भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
(Ministry of Road Transport & Highways)
कार्यालय क्षेत्रीय अधिकारी, आंध्रप्रदेश क्षेत्र
Office of the Regional Officer, Andhra Pradesh Region
प्लॉट.क.२१, टीचर्स कॉलोनी, गुरुनानक नगर मार्ग, विजयवाड़ा-५२० ००८. आंध्रप्रदेश
Plot No. 21, Teachers' Colony, Gurunanak Nagar Road, Vijayawda-520 008. A.P.

दूरभाष / Tele : 0866-2483910
ई-मेल / E-mail : rovijayawada@nhai.org
nhairovja@gmail.com

भारतमाला
प्रगति के पथ पर अग्रसर
BHARATMALA
ROAD TO PROSPERITY

Ref:NHAI/RO-VJA/11045-ACT-OFC/2021-22/1694 Dated 27-07-2021

INVITATION OF PUBLIC COMMENTS

Sub: RO - Vijayawada - Proposal of M/s. Atria Convergence Technologies Limited for Laying of Optical Fiber Cable (OFC) using HDD & open trench methods along NH-16 from Km.699.900 to Km.700.500 on RHS (600m) and from Km.700.800 to Km.701.700 on LHS (900m) and across at Km.700.800(60m) & Km.700.500(60m) for a total length of 1620m in Visakhapatnam District in the State of Andhra Pradesh - **Public Comments - Reg.**

The Project Director, PIU - Visakhapatnam submitted a proposal of **M/s. Atria** Convergence Technologies Limited for Laying of Optical Fiber Cable (OFC) using HDD & open trench methods along NH-16 from Km.699.900 to Km.700.500 on RHS (600m) and from Km.700.800 to Km.701.700 on LHS (900m) and across at Km.700.800(60m) & Km.700.500(60m) for a total length of 1620m in Visakhapatnam District in the State of Andhra Pradesh.

2. As per MORTH guidelines vide letter No. RW/NH-33044/29/2015/S&R® dated 22nd November 2016, the Highway Administration will put out the application in the Ministry's website for 30 days seeking claims and objections (on grounds of public inconvenience, safety and general public interest).

3. In view of the above, the comments of public, if any, on the above mentioned proposal is invited on below mentioned address.

Regional Officer - Vijayawada,
National Highways Authority of India,
Plot No.21, Teachers' Colony, Gurunanak Nagar Road,
Vijayawada, Andhra Pradesh. Pin: 520 008.
Email: rovijayawada@nhai.org

(R.K. Singh),
Regional Officer
RO - Vijayawada

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
National Highways Authority of India
(सड़क परिवहन और राजमार्ग मंत्रालय)
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)
परियोजना कार्यान्वयन इकाई (जि क्यू), भा.रा.रा.पा. एन्क्लेव, कि.मी.2/8 रा.रा.5.,
Project Implementation Unit (GQ), NHAI Enclave, KM 2/8 NH-16
हनुमन्तवाका, विशाखपट्टणम - 530 040, ए.पि., भारत
Hanumanthavaka, Visakhapatnam - 530 040, A.P., India

भारतमाला
प्रगति के पथ पर अग्रसर
BHARATMALA
ROAD TO PROSPERITY

दूरभाष / Phone : 0891-2707600
2714119
फाक्स / Fax No. : 0891-2714118
ई-मेइल / E-mail : vis@nhai.org

NHAI/PIU-VSP/ACT-699/900/2021 / 7942

Date: 08.06.2021

22/06
PG MRGM

22 JUN 2021
3993

To

The Regional Officer,
National Highways Authority of India,
Regional Office, Gurunanak Nagar,
Teachers Colony,
VIJAYAWADA.

Sub: NHAI, PIU Visakhapatnam: Permission for laying of OFC cables using HDD method along NH-16 from Km.699/900 to Km.700/500 on RHS (600 m) and Km.700/800 to Km.701.700 on LHS (900 m) and across at Km.700.800 (60m) & Km. 700.500 (60 m) Reg.

Ref: 1. M/s ACT Letter No. ACT/NH/ROW01 dated 11.04.2021
2. This office letter No. NHAI/PIU-VSP/ACT-699/900/2021/7662 dated 27.04.2021
3. M/s MSV International Letter No. 331 dated 11.05.2021

Sir,

Please refer the authorized signatory vide Ref. 1 above M/s Atria Convergence Technologies Limited (ACT) has submitted a proposal with a request to accord Permission for laying of OFC cables using HDD method along NH-16. The HDD particulars are mentioned below:

Sl. No.	Name of the Road	From	To	Running Length in Mts	Which side of the Road
1.	NH-16 along road	KM 699/900	KM 700/500	600 Mts	RHS
2.	NH-16 along road	KM 700/800	KM 701/700	900 Mts	LHS
3.	NH-16 across road	KM 700/500 & KM 700/800		120 Mts	Across

2. The subject proposal has been forwarded to the consultant's M/s MSV International vide this office letter 02nd cited and same has been inspected and report submitted by them vide Ref (3) above.

3. The following documents are submitted by the Agency as per the MORTH guidelines dated 26.6.2020.

(a) Proposal letter
(b) Check List
(c) Specification report to accompanying the estimate towards License fees for laying of OFC cable.
(d) License fees estimate.
(e) Agreement regarding granting of Right of way permission

(f) Undertaking for Performance Bank Guarantee.
(g) certificates for Six laning.
(h) Indemnity bond against all damages and claims as Sl. 5.6 Check list.
(i) Affidavit to take all the actions as prescribed in the Check list from 5.1 to 5.12.
(j) Technical specification for laying of duct.
(k) Brief description of Horizontal Directional Drilling and Open Trench Methodology.
(l) Cross section of Road crossing drawing.
(m) Plan and profile submitted for laying of OFC on along the structures and cross drainages.

4. Considering the recommendations of the Consultants, the proposalsubmitted by M/s ACT for according permission Km.699/900 to Km.700/500 on RHS (600 m) and Km.700/800 to Km.701.700 on LHS (900 m) and across at Km.700.800 (60m) & Km. 700.500 (60 m) for a total length of 1620m is herewith recommended for approval of Competent Authority.

Yours faithfully,

Encl: Proposal in two sets
(01 Original + 01 Duplicate)

(P.Siva Sankar)
GM(T) & Project Director 5/6/21

CALCULATION OF LICENSE FEE ESTIMATE & BANK GUARANTEE AMOUNT									
Permission for laying of O.F. Cable from Hanumanthawaka Jn KM 700/800 To Venkoji Palem Jn (NH) KM 701/700 & Dairy Farm Jn KM 699/900 To Visalakshi Nagar Jn. KM 700/500 along NH Road by in Visakhapatnam District in the state of Andhra Pradesh under the jurisdiction of NHAI, PIU-Visakhapatnam									
From	To	No	Measurements			Quantitiy	Rate	Unit Per	Amount
			L	B	D	Sq. M	Per Sq.M		₹
1	2	3	4	5	6	7	8	9	10
Estimate towards License Fee for laying of O.F. Cable from Hanumanthawaka Jn KM 700/800 To Venkoji Palem Jn (NH) KM 701/700 & Dairy Farm Jn KM 699/900 To Visalakshi Nagar Jn. KM 700/500 along NH Road by **Atria Convergence Technologies Limited (ACT).**									
Along the Road									
701/400	701/700	1	300	0.08	-	24	24900	Sq.Mtr	597600
700/800	701/400	1	600	0.08	-	48	24900	Sq.Mtr	1195200
700/800		1	600	0.08		48	24990	Sq.Mtr	1195.200
Across the Road									
700/500		1	60	0.08	-	4.8	24900	Sq.Mtr	119520
699/900	700/500	1	60	0.08	-	4.8	24900	Sq.Mtr	119520
								Total	**3227040**
License Fee (Rs/Sq.Mtr/Month						=	3227040 / 10X12	=	**26892**
License Fee for 5 Years						5X12X26892		=	**16,13,520.0**
Performance Bank Gurantee calculation									
Amount of Performance Bank Guarantee to be submitted Total No.of Route Meters X Rs.250/- per route meter(>300 and <=1000 mm)+ Total No. Of route meterX Rs.100/- per route meter(<300 mm dia/width)= 1500*100+120*100 = 162000									**1,62,000**

Manager (T)

GM (T) and Project Director

CERTIFICATE

1 It is certified that the proposal for "Permission for laying optical fiber cable along the NH-16 from KM 699/900 To 700/500 along RHS (850m) 250m OFC Cable will be laid both sides of the service road and 700/500 To KM 701/700 along L.H.S (900m) and across at KM 700/800 (60m) & 700/500 (60m) for a total length of 1620m in Visakhapatnam in the state of Andhra Pradesh" is confirming of all the standard conditions / guidelines issued vide Ministry circular No. RW/NH-33044/29/2015/S&R(R) dt. 22.11.2016.

2 It is certified that there will be no hindrance to the six-laning based on the feasibility at the said location, if six laning project is taken up.

3. It is certified that the details of the proposed permission shall be entered in the Register of Records of the Permission maintained by PIU.

Manager (Tech.)

GM (T) & Project Director

MSV INTERNATIONAL INC.
In Association with
ARMENGE ENGINEERING AND MANAGEMENT CONSULTANTS PVT. LTD.
ISO 9001: 2015 Certified Company

MSV International, Inc.
Project Office
2nd Floor,D. No: 1-55/9, Shipyard Layout
Bindra Nagar, Madhurawada
Visakhapatnam - 530048
Email:
msvarmenge.ranasthalam@gmail.com

Lr.No.MSV-Armenge/O&M/NHAI-PIU-VSP/ACT-OFC-Permission/2020-21/331 Date:11.05.2021

RECEIVED
12 MAY 2021
5753
NHAI, PIU, VISAKHAPATNAM

The Project Director
National Highways Authority of India
PIU, NHAI Enclave
Hanumanthavaka Jn.,
Visakhapatnam – 530 040

Sub: NHAI Works- Consultancy Services for supervision of short Term Improvement and routine Maintenance of a) Anandapuram- Visakhapatnam - Anakapalli section from Km 682.980 to 741.256 (length – 58.276 Kms) of NH-16 (NH-5); b) Visakhapatnam Port connectivity Project corridor from Km 0.0 to 10.336 with main flyover and ramps (length - 12.50 Kms) in the state of Andhra Pradesh, - **Report on request permission for laying of OFC (Optic Fiber Cable) using HDD Method along NH-16 between From Km.699/900 to Km.700/500 on RHS (600 m) and Km.700/800 to Km.701.700 on LHS (900 m) and across at Km.700.800 (60 m) & Km.700.500 (60 m) - Reg.**

******

Ref: 1) Y/o Lr.No. NHAI/PIU-VSP/ACT-699/900/2021/7662 dated 27.04.2021.
2) M/s ACT Lr.No. ACT/NH/ROW01 dated 11.04.2021.

Respected Sir,

In response to the letter cited under 1st reference, (a) we have inspected the site between From Km.699/900 to Km.700/500 on RHS (600 m) and Km.700/800 to Km.701.700 on LHS (900 m) and across at Km.700.800 (60 m) & Km.700.500 (60 m) along with the representatives of the Authority & M/s ACT Fiber Net, (b) studied the proposal with regard to the latest guidelines issued by the Ministry (Copy of the guideline dated 26.06.2020, report herewith submitting.

1. The Authorized Signatory, M/s. Atria Convergence Technologies Limited (ACT), Visakhapatnam has submitted proposal vide letter under reference cited 2nd seeking permission for laying of OFC (Optic Fibre Cable) using HDD Method along NH-16 between From Km.699/900 to Km.700/500 on RHS (600 m) and Km.700/800 to Km.701.700 on LHS (900 m) and across at Km.700.800 (60 m) & Km.700.500 (60 m) in the Visakhapatnam District..

2. The check list submitted by the Agency is duly verified for relevant information against each item and is found correct as per the specified MORTH guidelines requirement.

NHAI PIU	VSP
Mgr (T)	
Dy.M (T)	
PS(MLN)	
PA(RVG)	
ACCTS	
SE-1	
SE-2	
SE-3	

3. The following documents are submitted by the Agency as per the norms and to be followed at site.
a) Proposal Letter addressed to PD/NHA/PIU, Visakhapatnam.
b) Check List
c) Specification Report to accompanying the estimate towards License Fees for Laying of OFC cable.

Continued on page 2

Manikal
Ashish
patnaik

d) License Fees Estimate.

e) Agreement regarding granting of Right of Way permission.

f) Undertaking for Performance Bank Guarantee.

g) Certificate for Six Laning,

h) Indemnity bond against all damages and claims as Sl. 5.6 of Check list .

i) They have given Affidavit to take all the actions as prescribed in the Check List from 5.1 to 5.12.

j) Format for maintain records of ROW permission granted for laying OFC .

k) Technical specification for laying of duct.

l) Brief description of Horizontal Directional Drilling and Open Trench Methodology.

m) Cross section.

n) Plan and profile submitted for lying of OFC on along the Structures and cross Drainages.

Keeping in view of the above, we are of the opinion that permission may be accorded to Ms. Atria Convergence Technologies Limited (ACT) for lay of OFC line. However the Competent Authority may take appropriate decision to permit ACT to lay OFC line along the National Highway at the above said locations.

This is submitted for your information and necessary action please.

Thanking you,

Yours faithfully,

MSV-ARMENGE Engineering and Management Consultants Pvt. Ltd.

Y.Sriram
Highway Maintenance Engineer

India Office MSV: Unit No. 514, 515 & 516, 5th Floor, Suncity Success Tower, Golf Course Extension Road-65, Gurgaon-122005 (Haryana)
E-mail:info@msvgroup.com; Tel.: 0091-124-2841160; CIN: FO4214
USA Office MSV: 15215, 62nd Avenue N.E. Kenmore, Washington-98028, USA, Tel.: 001-425-488-4442, Email: msvgroup@msn.com

ACT

Ref No: ACT/NH/ROW/04

Date: 26-05-2021

To
The Project Director,
National Highway Authority of India,
Project Implementation Unit,
Visakhapatnam (Andhra Pradesh).

Sub: Resubmitting of Proposal for Permission for laying of OFC Cable using HDD Method Along NH-16 between from KM 699/900 To 700/500 along RHS (600 m) and 700/800 To KM 701/700 along L.H.S(900 m) and across at KM 700/800 (60 m) & 700/500 (60 m) – Requested –Reg.

Ref: Our Letter: ACT/NH/ROW/01 dated: 11/04/2021.

Your email dated: 25/05/2021.

Dear Sir,

As per your email we have revised the Checklist to be in comply with the NHAI Norms, So we **(Atria Convergence Technologies Limited (ACT))** request you to consider the proposal between from KM 699/900 To 700/500 along RHS (600 m) and 700/800 To KM 701/700 along L.H.S(900 m) and across at KM 700/800 (60 m) & 700/500 (60 m). The HDD particulars are mentioned below.

Sl.No	Name of the Road	Method	Name of the Road	From	To	Running Length in Mts	Which Side of the Road
1	NH-16 Along Road	HDD	NH-16 Along Road	KM 699/900	KM 700/500	600 Mts	RHS
3	NH-16 Along Road	HDD	NH-16 Along Road	KM 700/800	KM 701/700	900 Mts	LHS
4	NH-16 Across Road	HDD	NH-16 Across Road	KM 700/500 & KM 700/800		120 Mts	Across
Total						**1620 Mts**	

As the work is target oriented, kindly arrange to issue necessary permission and we solicit your most expeditious action to grant permission for laying the OFC line along National Highway 16.

Thanking you,

Yours sincerely,

Atria Convergence Technologies Limited (ACT)

T. Teiram
Jr. Manager

Encl:

1. License Deed on Non-Judicial stamp paper, Power of attorney of authorized Signature
2. Checklist, Affidavit as per NHAI, Methodology of crossing
3. Key plan of the route

CHECK LIST

Guidelines for project Director for processing the proposal of laying optical Fibre cable by Atria Convergence Technologies Limited (ACT) in the land along National High ways vested with NHAI.

Relevant Circulars

1. Ministry Circular No: RW/NH-33044/17/2000-S&R dt.29/09/2000.
2. NHAI Circular No: NHAI/OEC/2K/Vol II dt.07/11/2000, which includes the comprehensive guidelines and draft license agreement for laying of OFC Cable by in the land along National Highway vested with NHAI.
3. Ministry Circular No: RW/NH-33044/27/2005-S&R(R) (Pt.) dt.07/08/2013. It is regarding the modification of previous Ministry's circular enhancing the amount of Performance of Bank Guarantee @ Rs. 100/-per route meter in place of earlier rate of Rs. 50/- per meter.
4. Ministry's Circular No. RW/NH-33044/29/2015-S&R(R) dated 22/11/2016

Check list for getting approval for laying of optical fibre cables on NH land.

Sl No	General Information	Information / Status	Page No
1.1	Name and Address of the Applicant/Agency	Atria Convergence Technologies Limited (ACT) Reg Office: 1st, 2nd & 3rd Floor, Indian Express Building, Queen's Road Bangalore-560 001 Karnataka.	
1.2	National Highway Number	NH-16	
1.3	State	Andhra Pradesh	
1.4	Location	Hanumanthawaka Jn KM 700/800 To Venkoji Palem Jn (NH) KM 701/700 & Dairy Farm Jn KM 699/900 To Visalakshi Nagar Jn. KM 700/500	
1.5	(Chainage in Km)	From KM 699/900 To 700/500 & KM 700/800 to KM 701/700	
1.6	Length in Meters	1620 meters (1500 meters along NH 120 meters across NH)	
1.7	Width of available ROW		
	a) Left side from center line towards increasing Chainage/Km direction	From KM 699/900 To 700/500 – LCW+RCW =45 to 65 Mts KM 700/800 to KM 701/700 – LCW+RCW = 21 to 61 Mts	
	b) Right side from center line towards increasing Chainage/Km direction	From KM 699/900 To 700/500 – LCW+RCW =45 to 65 Mts KM 700/800 to KM 701/700 – LCW+RCW = 21 to 61 Mts	
1.8	Proposal to lay the Cable		
	(a) Left side from center line towards increasing Chainage/Km direction	KM 700/800 to KM 701/700	

Project Director
National Highways Authority of India
P.I.U. VISAKHAPATNAM

Atria Convergence Technologies Limited (ACT)
T. Tairam
Dy. Manager

	(b) Right side from center line towards increasing Chainage/Km direction	From KM 699/900 To 700/500	
1.9	Proposal to acquire land		
	(a) Left side from center line	N.A	
	(b) Right side from center line	N.A	
1.10	Whether proposal is in the same side where land is not to be acquired	Yes	
	If not then where to lay the cable	N/A	
1.11	Details of already laid services, if any, along the proposal route	NFS of PICG, Jio, TTSL	
1.12	Number of lanes(2/4/6/8) existing	4 lanes	
1.13	Proposed Number of lanes(2 lanes with paved shoulders/4/6/8 lanes)	---	
1.14	Service road existing or not	Yes	
	If yes then which side (a) Left side from center line	N.A	
	(b) Right Side from center line	Yes (KM 699/900 To KM 700/150)	
1.15	Proposed Service Road (a) Left side from Center Line	N.A	
	(b) Right side form Center Line	N.A	
1.16	Whether proposal to lay Cable is after the service road or between the service road and main carriage way	OFC Shall be laid after the service road/truck lay byes/Bus bays as the case may be	
1.17	Whether carrying of sewage/gas pipeline or cable has been proposed on highway Bridges. If yes, then mention the methodology proposed for the same.	NO	
1.18	Whether carrying of sewage/gas pipeline or cable has been proposed on parapet/any part of the bridges. If yes, then mention the methodology proposed for the same.	Yes, Cable shall be laid within the utility corridor of 2m at the edge of ROW	
1.19	If crossings of the road involved If yes, it shall be either encased in pipes or through structure or conduits specially built for that purpose at the expenses of the agency owning the line.	Yes, By HDD	
	(a) Whether existing drainage structures are allowed to carry utility pipeline.	N.A	
	(b) Is it on a line normal to NH	Yes, Cable shall be laid clear of the drain where ROW is restricted.	
	(c) What is the distance of crossing the utility pipelines from the existing structures. Crossing shall not be too near the existing structures on the National Highway, the minimum distance being 15 meter.	1. Crossing @700/500 existing structure Pipe Culvert @700/582 (82 Mts). 2. Crossing @700/800 existing structure Minor Bridge @700/910 (110 Mts)	
	(d) The casing pipe (or conduit pipe in the case of electric cable) carrying the utility line shall be of steel, cast iron, or reinforced cement concrete and have	N.A.	

Project Director
National Highways Authority of India
P.I.U. VISAKHAPATNAM

Atria Convergence Technologies Limited (ACT)
T. Tairam
Dy. Manager

	adequate strength and be large enough to permit ready withdrawl of the carrier pipe/cable. Mention type of casing.		
	(e) The casing/conduit pipe shall be sealed from the outside, so that it does not act as a drainage path.	Yes	
	(f)The casing/conduit pipe should, as minimum extend from drain to drain in cuts and toe of slope in the fills.	Yes	
	(g) The of the casing/conduit pipe should be at least 1.2 meter below the surface of the road subject to being at least 0.3 m below the drain inverts. Mention the proposed details.	Yes	
	(h) Mention the methodology proposed for crossing of road for the proposed Sewage/gas/cable line. Crossing shall be by boring method (HDD) (Trench-less Technology), specially, where the existing road pavement is of cement concrete or dense bituminous concrete type.	Yes, Enclosed	29-32
	(i) The casing/conduit pipe shall be installed with an even bearing throughout its length and in such a manner as to prevent the formation of a waterway along it.	N.A.	
2.	Document /Drawings enclosed with the proposal	Yes	18-39
2.1	Cross section showing the size of trench for open trenching method (is it normal size of 1.65m deep X 0.5m wide) (i) Should not be greater than 60 Cm wider than the outer diameter of the pipe. (ii) Located as close to the extreme edge of the right-of-way as possible buit not less than 15 meter from the center-lines of the nearest carriageway. (iii) Shall not be permitted to run along the National Highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges. (iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	N/A, Entire stretch will be executed using HDD (Trenchless) Methodology	
2.2	Cross section showing the size of pit and location of cable for HDD Method	Yes, Attached	18
2.3	Strip plan/Route Plan showing the OFC, Chainage, Width of ROW, distance of proposed, cable from the edge of ROW, important mile stone , intersections, cross drainage works etc.	Strip plan showing all the details is attached.	38-39

Atria Convergence Technologies Limited (ACT)

Project Director
National Highways Authority of India
P.I.U. VISAKHAPATNAM

T. Tairam
Dy. Manager

2.4	Methodology for laying OFC	Yes, Attached	15-17
2.4.1	Open trenching method. if yes, methodology of refilling of trench. (May be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type. If yes, what is the Methodology of refilling of trench.	Yes, Backfilling shall be done with granules material. Compaction shall be done in layers of 15cm each. The trench shall be filled up to the required height of 1.65 m (measured from top of ducts as per trench cross section drawing attached in the proposal). A crown of 250mm shall be made at the top of the backfilled trench to cater for soil settlement.	
	(a) The trench width should be at least 30 cm, but not more than 60 cm wider than the outer diameter of the pipe.	Yes	
	(b) For filling of the trench, Bedding shall be to a depth of not less than 30 cm. It shall consist and cobbles and graded to yield a firm surface without sudden change in the bearing value. Unsuitable soil and rock edged should be excavated and replaced by selected material.	Yes	
	(c) The back fill shall be completed in two stages (i) side-fill to the level of the top of the pipe and (ii) overfill to the bottom of the road crust.	Yes	
	(d) The side-fill shall consist of granular material laid in 15 cm layers each consolidated by mechanical tampering and controlled addition of moisture to 95 % of the proctor's density. Overfill shall be compacted to the same density as the material that has been removed. Consolidation by saturation or ponding will not be permitted.	Yes	
	(e) The road crust shall be built to the same strength as the existing crust on either side of the the trench. Care shall be taken to avoid the formation of a dip at the trench.	Yes	
	(f) The excavation shall be protected by flagman, signs and barricades, and red lights during night hours.	Yes	
	(g) If required, a diversion shall be constructed at the expense of agency owning the utility line.	Yes	
2.4.2	Horizontal Directional Drilling (HDD) Method	Yes	
2.4.3	Methodology for laying of OFC through CD works and method of laying. In case where the carrying of cable line on the bridge becomes inescapable	Wherever cable ducts are available OFC shall be laid in such ducts. In the absence of cable ducts, OFC shall be clamped outside the parapet wall of the bridge.	
3	Draft License Agreement signed by two witnesses	Yes, Enclosed	1-7
3.1	The license fee estimate as per Ministry's Circular No. RW/NH-33044/29/2015-	Yes, Enclosed	41

Atria Convergence Technologies Limited (ACT)

Project Director
National Highways Authority of India
P.I.U. VISAKHAPATNAM

T. Tairam
Dy. Manager

9	Who will supervise the work of laying Optical Fibre Cable		
	(a) On behalf of the Applicant	Dy. Manager, Atria Convergence Technologies Limited (ACT)	
	(b) On behalf of NHAI	NHAI, PIU, Visakhapatnam/ Supervision consultant	
10	Who will ensure that the defects in road portion after laying of Optical Fibre Cable are corrected and if not corrected then what action will be taken		
	(a) On behalf of the Applicant	Dy. Manager, Atria Convergence Technologies Limited (ACT)	
	(b) On behalf of NHAI	NHAI, PIU, Visakhapatnam/ Supervision consultant	
11	Who will pay the claims for damage done/disruption in working of concessionaire if asked by the concessionaire.	Atria Convergence Technologies Limited (ACT)	
	On behalf of the Applicant	Atria Convergence Technologies Limited (ACT)	
12	A certificate from PD that he will enter the proposed permission in the register of records of the permission in the prescribed proforma (copy enclosed).	Yes, Enclosed	4D
13	If any previous approval is accorded for laying of underground Optical Fibre Cable then photocopy of register of records of permission accorded as maintained by PD be enclosed.	No	

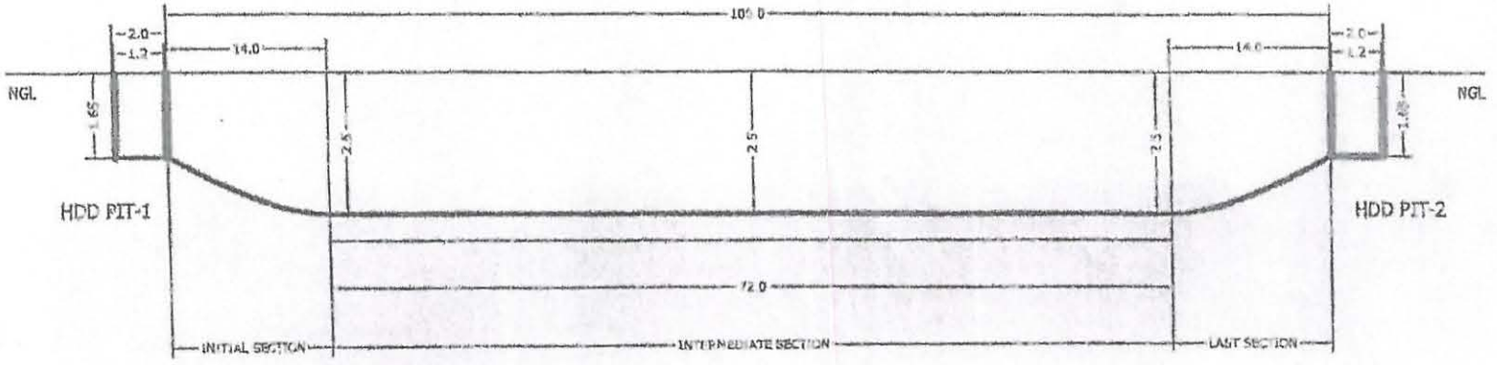
Atria Convergence Technologies Limited (ACT)
T. Tairam
Dy. Manager

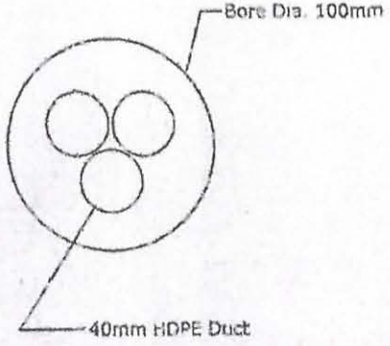
[Name Designation and signature of the authorized representative of applicant]

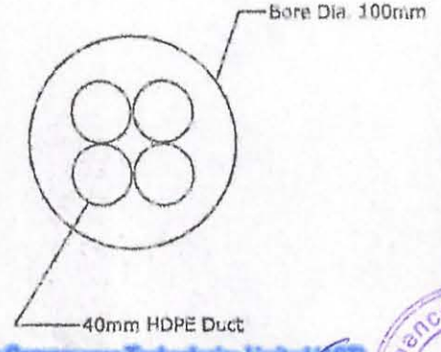
[Name Designation and signature of concerned field authority of NHAI/PWD/BRO]

Project Director
National Highways Authority of India
P.I.U. VISAKHAPATNAM

Typical Cross Sectional for HDD







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Atachment-II

Enclosure to Ministry of Road Transport & Highways letter No. 33044/29/2015/S&R(R) dated: 22.1.2016

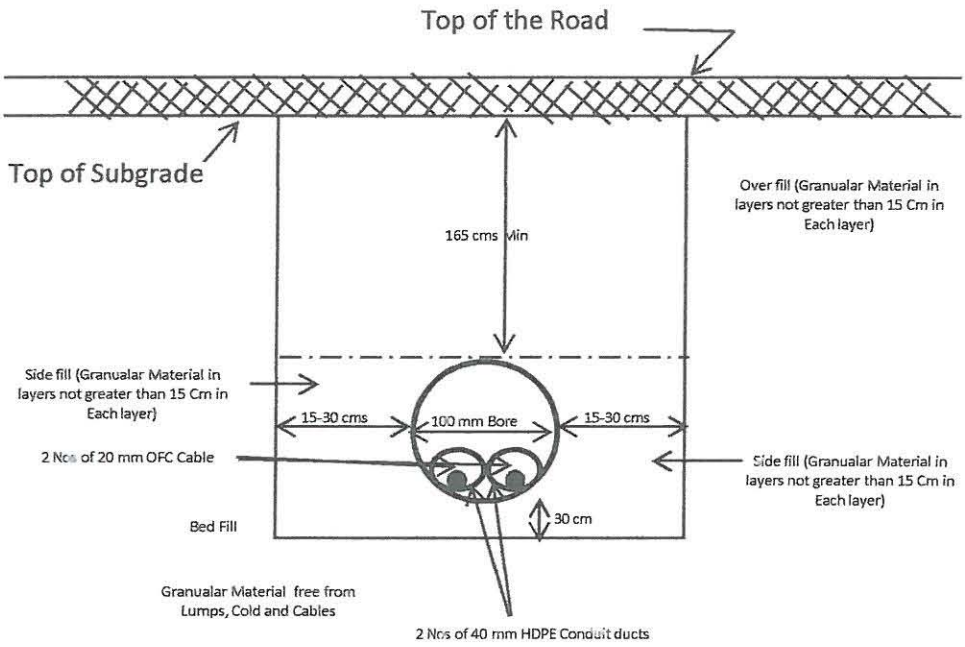

Figure not to scale

Figure showing installation of 2 HDPE/PLB Conduit ducts along the road using HDD(Trenchless Methodology)

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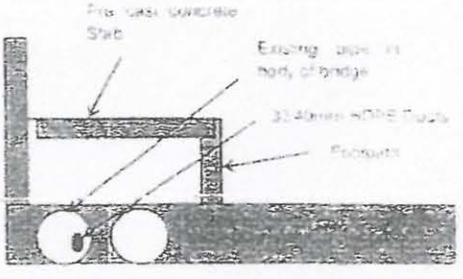
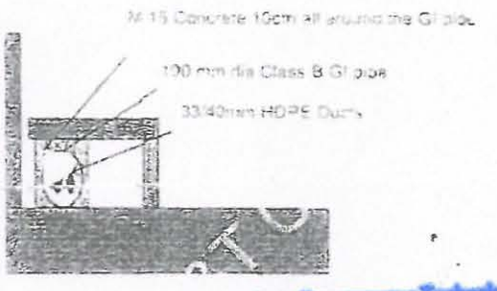
BRIDGE CROSSING METHOD	
Crossing through existing pipe in bridge body	Crossing through Foot path (GI pipe with concrete encasement)





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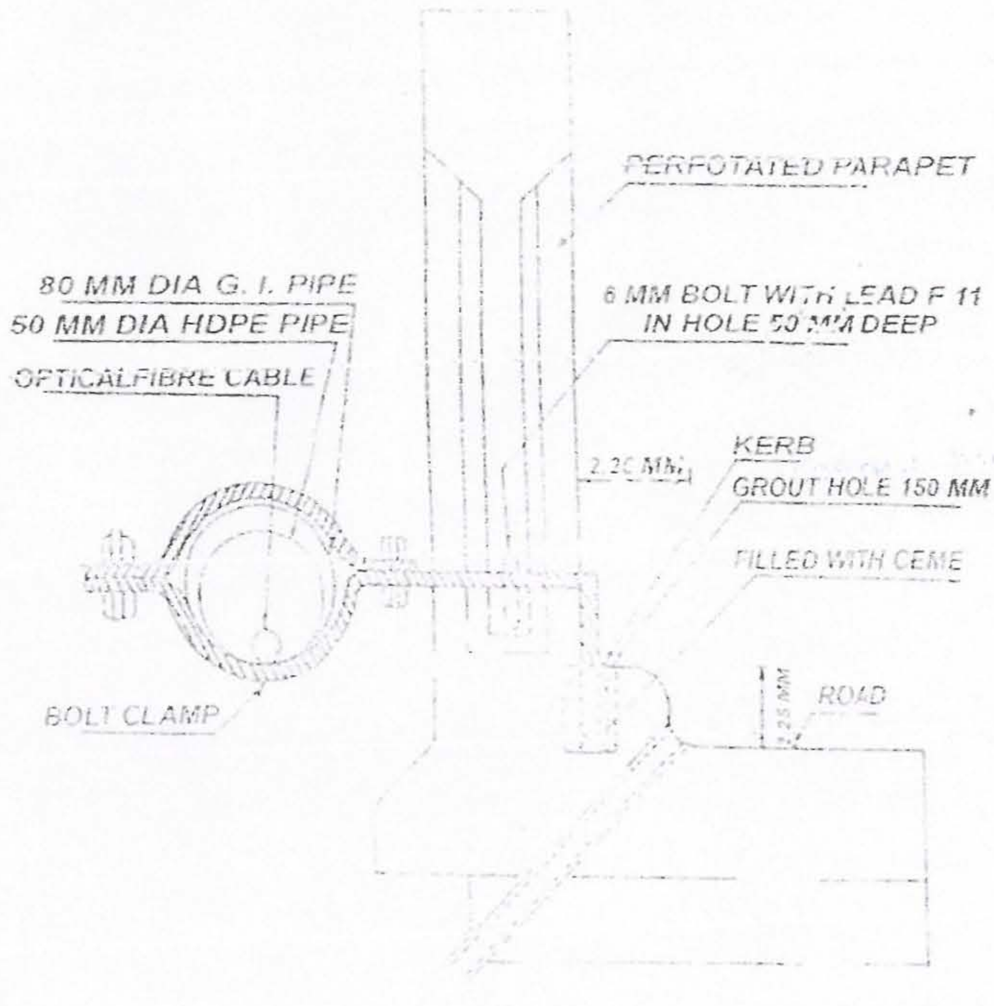

LAYING OPTICAL FIBRE CABLE
DIA G[illegible] PIPE SUSPENDED BY MEANS OF CLAMPS
OUT SIDE THE PARAPET WALL

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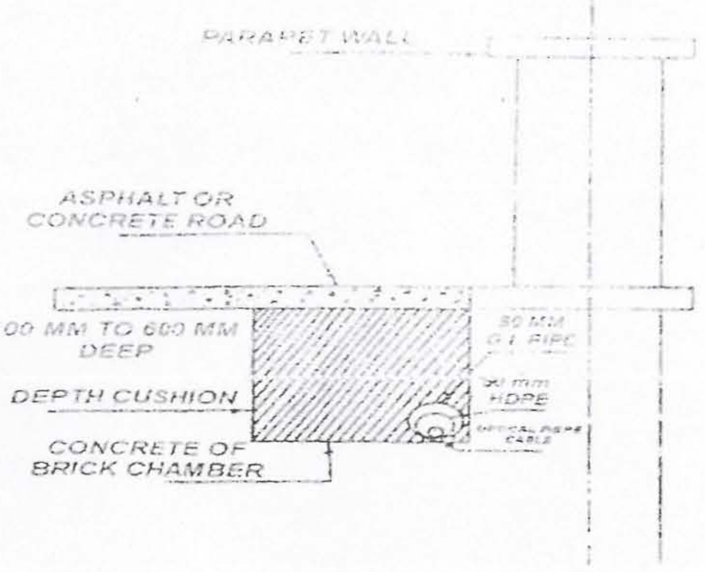

LAYING OPTICAL FIBRE CABLE IN 80 MM DIA
G.I. PIPE IN EARTH CUSHION OF THE BRIDGE
FIG - 3 (F)

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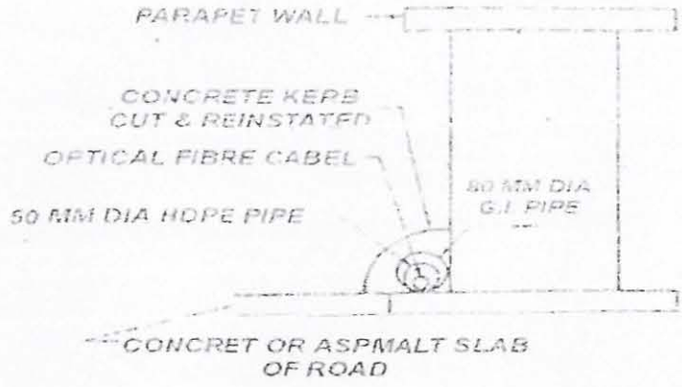
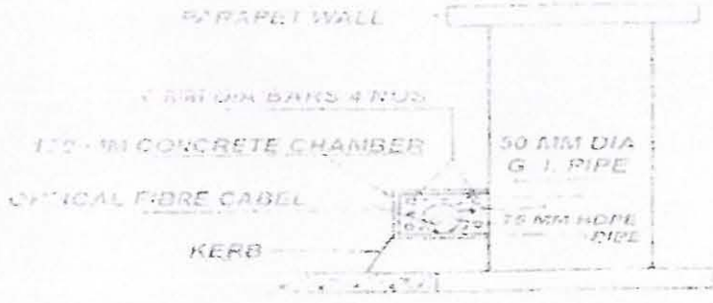


LAYING OPTICAL FIBRE CABLE
IN G. I. PIPE BY CUTTING THE EXISTING KERB
OF THE BRIDGE

FIG - 2 (c)



LAYING OPTICAL FIBRE CABEL
(IN G. I. PIPE PLACED ON THE KERB OF THE BRIDGE)

FIG - 2 (d)

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Annexure-II

HDD OPERATION

TO CROSS THE MAJOR RIVERS (WATER BODIES), CANALS,

APPROACH ROADS, ROAD CROSSINGS, RLY CROSSINGS

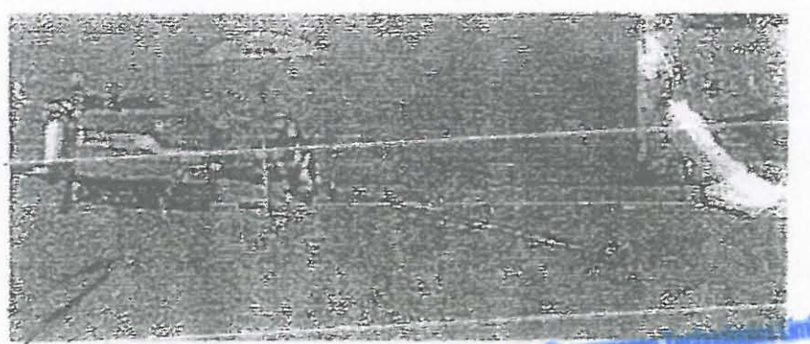
Contents

- Horizontal Directional Drilling (HDD)
- Applications of HDD
- Project Planning
- HDD Tooling
- Locating
- HDD Fluids

HORIZONTAL DIRECTIONAL DRILLING (HDD)

1. HDD Overview : Horizontal directional drilling is an excellent alternative to traditional utility installation methods. Unlike manual labor, trenching or excavation, the HDD process is highly reliable in urban areas or places where aboveground obstructions exist that are expensive, inconvenient or impossible to disturb for product installation. HDD machines install utilities under obstacles such as roads, rivers, creeks, buildings and highways — with little or no impact to the aboveground surface.

2. Drill Rig : Horizontal directional drilling machines are available in many sizes. Regardless of a machine's size, it has three main functions — rotation, forward thrust/pullback and fluid flow.



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T. Tejram
Dy. Manager

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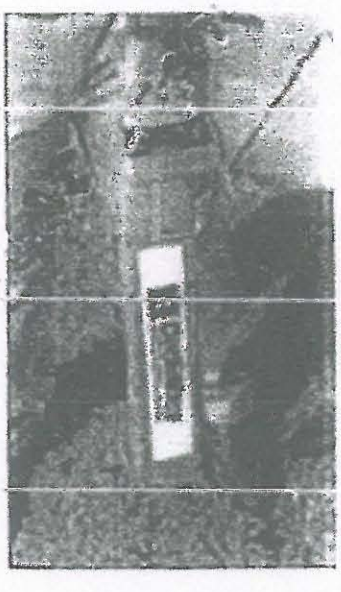
3. HDD Process. Horizontal directional drilling machines will bore under or around obstacles. Once the drill path is planned, an underground pilot bore is performed utilizing a series of drill rods connected to a drill head. After the pilot bore is completed, a back reamer is attached to the drill string that enlarges the drill path to accommodate the product that will subsequently be pulled into place. Vermeer NAVIGATOR horizontal directional drilling machines can install product under roads, buildings, railroad tracks, streets, rivers, creeks and in congested underground areas.

4. Steering. Steering refers to control of the direction of a drill path. The shape of a drill bit on the drill head allows an operator to change the drill path direction during a bore. When an operator points the drill bit downward to the 6 o'clock position and pushes the drill head forward, the drill head goes deeper. When the drill faces the 12 o'clock position, the drill head will rise. Pushed to the 9 o'clock position, the head goes left. Pushed to the 3 o'clock position, the head goes right. If no change in drill path is needed, the drill head and rod are rotated while thrusting.

5. Locating. Prior to starting a bore, the drill head is equipped with a transmitter that sends signals to an aboveground receiver during the bore. The drill head' s location must be tracked during a bore in order to provide steering position information to the HDD operator.



6. Backreamers. When a pilot bore is complete, the drill head exits the drill path and a backreamer is attached. Utilizing drilling fluid and the drill string, the backreamer is pulled back through the path to enlarge it to accommodate the product that will be pulled into place. Sometimes prereaming is performed to incrementally enlarge the drill path wall. The installation product is then attached to the drill string and pulled into place. Many backreamer styles and sizes are available for different ground conditions and product sizes.

7. Mud Flow. Mud flow is an important component of the HDD process. Mud flow is created by pumping a combination of water and specialized drilling fluid additives through the drill rod and head (or backreamer). The drilling fluid [illegible] with soil [illegible]

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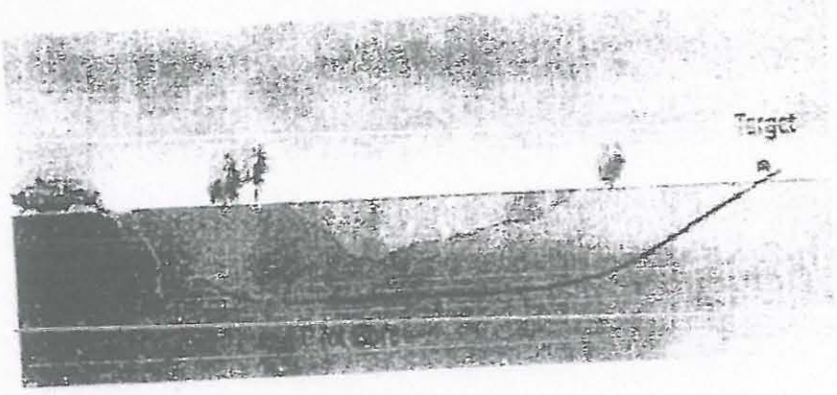
LAYING PRACTICES OF OPTICAL FIBRE CABLE BY HORIZONTAL DIRECTIONAL DRILLING (HDD) METHOD TO CROSS THE MAJOR RIVERS (WATER BODIES), CANALS, APPROACH ROADS , ROAD CROSSINGS, RLY CROSSINGS

1. SCOPE: This Engineering Instruction deals with the methods to be adopted in laying of PLB/HDPE Pipes for Optical Fibre Cable using Horizontal Directional Drilling (HDD- also called as trench less methodology or micro tunneling) and laying of Optical Fibre Cable using the cable blowing method. The following laying practices may be adopted by the field units. This EI exclusively deals with the HDD only and only a few references are given with respect to conventional open trench method. However for regular open trench OF Cable laying work involved in between HDD Works, the EI issued by T&D circle vide " Local Area Network OF Cable D-001 dated 11-07-2005" along with the latest amendments may please be referred.
2. General
   - 2.1 The Department has already introduced Optical Fibre Transmission system for local junctions and for long distance routes. Various types of cables such as 48, 24 & 12 fibre non-metallic, 8 fibre non metallic, 8 fibre with metallic strength member and 6 fiber non-metallic have been already introduced. Wherever, O.F. Cable with metallic conductors are to be used they will fall, within the purview of PTCC code and should be referred to PTCC.
   - 2.2 These cables are being laid in the important cities under the NFS (Defence) project, which is the fibre infrastructure project. This shall support the Gigabit Passive Optcal Network (GPON)/ Gigabit Ethernet Passive Optical Network(GE-PON).
   - 2.3 **HDD may be deployed mainly within to cross the Major rivers (Water Bodies), Canals, Approach Roads , Road Crossings, Rly Crossings.**



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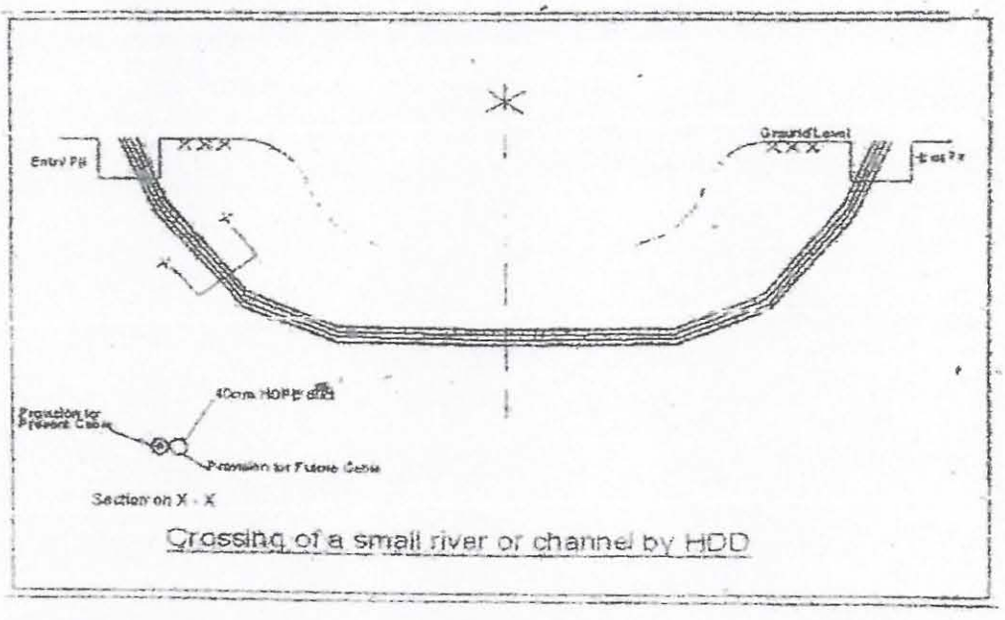
Methodology of OFC Laying

Pit size of HDD will be 1.5X1.5X1.65m depth



Crossing of a small river or channel by HDD

Route Markers

Route markers made of RCC (1:2:4) shall be provided at a distance of every 200 meters or wherever there are crossings or major deviation in the route from being straight. Additionally route markers shall be installed on both sides of the crossing. Route markers shall also be put at duct coupler locations and man-hole and Handhole locations. Markers shall be of length 1250 mm with base of 100 mm x 250 mm tapering to 100 mm x 200 mm. Name/logo of Owner shall be engraved on the surface of marker. Aboveground surface of route marker shall be painted in Blue colour. Route Markers placed at coupler locations shall be painted yellow. Markers placed at the man-holes shall be painted red in colour. Owner name/logo shall be filled with White

Man Holes/Hand holes

Size of Manholes made of RCC is 1.0 Mtr dia and depth 1.1 Mtr. They will be placed 500 mm below GL and will be placed each at 1.0 Km distance.

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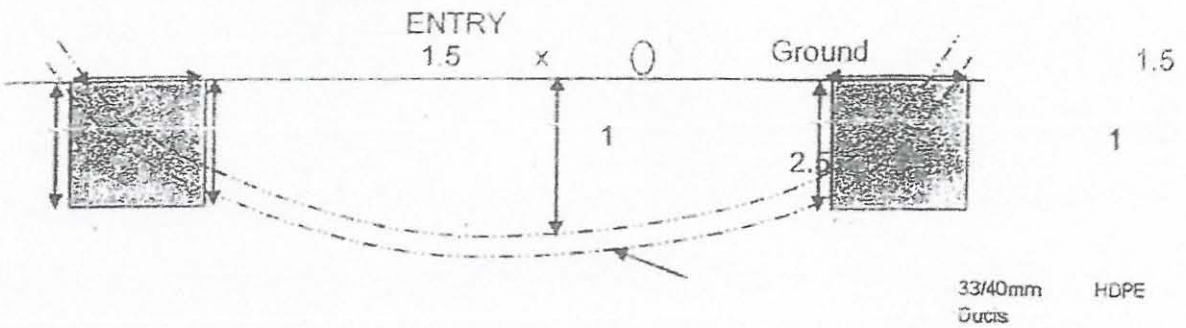
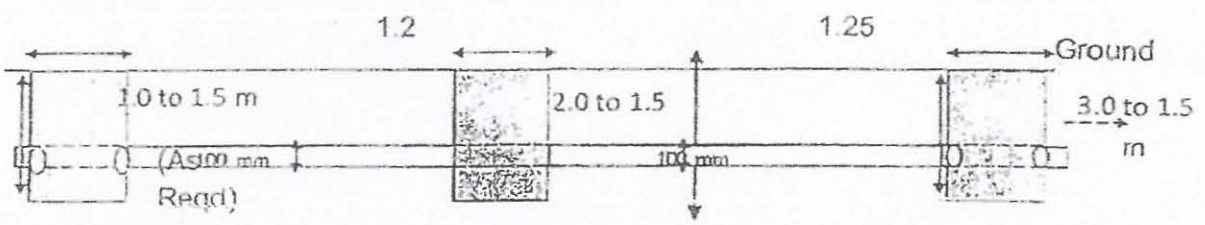
Dy. Manager

TRENCHLESS METHOD



MAULING METHOD



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Dy. Manager

Atria Convergence Technologies Ltd. MIZRAM

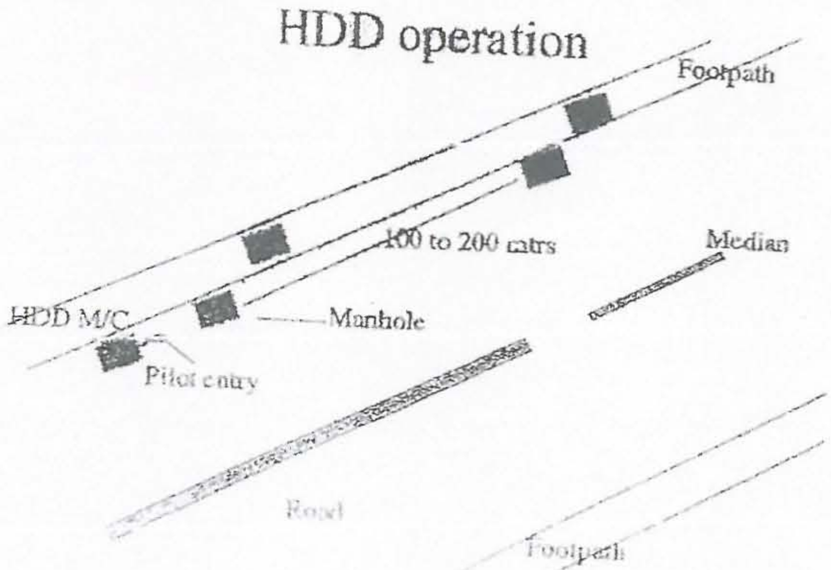

Fig-2

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Dy. Manager

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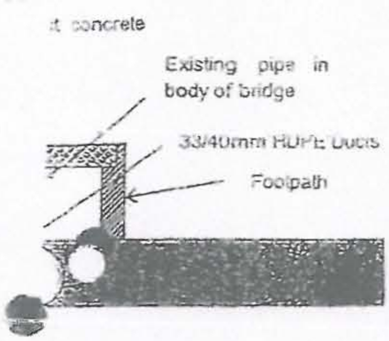
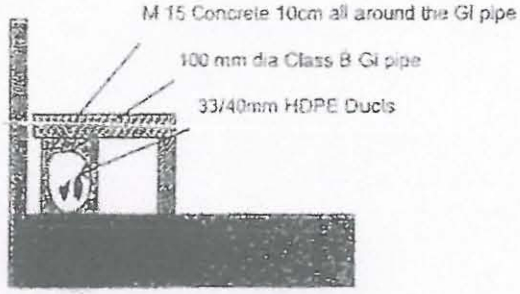
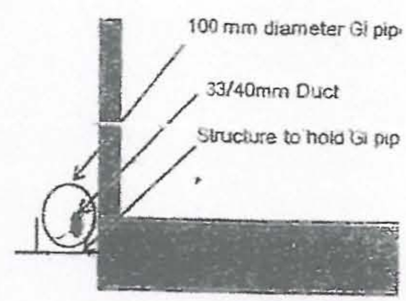
BRIDGE CROSSING METHOD		
gh existing pipe in bridge body	Crossing through Foot path (GI pipe with concrete encasement)	Crossing through GI Pipe Cl







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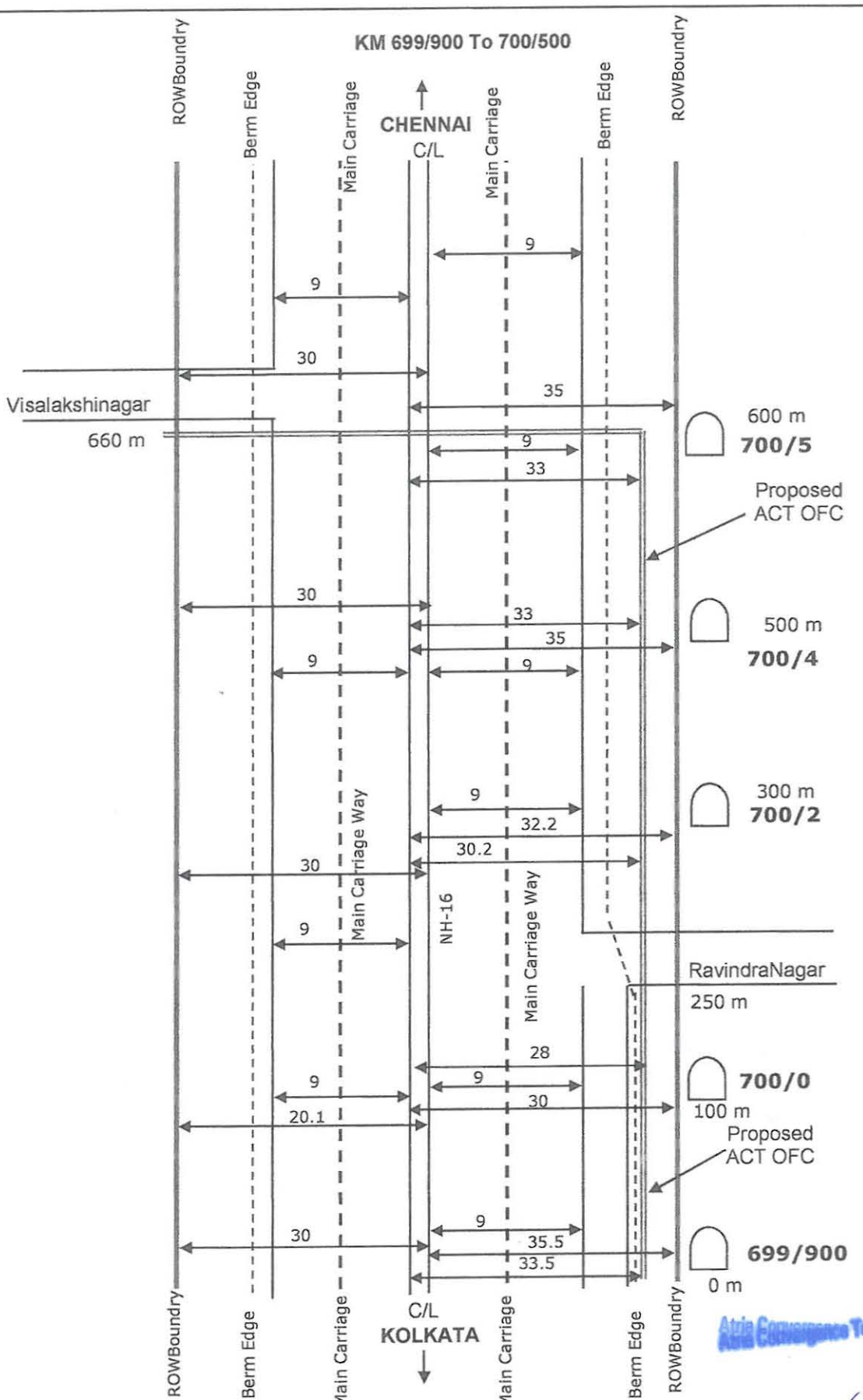

Section length: 660 Mts

Page:1/1

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Engineering

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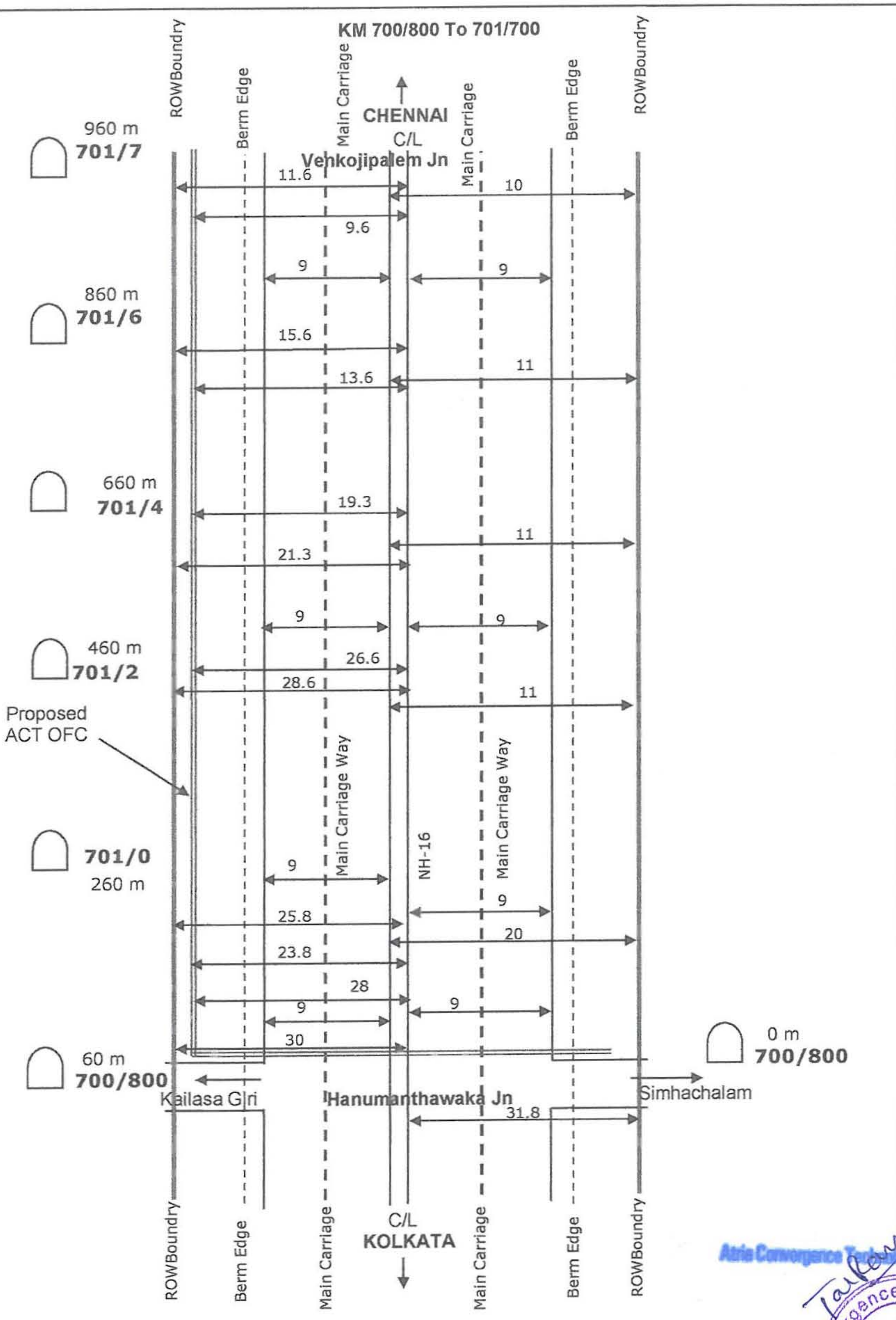

Section length:960 Mts

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Annexure-III

[Enclosure to Ministry Circular No. RW/NH-33044/17/2005-S&R(R) (Pt.) dated 06.08-2013]

Format for Maintaining Records of Right of Way permission granted for laying OFC

(To be maintained separately for every NH and State)

1 Name of State : Andhra Pradesh

2 Name of Agency : NHAI

3 NH Number : NHAI-16

S.No	Location (Chainage in Km)	Left or Right side of NH (towards increasing Chainage/Km direction)	Section and reach	Kind of service	Name of License and contact address	Date of signing of agreement	Date of validity of agreement	Date of last inspection of site	Any deviation from MoRTH standard norms	Remarks
1	**Hanumanthawaka Jn KM 700/800 To Venkoji Palem Jn (NH) KM 701/700 & Dairy Farm Jn KM 699/900 To Visalakshi Nagar Jn. KM 700/500**	From KM 699/900 To 700/500 – LCW+RCW = 45 to 65 Mts KM 700/800 to KM 701/700 – LCW+RCW = 21 to 61 Mts	NH- 16 from Anakapalli to Anandapuram reach	Telecom	Atria Convergence Technologies Limited (ACT) Reg Office: 1st, 2nd & 3rd Floor, Indian Express Building, Queen's Road Bangalore-560 001				NO	

Atria Convergence Technologies Limited (ACT)

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Dy. Manager

LICENSE FEE ESTIMATE

Estimate towards License Fee for laying of O.F. Cable from Hanumanthawaka Jn KM 700/800 To Venkoji Palem Jn (NH) KM 701/700 & Dairy Farm Jn KM 699/900 To Visalakshi Nagar Jn. KM 700/500 along NH Road by **Atria Convergence Technologies Limited (ACT).**

Estimate-A

From	To	No	Measurements			Quantitiy	Rate	Unit Per	Amount
			L	B	D	Sq. M	Per Sq.M		
1	2	3	4	5	6	7	8	9	10

Estimate towards License Fee for laying of O.F. Cable from Hanumanthawaka Jn KM 700/800 To Venkoji Palem Jn (NH) KM 701/700 & Dairy Farm Jn KM 699/900 To Visalakshi Nagar Jn. KM 700/500 along NH Road by **Atria Convergence Technologies Limited (ACT).**

Along the Road									
701/400	701/700	1	300	0.08	-	24	24900	Sq.Mtr	597600
700/800	701/400	2	600	0.08	-	48	24900	Sq.Mtr	1195200
699/900	700/500	3	600	0.08	-	48	24900	Sq.Mtr	1195200
Across the Road									
700/800		4	60	0.08	-	4.8	24900	Sq.Mtr	119520
700/500		5	60	0.08	-	4.8	24900	Sq.Mtr	119520
									3227040
License Fee (Rs/Sq.Mtr/Month						=	3227040 / 10X12	=	26892
License Fee for 5 Years						5X12X26892		=	16,13,520

Note: Breadth of PLB/HDPE conduit is 40 mm, since it is proposed to lay 2 ducts the breadth of above specification was mentioned as 0.08.

Atria Convergence Technologies Limited (ACT)

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Dy. Manager

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