
Nirman Bhawan, Arera Hills, Bhopal,
Madhya Pradesh 462004

PROJECT TITLE :

CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT OF NEWLY DECLARED NHs FOR UP-GRADATION TO TWO LANES WITH PAVED SHOULDER / FOUR LANE CONFIGURATIONS.

DRAWING TITLE :-

GULGANJ - AMANGANJ - PAWAI - KATNI ROAD (NH-43E)

GENERAL ARRANGEMENT DRAWING OF ANIMAL OVERPASS 1X13.0

(SHEET 1 OF 1)

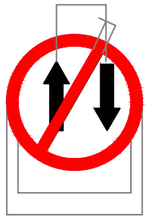
DRAWING NO :NH/NH(PW BPL)/NH-43E/PKG.-5/GAD/ 14

REV		
DATE		
	NAME	SIG.
DRAWN		
DGN.		
CHECKED		
APPROVED		

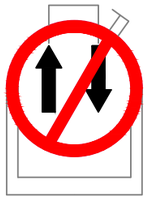
MS – 1
STOP SIGNAL

MS – 2
GIVE WAY SIGN

MS – 3
NO ENTRY



MS – 4
ONE WAY SIGNS



MS – 5

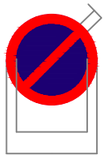
MS – 6
RIGHT TURN PROHIBITED

MS – 7
LEFT TURN PROHIBITED

MS – 8
U – TURN PROHIBITED

MS – 9
OVERTAKING PROHIBITED

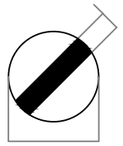
MS – 10
HORN PROHIBITED



MS – 11
NO PARKING

MS – 12
NO STOPPING
OR STANDING

MS – 13
SPEED LIMIT



MS – 14
RESTRICTION END

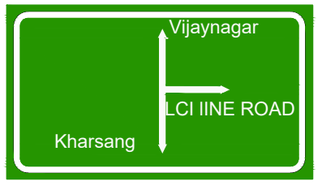
MS – 15
COMPULSORY
KEEP LEFT

MS – 16
COMPULSORY TURN
RIGHT AHEAD

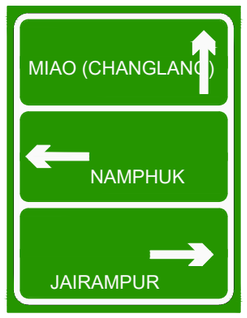
MS – 16
COMPULSORY TURN
LEFT AHEAD

MS – 17
COMPULSORY AHEAD
OR TURN RIGHT

MS – 19
COMPULSORY AHEAD
OR TURN LEFT



IS – 1
ADVANCE DIRECTION SIGN

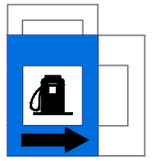


IS – 2
REASSURANCE SIGN

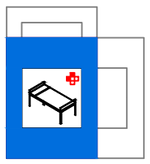
IS – 3
PLACE IDENTIFICATION SIGN

IS – 4
PLACE IDENTIFICATION SIGN

IS – 5
PUBLIC TELEPHONE

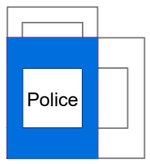


IS – 6
FILLING STATION



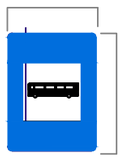
IS – 7
HOSPITAL

IS – 8
EATING PLACE

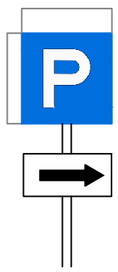


IS – 9
POLICE STATION

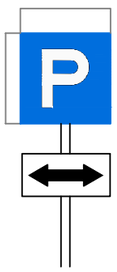
IS – 10
RAILWAY STATION



IS – 11
BUS STOP

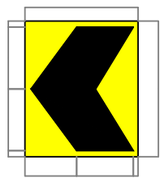


IS – 12
PARKING THIS SIDE

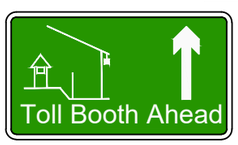


IS – 13
PARKING BOTH SIDE

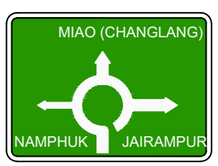
IS – 14
TRUCK LAY BYE



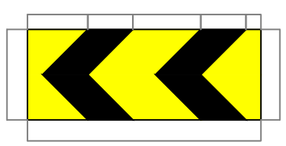
IS – 15
CHEVRON SIGN



TOLL BOOTH AHEAD



MAP TYPE ADVANCE DIRECTION O ROUNDABOUT

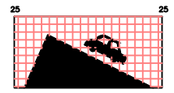


DOUBLE CHEVRON

NOTE:

1. ALL DIMENSIONS ARE IN MM UNLESS AND OTHERWISE SPECIFIED.
2. FOR DETAILS OF ROAD SIGN REFER IRC: 67-2012.

CS – 1
STEEP ASCENT



CS – 2
STEEP DESCENT

MS – 10
NO PARKING

ARRANGEMENT FOR ERECTION OF
STATE ROUTE MARKER SIGN