

Proximus Reference Offer for Subduct Access in P2P Fiber Underground Deployments

Access to HDPE-type of Fiber subducts in the geographical area covered by the Proximus P2MP footprint

Main Body

Table of contents

Table of contents.....	2
1. Introduction.....	4
1.1 Scope of the Reference Offer	4
1.2 General Principles and Limits of the Reference Offer	6
1.3 Definitions.....	7
1.4 Practical information.....	9
2. Terminology, Structure and Concepts of P2P fiber underground infrastructure	10
2.1 P2P Fiber Underground Network Architecture	10
2.2 Presence of subducts in Proximus ducts.....	14
3. Technical Implementation of the Service.....	15
3.1 Access to a Proximus P2P Fiber subduct	15
3.2 Lead-in to Proximus P2P Fiber subduct.....	16
3.3 Interconnection of Proximus Fiber P2P subducts	17
3.4 Introduction to the P2P End-User site.....	19
3.4.1 Access to an introduction subduct.....	19
3.4.2 Interconnection with the introduction subduct of the Beneficiary	19
3.4.3 Access to an introduction fiber cable.....	19
4. Technical specifications.....	20
5. General principles for ordering and provisioning.....	20
5.1 Introduction.....	20
5.2 Available Subducts - Engineering rules on reserved subducts for Proximus..	21
5.3 Pre-provisioning.....	22
5.3.1 NDA	22
5.3.2 Obligatory testing of fibre cables used in Proximus subducts.....	22
5.3.3 Presence & Availability Request.....	22
5.4 Request For Design	25
5.5 Ordering.....	26
5.6 Infrastructure Survey	26
5.7 Provisioning.....	27

5.8 Roles and responsibilities of the Parties	28
5.8.1 Proximus' roles and responsibilities	28
5.8.2 Beneficiary's roles and responsibilities	28
6. Network Adjustments	29
6.1 Roadworks	29
7. Repair	30
8. Removal of lead-in & repair to original state of subduct	31
9. SLA	32
9.1 Provisioning	33
9.2 Repair	33
10. Pricing	34
11. Evolution of the reference offer	35
12. Appendix 1: Access to introduction fiber cable	36
12.1 General Principles	36
12.2 Beneficiary responsibilities	37
12.3 Proximus responsibilities	37
12.4 Processes	37

1. Introduction

1.1 Scope of the Reference Offer

- 1) The present Reference Offer for Subduct Access deals with the subduct access services that Proximus offers to a Telecommunications Operator, hereafter called “Beneficiary”, under the conditions of this offer.
- 2) The present version contains a functional and quantitative reference offer setting out both
 - the technical characteristics necessary to allow the Beneficiary to obtain an accurate picture of the product that he will be able to order, and
 - the general pricing principles and pricing structure as can be determined at this stage.
- 3) The subduct access services included in this reference offer encompass the following services, as defined and described below:
 - Access to a Proximus HDPE-type of Fiber subduct
 - Lead-in to a Proximus HDPE-type of Fiber subduct
 - Interconnection of Proximus HDPE-type of Fiber subducts
 - Introduction to the P2P End-User site
- 4) This Proximus Reference Offer for Subduct Access in P2P Fiber Underground Deployments (i.e. Proximus deployment of HDPE-type of Fiber subducts) offers to Beneficiaries that do not own large existing fixed networks at the date of the adoption of the BCA Decision, on FRAND terms wholesale physical access to Available Subducts at the level of HDPE-type of subducts in the geographical area covered by the Proximus P2MP footprint, in view of use of such access for FTTx infrastructure deployment. In case other types of ducts are used in the future in the geographical area covered by the Proximus P2MP-footprint, Proximus will develop a similar access regime for the sharing of such ducts.
- 5) Proximus will perform all the required actions and interventions in its underground infrastructure. By procuring wholesale services under the present PROSA, the Beneficiary explicitly commits not to undertake itself or through any other person any actions and/or interventions in the Proximus underground infrastructure and agrees that its failure to respect this commitment will automatically lead to the termination of the (sub)duct access from which it benefits.
- 6) In line with section 11, the PROSA offer will be kept up to date, consolidated and made available on Proximus’ website.
- 7) The reference offer contains the access to available HDPE-type of fiber subducts in the geographical area covered by the Proximus P2MP footprint, in view of use of such access for FTTx infrastructure deployment in between, on the one hand, the End-User site to be connected and, on the other hand, a manhole, which is either adjacent to the LEX on which the End-User site depends (Figure 1), or a manhole, which is located on the trajectory from the LEX to the End-User site to be connected (Figure 2).

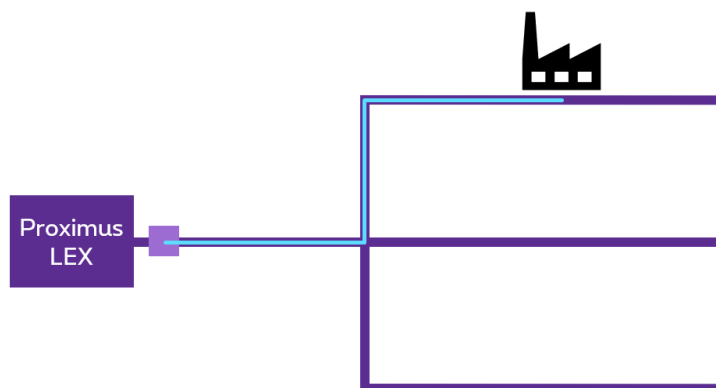


Figure 1: Schematic of subduct use upon a manhole adjacent to the LEX.
The blue line indicates the P2P Fiber Subduct which is made available through the Proximus Reference Offer for Subduct Access in P2P Fiber Underground deployments.
The small light purple square indicates the manhole of Proximus.

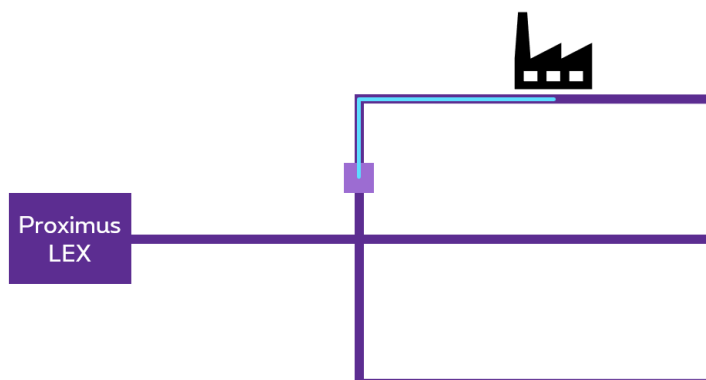


Figure 2: Schematic of subduct use upon a manhole on the trajectory from the LEX to the locations to be connected
The blue line indicates the P2P Fiber Subduct which is made available through the Proximus Reference Offer for Subduct Access in P2P Fiber Underground deployments.
The small light purple square indicates the manhole of Proximus.

8) The reference offer contains, in case of using Subduct Access in P2P Fiber Underground deployments:

- a) Access to an introduction subduct, i.e. in case an introduction subduct to the P2P End-User site is available the Beneficiary is allowed access for rents to the available introduction subduct.
- b) Interconnection with the introduction subduct of the Beneficiary, i.e. in case no introduction subduct to the P2P End-User site is available and in case the Beneficiary installed an introduction subduct from the P2P End-User site to close to the Proximus underground infrastructure, Proximus provides services to ensure the continuity of the subduct the Beneficiary uses and the introduction subduct of the Beneficiary.
- c) Access to an introduction fiber cable, being only applicable in case the accesses under a) and b) are not possible and in case the P2P End-User site is physically connected by an introduction fiber cable with the Proximus P2P fiber network.

- 9) P2P Fiber Subducts are not accessible during a one -year moratorium period after construction. Proximus announces well in advance its plans for works on the public domain in the tools GIPOD, POWALCO or OSIRIS, i.e. tools collecting all information on works on public domain of the particular region. The end date of finalized works serves as start date of the one -year moratorium period.
- 10) Under the conditions of this reference offer, the Reference Offer for Subduct Access in P2P Fiber Underground Deployments allows the Beneficiary to use, in a planned construction project by the Beneficiary, pre-existing (or newly installed in Empty Unused HDPE Ducts on request of the Beneficiary on the terms as further elaborated in this document) available Proximus P2P Fiber underground (introduction) subducts and introduction fiber cables. As such, ordering is done as part of the existing steps by a Beneficiary in preparing for a construction project of the Beneficiary.
- 11) Proximus notes that the number of existing and free Proximus underground P2P Fiber subduct infrastructure in the network is limited and there are often, both foreseeable or emerging needs for Proximus' own use. Proximus will investigate, at the time of the request, the availability of the relevant (introduction) subducts and introduction fiber cables, taking into account inter alia effective use and identified future needs for such subducts by Proximus, inter alia in view of use by Proximus for repair, capacity extensions, and/or dedicated fiber connections, etc.

1.2 General Principles and Limits of the Reference Offer

- 12) The provision of subduct access services is subject to the conclusion of a Subduct Access agreement between the Beneficiary and Proximus according to the General Terms and Conditions of the BROTSOLL - Proximus Reference Offer for Terminating Segment of Leased Lines when deemed relevant for the said provision. The General Terms and Conditions of the Reference Offer for Subduct Access in P2P Fiber Underground Deployments will be set out by Proximus by means of an engineering study covering the technical and IT feasibility as well as the reasonability of the request.
- 13) Proximus will keep the full ownership of the network elements that belong to it and that have been installed by Proximus or on behalf of Proximus and that are used to provide the services of this Reference Offer.
- 14) The Beneficiary will keep the full ownership of the network elements that belong to the Beneficiary and that have been installed by the Beneficiary or on behalf of the Beneficiary, using the Proximus network infrastructure.
- 15) Proximus is not responsible for the content of the communications conveyed using the infrastructure placed by the Beneficiary inside the Proximus subducts.

1.3 Definitions

16) The capitalized terms in the present Reference Offer for Subduct Access have the meaning as defined below.

FTTx	fiber-to-the-premise, i.e., both fiber-to-the-home (to residential Subscribers) and fiber-to-the-office/building (to business Subscribers), excluding any bespoke applications of fiber access.
HDPE duct	HDPE ducts are the rigid tubes of the P2P Fiber underground network of Proximus containing subducts and/or fiber cables. Proximus usually installs HDPE ducts with an outer diameter of 50 mm. HDPE stands for high density polyethylene.
HDPE subduct	Smaller tubes with an outer diameter of 10 mm and an inner diameter of 8 mm that are installed in a HDPE duct.
P2P End-User	User of P2P services provided by the Beneficiary, Third Party Beneficiary, or a reseller of that service, and/or Proximus.
LEX	Proximus Local Exchange.
Point-to-Multipoint (P2MP)	Proximus' Fiber PON network topology. This is a shared fiber solution, shared amongst a number of End Users.
End-User	means an end customer (a (retail) legal or physical person using electronic communications services of a network operator or communications provider (regardless of whether such operator or provider is a reseller) and not for the purpose of (re)selling these or similar electronic communications services (as such or incorporated into another product) themselves).
By-Pass (of a manhole)	a connection of two Y-branches on Proximus sub-ducts that are located at both sides of a manhole, where such manhole is located in between the Beneficiary's Entry and Exit Points of a subduct on the Trajectory over which the Beneficiary desires to rent (a) subduct(s).
Pass-Through (of a manhole)	a connection of two subducts in a Proximus manhole, where the latter is located in between the Beneficiary's Entry and Exit Points of a subduct on the Trajectory over which the Beneficiary desires to rent (a) subduct(s).

Discontinuous Works	Works are discontinuous when, within one Subduct Access Construction Area, several works on (sub)duct segments have been included that are in separate parts of this Subduct Access Construction Area, without being linked with each other for (sub)duct testing/calibration or subduct blowing. Discontinuous works within one Subduct Access Construction Area can in principle be executed within the same Working Day, but trigger additional costs on the field related to additional organisation and works that need to be carried out (moving equipment, additional signalisation, parking reservations).
Empty Unused HDPE Duct	a HDPE duct that at the moment of the request does not contain any subducts or any other infrastructure element (such as for instance a 'pull wire' ('trekdraad'/'câble de traction')) and of which the entire capacity is not planned yet for use by Proximus (including any other entity of its group).
Entry and Exit Ducts	the duct segments located on the respective incoming and outgoing sides of a Proximus manhole that accommodate and guide the sub-ducts forming part of a continuous underground fibre cable route in the case of a Pass-Through (of a manhole). The sub-ducts positioned in the Entry Duct contain the fibre cable(s) approaching and entering the manhole, while the sub-ducts positioned in the Exit Duct contain the continuation of the same fibre cable(s) leaving the manhole.
Entry and Exit Points	points where a fiber cable of a Beneficiary is physically entering into a rented subduct and exiting from a rented subduct by means of Y-branches
Presence & Availability Request	request of a Beneficiary to Proximus to obtain preliminary information on the presence and location of available Proximus physical underground fiber (sub)duct infrastructure in a NIS9 geographic area in the framework of its subduct access PROSA offer
Subduct Access Construction Area	area where several works on (sub)duct segments for (sub)duct testing/calibration or subduct blowing can in principle be executed within the same Working Day.
Track	the physical path that HDPE ducts follow between two manholes or between a manhole and the end of the duct.
Trajectory	the physical path that a specific subduct follows underground in the public domain, between an Entry Point and an Exit Point
Working Day	Monday to Friday, excluding official Belgian public holidays as well as 2 January and 26 December

1.4 Practical information

- 17) Further requests for information concerning the present Reference Offer can be made in writing by interested Parties at the following Proximus contact point. In particular, in the event of doubt as to the interpretation of the provisions of this Reference Offer, Proximus should be contacted. In the event of doubt and as stated by the BIPT, contacting Proximus is without prejudice to any clarification of the Reference Offer given by the BIPT.
- 18) In case of disagreement about the interpretation, one of the Parties can request the BIPT for a decision on the specific case. This decision will be taken within a reasonable term and will take into account the legal framework and the valid advices. The possibility for the Parties to present the BIPT a problem in interpretation will not influence the legal means that remain at the Parties' disposal in case of a conflict.

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- 19) The sharing by Proximus of some types of information (e.g. the addresses of Proximus buildings) is subject to the prior signing of a Non-Disclosure Agreement by the requesting Party.
- 20) It is also a right for everyone who has signed a Non-Disclosure Agreement to obtain information via the Proximus website through a secured access. Information on how to access the mentioned website can be obtained at the Proximus contact point mentioned above.
- 21) This offer is made by Proximus PLC under Belgian Public Law, a Belgian autonomous public enterprise organized under the Law of March 21, 1991, with registered office at B-1030 Brussels, 27 Boulevard du Roi Albert II, VAT BE 0202 239 951 Brussels Register of Legal Entities, exercising its activities under the commercial name Proximus, and referred to as "Proximus" in all the documents that are part of this Reference Offer.

2. Terminology, Structure and Concepts of P2P fiber underground infrastructure

2.1 P2P Fiber Underground Network Architecture

- 22) The description below sets out the current Proximus P2P fiber underground network architecture, which is based on a topology and deployment rules as carried out presently. This is without prejudice to modifications to such topology and deployment rules which might have an impact on the availability of subduct access as described under the current offer.
- 23) The P2P fiber underground infrastructure consists of five components:
- HDPE ducts
 - Subducts
 - Introduction subducts
 - Introduction fiber cables
 - Manholes
- 24) HDPE ducts are installed from the LEX towards the first manholes in the streets. From these first manholes the HDPE ducts continue towards the next manholes. This is repeated until the end points are reached. Proximus usually installs HDPE ducts with an outer diameter of 50 mm (see Annex B Technical Specifications, B.5.1. Technical vendor datasheet – Macroduct Mono 50x4,6mm.pdf).

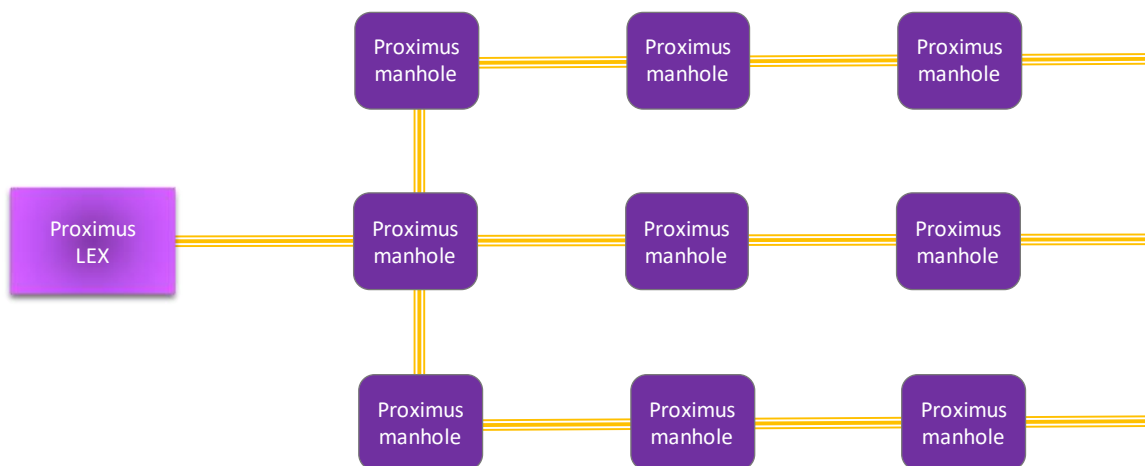


Figure 3: Schematic of Proximus LEX, manholes and HDPE ducts
Orange lines are HDPE ducts

- 25) Subducts are blown into the HDPE ducts using compressed air with pressure up to 8 bar. Before starting the blowing all segments of the HDPE duct should pass the pressure and calibration tests (see Annex B Technical Specifications). Proximus usually installs subducts with an outer diameter of 10 mm and an inner diameter of 8 mm corresponding with a wall thickness of 1 mm.
- 26) Typically, a maximum of 7 subducts with an outer diameter of 10 mm and an inner diameter of 8 mm can be installed in a HDPE duct with an outer diameter of 50 mm.



Figure 4: HDPE with 7 subducts¹

27) For introduction of P2P Fiber the HDPE ducts with 7 subducts, as described in the paragraphs from 24) to 25), are often used. Sometimes SRV ducts are used for introduction of P2P Fiber. These SRV ducts have an outer orange sheath and consist of 2 or 4 subducts. The orange sheath is flexible and serves to keep the whole assembly together and, by its color, to identify the SRV as a Proximus asset. The subducts have an outer diameter of 12 mm and an inner diameter of 8 mm, corresponding with a wall thickness of 2 mm, being the double of the wall thickness of subducts in HDPE ducts. Thanks to this thick outer wall the SRV subducts are sufficiently sturdy to be put in the ground without outer protection. Note that these SRV ducts differ from the ones used for FTTx deployments consisting of 7 subducts in a black inner sheath, and 2 outer subducts outside the black sheath.



Figure 5: SRV for introduction with 4 subducts

- 28) Manholes are local nodes of the network, usually located at a maximal distance of 900 meter from each other. These manholes are, inter alia, used for blowing fiber cables into the subducts. The maximal distance for blowing, taking into account the Proximus standards, is 900 meters.
- 29) A manhole disposes of a management system. The system allows for easy access to the subducts, keeping the subducts high above the bottom of the manhole and close to the opening above. The management system also guarantees a controlled bending.

¹ On the picture there are only 6 subducts visible. The 7th subduct is hidden by the subduct in the middle. The blue line is the fiber cable that is located in the 7th subduct.

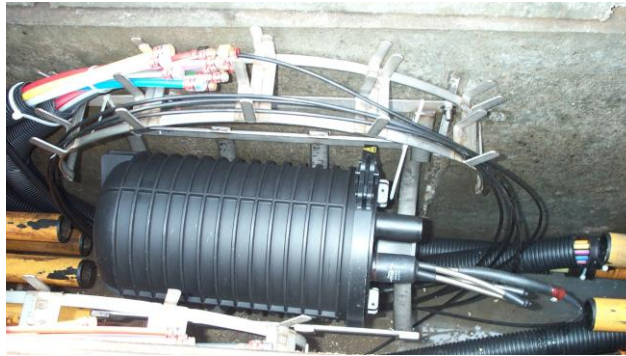


Figure 6: Manhole and management system

30) If branching of a subduct is to be performed in between two Proximus manholes, a Y-branch is installed on the HDPE duct.

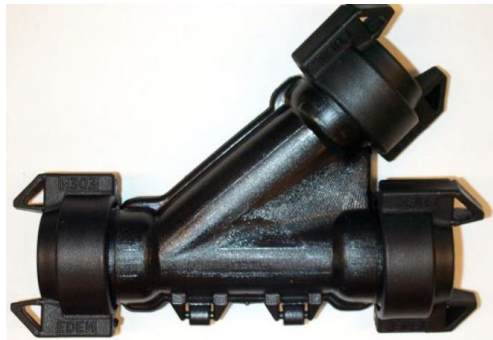


Figure 7: Y-branch used for branching subducts in HPDE duct

31) In order to install a Y-branch, the following steps are taken:

32) A well is dug in order to get access to the HDPE duct.

33) A window cut of 20 cm is made in the HDPE duct. A window cut implies cutting the duct twice perpendicular and cutting the duct in the longitudinal direction in between the two previously made cuts. This step needs to be performed very careful with the correct tools in order to prevent the subducts inside the duct from damage. Once this step is performed, the two half shells can be removed and access to the subducts is possible.



Figure 8: window cut in a 50mm HDPE duct

34) As a next step the correct subduct is selected, a check is done to verify whether the subduct is indeed empty, after which the subduct is cut with the appropriate tool.

35) A straight subduct connector is installed on which the extension subduct can be connected.

36) A sealing connector is installed on the other part of the cut subduct.

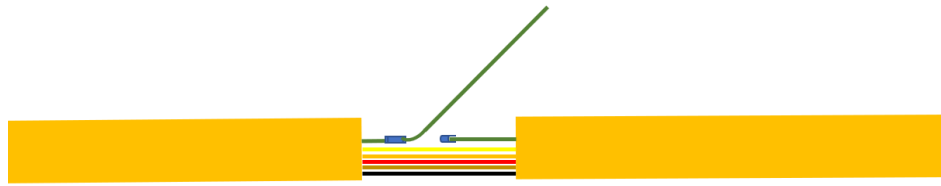


Figure 9: Cut subduct with straight connector and extension subduct on one side, and sealing connector on other side

37) In order to protect the subducts and the duct, the Y-branch is installed



Figure 10: subducts branch-off completed with installation of Y-branch

38) Once a Y-branch is installed on a section of a HDPE duct, this duct can no longer be pressurized. As a result, subducts can no longer be blown into the HDPE duct. To make blowing subducts possible again the Y-branch needs to be removed and the HDPE duct needs to be repaired (make it fully enclosed). Repair actions that require replacement of subducts are no longer possible unless the above actions (remove Y-branch and fully enclose the HDPE duct) are performed.

39) In order to open an existing Y-branch and to connect additional subducts, the following steps are taken:

40) A well is dug in order to get access to the Y-branch.

41) The Y-branch is opened.

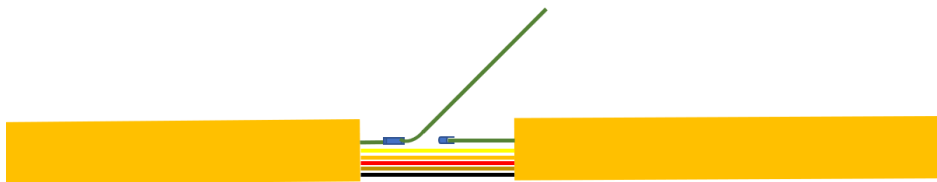


Figure 11: Opened Y-branch with one subduct branched-off (green)

42) As a next step the correct additional subduct is selected, a check is done to verify whether the subduct is indeed empty, after which the subduct is cut with the appropriate tool. Connecting an additional subduct by opening an existing Y-branch is only possible if the subduct in the main HDPE duct comes from the same side as the other branched-off subducts.

43) A straight subduct connector is installed on which the extension subduct can be connected.

44) A sealing connector is installed on the other part of the cut subduct.

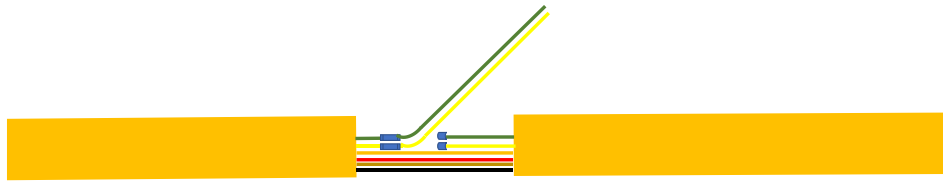


Figure 12: Opened Y-branch with 2 subducts branched-off

45) In order to protect the subducts and the duct, the Y-branch is closed again.



Figure 13: Branch-off of 2 subducts completed with closed Y-branch

2.2 Presence of subducts in Proximus ducts

- 46) Proximus has installed different types of ducts over the years. Older duct types are not always suited for subduct infrastructure:
- 47) The first generation of HDPE ducts were intended to pull-in the fiber cable and are not resistant for air pressure. There are no subducts installed in this type of HDPE ducts.
- 48) A second generation of HDPE ducts was intended to blow in large fiber cables. These ducts can be pressurized, but part of the duct is already filled with fiber cables. The maximal number of subducts that can be blown in is limited to 3 or 5, depending on the number and the diameter of the fiber cables lying in the duct.
- 49) Later implementations of the second generation blow-in HDPE ducts were immediately filled with in principle 7 subducts. These are the ducts described when not otherwise specified.
- 50) On request of the Beneficiary, Proximus can equip existing but at the relevant time Empty Unused HDPE Ducts with subducts under the conditions as further elaborated in this document.

3. Technical Implementation of the Service

- 51) The below section describes the technical characteristics of the Proximus subduct P2P Fiber underground infrastructure and the technical possibilities to access these in order for the Beneficiary to install its own network infrastructure.
- 52) In order to build a network using the Proximus subduct P2P Fiber underground infrastructure, the Beneficiary must combine two service components: access to the P2P Fiber subduct itself, and lead-in in order to connect the P2P Fiber subduct to its own subduct infrastructure.

Figure 14 shows an example implementation. The Beneficiary connects its subducts (grey) onto the Proximus P2P Fiber subduct (orange) using Y-branches. The green dashed line shows the fiber cable of the Beneficiary, that the Beneficiary blew into the subducts. Proximus installs the Y-branches. The Beneficiary blows the fiber cable.

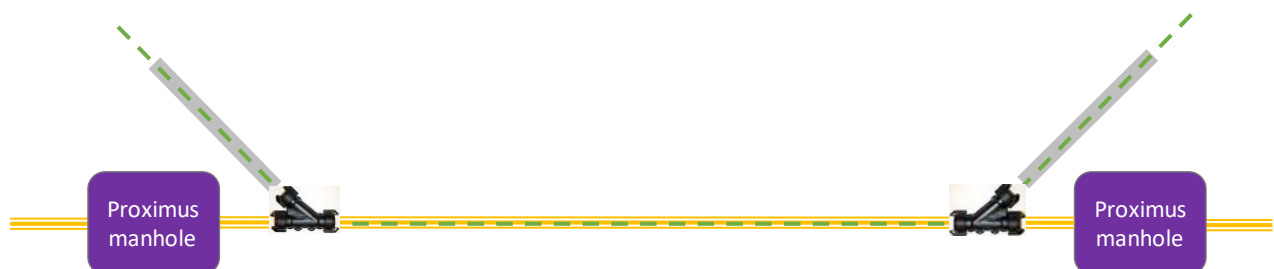


Figure 14: Example implementation of a network infrastructure using components of the Proximus Reference Offer for Subduct Access.

3.1 Access to a Proximus P2P Fiber subduct

- 53) The Beneficiary is allowed access for rents to subducts between on the one hand the Entry Point and on the other hand the Exit Point.
- 54) In order to make the available subduct reachable for the Beneficiary, Proximus installs a Y-branch at the Entry Point and another Y-branch at the Exit Point.
- 55) The Beneficiary is responsible to install its own passive physical infrastructure such as ducts, subducts and manholes to and from the Entry and Exit Points, in order to connect the relevant Proximus subduct P2P Fiber underground infrastructure with its own network infrastructure.
- 56) All construction work and authorizations for the Beneficiary's own subducts, manholes and any street-furniture needed are the responsibility of the Beneficiary.
- 57) Proximus commits to equip, on request of the Beneficiary, existing but at the relevant time Empty Unused HDPE Ducts on a given Trajectory, with subducts on the following cumulative conditions:
- following application of the engineering rules on reserved subducts for Proximus as set out under section 5.2

- there are no Available Subducts amongst the already existing subducts at the relevant time of the request on the relevant Trajectory
- and there would be one or more Available Subducts in the new bundle of subducts that would be installed in the Empty Unused HDPE Ducts.

And

- the Beneficiary:
 - accepts to bear the one-time fees² for the site survey and for testing the state of the HDPE duct concerned. In order to concretely verify the state and accessibility of the Empty Unused HDPE Duct found to be possibly equipped with subducts based on available documentation, Proximus will, through an in-situ analysis, first visually inspect the duct in the Proximus manhole, and subsequently test the quality of the duct, based on a calibration/pressure test of the duct. Proximus will inform the Beneficiary when it proceeds with this testing and should it wish so, the Beneficiary will be welcome to come witnessing this testing.
 - acknowledges the inherent risk that it may only become apparent during the in-situ analysis that an Empty Unused HDPE Duct, that was found to be possible to equip with subducts based on available documentation, cannot be equipped in practice, and if that is the case, the blowing of additional subducts will not take place in that duct, and that the incurred costs cannot be recovered and that they are at the expense of the Beneficiary. In the latter case, Proximus will test on that same Trajectory other Empty Unused HDPE Duct segments that were found to be possibly equipped with subducts based on available documentation. The same acknowledgment and rules would then apply to the verification of such additional Empty Unused HDPE Ducts. For the sake of clarity: Proximus will settle the expenses for equipping the duct with subducts (blowing). This cost will thus not be separately charged to the requesting Beneficiary at the time of equipping the duct, but is factored in and thus part of the rental fee for the subduct.

In the event ultimately no Empty Unused HDPE Ducts can be equipped, Proximus will mention the reasons for this insufficiency in the site survey document and communicate it to the Beneficiary. This will then also be reported to the Monitoring Trustee in the quarterly reporting. In such case, the Beneficiary may request a repair of the duct, in order to allow the blowing to still take place, subject to the Beneficiary accepting to pay for this repair of the duct upon receipt of a preliminary quotation based on a, to the best knowledge of Proximus at that time, reasonable estimate of repair and related costs that would be required. For the sake of clarity, the definitive price will be established after closing the (attempt of the) repair and will be charged to the Beneficiary.

3.2 Lead-in to Proximus P2P Fiber subduct

58) The lead-in to a Proximus P2P Fiber subduct is the demarcation point of the Proximus Reference Offer for Subduct Access in P2P Fiber Underground Deployments.

² For the avoidance of doubt, in the event several Empty Unused HDPE Ducts are tested at the same time, the relevant one-time fees are not to be paid several times. In particular, the fee for the fixed costs is charged only for the testing of the first duct on a given Trajectory. For the testing of additional ducts at the same time on the same Trajectory, only the fee for the variable costs will apply (based on the tested length of the duct).

- 59) The lead-in to a Proximus P2P Fiber subduct is a Y-branch, as described in paragraphs 30).
- 60) The Beneficiary is to foresee an (introduction) subduct of the right specifications for Proximus to connect to the lead-in. These specifications are described in Chapter 4.
- 61) The Proximus lead-ins are buried and not accessible without civil works.
- 62) Lead-ins cannot be located in passive physical infrastructure (manholes) owned or operated by Proximus. The Beneficiary is responsible to install its own manhole near the Proximus Y-branch for connection to the Proximus Y-branch. The interconnection to the Beneficiary manhole with the Proximus manhole is always made using a Y-branch on the buried HDPE duct outside of the Proximus manhole. No direct interconnection between a Proximus manhole and the Beneficiary manhole is made.

3.3 Interconnection of Proximus Fiber P2P subducts

- 63) The Proximus P2P Fiber underground network contains many manholes. In case a Proximus manhole is located in between the Entry Point and the Exit Point of a subduct on the trajectory over which the Beneficiary desires to rent (a) subduct(s), the standard solution is to construct where possible a Pass-Through of the relevant manhole, to allow the subduct that would be rented by the Beneficiary to cross the relevant manhole, (Figure 165).
- 64) When all conditions permit as set out below, if there is a manhole on the desired trajectory, Proximus will first always check if it would be possible to let the subduct "pass through" the Proximus manhole.
- 65) In that case Proximus interconnects the two subducts rented by the Beneficiary within the Proximus manhole (**Error! Reference source not found.**, provided that the following conditions are cumulatively met:
- there is sufficient space in the manhole to realize this Pass-Through; and
 - the total distance and physical technical characteristics of the relevant subduct technically allows blowing; taking due account of the fact that: fiber cable blowing technology is conditioned by physical technical limitations, related to elements such as number of curves in a Trajectory, number and distance of manholes being passed-through, presence of drillings and the characteristics of fiber cable to be blown. In that respect, the blowing of fiber cable is generally limited to a maximum total distance of 750 m in medium and densely populated areas; in the manhole with the Pass-Through, the Entry and Exit Ducts hosting the concerned subduct are sufficiently aligned in a longitudinal direction so as to avoid an S curve in the connection of the two subducts.
- 66) Proximus investigates in the Request For Design phase and possibly at the moment of the Infrastructure Survey, case by case, whether the conditions permit the solution described above.

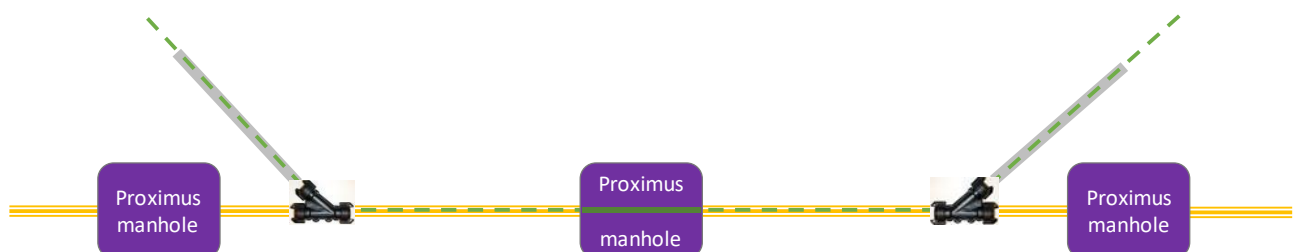


Figure 15: Interconnection of 2 subducts rented by the Beneficiary in the Proximus manhole (standard solution)

67) If the above-referenced standard solution is not possible in the above context, Proximus submits a report to the Beneficiary explaining why a Pass-Through is not possible, and a By-Pass (see below) would therefore still need to be provided in order to make the subduct sharing feasible. Proximus will also report on a regular basis the cases where such Pass-Through was not possible to the Monitoring Trustee through reporting the underlying reasons. This reporting will be included in a dedicated section of the quarterly reporting.

68) If the above-referenced standard solution is not possible, steps to construct a By-Pass are listed below:

- The Beneficiary may install an own manhole near the Proximus manhole. The Proximus manhole is not accessible for the Beneficiary.
- Proximus installs, on demand and at the expense of the Beneficiary, a Y-branch at both sides of the Proximus manhole (Figure 16 a and b) to connect the subducts with the Beneficiary's manhole, if any.
- The Beneficiary interconnects the two subducts (and two fiber cables) in its own manhole, if any.

The By-Pass of a manhole can be illustrated as follows (depending on the presence or absence of a manhole of the Beneficiary);

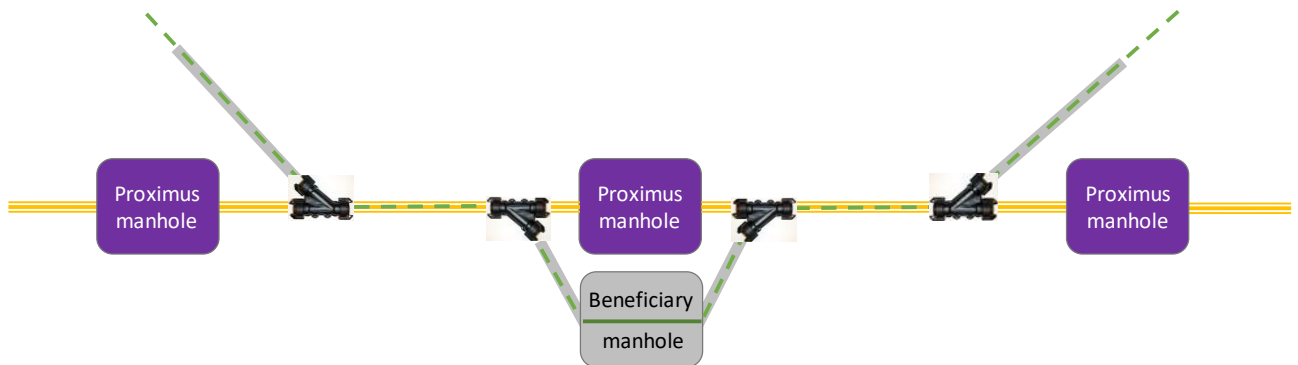


Figure 16a : Bypass of Proximus manhole with Beneficiary manhole
(alternative solution)



Figure 17b : Bypass of Proximus manhole without Beneficiary manhole
(alternative solution)

3.4 Introduction to the P2P End-User site

69) The introduction to the P2P End-User site service is only available for the P2P End-User sites for which the Beneficiary uses the Proximus P2P Fiber subduct access service (Section 3.1).

3.4.1 Access to an introduction subduct

70) In case an introduction subduct to the P2P End-User site is available, the Beneficiary is allowed access for rents to an introduction subduct.

71) In order to interconnect the available introduction subduct with the subduct the Beneficiary uses, Proximus:

- either opens an existing Y-branch (paragraph 39) or,

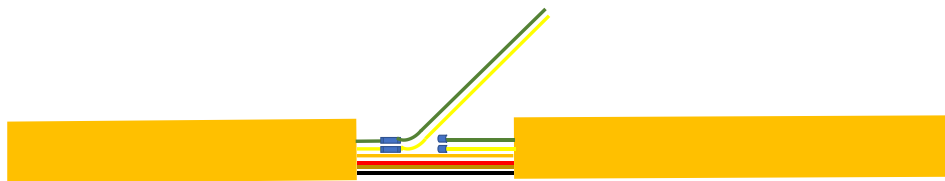


Figure 18: Opened Y-branch with second subduct branched-off

- installs an interconnection in the Proximus manhole (paragraph Error! Reference source not found).

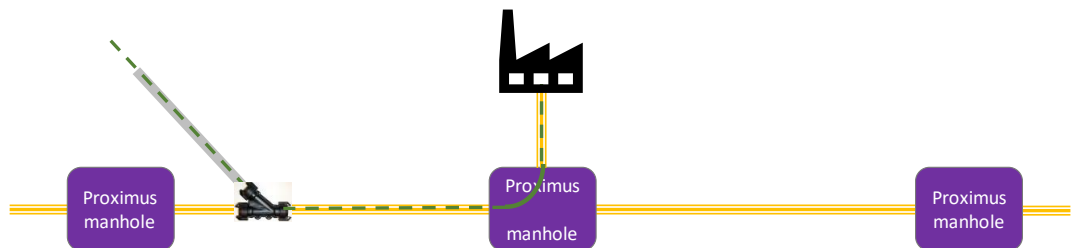


Figure 19: Interconnection of subduct and introduction subduct rented by the Beneficiary in the Proximus manhole

72) The specific implementation depends on the availability of underground infrastructure of Proximus at the location. Proximus determines the specific implementation in the Request For Design phase.

3.4.2 Interconnection with the introduction subduct of the Beneficiary

73) In case no introduction subduct to the P2P End-User site is available and in case the Beneficiary installed an introduction subduct, the Beneficiary uses the lead-in service component (Section 3.2) in order to interconnect the Proximus P2P Fiber subduct that the Beneficiary uses to its own introduction subduct infrastructure.

3.4.3 Access to an introduction fiber cable

74) Access to an introduction fiber cable is only applicable in case the accesses under the sections 3.4.1 and 3.4.2 are not possible and in case the P2P End-User site is physically connected by an introduction fiber cable with the Proximus P2P fiber network. Proximus decides, on its sole discretion, on the (im)possibility of the accesses under the sections 3.4.1 and 3.4.2.

- 75) In case a Proximus introduction fiber cable is available and not used the Beneficiary is allowed to access for rents to an introduction fiber cable.
- 76) In case no Proximus introduction fiber cable is available the Beneficiary is allowed to access for rents the introduction fiber cable that Proximus uses for bringing services to the P2P End-User site after that these services have been terminated in consultation with and after approval of the P2P End-User.
- 77) The service is described in Appendix 1: Access to introduction fiber cable.

4. Technical specifications

- 78) The Beneficiary is obliged to adhere to the technical specifications, described in Annex B “Technical Specifications”.

5. General principles for ordering and provisioning

5.1 Introduction

- 79) In response to reasonable requests Proximus shall deliver access to the Proximus P2P Fiber underground infrastructure of Section 3 Technical Implementation of the Service according to the Beneficiary's orders submitted to Proximus in accordance with the rules set out in this Reference Offer.
- 80) The documentation of the Proximus network elements is spread over different documentation systems. To create a technical design for a new Proximus installation, Proximus must bring together information from these two systems to form a complete picture of the available network elements. Moreover, a visit to the site is often needed to investigate the situation in reality. As such no large-scale studies for access to Proximus (introduction) subducts are possible.
- 81) Ordering of access to a Proximus P2P Fiber subduct, an introduction duct and an introduction fiber and corresponding lead-ins to a Proximus P2P Fiber subduct and splicing is to be done in 1 ordering cycle.
- 82) Any extra lead-ins to be added afterwards in an (introduction) subduct already used by the Beneficiary is to be done in a separate ordering cycle, to allow verification as to feasibility of such lead-ins.
- 83) A Beneficiary can enquire in advance the locations and roll-out plans of substantial upcoming underground infrastructure at the occasion of the Proximus communication of its planned construction works for substantial new network infrastructure through the existing regional coordination platforms (GIPOD, OSIRIS, or Powalco).

- 84) In practice, through these platforms, the Beneficiary can obtain transparent information on substantial planned infrastructure deployment typically between two to four months prior to actual deployment.
- 85) Proximus makes Available Subducts access available after an initial period of [one (1)] year after the ending of the civil works for the deployment of these (sub)ducts.

5.2 Available Subducts - Engineering rules on reserved subducts for Proximus

- 86) In the below processes on Presence & Availability Request under 5.3.3 and Request for Design under 5.4, Proximus will respond indicating the (as regards 5.3.3 - preliminary) information on the presence and location of Available Subducts, as evaluated at the time of the request based on the criteria below.
- 87) An Available Subduct is defined as a subduct that is not in use and is not anticipated for use, either based on fiber network design or needed for legitimately expected and reasonably possible future needs of Proximus (as predictable at the time of the assessment), as assessed by Proximus on the basis of the at that time applicable engineering rules on reserved subducts for Proximus.
- 88) Along the same Track, different cables with different types of traffic for different networks run in parallel to different network nodes. It is therefore not possible to predict at all times for what the network or parts of it will be used in the future. At this stage, the availability rules are based on today's knowledge. Proximus will conduct this assessment on the basis of the at that time applicable engineering availability rules on reserved subducts for Proximus.
- 89) Proximus applies the following engineering availability rules on reserved subducts, based on today's knowledge:
- a. per Proximus SRV: two (2) sub-ducts will be reserved by Proximus, including any other entity of the Proximus group;
 - b. for Proximus HDPE type of subducts, on each Track :
 - i. three (3) subducts per Track + one (1) subduct per duct will be reserved by Proximus including any other entity of the Proximus group;
 - ii. in addition, in the below particular cases that may, where relevant be applicable in a cumulative manner, the following number of additional subducts need to remain reserved:
 - first, depending on the foreseen planning, design or construction of FTTx networks within a sufficiently large contiguous geographical area (local copper network of that area):
 - a. where the FTTx deployment in a sufficiently large contiguous geographical area is confirmed for rollout and for part of that area already deployed or designed (but design has not yet started for close-by other parts of a given area): two (2) additional subducts will be reserved for further FTTx network deployment by Proximus including any other entity of its group;

- b. where the FTTx deployment in a sufficiently large contiguous geographical area is confirmed for rollout but design has not started yet for any part of that area: four (4) additional subducts will be reserved for further FTTx network deployment by Proximus including any other entity of its group;
 - c. where, typically in rural areas, the FTTx deployment in a sufficiently large contiguous geographical area is not confirmed for rollout at the moment of the access request: as in such zone, there is no information available at this stage on whether and how a new access network would be rolled out, a case-by-case analysis will be conducted to assess the number of subducts which will need to be reserved for further FTTx network deployments by Proximus including any other entity of its group;
- second, in specific geographic areas with a high concentration of Proximus network infrastructure, and where extension is difficult (such as crossings of e.g. railways/waterways or close to an aggregation point (airport, data center, LEX ...)): four (4) additional subducts will be reserved. This is due to the fact that it is not possible to deploy a communications network at any place and in under any conditions given in particular the presence of natural barriers in the landscape (such as rivers, ports, harbours, high ways, rail ways, etc.)...

5.3 Pre-provisioning

5.3.1 NDA

- 90) The sharing by Proximus of some types of information (e.g. the addresses of Proximus buildings) is subject to the prior signing of a Non-Disclosure Agreement by the requesting Party.
- 91) Information obtained in the provisioning process can only be used for specific related underground P2P Fiber subduct access.

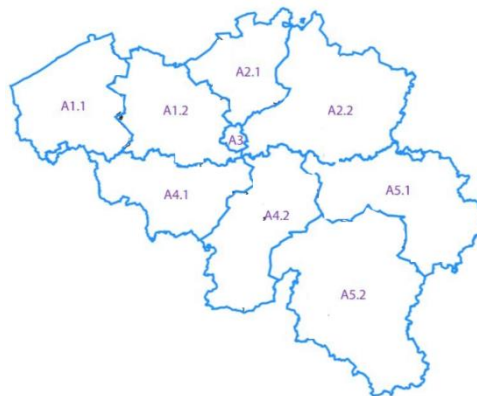
5.3.2 Obligatory testing of fibre cables used in Proximus subducts

- 92) Before the Beneficiary can start ordering access to Proximus subduct infrastructure, he is obliged to have the cable types he wishes to blow into the Proximus subducts tested by Proximus. The procedure for testing a new cable type is described in Annex B “Technical Specifications”.
- 93) The Beneficiary is obliged to have every new cable type he wishes to use inside the Proximus subducts tested.
- 94) Without proof of having performed the necessary tests, the Beneficiary will not receive access to the Proximus Subduct infrastructure.

5.3.3 Presence & Availability Request

- 95) Proximus applies the following manual request process for access to Available Subducts.
- 96) Submission by the Beneficiary of a Presence & Availability Request (in excel format, completed with a QGIS format) specifying the geographic NIS9 area for which preliminary information on the presence and location of available Proximus physical underground fiber subducts or under the conditions set out above Empty Unused HDPE Ducts and related manholes is requested.

- 97) Response by Proximus (in QGIS format) to the Presence & Availability Request, specifying the preliminary information of type, number and location of the Available Subducts in ducts already equipped and related manholes within the whole requested NIS9 area. Proximus will additionally provide preliminary information that is available to it on the existence and location of an at the time of the request Empty Unused HDPE Duct that could be equipped with subducts, as determined in accordance with Chapter 3.1 above, as well as of manholes. Proximus will provide its response within a maximum period of ten (10) Working Days after the submission of a request.
- 98) If no subducts are available for use by a Beneficiary in the particular P2P Fiber duct ordered by the Beneficiary, the P2P Fiber subducts access request issued by the Beneficiary with respect to the Entry and Exit Point concerned will be discarded, since the provisioning of access to these P2P Fiber subducts cannot be performed. Proximus will inform the Beneficiary of the reasons for non-availability in case of negative result of the Presence Request.
- 99) If no introduction subduct is available for use by the Beneficiary in the particular P2P Fiber introduction duct ordered by the Beneficiary, Proximus will inform the Beneficiary of the reasons for non-availability and will propose that the Beneficiary installs an introduction subduct (Section 3.4.2).
- 100) If no introduction subduct is available for use by the Beneficiary in the particular P2P Fiber introduction duct ordered by the Beneficiary and if it is not possible for the Beneficiary to install an introduction subduct, as described in Section 3.4.2, Proximus will investigate the availability of an introduction fiber cable and will inform the Beneficiary on it (Section 3.4.3).
- 101) For planning purposes in the manual process, Proximus commits to handle a minimum of fifty (50) Presence & Availability Requests (irrespective of the Beneficiary(ies) that introduced such Requests) per period of ten (10) Working Days, and per specified Proximus network sub-area (Proximus network organisation being based on five network areas which are each split in two network sub-areas (except the Brussels network area)), as follows:



- 102) Upon request from the Beneficiary or access seeker, Proximus can provide a GeoPackage (shapefile) containing the Proximus network sub-area to which the relevant NIS9 areas have been mapped for organisational purposes.
- 103) If in the manual process Proximus is unable to process Presence & Availability Requests in excess of 50 per period of ten (10) Working Days, it shall inform the Monitoring Trustee and submit for approval a plan to address the excess requests in question within a reasonable period, including by undertaking reasonable additional investments and/or committing reasonable additional resources to that end.
- 104) After the above-referenced manual request process, the current section 5.3.3. will be replaced by the automated process, as follows:

- Proximus provides access to Beneficiaries to an IT Application providing preliminary geographical information on the presence and location of available Proximus physical underground fiber subducts and manholes and, under the above-mentioned terms in Chapter 3.1, the presence and location of at the time of the request Empty Unused HDPE Ducts that can be equipped with subducts, following the terms as stipulated above, after which the information on Available Subducts and, under the above-mentioned terms in Chapter 3.1, at the time of the request Empty Unused HDPE Duct infrastructure, will be integrated in Proximus' response to the Request for Design, under section 5.4.
 - The IT Application will be available via the Customer's Proximus Wholesale portal and will provide per requested NIS-9 a QGIS file that will graphically display a map with
 - the location and number of subducts potentially available for renting, specifying the type of subducts
 - the location of manholes
 - Empty Unused HDPE Duct(s) (if any are present) in case no subduct are available.
 - The preliminary information on the presence and location of available Proximus physical underground fiber subducts or, under the conditions set out above Empty Unused HDPE Ducts provided through the IT Application will be based on the application of a first set of engineering and availability rules that can reasonably be automated and on the documentation available at the relevant time in the Proximus data sources at hand, and kept up-to-date without Proximus being able to warrant that this information will reflect in a fully accurate manner the actual conditions in the field.
 - If no information is available in the IT Application, the Beneficiary remains entitled to seek verification by Proximus of the availability of subducts by means of a common Site/Infrastructure Field survey at location by Proximus in presence of the Beneficiary, subject to the payment of a one-time fee covering this activity (see the Site/Infrastructure Field survey under "Ordering") payable by the Beneficiary in the event the IT Application rightfully provided no information.
 - Access to the IT Application will be granted subject to (i) the provision of reasonable guarantees necessary for ensuring and protecting data security and confidentiality (in particular, in relation to business-sensitive data), and (ii) where relevant, to measures related to national security regarding network infrastructure, subject to the approval of the Monitoring Trustee.
 - The QGIS file provided by the IT Application will provide the same level of information as the QGIS file provided by the manual process.
 - The requests entered in the IT Application will be processed during the night and the output will be available the next day.
- 105) Once the IT Application is available, the manual request process will stop existing. However, an individual request process will continue to be made available by Proximus for manual treatment of ad hoc requests by a Beneficiary (up to nationally 20 Presence & Availability Requests per month per Beneficiary). Such individual ad hoc request will be handled within five (5) Working Days. Multiple and larger, substantial requests shall only be handled through the automated IT Application, and Proximus therefore will no longer accept multiple (larger scale) requests through a manual process once the IT Application is available.
- 106) Proximus publishes templates for the Presence & Availability Request, the Request for Design and the Order for Subduct Rental on its website during the manual process. At the time of IT Application, Proximus integrates templates for the Request for Design and the Order for Subduct Rental in the IT Application.

5.4 Request For Design

107) If the required subducts or Empty Unused HDPE Duct are documented as present and preliminary available in the response by Proximus to the Presence & Availability Request or in the IT Application, Proximus applies the following request process in order to assess their actual availability:

- Based on the above preliminary information of Empty Unused HDPE Duct and/or Available Subducts under 5.3.3, submission by the Beneficiary of a Request For Design, specifying the concrete details of subducts to which access is requested (number of subducts and location) and/or Empty Unused HDPE Duct which are asked to be equipped for a Subduct Access Construction Area size up to:
 - 10.000 square meters within high dense areas (statbel reference);
 - 30.000 square meters within other areas.
- Response by Proximus to the Request For Design within a maximum period of ten (10) Working Days after the submission of a request:
 - Positive response: Proximus submits a concrete design proposal which remains valid for at least one (1) month; or
 - Negative response: Proximus provides a substantiated explanation to the Beneficiary. Proximus will report on a regular basis the cases where a negative response to a Request for Design occurs to the Monitoring Trustee and include in its reporting the reason for the negative response. This reporting will be included in a dedicated section of the quarterly reporting.
- The response to the Request for design will indicate inter alia, the following information:
 - Confirmation of the availability of the requested subducts
 - The full Monthly Rental Charge of the requested subduct path
 - The full Installation Cost of the requested subduct path
 - An estimation of the lead time, needed by Proximus to realistically perform the necessary network adaptations after ordering Empty Unused HDPE Duct segments that can possibly be equipped with subducts, based on the available documentation (i.e. on the state, type or age of the duct in potential paper archive documentation),
 - the relevant one-time fees of the PROSA offer for the site survey and for testing the state of the Empty Unused HDPE Duct will be indicated separately.

108) For planning purposes, Proximus commits to handle a minimum of fifty (50) Requests for Design per period of ten (10) Working Days (irrespective of the Beneficiary(ies) that introduce such requests).

109) If Proximus is unable to process Requests for Design in excess of 50 per period of ten (10) Working Days, it shall inform the Monitoring Trustee and submit for approval a plan to address the excess requests in question within a reasonable period, including by undertaking reasonable additional investments and/or committing reasonable additional resources to that end.

110)

111) If the Beneficiary is interested to rent, in addition to part of Proximus underground P2P Fiber subduct infrastructure, an introduction subduct of Proximus to the P2P End-User site, he will add to the Request for Design to Proximus the geographical position of the P2P End-User site.

5.5 Ordering

- 112) The Beneficiary may place an order to rent the required subduct(s) following the Presence Request and the Request for Design, provided that the requested subduct(s) and/or the introduction subduct or fiber cable at the specified locations are available, and the Beneficiary agrees with the response to the Request for Design.
- 113) The order is placed by returning a signed copy of the Request for Design via email. By signing the Request for Design, the Beneficiary confirms its acceptance of the terms and conditions outlined in the document.

5.6 Infrastructure Survey

- 114) In order to verify the current state of the requested (introduction) subduct or duct, Proximus will perform an Infrastructure Survey for each (introduction) subduct that is ordered by the Beneficiary and for each at the time of the request Empty Unused HPDE Duct for which the Beneficiary requested Proximus to equip it with subducts. In the latter case, a specific Infrastructure Survey will not be performed for subducts that have just been blown in such Empty Unused HDPE Duct.
- 115) During the Infrastructure Survey, Proximus will visually inspect the (introduction) subducts or duct in the Proximus manhole. Furthermore, Proximus will test the quality of the (introduction) subducts or duct through two tests: a pressure test and a calibration test.
- 116) In the exceptional case that at least one end of the requested (introduction) subduct or duct is not accessible (called non-Accessible Subducts), the Infrastructure Survey will be limited to a visual inspection. The pressure test and calibration test can only be performed during construction in the Subduct Quality Test, as described in paragraph 123).
- 117) If during the Infrastructure Survey the quality of the (introduction) subduct is deemed insufficient by Proximus, the access to the Proximus (introduction) subduct is not granted. Proximus will not be obliged to offer an alternative solution, unless the Beneficiary requests and pays a repair of the subduct, following the pricing as set out in Annex 3).
- 118) If during the Infrastructure Survey the quality of the relevant duct is deemed insufficient by Proximus, the blowing of additional subducts will not take place. Proximus will not be obliged to offer an alternative solution, unless the Beneficiary requests and pays a repair of the duct (following the pricing as set out in Annex 3), in order to allow the blowing to still take place.

5.7 Provisioning

- 119) The Beneficiary is to act as lead synergy operator following the normal coordination processes between utility and telco companies.
- 120) The Beneficiary is in charge of obtaining all authorizations including those for the punctual openings to be made by Proximus to create the Entry and Exit Points.
- 121) The Beneficiary is in charge of the trenching works necessary to reach the Proximus infrastructure.
- 122) The Beneficiary is not allowed to manipulate, open, or in any way change the Proximus infrastructure.
- 123) Before connecting the Beneficiary subduct, Proximus will perform a final Subduct Quality Test on the Proximus subduct. This Subduct Quality test is performed after the lead-in position has been made accessible, but before the Beneficiary subduct is connected. The Beneficiary subduct is not part of the Subduct Quality Test. The Subduct Quality Test consists of two tests: a pressure test and a calibration test.
- 124) If during the Subduct Quality Test the quality of the (introduction) subduct is deemed insufficient by Proximus, the access to the Proximus (introduction) subduct is not granted. Proximus will not be obliged to offer an alternative solution.
- 125) Additional fees will be billed in case the Beneficiary requests lead to Discontinuous Work(s) (2 or more subduct portions) within the same Subduct Access Construction Area of 10.000 or 30.000m².
- 126) Once the Proximus HDPE duct is accessible, Proximus will install the lead-in element by:
1. Making a window cut in the HDPE duct
 2. Verifying whether the ordered (introduction) subduct is indeed empty
 3. Cutting the ordered (introduction) subduct
 4. Performing the Subduct Quality Test
 5. Connecting the Beneficiary subduct to the Proximus (introduction) subduct using a subduct connector
 6. Closing the HDPE duct using a Y-branch
- 127) Once Proximus has finished the connection works described above, the Beneficiary can blow its own fiber cable through subduct routes created by combining its own segments and rented segments. In doing so, the Beneficiary must respect technical guidelines to avoid damage to the Proximus subduct.
- 128) If the Beneficiary fiber cable gets stuck in the Proximus subduct during the fiber blowing works of the Beneficiary, the Beneficiary must request an unblocking by Proximus. In no circumstance is the Beneficiary allowed to open the Proximus P2P Fiber (introduction) subduct infrastructure, Y-branches, manholes, etc. itself to try and unblock the cable.
- 129) If an unblocking by Proximus turns out to be impossible due to e.g. a non-accessible subduct, the access to the Proximus (introduction) subduct is not granted. Proximus will not be obliged to offer an alternative solution.

5.8 Roles and responsibilities of the Parties

5.8.1 Proximus' roles and responsibilities

- 130) Proximus will couple the Beneficiary subduct to the Proximus subduct through the Y-branches, referenced in paragraph 31).
- 131) The installation of all Entry and Exit Points is to be done under Proximus supervision by a Proximus certified subcontractor.
- 132) Equipping an existing Empty Unused HPDE Duct with subducts is to be done by a Proximus certified subcontractor.

5.8.2 Beneficiary's roles and responsibilities

- 133) The Beneficiary must follow the Proximus technical specifications, ensure that all work carried out on Proximus network infrastructure is in accordance with Proximus engineering principles, good industry practice and laws and federal or regional regulations (i.a. in relation to safety, permits and public road interventions), avoid any interference with existing communications services whether belonging to Proximus or other customers.
- 134) The Beneficiary or the Beneficiary's subcontractors cannot carry out civil engineering interventions on Proximus infrastructure.
- 135) If the cable gets stuck in the Proximus segment during blowing, the Beneficiary must request an unblocking by Proximus. In no circumstance is the Beneficiary allowed to open the Proximus P2P Fiber (introduction) subduct infrastructure, Y-branches, manholes, etc. itself to try and unblock the cable.

6. Network Adjustments

136) If the Proximus network infrastructure is impacted by a planned work and needs to be removed, the Beneficiary's access to the (introduction) subduct ends automatically.

6.1 Roadworks

137) If Proximus is ordered to remove the HDPE duct due to a roadwork the Beneficiary's access to the (introduction) subduct and/or introduction fiber cable ends automatically.

138) In case of an access to (introduction) subduct and/or introduction fiber cable being stopped by a roadwork, the Beneficiary will need to redesign its network and can order new spare subducts from Proximus, if available.

139) Proximus has no obligation to design its modification to the roadwork to restore the Beneficiary's subduct. As is the case for Proximus, all costs caused by roadworks are to be taken by the Beneficiary.

7. Repair

- 140) When the Proximus HDPE duct or P2P Fiber (introduction) subduct is damaged, the Beneficiary needs to remove its fiber cable, at Proximus request, and afterwards re-blow it after Proximus has repaired the duct or (introduction) subduct.
- 141) In the absence of concrete response from the Beneficiary, Proximus can remove the fiber cable to make sure repair is not blocked. To ensure a rapid repair, Proximus expects a first response from the Beneficiary within 15 minutes. The Beneficiary is expected to remove the fiber cable from the Proximus subduct within 2 hours.
- 142) After repairing the Proximus subduct infrastructure, Proximus will inform the Beneficiary of the closure of the repair, after which the Beneficiary can blow a new fiber cable through the subducts.
- 143) All costs to remove, reinstall and restore service over the Beneficiary fiber cable are at the Beneficiary's expense.
- 144) The Beneficiary can try to recoup this cost from the Party at fault for the damage. Proximus takes no responsibility.

8. Removal of lead-in & repair to original state of subduct

- 145) When the access to the Proximus P2P Fiber (introduction) subduct is stopped, either by the Beneficiary or by Proximus (in the case of non-compliance to the Terms and Conditions), Proximus will remove the lead-ins and restore the Proximus (introduction) subducts to their original conditions.
- 146) In order to restore the (introduction) subduct to its original state, the Beneficiary will need to remove its own infrastructure from the Proximus (introduction) subduct. Proximus will communicate a timing by which this action should be taken. If the infrastructure is not removed by this time, Proximus reserves the right to remove the infrastructure itself, and, if necessary, cut it at the expense of the Beneficiary.
- 147) Where an (introduction) subduct cannot be restored in its original state and becomes unavailable for re-use the goodwill related to the asset will be borne by the Beneficiary.

9. SLA

148) Details on SLA will be worked out, following a first concrete reasonable access request.

149) In the meantime, the provisional SLA timers as set out hereunder are to be considered as “best effort” targets and will be subject to further review in a learning curve period of one (1) year. After this learning curve period, these SLAs will become binding:

Ref.	Activity	Description	SLA target
1.	Presence & Availability Request – NIS 9 prestudy	The requested preliminary information on the presence and location of Available Subducts will be made available by Proximus to the Beneficiary after a check of the different Proximus documentation systems.	Manual process: 95% within 10 Working Days Ad hoc requests once IT Application is operational: 95% within 5 Working Days
2.	Ordering & Provisioning – Request for Design	Proximus will respond to the Request For Design	95% within 10 Working Days
3.	Ordering & Provisioning – Infrastructure or site survey & completion to delivery date	Given the high variance in responding to the authorization requests between the Belgian authorities and the close link to the actual construction works, Proximus will communicate an estimated lead time in the answer on the Request For Design, by when, inter alia, the infrastructure or site survey will be carried out. Given Proximus will not be the pilot of the constructions works, this lead time should be seen as a guideline to when the works could be carried out at the earliest. The actual delivery date will be defined in collaboration between Proximus and the Beneficiary.	Respect of the agreed delivery date in 95% of the cases
4.	Repair	In the case of a subduct which has been damaged and needs to be repaired, Proximus will make the subduct available again for the Beneficiary.	95% within the next Working Day

9.1 Provisioning

- 150) The Proximus answer to the Presence & Availability Request, described above, is the result of a manual control of the different Proximus documentation systems. Proximus endeavors to make the requested information available within 10 Working Days.
- 151) The Proximus answer to the Request For Design, described in paragraph **Error! Reference source not found.**, is the result of different manual activities performed by several teams and combining multiple documentation systems. Proximus endeavors to respond to the Request For Design within 10 Working Days. The answer to the Request For Design will remain valid during 1 month.
- 152) The Proximus Infrastructure Survey, described in Section 5.6, requires Proximus to plan and dispatch this work to a Proximus certified contractor and to request the necessary authorizations. Given the high variance in responding to the authorization requests between the Belgian authorities, and the close link to the actual construction works, Proximus communicates an estimated lead time in the answer on the Request For Design, by when, inter alia, the Infrastructure Survey will be carried out. Given Proximus will not be the pilot of the constructions works, this lead time should be seen as a guideline to when the works could be carried out at the earliest. The actual provisioning date is defined in collaboration between Proximus and the Beneficiary.

9.2 Repair

- 153) In the case of a subduct which has been damaged and needs to be repaired, as described in section 7, Proximus will endeavour to make the subduct available again for the Beneficiary within the Next Working Day.

10. Pricing

155) General pricing principles and pricing structure for the Proximus Reference Offer for Subduct Access in P2P Fiber Underground Deployments is found in Annex C “Pricing”.

11. Evolution of the reference offer

156) As the technology, infrastructure design and operational choices are in constant evolution, Proximus is continuously in the process of adapting and upgrading its telecommunication infrastructure, as well as its engineering and operational rules.

157) Proximus reserves the right to change its engineering and operational rules and deployment architecture in particular to stay relevant in the market, which means that e.g. future evolutions may lead to different materials being used in underground deployments.

158) In such case, Proximus will adapt the Reference Offer if needed and inform the BIPT.

12. Appendix 1: Access to introduction fiber cable

- 159) The present appendix describes the process that will be applied in case the Beneficiary applies for access to a Proximus introduction fiber cable.
- 160) Access to an introduction fiber cable is only applicable in case the accesses under the sections 3.4.1 and 3.4.2 are not possible and in case the P2P End-User site is physically connected by an introduction fiber cable with the Proximus P2P fiber network. Proximus decides, on its sole discretion, on the (im)possibility of the accesses under the sections 3.4.1 and 3.4.2.

12.1 General Principles

- 161) In order to connect to a Proximus introduction fiber cable, the Beneficiary has to foresee a fiber cable and to connect it to the Proximus manhole in which the splice is made. For this the Beneficiary needs to install a manhole next to the Proximus manhole and to interconnect both via a duct. Figure depicts this technical situation.

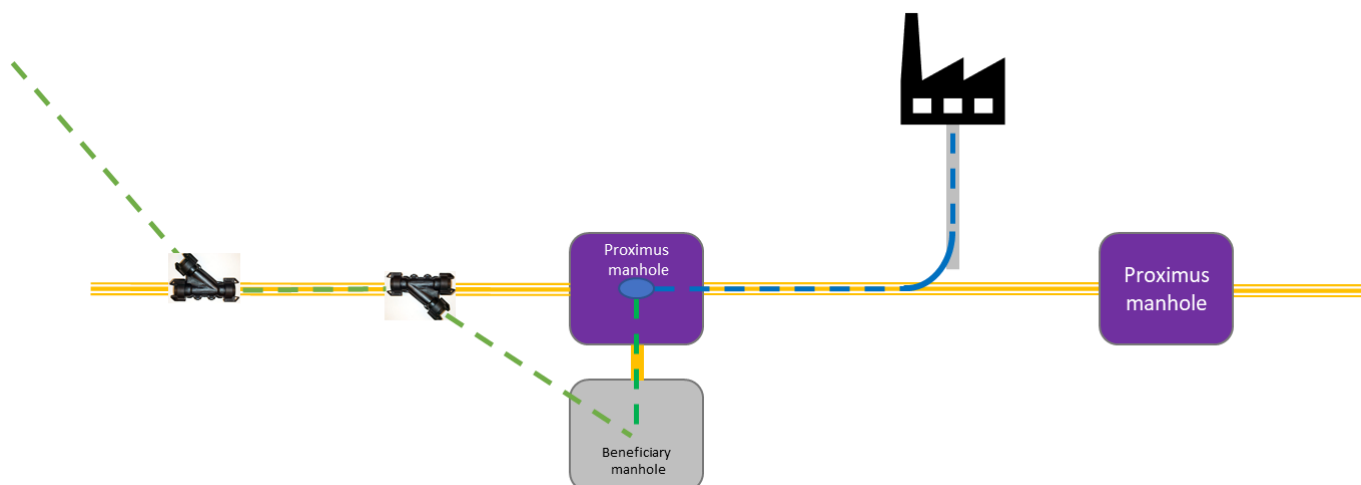


Figure 19: Schematic of access to a Proximus introduction fiber. Proximus splices the introduction fiber to the Beneficiary fiber in its own manhole. The Beneficiary fiber is introduced via an interconnection between the Proximus manhole and the Beneficiary manhole.

- 162) In case a Proximus introduction fiber cable is available and not used, the Beneficiary is allowed to access for rents an introduction fiber cable.
- 163) In case no introduction fiber cable is available, the Beneficiary is allowed to access for rents the introduction fiber cable that Proximus uses for bringing services to the P2P End-User site after that these services have been terminated in consultation with and after approval of the P2P End-User.
- 164) The interconnection of the introduction fiber cable with the Beneficiary's fiber cable is made in the manhole where originally the Proximus introduction fiber cable was connected with the Proximus fiber cable. That manhole is not necessary the closest manhole to the P2P End-User site.
- 165) The installation of the Beneficiary's fiber cable in the Proximus manhole must be done under the Beneficiary's responsibility by a Proximus certified contractor.

- 166) In case the Beneficiary wants to access to the Proximus introduction fiber cable via a Proximus manhole, he will include this in his request to Proximus for the Request For Design study. Proximus will give feedback to the Beneficiary about the technical feasibility of the request and the location of the Proximus manhole where the Beneficiary fiber cable can be connected to the Proximus introduction fiber cable.
- 167) In case of positive feedback of Proximus to the Request For Design, the Beneficiary will be able to engage the infrastructure works needed to install his own manhole next to (or as close as possible near) the Proximus manhole and the duct between the two manholes.
- 168) Once the Beneficiary infrastructure is ready, Proximus will be present for the introduction of the Beneficiary fiber cable in the Proximus manhole. The splicing of the Beneficiary fiber cable to the Proximus introduction fiber cable will be done by Proximus certified contractors.

12.2 Beneficiary responsibilities

- 169) The Beneficiary is to foresee a fiber cable of the right technical specifications for Proximus to connect to the introduction fiber cable. These technical specifications are described in Chapter 4.
- 170) The Beneficiary is to install a manhole next to the indicated Proximus manhole and to install a duct to interconnect both manholes.

12.3 Proximus responsibilities

- 171) Once the Beneficiary has carried out his infrastructure works, Proximus will be responsible for:
- The introduction of the Beneficiary fiber cable in the Proximus manhole.
 - The introduction of the Beneficiary fiber cable in the Proximus splice closure.
 - The splicing of the fiber cables.

Proximus responsibilities regarding to fiber cable introduction, closure and splicing will be carried out by Proximus certified contractors.

12.4 Processes

- 172) The **ordering and provisioning** process for an introduction fiber cable follows the provisioning process for subducts, described in Chapter 5 General principles for ordering and provisioning.
- 173) The **repair process** for introduction fibers is described below:
- 174) In case the Beneficiary detects an outage on its fiber service, the Beneficiary is expected to perform the necessary measures to determine the location of the fault.
- 175) If the fault is determined to be either in the Proximus manhole or the Proximus introduction fiber cable, the Beneficiary can contact Proximus to repair the introduction fiber cable or splice in the Proximus manhole.