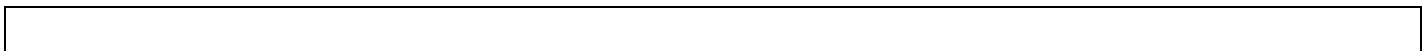


Joint RFP response for



reliability. choice. value



Company Information

Link Africa (Pty) Ltd and Frogfoot Networks (Pty) Ltd are responding jointly to the Constantia Fibre Initiative, Request for a Proposal “RFP”.

Link Africa as a dark fibre infrastructure provider will plan the network in conjunction with Frogfoot and build and maintain the fibre infrastructure.

Frogfoot Networks will package and sell open access services to ISP’s and act as an Open Access Facilitator for the joint venture on behalf of the consumers of Constantia Valley. Frogfoot will also support services offered to Layer 3 service providers

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Formal Submission

| # | Question | Explanation | | | | | | | | | | | | | | | | | | |
|--------------|---------------------|---|--------------|-----|-----|----|--------|------|----|--------|------|----|--------|------|-----|--------|------|------|--------|--------|
| 1 | Proposed start date | <p>The process for the projected 1100 houses (25% initial take up) will start after site meetings with the relevant parties.</p> <p>We aim to start the process within 30 days from appointment. See timeline diagram on slide 28 of the attached slideshow.</p> | | | | | | | | | | | | | | | | | | |
| 2 | Period of roll-out | Project timeline for the first 25% orders is 22 weeks after commencing. See timeline diagram on slide 28 of the attached slideshow. | | | | | | | | | | | | | | | | | | |
| 3 | Proposed life date | First services are expected live between 70 & 90 days from commencing. | | | | | | | | | | | | | | | | | | |
| 4 | Proposed life time | <p>Civil and fibre infrastructure : 20 years</p> <p>Equipment : 10 years, but since the JV will own the infrastructure, we will maintain and upgrade it going forward.</p> | | | | | | | | | | | | | | | | | | |
| 5 | Specification cable | <p>Cable in the public space will generally be buried (trench or sewer technology). At this stage 80% will probably be sewer based fibre with the FOCUS technology and 20% trenched the traditional way.</p> <p>Access cable into consumer properties may be aerial or trenched dependant on available infrastructure, input from Interested & Affected Parties and CoCT By-Laws</p> <p>All national and City of Cape Town By-Laws are taken into consideration</p> | | | | | | | | | | | | | | | | | | |
| 6 | Open Access | <p>All network components will be made available to any licensed service providers requesting access, on an open access basis from OSI Layer-2 and above.</p> <p>Although a node room will be built in Constantia, the main ISP peering point will be in Teraco Newlands, since all major ISP's are already peering there through NAPAfrica or directly.</p> <p>This will ensure lower roll-out costs for the ISPs and thus lower costs and greater choice for the residents.</p> | | | | | | | | | | | | | | | | | | |
| 7 | Pricing and quality | <p>Access Pricing as provided to ISPs - below.</p> <table border="1" data-bbox="516 1438 1107 1852"> <thead> <tr> <th>Speed (Mbps)</th> <th>NRC</th> <th>MRC</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>R1,500</td> <td>R350</td> </tr> <tr> <td>20</td> <td>R1,500</td> <td>R400</td> </tr> <tr> <td>50</td> <td>R1,500</td> <td>R450</td> </tr> <tr> <td>100</td> <td>R1,500</td> <td>R500</td> </tr> <tr> <td>1000</td> <td>R1,500</td> <td>R1,000</td> </tr> </tbody> </table> <p>(Pricing of full Internet access as per Vox & WebAfrica, prepared for Constantia is included as separate document).</p> | Speed (Mbps) | NRC | MRC | 10 | R1,500 | R350 | 20 | R1,500 | R400 | 50 | R1,500 | R450 | 100 | R1,500 | R500 | 1000 | R1,500 | R1,000 |
| Speed (Mbps) | NRC | MRC | | | | | | | | | | | | | | | | | | |
| 10 | R1,500 | R350 | | | | | | | | | | | | | | | | | | |
| 20 | R1,500 | R400 | | | | | | | | | | | | | | | | | | |
| 50 | R1,500 | R450 | | | | | | | | | | | | | | | | | | |
| 100 | R1,500 | R500 | | | | | | | | | | | | | | | | | | |
| 1000 | R1,500 | R1,000 | | | | | | | | | | | | | | | | | | |

Notes on the Access Pricing:

- Non Recurring Cost (NRC) of R1,500 per end point
- Pricing excludes VAT
- 1:2 Upload to Download ratio - basic GPON standard
- 10:1 Contention Ratio
- Above fees are charged to ISP for access only
- Exclude any network reticulation in home past the ONT

There will also be extras on order by the ISP's to offer to residents

| Description | NRC | MRC |
|---|----------|-------|
| Managed ONT UPS – up to 8 hrs backup with network alert notifications | | R50 |
| Network Alerts | | R15 |
| RF Overlay - for all existing and future free-to-air, no Set Top Box needed. Will not impact on bandwidth; uses separate frequency | R1,500 | |
| CCTV - view (applicable portions of) the existing 200 cameras on your TV | | R50 |
| Voice – per channel or “line” | | R50 |
| Analog Phone | R 150 | |
| Cordless analog phone | R 1,500 | |
| Upgrade to WiFi Router | R 1,000 | |
| Integration of camera | R 3,000 | R 500 |
| Internal network and access points | Per case | |

Notes on extras:

- CCTV overlay must be taken in conjunction with RF overlay
- Network Alerts to include loss of power, restoration of power, link failure and restoration of link.
- Default ONT to be installed does not support WiFi and has no built in backup power source.
- No IP phone needed but some ISP's might bundle that with their offering.
- Integration of cameras is a product for the members of Constantia Watch and other security entities for integration of both existing and new cameras per camera onto the fibre backbone to the control room in Bergvliet. Note that the NRC of R 3,000 refers to a proper hardened IP rated outdoor ONT with 10 mbps 1:1 fibre access to the control room.

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| | | Since this is a carrier grade network to carry multiple ISP services, a proper SLA will be in place with ISP's to ensure Quality of Service |
| 8 | Symmetric product | GPON is, as standard, 1:2 asymmetric. Upload speeds will be 50% of download speeds. |
| 9 | Profitability | This project is not a loss-leader and other areas of similar scope will be approached with the same costing |
| 10 | Funding | The project is not dependent on 3 rd party funding. Funding for the project is available at the minimum committed take-up of 1,100 households. The kick-off of phase 1 civils and access connections will only commence after 1,100 actual consumer commitments on any package with any ISP as per portal. Profit making within 8 years after go live with Phase 1 We assume a 75% take up over time |
| 11 | QoS | Contention ratio on the access fibre used by the ISPs will be 10:1 contended, all voice channels, CCTV channels to the houses and CCTV camera integration to the control room will be 1:1 contended. Best effort at Layer-1 with restoration within 1-3 business days for end consumer. A 4 hours restoration time for any Link Africa (Layer-1) provided backhaul component affecting any point of aggregation will exist. Monitoring will be done on the total network; the core on the Link Africa monitoring hardware, and the balance up to ONT level by the Calix equipment A Network Monitoring product is also available, notifying clients of fibre and power outages and restoration, through mail and SMS. |
| 12 | Redundancy | The distribution network will consist of multiple rings with inherent redundancy which will materialise as the network rolls out. Fibre links from the pavement into the premise are not redundant |
| 13 | Call Centre | Frogfoot currently, as an operational ISP, has a 24/7/365 Call Centre and will handle all support calls from ISP's. Consumers will contact their ISP whenever there is a break/interruption in service who will escalate that to Frogfoot. Frogfoot will manage the SLA between Frogfoot as active partner, and Link Africa as passive partner, to act in according with the SLA. Network Alerts will be sold as a service and consumers who subscribe to this service will have real time info communicated to them. |
| 14 | Upgrades | Upgrades are easy & possible as per the limitations of the ISP contracts with the consumers. |
| 15 | Installation cost | Installation cost will be capped at R 1,500 for residents having a connection distance of less than 30m from the erf boundary. Connections more than 30m will be quoted separately. |

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| | | Frogfoot is used to dealing with Home Owners Associations and Body Corporates and is currently advising the HOA of 15 national Estates on their internal fibre planning and commercial model. |
| 16 | Customer Premises equipment | <p>Calix is the #1 Access Vendor in the USA and #3 worldwide. R&D is strong and they have an extensive range of quality equipment.</p> <p>Frogfoot is a Calix Silver Partner. Frogfoot has used Calix with great success and will use the Calix 716GE ONT in this deployment. It has 2 POTs lines and 4 GigE ports.</p> <p>The unit, by default, has no WiFi. Out of experience the internal spaces in Constantia might be complicated for integrated WiFi and must be a separate discussion with residents.</p> <p>As extras we do offer the Calix Gigacenter with WiFi. (please see attached slide deck for more info and images)</p> <p><u>Note:</u> At least one other vendor might use Calix. Please take note of specifications as the P-Series ONT's is by far superior to the entry level T-Series.</p> <p>The P-Series we use is more stable, has more features, is easy to provision and manage, has added power management features & is future proof.</p> |
| 17 | Minimum uptake | 25% or 1,100 signed contracts – please see slide 13 in the attached slide deck and refer to the attached .kmz of the proposed network topology. |
| 18 | Collection | <p>Frogfoot acts as the Open Access Facilitator and has agreements with the ISPs.</p> <p>ISPs will have agreements with the residents directly. ISPs will do collections.</p> <p>The portal will function as an information gateway to residents on ISP offerings and as a lead generator for ISPs</p> |
| 19 | Network architecture | <p>At this stage a total of 115,235m of trench will be installed and/or secured. Of this, up to 82,969m (72%) might well be installed in the CoCT sewer network. Link Africa is already in discussions with the City. The balance of 32,266m will be installed through conventional trenching. This does not include any access builds into properties.</p> <p>The design will be a PON Network with a split ratio of 1:64 from the core. The core will be in Constantia.</p> <p>Planning will be finalised on Arc GIS and will consist of Route planning, Manhole locations, Infrastructure locations, sewer and storm water, Client locations, As-Built information as the project matures.</p> <p>The splicing diagram will have the information on cable, route & fibre allocation.</p> |
| 20 | Service Delivery Platform | <p>With the Calix ONT and OLT Core, Frogfoot will use the Calix Management System (CMS) which will provision, manage, troubleshoot and operate the Layer 2 network. The security features are extremely advanced and all info can be shared or sheltered with control access rights per client.</p> <p>This system is designed for a multi precinct environment and also talks with the Compass Suite of managed software that includes Consumer Connect, Service Verify and Flow Analyze. The software enables features like automated firmware upgrades, SLA monitoring, and detail broadband analysis that will assist the ISP's in marketing specific products to specific consumers.</p> |

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| 21 | Additional Services | <p>ISPs will have a range of products including security (see as example Guardian Eye from Vox) and entertainment packages.</p> <p>Frogfoot also offer first to market products like managed UPS and network alerts.</p> <p>Be sure this bouquet will grow to maturity even before GO LIVE.</p> |
| 22 | DAS | <p>Yes - open access Layer 1 or Layer 2 DAS products are available to all mobile service providers.</p> |
| 23 | CCTV | <p>Yes we will broadcast the live or stored feed from the current 50 and the estimated 200 community CCTV cameras.</p> <p>This application will be either distributed over IPTV, or over RF (which will not influence the bandwidth). Since that CCTV camera feed will in any way be an on-demand broadcast, it will not have any significance influence on the bandwidth</p> <p>Professional CCTV and/or Security service providers offering a value added monitoring or response service in the public or private space will have the option to purchase copper ports into the fibre network at any existing or future camera point, in public or private areas.</p> |
| 24 | Control room | <p>We will link up the control room in Bergvliet free of charge</p> |
| 25 | Coverage | <p>Phase 1 - Constantia north of the M3 (see .kml attached)</p> <p>Phase 2 - Constantia south of the M3, Doordrif, Bergvliet, Meadowridge</p> <p>Phase 3 - Tokai, Zwaanswyk & Steenberg</p> <p>Phase 2 & 3 will commence after Phase 1 proves to be successful.</p> |
| 26 | Way leave | <p>Will follow the standard municipal and regional way leave processes.</p> <p>This is normally a 4 week process.</p> |
| 27 | Dependencies and risk | <p>1,100 household (25%) initial sign up by residents with ISPs before project commences.</p> <p>Permission and cooperation from the home owners association(s) and body corporates in the area.</p> <p>Understanding of the current (and future) CCTV setup for broadcast.</p> <p>Landlord access permission in private land.</p> <p>Municipal permission to use sewer or storm water infrastructure.</p> |

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