

c/1

**BRIHANMUMBAI MAHANAGARPALIKA**  
No. MGCA/7384 Date: 15/03/2019

**Sub.:** Collapse of Footover bridge between CST railway station & Times of India building on 14.03.2019.

Chief Engineer (Vigilance) is directed to conduct enquiry of above incidence and fix up the responsibility of municipal staff, structural auditor etc. and submit report within one month.

The term of reference is as follows.

1. Cause of Failure of bridge.
  - (a) Structural failure
  - (b) Any other reasons.
2. Status of Bridge maintenance
  - (a) History of maintenance
  - (b) History of repairs
3. Structural Audit
  - (a) Whether structural audit was carried out in time
  - (b) Whether proper methodology was followed while appointing structural auditor and requisite qualifications, experience of structural auditor was seen.
  - (c) Whether structural audit was carried out in scientific manner by structural auditor
  - (d) Recommendations of last structural audit
  - (e) Whether structural report was properly studied and analysed by Municipal Officers
  - (f) Actions taken by Municipal officers on audit recommendations

**However, immediately (within 24 hours), a preliminary report should be submitted identifying Municipal staff responsible and responsibility of structural auditor for this incident.**

*Ajij Mello*  
15/3/19  
Municipal Commissioner

Ch. E. (Vigilance)

**WORK-ORDER**

~~649~~

Office of the  
Ch. Engineer ( Bridges )  
Engineering Hub Building,  
Gr. floor, Dr. E. Moses Road,  
Opp. Geeta Talkies, Worli,  
Mumbai - 400 018.

To,

**M/s. Prof. D.D. Desai's Associated Engineering**  
Consultants & Analysts Pvt. Ltd.  
A-14, 3<sup>rd</sup> Floor, Divya Prakash Dadabhai Cross Road no.1,  
Near Bhavans College, Andheri (W)  
MUMBAI : 400 052

SUB : Inventory of Bridges in Greater Mumbai for City.

REF : Letter of Acceptance u/no. Ch.Eng/4643/Bridges dt.17.09.16

Sir,

In continuation of the acceptance letter issued to you referred above, this is to inform you that, the Municipal Commissioner on Behalf of the Municipal Corporation of Greater Mumbai has accepted your offer, pursuant to the sanction of the Standing Committee vide S.C.R. No. 726 dated 07.09.2016, on the terms & conditions of the tender at the cost of Rs. 63,18,944/- (Rs. Sixty Three Lakh Eighteen Thousand Nine Hundred and Forty Four only).

You are further requested to (a) pay an amount of Rs. 2,670/- in this office on account of legal and stationery charges, there after the requisite contract documents, plan etc. will be handed over to you for stamping and signature by your partners. You are also requested to submit certified copies of :-

- i) Registration of Company,
- ii) Sale Tax Cft. / Vat Cft.,
- iii) Latest solvency Cft. & EMD paid receipt,
- iv) Notarized Pan Document,
- v) Vendor Form with Vendor No.,
- vi) Undertaking cum Indemnity Bond on stamp paper of Rs 200/- and Indemnity Bond on Rs.500/- stamp paper,
- vii) Contractors All Risk Policy,
- viii) Janata Personal Accident Insurance Policy,
- ix) Workman Compensation Insurance Policy, to be effected on behalf of the Corporation, from the Directorate of Insurance, Maharashtra State, Free Press journal Marg, Mumbai - 400 021
- x) Original Deed of Partnership and Power of Attorney registration and
- xi) Details of Bank A/c no. on Company's letter head.

Please note that according to the conditions of the tender, it is incumbent on you to complete the contractual formalities within 15 days from the receipt of work order letter. Unless the contract deposit and legal charges are paid, the contract documents can not be sent to you for execution. You should bear an adhesive stamp duty of Rs. 5,850/- affixed on the Agreement Form at Page No. 47-48 of the tender copy.

You are requested to take in hand immediately the preliminary arrangements in connection with the above work in consultation with the Dy. Ch. Eng. (Bridges) City., whose office is situated at the above mentioned address; so as to commence the work in right earnest from 01.11.2016 which will be taken as the date of commencement of this work and the contract period of 8 Months (Exclusive of monsoon) will be reckoned from this date.

Yours faithfully,

18/10/16  
Chief Engineer ( Bridges )  
18/10/2016  
Dy Ch. Eng. (Bridges) City.  
18/10/16  
A.O. (Br)  
18/10/16  
EP (Br) City

NO. Ch. Eng. / 5652 / Bridges of 18.10.2016

Copy to : Ch. Eng.(Vig.)/ Ex. Eng.(Monitoring)/

Asst. Commissioner 'A / B / C / D / E / F-South / F- North / G-South / G-North ' Ward

Copy for information please.

18/10/16  
Chief Engineer ( Bridges )  
18/10/16  
Dy Ch. Eng. (Bridges) City.  
18/10/16  
A.O. (Br)  
18/10/16  
EP (Br) City

NO. Ch. Eng. / 5652 / Bridges of 18.10.2016

Copy to : The Joint Commissioner of Police (Traffic)

Traffic Police Headquarters  
87, Sir Pochkhanwala Road,  
Worli, Mumbai 400 025

Copy for information please.

Received  
Rahul Pawar  
Pawar  
23/10/2017

18/10/16  
Chief Engineer ( Bridges )  
18/10/16  
Dy Ch. Eng. (Bridges) City.  
18/10/16  
A.O. (Br)  
18/10/16  
EP (Br) City

683  
C-7

**MUNICIPAL CORPORATION OF GREATER MUMBAI**

**NO. Ch. Eng. /5750 / Bridges of 18.10.2016**

**WORK-ORDER**

Office of the  
Ch. Engineer ( Bridges )  
Engineering Hub Building,  
Gr. floor, Dr. E. Moses Road,  
Opp. Geeta Talkies, Worli,  
Mumbai - 400 018.

To,

**M/s. C.V. Kand Consultants Pvt. Ltd.**

Off. No.201/202, Sai Empire,  
3<sup>rd</sup> Floor, Baner,  
PUNE : 411 045.

SUB : Inventory of Bridges in Greater Mumbai for Western Suburb.  
REF : 1) E tender Notice vide No. Ch.Eng/9381/Bridges dt.14.03.2016  
2) Letter of Acceptance u/no. Ch.Eng/4648/Bridges dt.17.09.16

Sir,

In continuation of the acceptance letter issued to you referred above, this is to inform you that, the Municipal Commissioner on Behalf of the Municipal Corporation of Greater Mumbai has accepted your offer, pursuant to the sanction of the Standing Committee vide S.C.R. No. 726 dated 07.09.2016, on the terms & conditions of the tender at the cost of Rs. 1,05,67,600/- (Rs. One Crore Five Lakh Sixty Seven Thousand Six Hundred only).

You are further requested to (a) pay an amount of Rs. 6,660/- in this office on account of legal and stationery charges, there after the requisite contract documents, plans etc. will be handed over to you for stamping and signature by your partners. You are also requested to submit certified copies of :-

- i) Registration of Company,
- ii) Sale Tax Cft. / Vat Cft.,
- iii) Latest solvency Cft. & EMD paid receipt,
- iv) Notarized Pan Document,
- v) Vendor Form with Vendor No.,
- vi) Undertaking cum Indemnity Bond on stamp paper of Rs 200/- and Indemnity Bond on Rs.500/- stamp paper,
- vii) Contractors All Risk Policy,
- viii) Janata Personal Accident Insurance Policy,
- ix) Workman Compensation Insurance Policy, to be effected on behalf of the Corporation, from the Directorate of Insurance, Maharashtra State, Free Press journal Marg, Mumbai - 400 021
- x) Original Deed of Partnership and Power of Attorney registration, and
- xi) Details of Bank A/c no. on Company's letter head.

Please note that according to the conditions of the tender, it is incumbent on you to complete the contractual formalities within 15 days from the receipt of work order letter. Unless the contract deposit and legal charges are paid, the contract documents can not be sent to you for execution. You should bear an adhesive stamp duty of Rs. 10,100/- affixed on the Agreement Form at

You are requested to take in hand immediately the preliminary arrangements in connection with the above work in consultation with the Dy. Ch. Eng. (Bridges) W.S., whose office is situated at the above mentioned address; so as to commence the work in right earnest from 01.11.2016 which will be taken as the date of commencement of this work and the contract period of 8 Months (Exclusive of monsoon) will be reckoned from this date.

Yours faithfully,

*Shri (B) 12/11*

Chief Engineer ( Bridges )

*g/h*  
EE(B)WS

*Amish*  
(estmng)  
(W.M.)

%

*g/h*  
18/10/2016  
Dy ChE(B)W

NO. Ch. Eng. / 5650 / Bridges of 18.10.2016

Copy to : Ch. Eng.(Vig.)/ Ex. Eng.(Monitoring)/

Asst. Commissioner 'H-East, H-West, K-East, K-West, P-North, P-South, R-North, R-South, R-Central' Ward

Copy for information please.

*Shri (B) 12/11*

Chief Engineer ( Bridges )

*g/h*  
EE(136)WS

*Amish*  
(estmng)  
(W.M.)

*g/h*  
18/10/2016  
Dy ChE(B)W

NO. Ch. Eng. / 5650 / Bridges of 18.10.2016

Copy to : The Joint Commissioner of Police (Traffic)

Traffic Police Headquarters  
87, Sir Pochkhanwala Road,  
Worli, Mumbai 400 025

Copy for information please.

*Shri (B) 12/11*

Chief Engineer ( Bridges )

*g/h*  
EE(B)WS

*Amish*  
(estmng)  
(W.M.)

*g/h*  
18/10/2016  
Dy ChE(B)W

**MUNICIPAL CORPORATION OF GREATER MUMBAI**

**NO. Ch. Eng. / 5651 / Bridges of 18.10.2016**

657  
C-112

**WORK-ORDER**

Office of the  
Ch. Engineer ( Bridges )  
Engineering Hub Building,  
Gr. floor, Dr. E. Moses Road,  
Opp. Geeta Talkies, Worli,  
Mumbai – 400 018.

To,

**M/s. Structwell Designers & Consultants Pvt. Ltd.**

Structwell, Plot No.15, Sector 24,  
Off Sion – Panvel Highway, Turbhe,  
NAVI MUMBAI : 400 705

SUB : Inventory of Bridges in Greater Mumbai for Eastern Suburb.

REF : Letter of Acceptance u/no. Ch.Eng/4644/Bridges dt.17.09.16

Sir,

In continuation of the acceptance letter issued to you referred above, this is to inform you that, the Municipal Commissioner on Behalf of the Municipal Corporation of Greater Mumbai has accepted your offer, pursuant to the sanction of the Standing Committee vide S.C.R. No. 726 dated 07.09.2016, on the terms & conditions of the tender at the cost of Rs. 49,39,699/- (Rs. Forty Nine Lakh Thirty Nine Thousand Six Hundred Ninety Nine only).

You are further requested to (a) pay an amount of Rs. 2,670/- in this office on account of legal and stationery charges, there after the requisite contract documents, plans etc. will be handed over to you for stamping and signature by your partners. You are also requested to submit certified copies of :-

- i) Registration of Company,
- ii) Sale Tax Cft. / Vat Cft.,
- iii) Latest solvency Cft. & EMD paid receipt,
- iv) Notarized Pan Document,
- v) Vendor Form with Vendor No.,
- vi) Undertaking cum Indemnity Bond on stamp paper of Rs 200/- and Indemnity Bond on Rs.500/- stamp paper,
- vii) Contractors All Risk Policy,
- viii) Janata Personal Accident Insurance Policy,
- ix) Workman Compensation Insurance Policy, to be effected on behalf of the Corporation, from the Directorate of Insurance, Maharashtra State, Free Press journal Marg, Mumbai - 400 021
- x) Original Deed of Partnership and Power of Attorney registration, and
- xi) Details of Bank A/c no. on Company's letter head.

Please note that according to the conditions of the tender, it is incumbent on you to complete the contractual formalities within 15 days from the receipt of work order letter. Unless the contract deposit and legal charges are paid, the contract documents can not be sent to you for execution. You should bear an adhesive stamp duty of Rs. 4,450/- affixed on the Agreement Form at Page No. 47-48 of the tender copy.

659  
C-13

You are requested to take in hand immediately the preliminary arrangements in connection with the above work in consultation with the Dy. Ch. Eng. (Bridges) E.S., whose office is situated at the above mentioned address; so as to commence the work in right earnest from 01.11.2016 which will be taken as the date of commencement of this work and the contract period of 8 Months (Exclusive of monsoon) will be reckoned from this date.

Yours faithfully,

*[Signature]*  
AE(B)ES.

*[Signature]*  
18.10.16  
Dy. Ch. Eng. (Bridges) E.S.

*[Signature]*  
18/10/16  
EE(B)E/S/N  
%c

18/10/16  
Chief Engineer ( Bridges )  
*[Signature]*  
Dy. Ch. Eng. (Bridges) E.S.

NO. Ch. Eng. /5651 / Bridges of 18.10.2016

Copy to : Ch. Eng.(Vig.)/ Ex. Eng.(Monitoring)/

Asst. Commissioner ' L / M-East / M-West / N / S / T ' Ward

Copy for information please.

*[Signature]*  
18-10-2016  
AE(B)ES

*[Signature]*  
18.10.16  
Dy. Ch. Eng. (Bridges) E.S.

*[Signature]*  
18/10/16  
EE(B)E/S/N  
%c

18/10/16  
Chief Engineer ( Bridges )  
*[Signature]*  
Dy. Ch. Eng. (Bridges) E.S.

NO. Ch. Eng. /5651 /Bridges of 18.10.2016

Copy to : The Joint Commissioner of Police (Traffic)

Traffic Police Headquarters  
87, Sir Pochkhanwala Road,  
Worli, Mumbai 400 025

Copy for information please.

*[Signature]*

18/10/16  
Chief Engineer ( Bridges )  
*[Signature]*

C15





# Prof. D.D.Desai's Associated Engineering Consultants & Analysts Pvt. Ltd.

(Specialists in : High rise, Spatial Structures and Long Span Bridges Design)

D. D. Desai  
(Consultant Engineer )  
M.E. Civil (Bom) F.I.E. (India) F 7917  
M.PEATA ( India), M.I.A.E.M ( India)

N. D. Desai  
(Consultant Engineer )  
M.E. (Struct), (Bom), M.I.E. (India) M-137530-4,  
M.ASCE. (USA), Chartered Engineer (India)

Reg. Off : 18,G.D. Patil Building, Pear Heritage,  
Plot No. 19/B, Dawood Baug Lane,  
Andheri (West), Mumbai – 400 058.

Tel No. : 91-022-2623 3458 / 2670 8521  
E-mail : profd3@gmail.com

Visiting Hours :  
By Prior Appointment

Date:06.08.2018

To,  
Office of the -  
Chief Engineer (Bridges)  
Engineering Hub Building,  
Zero floor, Dr. E.Moses Road,  
Opp. Geeta Talkies, Worli,  
Mumbai – 400 018. ☎ 24958001, 24958101

Dear Sir,

Name of Work: "Inventory of the Bridges in Greater Mumbai City"

Adverting to the above we are enclosing herewith the final reports for the "INVENTORY OF BRIDGES CITY ZONE SOUTH" in the form of hard copy as well as soft copy (In form of CD).

The above final reports includes all the comments and revisions as informed to us time to time as Per your concurrence.

We hope the above you shall find in order.

Thanking You, Yours Faithfully,  
For Prof. D. D. Desai's A.E.C. & A. Pvt. Ltd.

*N. D. Desai*  
Director  
N. D. Desai  
Mumbai

*GE (Ans) City - South*  
~~*GE (Ans) Pear Heritage*~~

बृहन्मुंबई महानगर पालिका  
प्रमुख अभियंता (पूल)  
13 AUG 2018  
क्र. प्र. अ. ॥ ५५३०

- for further up  
- update the rep. major repairs  
- M. 87K  
14/08  
*[Signature]*

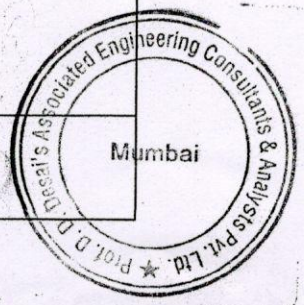
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*[Signature]*

**Summary of the INVENTORY of Bridges in CITY 1 Division**

C-19

Sr. No.	Name and Address	Ward	**Category	Minor/ Major	*Findings	Remarks
1	Priyadarshani bridge , Priyadarshani park, Nepensea road, Grant Road.	D	BRIDGE	MAJOR	G	
2	YM Bridge , Yusuf Meher Ali Road.	A	ROB	MAJOR	MR	
3	Princess street ROB , Princess sreet , MK Rd , Marine lines.	C	ROB	MAJOR	MJR	
4	Falkland , P.B.Marg, Mumbai central.	D	ROB	MAJOR	G	
5	French bridge , A.R.R Marg , Grant road.	D	ROB	MAJOR	MR	
6	Grant Road bridge , Maulana Shaukat Ali Road, Nana Chowk, Grant road railway station.	D	ROB	MAJOR	MR	
7	Opera House bridge , Opera house, Grant road.	D	ROB	MAJOR	MR	
8	Kennedy bridge , Nana chowk, Grant road.	D	ROB	MAJOR	MJR	
9	Bellasis Mumbai central , Dr.Anand Rao Nair Marg, Mumbai central.	D	ROB	MAJOR	MJR	
10	Byculla bridge , B.A.Road , Byculla.	E	ROB	MAJOR	MR	
11	Olivant Br near siant merry , Near Saint Merry	E	ROB	MAJOR	MR	
12	Reay RD station , Sant savat marg , Reay Road railway station.	E	ROB	MAJOR	MJR	
13	S bridge Byculla , Junction of NM Joshi Mrg and Keshavrav Khayde Road, Bhakar adda, Byculla.	E	ROB	MAJOR	G	
14	SVP ROB , Sardar Vallabhbbhai Patel Road, Masjid Bunder.	E	ROB	MAJOR	MR	
15	Kemps corner , Kemps corner, Pedder road, Grant road	D	FLYO	MAJOR	MJR	
16	Gloria chruch byculla , Byculla rail station, Byculla.	E	FLYO	MAJOR	MR	
17	Sitaram Selam Y bridge , A Anasari Chowk , Byculla	E	FLYO	MAJOR	MR	
18	Times FOB DN road , Near Times of India, CST.	A	FOB	MINOR	G	
19	PD Mellow Rd Wadi bunder FOB , P D Mellow Road, Wadi bunder	A	FOB	MINOR	G	
20	Yellow gate FOB , P.D.Mellow road near princess dock.	B	FOB	MINOR	D&R	
21	MK Rd chandawadi S FOB , MK Road Chandanwadi , Mrinelines.	C	FOB	MINOR	D&R	
22	Patel bridge , N.S Road , Girgaon chowpati, Charni road.	D	FOB	MAJOR	G	
23	MK RD jn BJ Road , MK Road Junction, South end of Charni road railway station.	D	FOB	MINOR	MR	
24	MK Rd Charni Rd E M SahityaSangh, MK Road, Sahitya sangh, Charni road.	D	FOB	MAJOR	MJR	



(-+2)

25	<b>MK Rd jn Charni Rd E N Saifee</b> , MK rd, Sifee hospital, Charni road.	D	FOB	MAJOR	MR	
26	<b>Dockyard Station</b> , Dockyard road station P.D'Mellow Road.	E	FOB	MINOR	G	
27	<b>MK Rd chandawadi N FOB</b> , MK Road ,Chandanwadi,Marinelines.	C	FOB	MINOR	D&R	
28	<b>DN road MK road jn FOB</b> , At junction of DN road and MK road, hindi vidya bhavan (Marinelines)	A	FOBRL	MAJOR	MJR	
29	<b>Across Charni Rd Station S</b> , MK Rd , Charni road rail station.(S)	D	FOBRL	MINOR	MJR	
30	<b>Princess Street FOB Marinelines</b> , Princess street,MK road,Marinelines.	C	FOBRL	MAJOR	MR	
31	<b>Across Charni Rd Station N</b> , MK Rd , Charni road rail station.(N)	D	FOBRL	MAJOR	MJR	
32	<b>Bhandari police station</b> , Masjid railway station.	E	FOB RL	MAJOR	MR	
33	<b>Masjid east west FOB RL</b> , Masjid railway station.	E	FOB RL	MAJOR	MR	
34	<b>Chinch bunder FOB RL</b> , Near Chinch bunder ,Sandhurst road.	E	FOB RL	MAJOR	MR	
35	<b>CST subway</b> , CST Railway station.	A	PS	MAJOR	G	
36	<b>Churchgate subway S</b> , Churchgate railway station.(S)	A	PS	MAJOR	G	
37	<b>Churchgate subway N</b> , Churchgate railway station.(N)	A	PS	MAJOR	G	
38	<b>Metro subway</b> , Near metro cinema,Marinelines.	A	PS	MAJOR	G	
39	<b>Haji Ali S</b> , Haji ali junction,Mahalaxmi.	D	PS	MAJOR	G	

**\*Findings**

G	G
Minor Repairs	MR
Major Repairs	MJR
Demolition and Repairs	D&R

**CITY1**

**Category		
BR	Bridge over Nalla or river (Vehicular)	1
ROB	Road over Bridge (Vehicular) across railways	13
FLYOVER	Bridges across road junction or over roads	3
FOB	Foot Over Bridge	10
FOB RL	Foot Over Bridge over Railway Track	7
VS	Vehicular Subway	0
PS	Pedestrian Subway	5
TOTAL		39



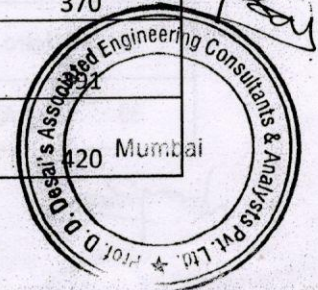
C-23

INVENTORY OF BRIDGES

Bridge register

Index

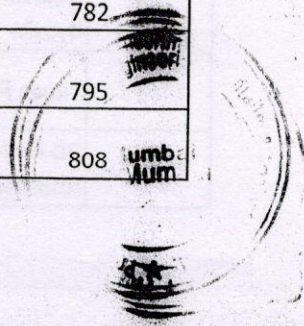
SR. No.	Name of Bridge / Br.No	Location	Page no
1	Priyadarshani bridge , Priyadarshani park,Nepensea road,Grant Road.	Priyadarshani park,Nepensea road,Grant Road. <u>18°57'34.16"N ; 72°48'3.20"E</u>	1
2	YM Bridge , Yusuf Meher Ali Road.	Yusuf Meher Ali Road. <u>18°57'11"N ; 72°50'18.02"E</u>	13
3	Princess street ROB , Princess sreet , MK Rd , Marine lines.	Princess sreet , MK Rd , Marine lines. <u>18°56'40.07"N ; 72°49'28.42"E</u>	37
4	Falkland , P.B.Marg,Mumbai central.	P.B.Marg,Mumbai central. <u>18°58'1.00"N ; 72°49'3.82"E</u>	59
5	French bridge , A.R.R Marg ,Grant road.	A.R.R Marg ,Grant road. <u>18°57'25.45"N ; 72°48'52.45"E</u>	76
6	Grant Road bridge , Maulana Shaukat Ali Road,Nana Chowk,Grant road railway station.	Maulana Shaukat Ali Road,Nana Chowk,Grant road railway station. <u>18°57'43.13"N ; 72°48'55.63"E</u>	97
7	Opera House bridge , Opera house,Grant road.	Opera house,Grant road. <u>18°57'23.40"N ; 72°48'52.86"E</u>	117
8	Kennedy bridge , Nana chowk,Grant road.	Nana chowk,Grant road. <u>18°57'33.17"N ; 72°48'52.43"E</u>	134
9	Bellasis Mumbai central , Dr.Anand Rao Nair Marg,Mumbai central.	Dr.Anand Rao Nair Marg,Mumbai central. <u>18°58'8.49"N ; 72°49'6.79"E</u>	188
10	Byculla bridge , B.A.Road , Byculla.	B.A.Road , Byculla. <u>18°58'20.00"N ; 72°49'57.00"E</u>	207
11	Olivant Br near siant merry , Near Saint Merry	Near Saint Merry <u>18°58'10.77"N ; 72°50'1.39"E</u>	224
12	Reay RD station , Sant savat marg ,Reay Road railway station.	Sant savat marg ,Reay Road railway station. <u>18°58'34.13"N ; 72°50'40.41"E</u>	243
13	S bridge Byculla , Junction of NM Joshi Mrg and Keshavrav Khayde Road,Bhakar adda,Byculla.	nction of NM Joshi Mrg and Keshavrav Khayde Road,Bhakar adda,Byculla. <u>18°58'46.50"N ; 72°49'58.30"E</u>	273
14	SVP ROB , Sardar Vallabhbhai Patel Road, Masjid Bunder.	Sardar Vallabhbhai Patel Road, Masjid Bunder. <u>18°57'29.00"N ; 72°50'19.00"E</u>	292
15	Kemps corner , Kemps corner,Pedder road,Grant road	Kemps corner,Pedder road,Grant road <u>18°57'50.70"N ; 72°48'27.40"E</u>	311
16	Gloria chruch byculla , Byculla rail station ,Byculla	Byculla rail station ,Byculla <u>18°58'30.59"N ; 72°50'1.49"E</u>	353
17	Sitaram Selam Y bridge , A Anasari Chowk , Byculla	A Anasari Chowk , Byculla <u>18°58'16.18"N ; 72°49'56.90"E</u>	370
18	Times FOB DN road , Near Times of India,CST.	Near Times of India,CST. <u>18°56'31.88"N ; 72°50'4.57"E</u>	
19	PD Mellow Rd Wadi bunder FOB , P D Mellow Road,Wadi bunder	P D Mellow Road,Wadi bunder <u>18°57'15.54"N ; 72°50'30.94"E</u>	



C-25

20	<b>Yellow gate FOB</b> , P.D.Mellow road near princess dock.	P.D.Mellow road near princess dock. <u>18°56'56.35"N ; 72°50'28.42"E</u>	449
21	<b>MK Rd chandawadi S FOB</b> , MK Road Chandanwadi ,Mrinelines.	MK Road Chandanwadi ,Mrinelines. <u>18°56'44.29"N ; 72°49'27.02"E</u>	464
22	<b>Patel bridge</b> , N.S Road , Girgaon chowpati,Charni road.	N.S Road , Girgaon chowpati,Charni road. <u>18°57'13.30"N ; 72°48'55.99"E</u>	495
23	<b>MK RD jn BJ Road</b> , MK Road Junction, South end of Charni road railway station.	MK Road Junction, South end of Charni road railway station. <u>18°57'2.37"N ; 72°49'12.45"E</u>	510
24	<b>MK Rd Charni Rd E M SahityaSangh</b> ,MK Road, Sahitya sangh, Charni road.	MK Road, Sahitya sangh, Charni road. <u>18°57'4.54"N ; 72°49'9.99"E</u>	529
25	<b>MK Rd jn Charni Rd E N Saifee</b> , MK rd, Sifee hospital, Charni road.	MK rd, Sifee hospital, Charni road. <u>18°57'6.59"N ; 72°49'7.36"E</u>	554
26	<b>Dockyard Station</b> , Dockyard road station P.D'Mellow Road.	Dockyard road station P.D'Mellow Road. <u>18°57'55.56"N ; 72°50'38.78"E</u>	578
27	<b>MK Rd chandawadi N FOB</b> , MK Road ,Chandanwadi,Marinelines.	MK Road ,Chandanwadi,Marinelines. <u>18°56'48.00"N ; 72°49'24.41"E</u>	591
28	<b>DN road MK road jn FOB</b> , At junction of DN road and MK road, hindi vidya bhavan ( Marinlines)	At junction of DN road and MK road, hindi vidya bhavan ( Marinlines) <u>18°56'31.99"N ; 72°49'34.11"E</u>	630
29	<b>Across Charni Rd Station S</b> , MK Rd , Charni road rail station.(S)	MK Rd , Charni road rail station.(S) <u>18°57'7.29"N ; 72°49'5.15"E</u>	660
30	<b>Princess Street FOB Marinelines</b> , Princess street,MK road,Marinelines.	Princess street,MK road,Marinelines. <u>18°56'40.53"N ; 72°49'27.96"E</u>	683
31	<b>Across Charni Rd Station N</b> , MK Rd , Charni road rail station.(N)	MK Rd , Charni road rail station.(N) <u>18°57'14.20"N ; 72°48'56.75"E</u>	696
32	<b>Bhandari police station</b> , Masjid railway station.	Masjid railway station. <u>18°57'051.3"N ; 72°50'15.8"E</u>	711
33	<b>Masjid east west FOB RL</b> , Masjid railway station.	Masjid railway station. <u>18°57'08.9"N ; 72°50'19.0"E</u>	726
34	<b>Chinch bunder FOB RL</b> , Near Chinch bunder ,Sandhurst road.	Near Chinch bunder ,Sandhurst road. <u>18°57'21.2"N ; 72°50'16.4"E</u>	739
35	<b>CST subway</b> , CST Railway station.	CST Railway station. <u>18°56'24.16"N ; 72°50'4.76"E</u>	754
36	<b>Churchgate subway S</b> , Churchgate railway station.(S)	Churchgate railway station.(S) <u>18°55'58.91"N ; 72°49'39.94"E</u>	769
37	<b>Churchgate subway N</b> , Churchgate railway station.(N)	Churchgate railway station.(N) <u>18°56'11.44"N ; 72°49'38.49"E</u>	782
38	<b>Metro subway</b> , Near metro cinema,Marinelines.	Near metro cinema,Marinelines. <u>18°56'36.14"N ; 72°49'45.03"E</u>	795
39	<b>Haji Ali S</b> , Haji ali junction,Mahalaxmi.	Haji ali junction,Mahalaxmi. <u>18°58'42.21"N ; 72°48'42.18"E</u>	808

*Handwritten signature*





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Structural Consultant Prof. D. Desais Associated Engineering Consultants and Analysts Pvt Ltd

PROJECT NAME-INVENTORY OF BRIDGE

Client - MCGM



**PROFORMA-VI**  
**TIMES FOB**

<b>1</b>	<b>General</b>	
	Name of the FOB	FOB AT TIMES OF INDIA, CST.
	Name of the road, location of Fob	CST Railway station
	Year of construction and cost of construction	1998
<b>2</b>	<b>Details of spans</b>	
	No. of spans and span lengths	1 nos of span (1 x 25.05)
	Length of FOB	A/A = 28.1 TL=67.7
<b>3</b>	<b>Loading</b>	
	Design live load	5.0 KN/m <sup>2</sup>
<b>4</b>	<b>Soil Particulars</b>	
	Foundation Strata	Hard soil murum
	Foundation type	Open
	Depth of foundations	Approximately 2-4m
<b>5</b>	<b>Sub-structure</b>	
	Type	RCC Circular piers
	Dimensions	Piers of dia830mm and 620mm
<b>6</b>	<b>Superstructure</b>	
	Type	Steel truss
	Carriageway, footpath widths, median, verge	CA=5.580m
	Details of pre-stressing	Not available
	Details of wearing coat	Chequered Tiles
	Details of expansion joints	Not available
	Clear Height/Head Room	5.75 m
	Details of street furniture	Hand railing
	(location of electric pole, Hoardings, bus stop etc)	
<b>7</b>	<b>Protective works</b>	Railing on both side of carriageway
<b>8</b>	<b>Postion of Utilities</b>	At the end of carriageway beyond railing
<b>9</b>	<b>Design details and drawings</b>	967/T/AD-21/ Series
<b>10</b>	<b>Date of start</b>	1998
<b>11</b>	<b>Date of completion</b>	199-2000
<b>12</b>	<b>Cost of project</b>	Not available
<b>13</b>	<b>Year &amp; details of major repairs carried out</b>	Not available
<b>14</b>	<b>Last Condition Survey carried out</b>	Not available





15	Preparation of As build drawing incorporating all designs mentioned above showing elevation, plan and cross sections. the plan of the bridge to be submitted by consultant should be base on GPS	Ref sheet no. AECA/2016/10/01/01
16	Name of the Design Consultant of the bridge	STUP CONSULTANT LTD.
17	Users below the FOB	Vehicles, pedestrians
18	General assessment of the structures	Good condition
	Good condition	
	Bad condition which require minor repairs	
	Worst condition requiring the structural Audit, which shall be carried out as per the Part 2 given below	



Structural Consultant

Prof.D.D.Desais Associated Engineering Consultants and Analysts Pvt. Ltd.



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Project name INVENTORY OF BRIDGE

Client

MCGM

Project component 1. T.O.I FOB BRIDGE INSPECTION REPORT

Design stage INVENTORY OF BRIDGE  
BRIDGENAME T.O.I FOB BRIDGE

HIGHWAY (old/new)  
CARRIAGE WAY  
DECK WIDTH

BRIDGE NO 1  
LENGTH (m) 25.05m

TYPE OF BRIDGE STEEL TRUSS

DATE

26.12.16 REVIEWED

INSPECTOR NDD

Sr. No	GENERAL	Sr. No.	SUPERSTRUCTURE	Sr. No.	FOUNDATIONS AND SUBSTRUCTURE	
1	Appearance	1	TRUSS 1	25	Abutment settlements	1
2	Approach Adequacy	1	11 Condition of paint	1	26 Pier settlements	1
3	Signs	1	12 Corrosion	2	27 Cracking	1
4	Vibrations	1	13 Joints	1	28 Spalling	1
5	Bearings	NA	14 Deflections	1	29 Corrosion	1
6	HD Bolts and linkages	1	15 Cracks	1	30 Other Defects	1
7	Inspection Platforms	1	16 Spalling	1		
8	Footpaths	1	17 Other defects	1	<b>MARKING CODE</b>	
9	Railing\ R.C. railing	2	TRUSS 2		Not inspected	0
10	Deck drainage	2	18 Condition of paint	1	GOOD	1
			19 Corrosion	2	Monitor Next inspection	2
			20 Joints	1	BAD/ require maintenance	3
			21 Deflections	1	WORST	4
			22 Cracks	1		
			23 Spalling	1		
			24 Other defects	2		
			25 Deck surfacing	1		
<b>ITEM</b>	<b>Brief description of fault and recommendations for repair</b>					
1,3,4,10	The FOB is in a fairly good condition.					
	The treads and risers of staircase are broken.					
	The FOB is in use and its location between the C.S.T. station and T.O.I. office.					
12,19	Concrete slabs shows effect of corrosion.					
9	Cracks are formed in r.c. railing.					
	The repairs methodology can take form of providing anti corrosive epoxy paint					
	repairing of cracks, replacment of broken treads and risers.					



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### STRUCTURAL AUDIT REPORT

The FOB located at C.S.T. station near T.O.I office, DN road was inspected by our Team of Engineers on the 26th DEC 2016 and our Observations and Recommendations in this matter are as given under:

#### **INVENTORY DETAILS AND BRIDGE REPORT FOR TIMES FOB :**

#### **INVENTORY:**

- 1) The FOB is conceived as a PRATT type truss bridge with uniform depth.
- 2) The depth of the truss is 2.7 m and the span is 25.05 m yielding a span to depth ratio of 9.28.
- 3) The vertical clearance of the FOB is 5.75 m from the road.
- 4) The members of the truss are as below:

Sr. No.	Member	Section
1	Diagonals	ISMC 200 D F TO F ISMC 150 D F TO F
2	Top and bottom chords	ISMC 250 D
3	Verticals	ISMC200 D F TO F ISMC 150 D F TO F ISMC 100 D F TO F SP 50
4	Bottom connecting beams Cross girders	ISMC 200 D F TO F
5	Top plan bracing	ISMC 200 D F TO F ISMC 250 D ISMC 100 D F TO F

- 5) There are 2 staircases, one at the T.O.I. OFFICE side and another staircase at ANJUMEN ISLAM school.
- 6) The walkway decking is composed of RCC slab panels spanning between the stringer beams.
- 7) The staircase waist slab is in RCC supported on a beam column portal forming the substructure of the bridge.
- 8) The FOB is approximately 36 years old and is located in the MODERATE EXPOSURE ZONE area as per the classification of the IS 456 2000. The Mumbai area comes under seismic zone III
- 9) The structure is tall and with long spans and hence critical to wind forces.



- 10) The foundation was not exposed and also the foundation/structural plans were not available hence no concrete conclusion can be drawn regarding the safety and condition of the foundation. Though no untoward settlement or tilting of substructure etc could be observed.
- 11) The enclosed **BRIDGE INSPECTION FORM** duly filled up during the inspection elaborated the various structural distresses and Load paths of the said bridge and the same are also discussed and enumerated below.
- 12) The structural load path is essentially an assemblage of two PRATT type trusses connected by top plan bracing and bottom cross girders. Live load/dead load of walkway by means of spanning action of slab transfers load to cross beams which by flexure transmits the point load to truss joints.
- 13) The truss reactions are transferred directly to column portal and so also the load of staircase slabs by flexure to the substructure portal.
- 14) There are MS steel flat railings at each of the deck walkway and either side of staircase.
- 15) For lateral stability of top compression chord the top plan bracings is provided in form of ISMC 100 F TO F.
- 16) The deck surfacing is in form of PCC tiles over RCC slab.

