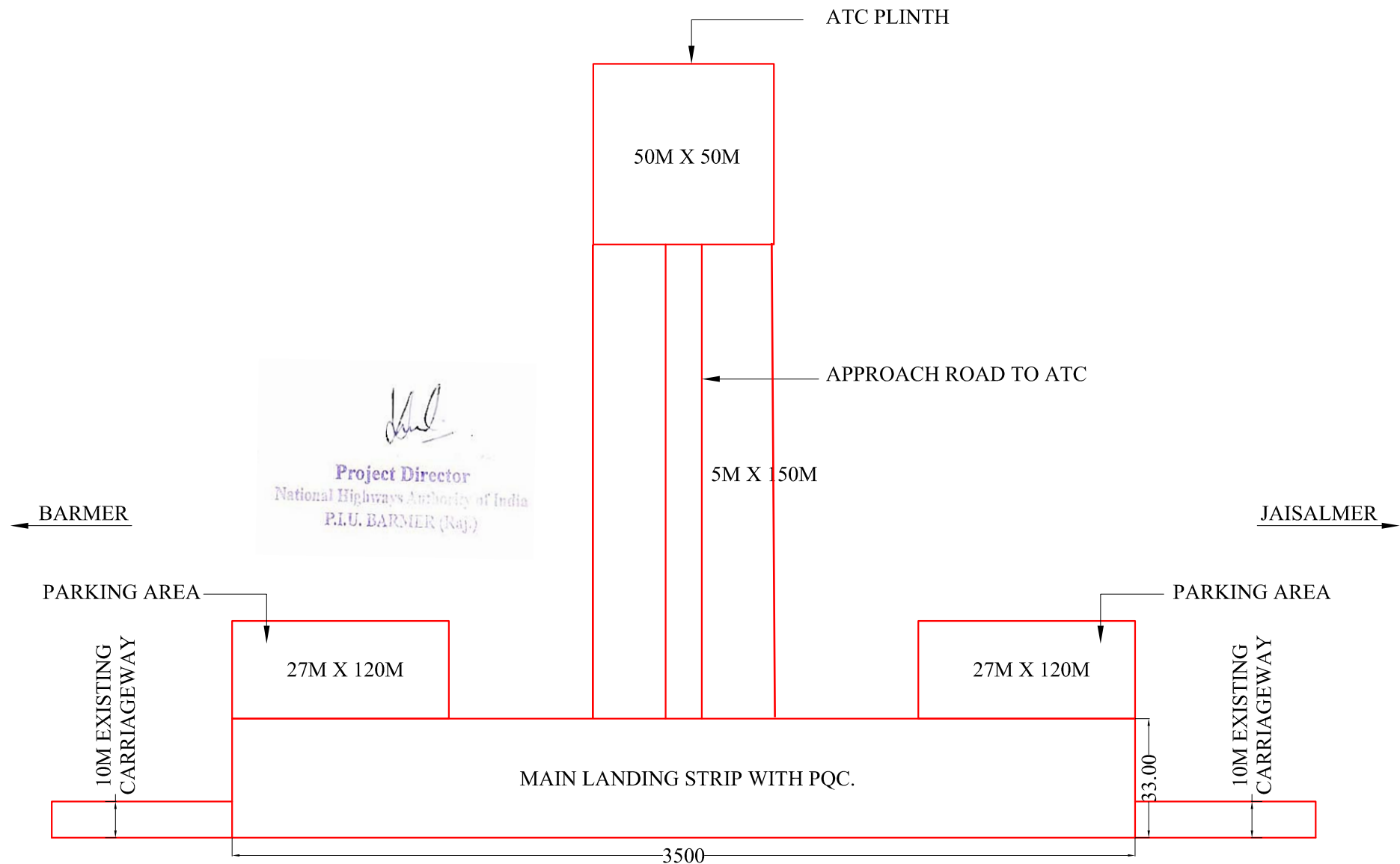
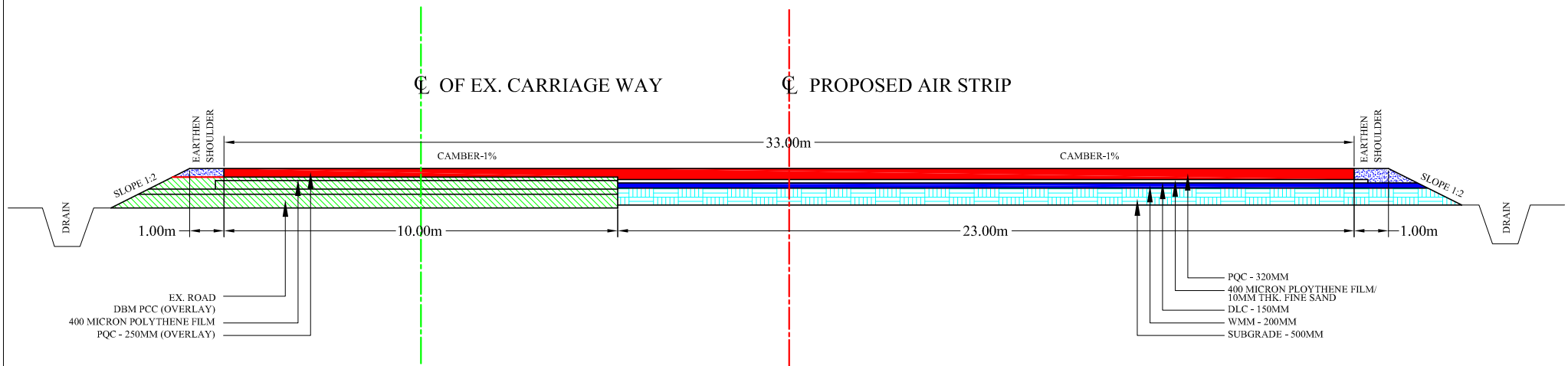


LAYOUT PLAN



Development of Emergency Landing Facility on National Highway No. 68 (Old no.15) from Km 109.740 to km 113.445 of Jaisalmer-Barmer Section in the state of Rajasthan



TYPICAL CROSS-SECTION AIR STRIP

[Signature]
Project Director
 National Highways Authority of India
 P.U. BARMER (Raj.)

Guidelines and Project Report

Tele: 079-23242600/5531
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By Regd Post

HQ SWAC, IAF
Lekhawada, Gandhinagar
Gujarat-382042

SWAC/9069/Wks

26 May 17

Project Director
PIU Barmer office : J-2/2, Malani
Karamchari Colony, Baldev Nagar, NH-15,
Barmer, Rajasthan - 344001

Deputy General Manager (Tech)
RO- Gujarat
235-239, 2nd Floor, Supermall-1,
Above HDFC Finance,
Infocity, Gandhinagar-38207 (Gujarat)

Mgt (T)
Please send the guidelines
to DPR Consultant, A.E. and
Contractors
[Signature]
06/06

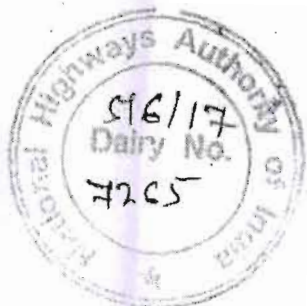
✓ EMERGENCY LANDING FACILITIES OVER NH

1. Landing was successfully carried out on the newly constructed Agra-Lucknow expressway by fighter Aircrafts. Based on this, Air HQ has issued following guidelines: -

(a) 'Fencing' ^{of} the landing strips should be between 15-30 mtrs from the landing strips proposal and preferably made of 'frangible' materials instead of 'metal'. The height of the fence should be not less than 5 ft (1.8m). This should be from the edge of the landing strip.

(b) The total length of the landing strips should be not less than 5000m, width not less than 23-48m, PCN not less than 50, gradient not less than 3.5% and orientation not less than +/-1 deg.

2. Kindly consider the above in design to make it operationally safe and viable.



[Signature]
(B Kaushal)
Gp Capt
C Wks O

Copy to
1 PD, Barmer.
for informant
c/s
8/12/76
Gom(7)/
RG NHA
Gathong

HQ SWAC, IAF
Pin : 936176
C/o 56 APO

15 Nov 16

1. Further to the discussion and development on the subject wherein the two stretches of highway namely at Uttarlai and Dwarka- Naliya were finalised to be developed to facilitate their utilisation by IAF Aircraft. A collegiate meeting as directed by the AOC-in-C and SASO with the NHAI official and consultants was conducted on 27 Oct 16 at 1030 Hrs at HQ SWAC.

2. The agenda for the conference was to provide the NHAI the desired specification and to discuss the same for clear understanding and the feasibility of adopting them by the NHAI at the referred stretches.

3. The following were present,

AVM KP Unnikrishnan Nair VSM	SOA, HQ SWAC (Chairman)
Air Cmde Surat Singh AVSM VM VSM	Air I , SWAC
Gp Capt Anurag Rai	C Wks O, SWAC
Gp Capt EJ Anthony VSM	CATSPA W, SWAC
Wg Cdr AM Rane	CATSPA W, SWAC
Col Kulbir Singh	CWE, Jodhpur
Sqn Ldr Sameer Yadav	Rep Uttarlai
Flt Lt Patial	Rep Jamnagar
Shri CK Sinha	Gen Manager (Tech) Gandhinagar ,NHAI
Shri PK Jain	Deputy Gen Manager, Rajkot NHAI
Shri Virender Singh	Project Director, Barmer NHAI
Shri Vishu Kumar S	Addl Gen Manager, RITES
Shri JP Yadav	Manager, RITES
Shri BH Waghela	SDO, DEO Ahmedabad

4. The main agenda for the meeting was to finalise the specification. The points are largely agreed to by both the directors viz, Rajasthan and Gujarat. Remarks/ Suggestions for way forward are as follows:-

10/12/12

G11C.

Sl	Item	Specification	Remarks / Decisions
01	Pavement type	Rigid pavement (Concrete)	Agreed upon
02	Length of Stretch	3500 mtrs	Length of 5000 Mtrs (Main landing strip length 3500 Mtr + undershoot and over shoot areas of 1500 Mtrs) Agreed upon in principle by RO, NHAI, Gandhinagar subject to formal approval of competent Authority, NHAI New Delhi (HQ). To be obtained by NHAI Gandhinagar.
03	Width of Stretch	<ul style="list-style-type: none"> Overall width of Paved carriageway – 33 m Width of high strength pavement – 27 m Width of paved shoulder -3 m on either side. It is recommended that paved shoulder of airstrip should also be of high strength pavement so that full 33 m is available for air operations. 	Width of stretch 33m as per the suggested specifications. Agreed upon in principle by RO, NHAI, Gandhinagar subject to formal approval of competent Authority, NHAI New Delhi (HQ). To be obtained by NHAI Gandhinagar.
04	Gradient Requirements	<p><u>Longitudinal gradient</u></p> <ul style="list-style-type: none"> Max change of gradient 1.5% Rate of change of longitudinal gradient 0.167% per 30 m for fighter ac. <p><u>Transverse Gradient</u></p> <ul style="list-style-type: none"> For pavement is 1 in 100 For paved shoulders is 1 in 80 For cleared zone after paved shoulders is 1 in 40. <p><u>Vertical Curves</u></p> <ul style="list-style-type: none"> Vertical Curves Length of Vertical curves- 180 m for every change of 1% gradient Distance between two points of intersection of successive vertical curves not less than 15000 m multiplied by sum percentage of two successive gradients. 	Gradient requirement. Agreed upon in principle by RO, NHAI, Gandhinagar subject to formal approval of competent Authority, NHAI New Delhi (HQ). To be obtained by NHAI Gandhinagar.


05	PCN Value	Minimum 50 PCN	NHAI agreed to carry out soil testing of both stretches and forward to HQ SWAC. Based on soil testing report CWE Jodhpur to finalise the design requirements and composition details and provide equivalent load bearing strength requirements of carriage way to NHAI for a PCN equivalent of 50. Agreed upon in principle by RO, NHAI, Gandhinagar subject to formal approval of competent Authority, NHAI New Delhi (HQ). To be obtained by NHAI Gandhinagar.
06	Pavement Crust composition	Concrete – 350 mm minimum PQC (40M). The sub-grade should be 150 MM DLC and two layers of granular sub-base <i>Soil testing needs to be carried out for adoption of above crust composition. The pavement crust composition to be designed from a designer based on the soil parameters and traffic loading with additional loading of ac type.</i>	PD Uttarlai, Barmer NHAI informed that widening and upgradation of NH 15 has already been completed and the IAF may provide the specification on priority so that necessary additional layers can be planned to suit the IAF specification.
07	Size of Parking facility	Parking facility required at both ends of the strip. Recommended dimensions – 45m x 180 m (minimum 30 m x 120m for 04 ac parking).	NHAI official informed that size of parking space would be met however the width of the parking to be restricted to 27 Mtrs. Since NHAI is empowered to acquire land only upto 60 mtrs of total carryingway width. The length of the parking area could be increased to compensate for reduction in width (300M length). NHAI shall undertakes the civil work activities on approval of Competent Authority, NHAI HQ inside their acquired ROW.

08	R/W Lighting	Lighting not required	Not required
09	FOD/ Bird menace	No butchery or tannery within a radius of 10 kms around centre of strip to avoid bird menace.	The DC/ State govt to notify and ensure that the vicinity of the strip is bereft of butcheries and tanneries to prevent Bird menace.
10	Obstructions	<ul style="list-style-type: none"> Free from obstructions like medians, signboards, trees, fences, sidewalks, high tension cables, poles and any other construction. There should be collapsible fencing. Approach and take off funnel should be devoid of obstructions. 	The DC/ State govt to notify and ensure that objections within the approach funnel and vicinity are adhered to.
11	Exit Taxiway	<ul style="list-style-type: none"> Not Applicable. 	Not required
12	Specifications of Medians	<ul style="list-style-type: none"> First option would be mechanical medians. In case not possible, medians/ fencing on rollers (towable) is acceptable. Line marking on the road will be done by State authorities and on parking area will be done by IAF. 	NHAI agreed that the considered stretches could be median free with appropriate road marking as per their norms or within provision of movable new jersey type median barrier subject to formal approval of Competent Authority, NHAI, New Delhi (HQ).
13	Drainage specifications	<p>If open drain is within 50 m of edge of landing strip, then drain is to be covered and cover should be capable of supporting 25 tons.</p> <p>In case the ground water table is high or if it is higher during the monsoon season, proper sub surface drainage is to be planned.</p> <p>Also, necessary precautions may be taken to prevent stagnation of water on the stretch. The drainage system should be constructed accordingly.</p>	<p>NHAI agreed to provide the drainage specification as mentioned. Agreed upon in principle by RO, NHAI, Gandhinagar subject to formal approval of competent Authority, NHAI New Delhi (HQ). To be obtained by NHAI Gandhinagar.</p>

14	Distance to Go Markers	Three frangible distance to go markers with 9/0, M/M and 0/9 at least on one side of the airstrip.	It was agreed by the IAF that portable DTGMs would be provided by the IAF.
15	Other facilities	<p>A set of four rooms of 15' x 12' dimensions with washroom facilities, two on ground floor and two on first floor with ATC on top floor at the same location where plinth for ATC is proposed.</p> <p>A link road of 6m width and 150 m is proposed between ATC plinth and airstrip. Dimensions of ATC Plinth would be 50 m x 50 m.</p>	<p>NHAI suggested that the ATC plinth of 50 m X 50m should not be proposed as ATC but as a helipad for utilization by the state Govt. since the distance of the helipad is 150m away from the carriageway and is beyond the NHAI limits of land acquisition. Both the bases (Jamnagar and Uttarlai) are to take up formally with the DC for earmarking of the land for the purpose and necessary direction be obtained for the NHAI to follow up on construction. Once the go-ahead from the DC is obtained, the required accommodation as specified can also come up.</p>
16	By pass/Diversion		<p>It was decided that a joint on site review to be done to locate availability of any existing bypass road/ connecting road in the vicinity of the airstrip stretch. In case not available, then diversion road to be constructed as a connecting road to the nearest road for facilitating a diversion.</p> <p>Requirement of land to provide leveling beyond the R/W and paved shoulders to meet obstruction free area to be taken up by the stn with the DC.</p>
17	Misc Points		The Proposal of the Airstrip at both the stretches to be intimated to the State/ District administration on priority so that the govt does not parallelly a lot the land for installation of wind mills which are coming up at a fast pace especially for Gujarat.

5. There being no further points, the meeting concluded at 1245 Hrs.

3ns


(Asha Vashist)
Wg Cdr
C Wks O