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Ofcom Duct and Pole Access

DPA Solution
System Requirements Specification

26 April 2017

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1 Introduction

1.1 Background

In February 2016, Ofcom published their Strategic Review of Digital Communications setting out their approach to regulating communications markets for the next decade.[1]

One of the key proposals in Ofcom's Strategic Review was a major strategic shift to encourage investment in new ultrafast networks, particularly using fibre-to-the-premises (FTTP) technology, as an alternative to the predominately copper-based technologies currently planned by BT. Ofcom explained that one of the ways it would seek to deliver this was by making it easier for competing providers to build their own fibre networks by providing them with improved access to Openreach's duct and pole infrastructure (duct and pole access 'DPA').

Ofcom has taken forward the commitments made in the Strategic Review by publishing two consultations relating to developing an effective Physical Infrastructure Access (PIA) remedy.[2] [3]

Ofcom envisages that to effectively implement its policy a set of systems development are required, or are likely to be required. Although Ofcom does not specify the technical detail of those systems developments, it has identified a set of outcomes that it considers are needed to ensure an effective PIA remedy.

1.2 Purpose of document

Mott MacDonald has been commissioned by Ofcom, to develop a hypothetical systems specification that could be used as a basis of delivering the broad outcomes identified by Ofcom and inform the development of its proposals.

At a high level the system specification is aimed at fulfilling two requirements:

- Access to data - Allowing telecoms providers access to Openreach's network records information to effectively plan their own network deployments using PIA; and
- Exchange of data – Allowing for an exchange of information between telecoms providers and Openreach so that a telecoms provider can progress an order for PIA.

As part of our work, we were asked to provide an estimate of the costs and timescales needed to develop the systems specification.

While preparing this specification, Mott MacDonald has consulted with Ofcom, Openreach and a small selection of Communication Providers (CPs) and their partners to understand:

[1] Making communications work for everyone, Initial conclusions from the Strategic Review of Digital Communications, 25 February 2016, Ofcom. https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/digital-comms-review/conclusions-strategic-review-digital-Communications

[2] PIA ('Physical Infrastructure Access'). The PIA remedy is the regulatory obligation under which BT is required to provide DPA.

[3] Wholesale Local Access Market Review, Initial proposals to develop an effective PIA remedy, 6 December 2016, Ofcom. https://www.ofcom.org.uk/consultations-and-statements/category-2/wholesale-local-access-market-review-proposals-PIA

Wholesale Local Access Market Review, Consultation on Duct and Pole Access remedies, 20 April 2017, Ofcom. https://www.ofcom.org.uk/consultations-and-statements/category-2/duct-pole-access-remedies

- End user requirements.
- Ofcom's requirements.
- Openreach's existing systems and processes, and their planned developments.

This document, the 'Software Requirements Specification', specifies the requirements for the 'DPA Solution' to meet the needs of CPs using Openreach's PIA product with ambitions to deploy networks on a large scale. It sets out:

- The overarching processes envisaged that will govern the DPA Solution;
- The use cases from which the solution can be developed (i.e. functional requirements);
- The non-functional requirements such as the performance and security standards that the DPA Solution must meet;
- The suggested testing strategy for implementation;
- An order of magnitude estimate of the costs of the system development;
- An estimate of the timescale needed to develop the DPA Solution;
- Illustrative data structures;
- A glossary of terms used.

The Specification can be used as the basis for Openreach to take forwards its own assessment of its current systems and any potential systems developments that it may need to make in light of Ofcom's proposals.

1.3 Scope of product

The DPA Solution provides an interactive, online web portal that will support the following processes and functions:

1. **Access to data**

   The solution will enable CPs to view and export information about duct and pole assets. The information will include data on the assets, such as type, capacity status and relevant attributes as well as geographical information.

2. **Exchange of Information**

   The solution will enable CPs and Openreach to exchange information (using online forms and geographical information) regarding: Expressions of Interest, Surveys (to the extent that these are required), orders for Works[4] and/or Deployments.

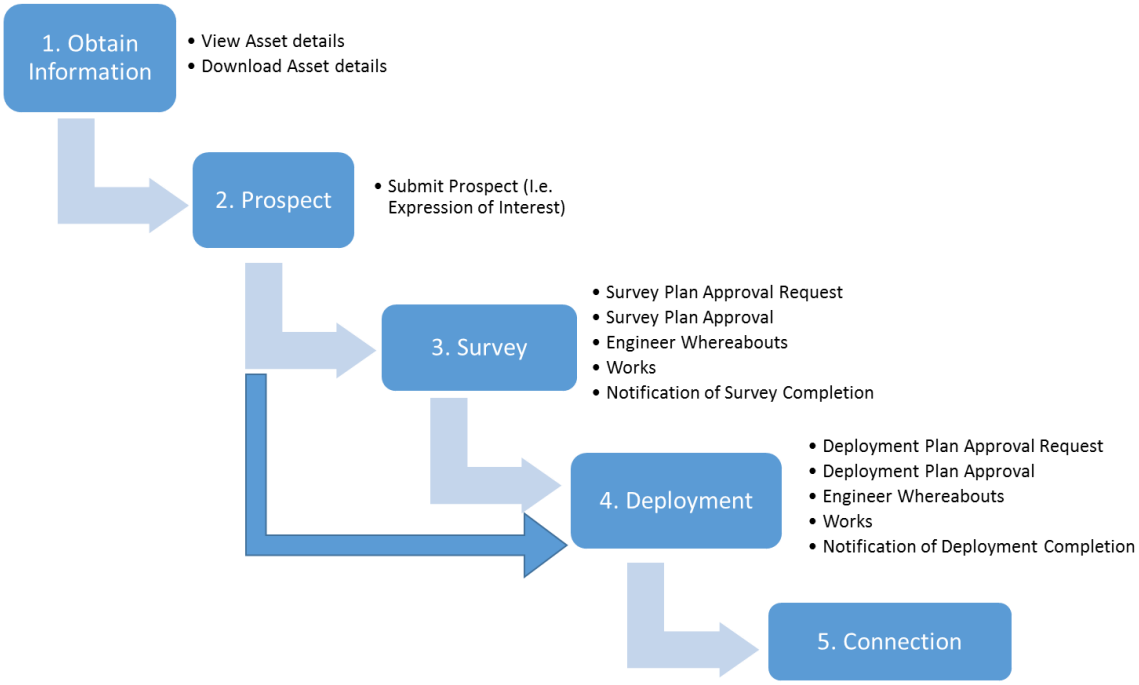
The DPA Solution is not intended to alter or deal with the underlying rules of the PIA product as set out in Openreach's PIA Product Schedules (for example, the solution does not consider pricing or safety requirements); rather, the DPA Solution provides a systems specification for accessing and exchanging data and information relevant to using PIA. Where appropriate, "use cases" employ existing Openreach data attribute requirements to assess and approve or reject a request to survey and deployment, i.e. new data attributes have not been designed.[5]

The high level areas that the solution encompasses are illustrated in the diagram below:

[4] Works relate to requests for adjustments to Openreach's infrastructure e.g. additional capacity requests (build works) or clearing of blockages (enabling works).

[5] Openreach's PIA Reference Offer documentation and spreadsheets have been used where appropriate.

Figure 1



Prior to January 2017, CPs were required to undertake a prescribed survey of Openreach's infrastructure (including submitting the findings from that survey to Openreach) prior to ordering and then deploying their networks using PIA.

In January 2017, Openreach introduced a change to the process for using PIA that allowed CPs to order PIA and then survey and deploy their own networks as part of a single activity.

Ofcom's view is that a CP intending to use PIA on a large scale is likely to choose to undertake a survey prior to ordering PIA and deploying their network. Therefore, while there is no requirement to submit information to Openreach as part of that survey, our systems specification allows for the CP to undertake a survey prior to ordering PIA.

The key elements of each stage in the DPA solution are described below.

1. Obtain Information

- CP is able to access and download information about duct and pole assets using a geographical information system (GIS).
- CP is able to use mapping and GIS in the DPA Solution to view information.
- CP is able to download information into their own GIS systems.

2. Prospect (Expression of Interest)

- CP selects assets that they are prospectively interested in.
- Data concerning those assets is auto-populated in web forms and create a 'Prospect'.
- A Prospect becomes the overarching record tracking a specific CP intention through the following stages.

3. Survey

- CP is able to request approval to survey duct and pole routes and assets.
- CP is able to provide updates on their engineers' whereabouts during survey.
- CP is able to notify Openreach of completed survey.
- CP is able to submit Works Orders to be assessed alongside the Deployment Plan, i.e. such orders are not assessed by Openreach during the Survey stage.

As outlined earlier, the extent of a survey is determined by the CP's own requirements. The CP can choose not to survey (represented by the dark blue arrow in Figure 1) though, and move directly to the Deployment stage.

4. Deployment

- CP submits a deployment plan (i.e. request to use Openreach's duct and pole infrastructure).
- CP is able to exchange information with Openreach regarding requests for Works Orders to infrastructure (for example, enabling works to clear duct blockages that are identified during deployment of a network by the CP).
- CP is able to provide updates on its engineers' whereabouts during deployment of its own network.
- If the CP wishes to, or has, deviated from the approved Deployment plan, the CP is able to notify Openreach by means of an updated Deployment plan approval request.
- CP submits notification of Deployment completion to close the Deployment stage.

At this stage the CP will be placing a firm order for PIA.

(Note: The DPA Solution does not deal with the mechanisms for billing or associated contractual information flows).

5. Connection

- CP informs Openreach that their network is live. i.e. the CP is now utilising the new deployment to provide services to their customers.

Assumptions:

The DPA Solution will enable CPs to save search areas, routes, and assets (against a Prospect Number) in order to easily manage asset data through the lifecycle of stages 1-5 described above.

The DPA Solution assumes that CPs are already accredited by Openreach's regime, and thus have sufficient authority to be given user access and that CP engineers have been accredited to work on Openreach infrastructure, i.e. the solution will not manage engineer accreditation.

The DPA Solution does not support the functionality for Openreach's billing processes. It is assumed that the information confirmed at the end of the deployment process about CPs access will feed into Openreach's billing processes.

It is assumed that the processes to manage operational issues for live connections (for example faults) will be managed through Openreach's existing processes and systems rather than through the DPA Solution.

For supporting processes, such as the provisioning of Works, the solution will support the flow of information about works between CPs and Openreach rather than directly facilitate Openreach's activities and processes[6]. For example, if a CP required Openreach to install additional capacity, the solution would enable the CP to request the works and for Openreach to provide workflow status updates to the CP. The solution will not, for example, facilitate the management of Openreach's engineer scheduling or management of road closures.

The DPA Solution does not make any assumptions about whether Openreach will approve a CPs deployment plan. The DPA Solution is intended to provide the functionality for the exchange of information between the CP and Openreach relating to the request (or requests) from the CP and Openreach's response.

1.4 Document set

System (and software) development is comprised of a number of stages to assure the suitability of the end product. These stages include:

1. Requirements gathering and specification production;
2. Software design and development; and
3. Testing.

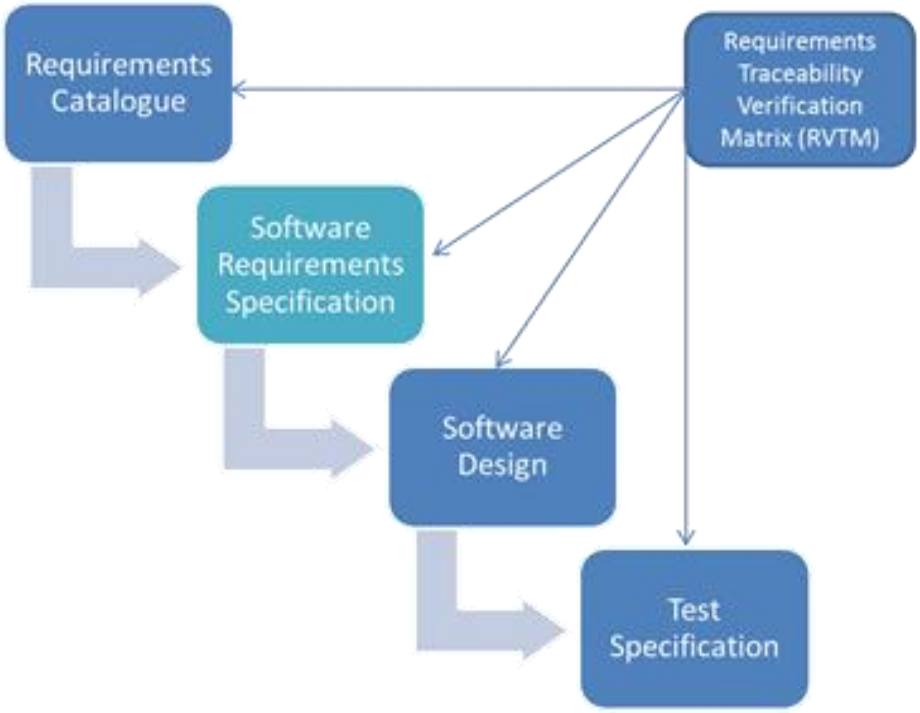
At each stage, documentation is typically produced to capture the outputs.

This Software Requirements Specification is the output of the requirements gathering work, and can be used by developers to design the required software. As part of the software design and development it would be expected that further documentation would be produced by the developers to set out their design. Finally, a test specification would be used so that the end product can be assured and accepted by users and any authorising body. It is best practice to link requirements, design and testing work together with a Requirements Verification Traceability Matrix (RVTM).

The diagram below illustrates how it is envisaged that this final suite of documents will relate to each other.

[6] We do not give any views in this report relating to how Openreach might respond to requests for PIA (including requests for Works). The DPA solution is intended to allow for the functionality for the exchange of information between CPs and Openreach only.

Figure 2


Requirements Catalogue
Requirements Traceability Verification Matrix (RVTM)
Software Requirements Specification
Software Design
Test Specification

2 Product description

2.1 Design principles

There are a number of principles underpinning the design of the DPA Solution that are intended to enable the DPA Solution to meet user and proposed regulatory requirements. They also take account of current and legacy Openreach systems and infrastructure.

Existing systems: Openreach's PiPeR system holds data about Openreach's network assets, including duct and pole infrastructure. It is expected that the DPA Solution will mirror the sub-set of data from PiPeR that is relevant to using PIA only. As such, the DPA Solution is not intended to recreate data held in PiPeR. It is assumed that Openreach will update data held in PiPeR as a result of information received through the DPA Solution.

It is not envisaged that CPs will interact or access PiPeR directly.

This document does not specify the systems architecture required to implement the necessary functionality. However, the document has been produced in the knowledge that Openreach have existing web-based GIS tools available through Geohub/ Infrastructure Discovery, which are undergoing development. Where possible, this specification document is cognisant of the existing systems and developments.

Scalability: The DPA Solution is aimed at facilitating large scale deployment of fibre networks. Accordingly, the DPA Solution needs to allow for scale use in terms of processing volumes of data. It will also need to host concurrent users. For example, it is envisaged that CPs will need to be able to view and download duct and pole asset data for areas varying in size up to a maximum area of 10 square kilometres.[7]

Mobile working: The DPA Solution should support both desk-based and mobile working. For example, engineers out in the field should be able to report their whereabouts and interactively provide survey results (to the extent needed).

Workflows: The DPA Solution will enable users to view and update workflows, and should make it easy to retrieve saved searches and re-use data across different parts of the overall process.

All transactions made in the DPA Solution should be timestamped. Timestamped transactions will allow Service Level Agreements (SLA) and Service Level Guarantees (SLG) to be monitored either interactively or retrospectively through audit reports. The DPA Solution should also facilitate the recording of SLA/SLG clock stops in relation to legitimate delays of certain tasks. This will support the implementation of SLAs and SLGs to the extent that these are required.

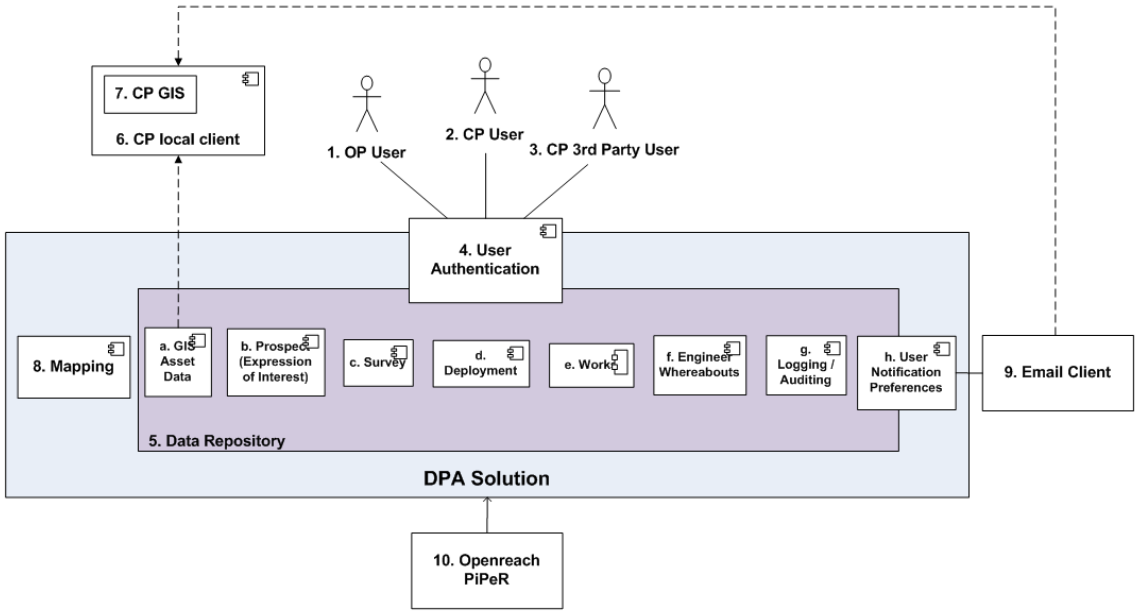
Flexibility: Where possible, the DPA Solution should be made flexible so that authorised users can change the configuration of its modules. For example, Openreach users may need to change product descriptions or add more product items.

[7] We note that in Ofcom's Consultation on Duct and Pole Access remedies, published on 20 April 2017, it indicates that telecoms providers should have access to information to allow them to plan networks in geographic areas of a scale broadly similar to an Optical Local Exchange area.

2.2 System environment

The diagram below shows how the DPA Solution is expected to interface with other Openreach and CP systems.

Figure 3



Each entity in the diagram is defined as follows:

1. Openreach (OP) User - responsible for site governance, site maintenance and approving CP User requests.
2. CP User – Communications Provider User; key client of the DPA Solution.
3. CP 3rd Party User – Communications Provider third party user; using DPA Solution on behalf of a CP to obtain information or enter requests.
4. User Authentication (system) – Platform for granting permissions to access data.
5. Data repository, comprising:
   a. GIS Asset Data
   b. Prospect (Expression of Interest)
   c. Survey
   d. Deployment
   e. Works
   f. Engineer Whereabouts
   g. Logging/ Auditing - Platform for listing user interaction with the DPA Solution
   h. User Notification Preferences.
6. CP Local Client - Platforms used by Communication Provider Users.
7. CP GIS - Geographical Information System used by Communication Provider Users.
8. Mapping (system) – Platform for contextualising geographical data.
9. Email Client (system) - Platform for exchanging electronic mail.

10. Openreach PiPeR; Openreach system that holds information about duct and pole assets, and from which the DPA Solution mirrors a sub-set of data.

2.3 User Roles

CP users will either be accessing Openreach data, or will be completing information which will then be presented to an Openreach user for assessment. Therefore, different user roles will be required for Openreach and CPs. It is acknowledged that CPs may use third parties to carry out works related to deploying networks, and that these organisations may also require access to the DPA Solution. Within each of these user organisations, there is also a requirement for different user types, so that access to the DPA Solution can be managed and controlled. The following table sets out the user and access types.

Table 1: User Types

Organisation	User Type	Access Type
Openreach	System admin. user	Read Write System configuration User set up
Openreach	Approval	Read Write
Openreach	Read-only	Read
CP	Read/ Write	Read Write
CP	Read-only	Read
CP Third party access	Read/ Write	Read Write
CP Third party access	Read-only	Read

3 Requirements specification

3.1 External interface requirements

This section provides the requirements relating to external interfaces.

API (Inter-organisational systems interaction)

The DPA Solution shall be accessible and updateable by CPs' (or accredited third party organisations') own systems via a suite of 'RESTful' API functions[8], subject to that system first being granted access by Openreach.

The 'Equivalent API Function' column of Table 2 identifies the use cases for which an equivalent API function shall be provided that enables a CP's (or an accredited third party organisation's) system to interact with the DPA Solution.

Email Client

The DPA Solution shall be designed to operate with industry standard email exchange clients.

Print / Save / Email – local client

The DPA Solution shall be designed to operate with the user's local print, save and email services. This includes files that are exportable in Open Geospatial Consortium (OGC) compliant file formats (for example, GML).

Browser & mobile web service compatibility

The DPA Solution shall be designed to be compatible with the CP user's current web browser and mobile web application services.

Synchronization mechanisms

Continuous synchronisation between the DPA Solution and PiPeR has not been specified because of the significant performance requirement for achieving this.

Instead, the DPA Solution shall synchronise with Openreach's PiPeR system every 24 hours. This means that the information accessed by CPs about duct and pole assets can be up to 24 hours out of date. Potentially, a CP User could access information about an asset and be mis-informed about, for example, the available capacity of the duct or pole being queried. However, the potential problem resulting from two CPs surveying, and deploying networks in the same location at the same time is mitigated by the approvals required by Openreach at each stage of activity.

3.2 Functional requirements

The DPA Solution will be designed to provide the functionality described in the use cases listed in this section.

[8] "Representational state transfer (REST) or RESTful Web services are one way of providing interoperability between computer systems on the Internet. REST-compliant Web services allow requesting systems to access and manipulate textual representations of Web resources using a uniform and predefined set of stateless operations." https://en.wikipedia.org/wiki/Representational_state_transfer

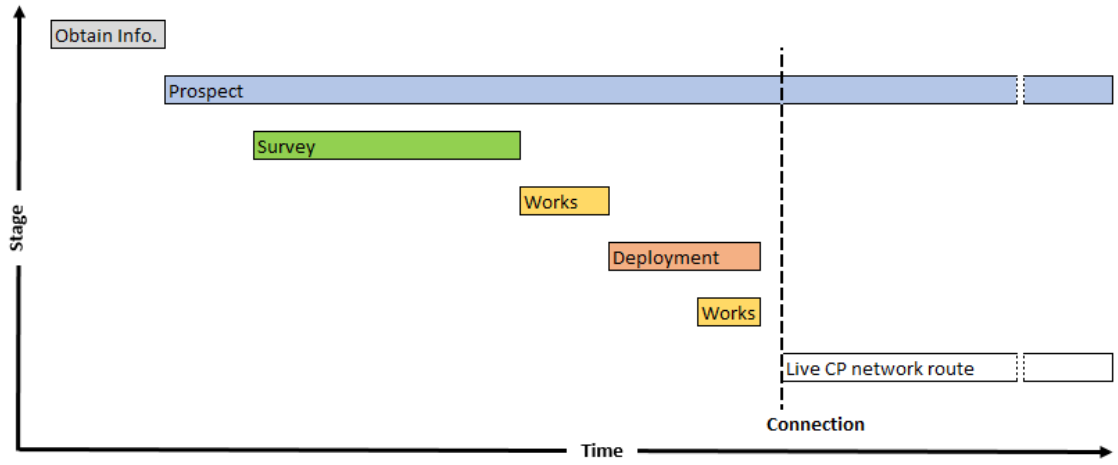
Except for the User Access, User Administration and Reporting use cases, each of the identified use cases fits into a category based on the stage of the DPA process described earlier (with the addition of Works) – Obtain Information; Prospect; Survey; Works; Deployment, Connection.

However, the order that these stages occur in is not necessarily linear.

For example, Figure 4 shows a flow that may arise in the following scenario:

- The CP uses the DPA Solution to Obtain Information about the Duct and Pole infrastructure assets within a geographical area of interest for a specific CP intention.
- Having reviewed the Duct and Pole infrastructure asset information, the CP raises a Prospect. A Prospect expresses the CP's interest in a number of selected Assets (Prospect Assets). The Prospect becomes an overarching record to track progress of the specific CP intention.
- The CP carries out an optional Survey and identifies a need for build Works (e.g. to increase the capacity of a duct section).
- The CP orders Works to increase the capacity and Openreach carries out the build work ordered (the DPA Solution allows for the option for the CP to carry out the works).
- The DPA Solution manages the interdependencies between deployment plans and related Works to ensure work isn't carried out relating to a deployment plan that is subsequently rejected, or conversely, to ensure that a deployment plan isn't accepted and related Works subsequently rejected.
- The CP commences its Deployment but discovers the need for enabling Works (e.g. a blockage due to a collapsed duct section).
- The CP orders Works to repair and clear the duct section and Openreach carries out the work ordered (again, the DPA Solution allows for the option for the CP to carry out the works). Meanwhile the CP continues its Deployment.
- The CP's new network route is completed and is made live.

Figure 4

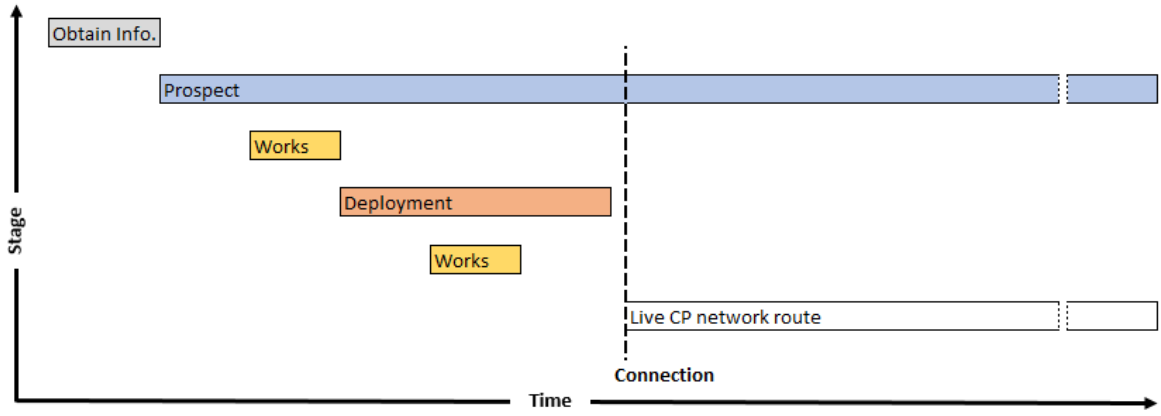


Whereas, Figure 5 shows a flow that may arise in the following scenario:

- The CP uses the DPA Solution to Obtain Information.
- Having reviewed the Duct and Pole infrastructure asset information, the CP raises a Prospect.

- The CP chooses to not carry out a Survey, but based on the information obtained via the DPA Solution either the CP or Openreach identifies that some build Works are required (e.g. to increase the capacity of a duct section).
- The CP or Openreach orders Works to increase the capacity and Openreach carries out the build work ordered (the DPA Solution allows for the option for the CP to carry out the works).
- The CP commences its Deployment (it may be possible for the CP to commence Deployment on other assets before the aforementioned build Works are complete).
- Whilst carrying out these activities the CP identifies a need for enabling Works (e.g. a blockage due to a collapsed duct section).
- The CP orders Works to repair and clear the duct section and Openreach carries out the work ordered (again, the DPA Solution allows for the option for the CP to carry out the works). Meanwhile the CP continues its Deployment.
- The CP's new network route is completed and is made live.

Figure 5



Use Cases

Table 2 provides a list of the use cases that are described in this section.

CP prefix denotes Communications Provider User.

OP prefix denotes Openreach User.

Table 2: Use Case list

Use Case ID	Category	Use Case Name	Equivalent API Function	Description
CP_UC001	Obtain Information	CP User Select Location and View Asset Data	No	CP User searches for location and selects layers with asset information.
CP_UC002	Obtain Information	CP User Downloads Location and Asset Data	Yes	CP User downloads Open Geospatial Consortium (OGC) compliant data file based on location and asset search.

Use Case ID	Category	Use Case Name	Equivalent API Function	Description
CP_UC003	Prospect	CP User Submits Prospect	Yes	CP User expresses interest in assets and routes and submits to allow the commencement of subsequent stages.
CP_UC004	Prospect	CP User Cancels a Prospect	Yes	i.e. cancel a Prospect at any point through process. It is assumed that cessations and recovery of equipment etc. post connection are dealt with outside of the DPA Solution.
CP_UC005	Prospect	CP User Reviews Global View of Prospects	Yes	CP user can at any time view the status of their Prospects. CP user can view updates to Works Requests.
CP_UC006	Survey	CP User Creates Survey Plan Approval Request	Yes	CP User creates Survey plan based on Prospect submission. CP User informs OP of survey dates, contact, engineer details etc.
CP_UC007	Survey	CP User Cancels a Survey	Yes	i.e. cancel a Survey at any point through process, providing the Survey to be cancelled is not already complete.
OP_UC001	Survey	OP User Assesses Survey Plan	No (OP User use case)	OP User assesses Survey plan and provides notification to CP of approval or rejection.
CP_UC008	Survey	CP Re-submits Survey Plan Approval Request	Yes	If any assets are rejected, CP User resubmits plans, which triggers re-approval.
CP_UC009	Survey & Deployment	CP Submits Daily Whereabouts	Yes	CP User informs OP of engineer whereabouts.
CP_UC010	Survey	CP User Submits Notification of Survey Completion	Yes	CP User has completed survey and submits detailed results on an asset by asset basis. OP are notified.
CP_UC011	Works	CP User Creates a Works Order	Yes	CP User requires any form of Works (e.g. providing additional capacity, providing additional kit, clearing of faults and blockages, removing redundant cables, etc.) and requests work from OP. Use case can be utilised at any point in Survey or Deployment stages.

Use Case ID	Category	Use Case Name	Equivalent API Function	Description
OP_UC002	Works	OP User Creates Works Order	No	If the OP User identifies the need for build or enabling works in relation to a CP Prospect, this use case facilitates the creation of the necessary Works Order.
CP_UC012	Works	CP User Cancels a Works Order	Yes	i.e. cancel a Works Order at any point prior to the agreed start date.
OP_UC003	Works	OP User Cancels a Works Order	No	i.e. cancel a Works Order at any point prior to the agreed start date.
OP_UC004	Works	OP User Assesses Works Order	No (OP User use case)	OP User assesses Works Order and rejects or approves. Notification is sent to CP.
CP_UC013	Works	CP User Re-submits Works Order	Yes	CP User needs to re-submit Works Order. Triggers re-approval.
OP_UC005	Works	OP User Updates Works Order.	No (OP User use case)	OP User updates the Works Order with scheduling information, etc.
CP_UC014	Works	CP User Updates Works Order.	Yes	CP User updates the Works Order with scheduling information, etc. For use when the CP is carrying out the work.
CP_UC015	Deployment	CP User Creates Deployment Plan Approval Request Based on Survey Results	Yes	CP User creates deployment plan based on survey results. CP User informs OP of dates, engineer details etc.
CP_UC016	Deployment	CP User Cancels a Deployment	Yes	i.e. cancel a Deployment at any point through process providing the Deployment to be cancelled is not already complete.
OP_UC006	Deployment	OP User Assesses Deployment Plan	No (OP User use case)	OP User assesses deployment plan and provides notification to CP of approval or rejection.
OP_UC007	Deployment	OP User Creates a Deployment Plan Proposal based on a Rejected Deployment Plan Approval Request	No (OP User use case)	To avoid a CP having multiple Deployment plan approval requests rejected by Openreach for the same Prospect, the DPA Solution provides a means by which an OP User can propose to the CP an alternative Deployment plan based on a rejected

Use Case ID	Category	Use Case Name	Equivalent API Function	Description
				Deployment plan approval request.
CP_UC017	Deployment	CP User Submits a Deployment Plan proposed by Openreach	Yes	CP User reviews the deployment plan being proposed by Openreach and either submits it without amendment (in which case it is automatically approved) or makes amendments and then submits.
CP_UC018	Deployment	CP User Re-Submits a Deployment Plan Approval Request	Yes	If any assets are rejected, CP User resubmits plans, which triggers re-approval.
CP_UC019	Deployment	CP User Submits Notification of Deployment Completion	Yes	CP has completed deployment and submits final route and installation details on an asset by asset basis. CP User informs Openreach whether deployment was as per deployment plan. If not, the CP User completes a replacement deployment plan.
CP_UC020	Connection	CP User Submits Confirmation of Network Connection.	Yes	CP User informs Openreach that their network assets are live.
CP_UC021	User and System Administration	CP User Access	No (authentication part of each API call from a CP system)	Site authentication
OP_UC008	User and System Administration	OP User Access	No	Site authentication
OP_UC009	User and System Administration	OP Admin User Amends System Configuration	No (OP User use case)	OP system admin user can change the configuration of some site settings. For example, service level parameters or product details.
OP_UC010	User and System Administration	OP Admin User Registers New User	No (OP User use case)	OP User can register a new user who is sent a system generated email and web link.
CP_UC022	User and System Administration	CP User Edits Own User Preferences	No	Users can configure their notification preferences.
OP_UC011	User and System Administration	OP User Edits Own User Preferences	No	Users can configure their notification preferences.

Use Case ID	Category	Use Case Name	Equivalent API Function	Description
CP_UC023	User and System Administration	CP User Submits Request	No	OP System Administrator receives help query and user details.
OP_UC012	User and System Administration	OP Admin User Obtains Audit Report	No (OP User use case)	OP Users can access reporting on usage and service levels.

Obtain Information

3.2.1 CP_UC001: Obtain Information: CP User Selects Location and Views Asset Data

Use Case	Obtain Information: CP User Select Location and View Asset Data
XRef	CP_UC001
Trigger	CP User navigates to *Mapping and Asset Data* page
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User is presented with a map of the UK. 2. CP User searches the map by selecting an area and zooming in/ out, or enters either: a. Unique Property Reference Number (UPRN) b. Postal Address c. Postcode d. NAD e. Grid Reference 3. CP User is presented with street map presentation of selected area. DPA Solution sets on-screen map extent to show results. 4. CP User can scroll/ navigate/ move around the map. 5. CP User can zoom in and out of the map. 6. CP User can turn layers on and off showing: • **Duct Sections:** ○ Duct Section vector with option to label with *Duct Section ID* (Span) ○ Option to label with *Length* ○ Option to label with *Bore Count* ○ Capacity RAG status for the Duct Section based on the *Available Capacity RAG* of the Duct Section asset. ○ Option to label with length of the Duct Section with an indication of whether the length provided is as calculated based on the vector length or on the *Measured Length* (as measured where available) ○ Hovering over or clicking a Duct Section provides further details in tabular format, as held in PiPeR and as captured via previously submitted CP Surveys. • **Bores:** ○ Bore vector with option to label with *Duct Section ID* (Span) ○ Option to label with Length of the individual Bores with an indication of whether the length provided is as calculated based on the vector length or on the *Measured Length* (as measured where available) ○ Hovering over or clicking a Bore provides further details in tabular format, as held in PiPeR and as captured via previously submitted CP Surveys. • **Chambers:** ○ *Chamber ID* (Structure) ○ Chamber types graphically differentiated ○ Hovering over or clicking a Chamber provides further details in tabular format, as held in PiPeR and as captured via previously submitted CP Surveys. ○ The DPA Solution also provides the user with a shortcut link to the information and photos gathered from the latest submitted Survey of the Chamber in question (anonymised and redacted as necessary).

Use Case	Obtain Information: CP User Select Location and View Asset Data

	• **Aerial Sections:**
	  ○ Aerial Section vector with an option to label with *Aerial Section ID* (Span)
	  ○ *Length* calculated based on the vector length
	  ○ Hovering over or clicking an Aerial Section provides further details in tabular format, as held in PiPeR and as captured via previously submitted CP Surveys.
	• **Poles:**
	  ○ *Pole ID* (Structure)
	  ○ *Pole Type* ("Light", "Medium" or "Stout") graphically differentiated
	  ○ Option to label for *Pole Height*
	  ○ Capacity RAG status based on the *Available Capacity RAG* of the Pole asset.
	  ○ Hovering over or clicking a Pole provides further details in tabular format, as held in PiPeR and as captured via previously submitted CP Surveys.
	• **Local Issues:**
	  ○ Shading on map to show areas impacted by a Local Issue
	  ○ Hovering over or clicking a shaded area will provide details of the Local Issue (start date, end date (or ongoing), textual description of the Local Issue focusing on the likely bearing on PIA activities.
	• **Openreach Planned Works:**
	  ○ Shading on map to show areas impacted by a Planned Works
	  ○ Hovering over or clicking a shaded area will provide details of the Planned Works (start date and time, end date and time, textual description of the Planned Works focusing on the likely bearing on PIA activities.
	
	7. Each layer that is selected is presented on the map.
	8. CP User clicks *[Save Search]*.
	9. CP User is presented with a dialogue box, that gives the Search a unique *Search ID* and asks the user for an optional Search *Nickname*.
	10. CP User clicks *[Save].*

Alternative Paths	
Postcondition	General: • The saved Search is available for the CP User to select and open in future sessions, identifiable by unique *Search ID* and/or *Nickname*. User Interface: • The DPA Solution returns to the *Mapping and Asset Data* page with the saved Search displayed. Database: • A Search data record has been created and is associated with the CP User. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	<CP User cancel>; <Asset data request over permitted limit>
Other	

3.2.2 CP_UC002: Obtain Information: CP User Downloads Location and Asset Data

Use Case	Obtain Information: CP User Downloads Location and Asset Data
XRef	CP_UC002
Trigger	CP User navigates to *Mapping and Asset Data* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User selects a previously saved Search using unique *Search ID* or *Nickname*, or 2. CP User searches map as per steps 1 to 7 of CP_UC001. 3. CP User clicks *[Generate Data]*.

Use Case	Obtain Information: CP User Downloads Location and Asset Data
	4. If step 2 was followed (i.e. a saved Search was not retrieved), the CP User is presented with a dialogue box, that gives a unique *Search ID* and asks the user for an optional Search *Nickname*. 5. CP User clicks *[Save].* 6. CP User is presented with a downloadable timestamped Open Geospatial Consortium (OGC) compliant data file capable of being loaded into an GIS system that shows Asset data as per the search area and layers selected. 7. CP User clicks *[Download]* and saves file to the user device.
Alternative Paths	
Postcondition	General: • The CP User has downloaded a timestamped Open Geospatial Consortium (OGC) compliant data file capable of being loaded into an GIS system that shows Asset data as per the search area and layers selected. User Interface: • The DPA Solution returns to the *Mapping and Asset Data* page with the saved Search displayed. Database: • If step 2 was followed, a Search data record has been created and is associated with the CP User. • A Download data record is created and associated with the Search. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	<CP User abandons download>; <Asset data request over permitted limit>.
Other	

Prospect

3.2.3 CP_UC003: Prospect: CP User Submits Prospect

Use Case	Prospect: CP User Submits Prospect
XRef	CP_UC003
Trigger	CP navigates the *Mapping and Asset Data* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User selects a previously saved Search using unique *Search ID* or *Nickname*, or 2. CP User searches map as per steps 1 to 7 of CP_UC001. 3. CP User selects Assets for which they would like to express interest by using the following selection functions: - Select all (Assets included in retrieved search) - Unselect all (Assets included in retrieved search) - Select individual Asset - Deselected individual Asset - Select the Assets within a lassoed area of the map - Deselect the Assets within a lassoed area of the map - Reset 4. CP User clicks *[Make Prospect]* 5. The DPA Solution presents the CP User with a Prospect Form. 6. CP User enters a *Prospect Nickname* for the Prospect. 7. CP User selects a *CP Contact* for the Prospect. 8. CP User selects *[Submit].* 9. CP User is provided with a *Prospect ID*.

Use Case	Prospect: CP User Submits Prospect
Alternative Paths	a) Save Prospect without submitting Once the on-screen form has been presented, the CP User can save the uncompleted, partially completed or completed form for later completion and submission. The *Prospect Status* is set to "Prospect Not Submitted" b) Resume a saved Prospect The DPA Solution will provide a means for a CP User to search for and a retrieve a saved Prospect Approval Request associated with the CP in question. Once retrieved, the DPA Solution will set the map extent to that saved, show as selected those Assets that were selected when the Prospect Approval Request was saved and present the uncompleted, partially completed or completed form and allow the CP User to continue as per the basic path from step 3 onwards as required or carry out any of the other alternative paths. c) Delete a Prospect Once the on-screen form has been presented, the DPA Solution will provide a means for the CP User to delete the unsubmitted Prospect. The DPA Solution must ask the CP User to confirm their wish to delete the Prospect. The *Prospect Status* will be set to "Prospect Not Submitted – Deleted" d) Download Printable Prospect Once the on-screen form has been presented, the CP User can download the uncompleted, partially completed or completed form and map in a printable format (e.g. PDF).
Postcondition	General: • The CP has expressed an interest in the selected assets via the DPA Solution and a new Prospect has been created in the DPA Solution which will allow both Openreach and the CP to track and manage the Prospect. User Interface: • The DPA Solution presents the *Prospect* page. • A confirmation email has been send to the CP User that submitted the Prospect. Database: • A Prospect data record is created. • *Prospect Status* set to "Expression of Interest". • Each Asset selected is associated with the Prospect via Prospect Duct Section, Prospect Chamber, Prospect Aerial Section, and Prospect Pole records. • The Prospect record has been associated with both the CP and the CP User that submitted the Prospect.
Exception Paths	User may abandon Prospect submission at any time.
Other	~

3.2.4 CP_UC004: Prospect: CP User Cancels a Prospect

Use Case	CP User Cancels a Prospect
XRef	CP_UC004
Trigger	CP User wishes to cancel a submitted Prospect
Precondition	• The DPA Solution is available for access. • User administration complete. • The Prospect to be cancelled has a status of either 'Expression of Interest', 'Surveying', 'Surveying and Deploying' or 'Deploying'.
Basic Path	1. The CP User navigates to the relevant submitted Prospect.

Use Case	CP User Cancels a Prospect
	2. The CP User clicks *[Cancel Prospect]*. 3. The DPA Solution must ask the CP User to confirm their wish to cancel the Prospect. This on-screen message must include the *Prospect ID* and *Prospect Nickname* if available. 4. The CP User selects *[Confirm]*.
Alternative Paths	The CP User can abandon the cancellation.
Postcondition	General: • The Prospect has been cancelled User Interface: • A confirmation email has been send to the CP, if configured. Database: • The Prospect data record *Prospect Status* is set to 'Cancelled'. • All associated Prospect Duct Section, Prospect Chamber, Prospect Aerial Section, Prospect Pole, Survey, Deployment, Works Order data records have their *Status* set to 'Cancelled' • The Prospect data record has been associated with: ○ the CP User that cancelled the Prospect. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	
Other	

3.2.5 CP_UC005: Prospect: CP User Reviews Global View of Prospects

Use Case	CP User Reviews Global View of Prospects
XRef	CP_UC005
Trigger	CP User wishes to review the status of the Prospects relating to their CP organisation or themselves as a CP User
Precondition	• The DPA Solution is available for access. • User administration complete.

Basic Path	The CP User is able to review Prospects relating to their CP organisation or themselves as a CP User via and map view or a tabular view.
	
	<u>Map view</u>
	
	1. The DPA Solution sets the map extent to show the whole of the UK.
	2. The map shows all Prospects related to the CP in question on the map graphically differentiated by *Prospect Status*.
	3. Filters are available to allow the CP User to refine the set of Prospects shown on the map by:
	  a. *Prospect Status*
	  b. CP User (Prospect *Created By*)
	  c. CP User (Prospect *CP Contact*)
	  d. *Prospect Nickname* (in full or contains…)
	  e. Etc.
	4. Hovering over a Prospect marker on the map provides further details regarding the Prospect.
	5. Clicking on the Prospect marker on the map opens the *Prospect* page so full details of the Prospect and related Surveys, Deployments, etc. can be viewed or worked on (depending on user permissions).
	
	<u>Tabular view</u>
	
	6. The DPA Solution provides a table of all Prospects related to the CP in question with columns for key details such as the *Prospect ID, Nic*kname, Survey Status, Deployment Status, etc.
	7. Filters are available to allow the CP User to refine the set of Prospects shown on the table by:

Use Case	CP User Reviews Global View of Prospects
	a. *Prospect Status* b. CP User (Prospect *Created By*) c. CP User (Prospect *CP Contact*) d. *Prospect Nickname* (in full or contains…) e. Etc. 8. Clicking on the *[View]* button/link on a row of the table opens the *Prospect* page so full details of the Prospect and related Surveys, Deployments, etc. can be viewed or worked on (depending on user permissions).
Alternative Paths	The CP User can abandon the Global View at any time.
Postcondition	None.
Exception Paths	
Other	

Survey

3.2.6 CP_UC006: Survey: CP User Creates Survey Plan Approval Request

Use Case	CP User Creates a Survey Plan Approval Request
XRef	CP_UC006
Trigger	CP User navigates to the *Surveys* tab of the *Prospect* page.
Precondition	• The DPA Solution is available for access. • User administration complete. • CP has submitted a Prospect applicable to the forthcoming Survey plan approval request.
Basic Path	1. CP User selects the previously saved Prospect that they wish to retrieve using the *Prospect ID* or *Prospect Nickname.* 2. The DPA Solution sets on-screen map extent to show the results of the Prospect with all the Assets included in the retrieved Prospect selected. 3. CP User reviews the selected Assets and if necessary reselects Assets they would like to survey by using the following selection functions: - Select all (Assets included in retrieved search) - Unselect all (Assets included in retrieved search) - Select individual Asset - Deselected individual Asset - Select the Assets within a lassoed area of the map - Deselect the Assets within a lassoed area of the map - Reset 4. Any Assets added that are not included in the saved Prospect will become Prospect Assets associated with the Prospect. 5. CP User clicks *[Survey Plan Approval Request]* button/link. 6. The DPA Solution presents a multiple tab on-screen form which will cover the entire lifecycle of this Prospect. The *Surveys* tab will be pre-selected and will provide a form akin to the Survey Details tab of Openreach's current Combined CRF spreadsheet. 7. CP User ticks the *[Survey Required for Diversionary Works]* tick-box if this survey is necessary to accommodate Diversionary Works. Otherwise the CP User leaves this tick-box unticked. 8. CP User selects a *Survey Critical Contact* to assign to the proposed survey from the CP's CP Users. (In the case of a Critical Defect being found Openreach will need to contact the assigned critical contact as a matter of urgency).

<table>
<tr><th>Use Case</th><th>CP User Creates a Survey Plan Approval Request</th></tr>
<tr><td></td><td>
9. CP User selects an Engineer to assign to the proposed survey from the CP's CP Users for whom Accredited Engineer = "True". The CP User repeats this step as required (minimum is 1 engineer). Note: Engineer accreditation is out of scope for this system requirements specification but it is assumed that accredited engineers will have been added to the DPA Solution.

10. CP User types or uses a calendar dialogue to select the Expected Survey Start Date. Validation will check that this is 15 clear days from today, or 5 clear days from today if any of the Assets to be surveyed require a Joint Survey.

11. CP User types or uses the calendar dialogue to select the Expected Survey End Date.

12. If necessary, the DPA Solution will have dynamically included a table (like that shown below) within the on-screen form listing Assets requiring a Joint Survey. Assets will be included if they are: an exchange manhole; in a sensitive area; or if consecutive poles have been selected therefore suggesting an intention to deploy an overhead route using aerial cables.

<table>
<tr><th>Chamber/ Pole ID</th><th>Reason</th><th>CP Engineer</th><th>Preferred Date/Time</th></tr>
<tr><td>Box123</td><td>Exchange man hole</td><td><pick list></td><td><calendar></td></tr>
<tr><td>Pole123</td><td>Overhead cable</td><td><pick list></td><td><calendar></td></tr>
<tr><td>Pole124</td><td>Overhead cable</td><td><pick list></td><td><calendar></td></tr>
<tr><td><pick list></td><td><free text></td><td><pick list></td><td><calendar></td></tr>
</table>
[+] Add row

13. If the Joint Survey table (above) has been presented, for each Asset identified by the DPA Solution as requiring a Joint Survey the CP User selects a CP User from a pick-list which includes those CP User selected as Engineers above, and enters a preferred date and time for the Joint Survey.

14. If the CP believes another Asset included in the Survey plan requires a Joint Survey, the CP User clicks the [Add row] button/link. The CP User can then select the Asset from a pick list; enter a reason; select a CP Engineer from a pick list; and input a preferred data/time. This step can be repeated for each Asset the CP believes requires a Joint Survey.

15. CP User clicks [Submit] button/link to generate and submit their Survey approval request based on the Assets they selected on the on-screen map and the additional information they inputted into the on-screen form.

16. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections.

17. If validation is successful, the DPA Solution provides an on-screen confirmation message including the Prospect ID and a Survey ID.
</td></tr>
<tr><td>Alternative Paths</td><td>
a) <u>Save Survey Plan Approval Request without submitting</u>
Once the on-screen form has been presented, the CP User can save the uncompleted, partially completed or completed form for later completion and submission.

b) <u>Resume a saved Survey Plan Approval Request</u>
The DPA Solution will provide a means for a CP User to search for and a retrieve a saved Survey plan approval request associated with the CP in question. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed form and allow the CP User to continue as per the basic path from step 5 onwards or carry out any of the other alternative paths.

c) <u>Delete a Survey Plan Approval Request</u>
Once the on-screen form has been presented, the DPA Solution will provide a means for the CP User to delete the Survey plan approval request. The DPA Solution must ask the CP User to confirm their wish to delete the Survey plan approval request.
</td></tr>
</table>

Use Case	CP User Creates a Survey Plan Approval Request
	d) Download Printable Survey Plan Approval Request Once the on-screen form has been presented, the CP User can download the uncompleted, partially completed or completed form and map in a printable format (e.g. PDF).
Postcondition	On completion of the Basic Path: General: • The CP User has submitted a Survey plan approval request ready to be assessed by an OP User. User Interface: • A confirmation email has been send to the CP User that submitted the request. • A notification email has been send to a OP User(s) if configured. • The CP User view of the DPA Solution will provide a means of viewing the submitted Survey plan approval request. • The OP User view of the DPA Solution will provide and means for OP Users to identify that a new Survey plan approval request has been submitted and needs to be assessed. Database: • A Survey data record has been created with the *Survey Status* set to "Survey Plan Submitted for Approval". • The Survey data record has been associated with: o the CP User that submitted the survey approval request o the CP User assigned as the Critical Contact • A CP Engineer Assignment data record has been created for each Engineer selected. • Each Prospect Asset included in the Survey plan has its *Asset Survey Plan Status* set to “Asset Survey Plan Submitted for Approval” • The CP inputted Joint Survey request information is saved against each Prospect Asset for which a Joint Survey is required. On completion of the alternative path – a) Save Survey Plan Approval Request without submitting: General: • The CP User has saved an un-submitted Survey plan approval request ready to be resumed later. User Interface: • The CP User view of the DPA Solution will provide a means of retrieving the un-submitted Survey plan approval request to allow the CP User to resume the inputting of information and submission. Database: • A Survey data record has been created with the Survey Status set to "Survey Plan Not Submitted". • The Survey data record has been associated with: o the CP User that saved the survey approval request • A Survey Item data record has been created, and associated with the Survey data record, for each Asset included within the request. • A Joint Survey data record has been created with a Status of ‘Saved’ for each Survey Asset for which a Joint Survey is required. • Other associations will be saved depending on the information entered by the CP User thus far. No validation will be performed for missing information.
Exception Paths	
Other	~

3.2.7 CP_UC007: Survey: CP User Cancels a Survey

Use Case	CP User Cancels a Survey
XRef	CP_UC007
Trigger	CP User wishes to cancel a submitted Survey
Precondition	• The DPA Solution is available for access. • User administration complete. • The Survey to be cancelled does not have the *Survey Status* of “Survey Complete” or “Survey Cancelled”
Basic Path	1. The CP User navigates to the relevant Survey. 2. The CP User clicks *[Cancel Survey]*. 3. The DPA Solution must ask the CP User to confirm their wish to cancel the Survey. This on-screen message must include the *Survey ID*, *Prospect ID* and *Prospect Nickname* if available. 4. The CP User selects *[Confirm]*.
Alternative Paths	The CP User can abandon the cancellation.
Postcondition	General: • The Survey has been cancelled User Interface: • A confirmation email has been send to the CP, if configured. Database: • The Survey data record *Survey Status* is set to ‘Cancelled’. • All associated Prospect Duct Section, Prospect Chamber, Prospect Aerial Section, Prospect Pole, Survey, Deployment, Works Order data records have their Survey *Status* set to ‘Cancelled’ • The Survey data record has been associated with: ○ the CP User that cancelled the Survey. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	
Other	

3.2.8 OP_UC001: Survey: OP User Assesses Survey Plan

Use Case	OP User Assesses Survey Plan
XRef	OP_UC001
Trigger	OP User navigates to the *Survey Plan Approval Requests* page which presents to the OP User a list of outstanding Survey plan approval requests prioritised based on Openreach defined criteria. It may be appropriate for a OP User to be able to search for outstanding Survey plan approval requests based on other criteria, such as Geographical location, CP, etc.
Precondition	• The DPA Solution is available for access. • User administration complete.

Basic Path	1. By one of the following methods, the OP User navigates to the *Survey Plan Approval Request* page, populated with the details of a Survey plan approval request:
	  a. Following a link provided within a system generated email alert regarding the Survey plan approval request.
	  b. Searching for outstanding Survey plan approval requests.

Use Case	OP User Assesses Survey Plan
	2. The OP User assesses the suitability of the CP's expected survey start and end dates based on Openreach defined criteria. Where the dates are not acceptable the OP User may input agreed survey start and end dates following dialogue with the CP (the dialogue required between Openreach and the CP to agree survey start and end dates may be external to the DPA Solution). 3. The OP User assesses the suitability of the CP surveying the Assets based on Openreach defined criteria. The OP User marks each Asset as approved or rejected. Where an Asset is rejected, the OP User must select an *Asset Survey Plan Rejection Reason Code* and provide an explanation within the *Asset Survey Plan Decision Reason Text* field. 4. For those Assets for which a Joint Survey is required, the OP User assigns an OP Attendee and inputs an appointment date/time, which may differ from the CP's preferred date/time (the dialogue required between Openreach and the CP to agree appointments may be external to the DPA Solution so a means to record notes is required). 5. OP User clicks *[Submit]* button/link to submit their Survey plan assessment. 6. The DPA Solution validates the OP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the OP User to make the corrections. 7. If validation is successful, the DPA Solution provides an on-screen confirmation message and If all the Assets were approved, the Survey record's *Survey Status* attribute is set to "Survey Plan Approved", otherwise it is set to "Survey Plan Rejected".
Alternative Paths	a) Save Survey Plan Assessment without submitting At any point is the process, the OP User can save the uncompleted, partially completed or completed assessment for later completion and submission. b) Resume a saved Survey Plan Assessment The DPA Solution will provide a means for a OP User to search for and a retrieve a saved Survey plan assessment. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed assessment and allow the OP User to continue as per the basic path or carry out any of the other alternative paths. c) Delete a Survey Plan Assessment At any point is the process, the DPA Solution will provide a means for the OP User to delete the Survey plan assessment. The DPA Solution must ask the OP User to confirm their wish to delete the Survey plan assessment. d) Insert an SLA Clock Event To facilitate the recording of legitimate delays in completing this task, the OP User can raise an SLA Clock Event record. If the OP User selects *[SLA Clock Stop]* an SLA Clock Event with *SLA Clock Event Type* = "Stop" will be created. The OP User will be prompted select an *SLA Clock Event Reason Code*. The OP User can also enter *SLA Clock Event Reason Text* and has the option to enter an *SLA Clock Auto Restart Time* if the SLA clock is required to restart automatically at a specified date and time. The DPA Solution provides a means for the OP User to restart an SLA clock. The OP User selects [SLA Clock Restart] against a specific SLA clock stop which creates a new SLA Clock Event with *SLA Clock Event Type* = "Restart" and *Related Stop* equal to the SLA Clock Event ID of the related clock stop event. This facilitates the applying of multiple, possibly overlapping, SLA clock stops.
Postcondition	<u>On completion of the Basic Path:</u> General: • The OP User's assessment of the Survey plan approval request has been recorded by the DPA Solution.

Use Case	OP User Assesses Survey Plan
	User Interface: • The CP Contact for the Prospect associated with the Survey plan approval request is sent an email notifying them of Openreach's approval or rejection. • The DPA Solution provides a means by which the CP User can review Openreach's assessment of the Survey plan. Database: • The Survey data record in question has had *Survey Status* set to "Survey Plan Approved" or "Survey Plan Rejected" as appropriate. • If the Survey plan is approved the *Prospect Status* is set to "Surveying". • The Survey data record has been associated with: o The OP User that submitted the Survey plan assessment • The following OP User inputted information is saved against the Survey data record: o Agreed Survey Start and End Dates (these may differ from the CP's Expected Survey Start and End Dates). o Notes. • The following OP User inputted information is saved against each Prospect Asset record o *Asset Survey Plan Status* o *Asset Survey Plan Rejection Reason Code* o *Asset Survey Plan Decision Reason Text* o Joint Survey OP Attendee (where a Survey Item has been approved AND a Joint Survey is required) o Joint Survey Agreed Time (where a Survey Item has been approved AND a Joint Survey is required) • A notification email has been send to the CP. Consider the automated sending of 'Outlook' meeting invites to CP Engineers and Openreach Attendees for each Joint Survey. <u>On completion of the alternative path – a) Save Survey Plan Assessment without submitting:</u> • The Survey data record has been associated with: o the OP User that saved the survey plan assessment • OP inputted information inputted thus far is saved against the Survey data record or Survey Prospect Asset data records as appropriate. • Other associations will be saved depending on the information entered by the OP User thus far. No validation will be performed for missing information.
Exception Paths	
Other	~

3.2.9 CP_UC008: Survey: CP User Re-Submits Survey Plan Approval Request

Use Case	CP User Re-Submits a Survey Plan Approval Request
XRef	CP_UC008
Trigger	CP receives email notification that Openreach has rejected their Survey plan approval request submission. CP navigates to *Survey* tab of the *Prospect* page or accesses Survey plan approval request from link in notification email.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. By one of the following methods, the CP User navigates to the *Survey Plan Approval Request* page, populated with the details of a rejected Survey plan approval request:

Use Case	CP User Re-Submits a Survey Plan Approval Request
	a. Following a link provided within a system generated email alert regarding the Survey plan approval request. b. Searching for rejected Survey plan approval requests. 2. The DPA Solution sets on-screen map extent to show results of the retrieved Survey plan with: a. All the Assets included in the retrieved Survey plan highlighted. b. The rejected Assets graphically differentiated. CP User can also view the Assets in tabular format, with Rejection reasons. 3. The CP User reviews each rejected Assets and selects alternatives and re-completes, where necessary, the required fields on the form as per step 6 onwards of CP_UC006. 4. CP User clicks *[Submit]* button/link to generate and re-submit their Survey plan approval request based on the Assets they selected on the on-screen map and the additional information they inputted into the on-screen form. 5. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections. 6. If validation is successful, the DPA Solution provides an on-screen confirmation message including a *Prospect ID* and *Survey ID*.
Alternative Paths	See CP_UC006 Alternative Paths
Postcondition	See CP_UC006 Postcondition
Exception Paths	
Other	~

3.2.10 CP_UC009: Survey & Deployment: CP User Submits Daily Whereabouts

Use Case	CP User Submits Daily Whereabouts
XRef	CP_UC009
Trigger	CP User navigates to the *Submit Daily Whereabouts* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	The CP User can submit an engineer's whereabouts in two ways: By Prospect 1. The DPA Solution presents the CP User with a table like that shown below. The first row(s) of the table are pre-populated by the DPA Solution with any booked Joint Surveys, but a free text column allows the CP User to add details of the activities their engineer plans to carry out at the location.

Prospect ID	Chamber ID / Pole ID	CP Engineer	Planned Activity	Joint Survey Time	Openreach Attendee
50349686	POLE123	N. Janner	Visual inspection to ascertain whether an aerial cable can be attached.	21/02/2017 11:00	O. Beatty

[+] Add row

2. The CP User can click the *[Add Row]* button/link to add an additional row to the table

<table>
<tr><th>Use Case</th><th>CP User Submits Daily Whereabouts</th></tr>
<tr><td></td><td>
<table>
<tr><th>Prospect ID</th><th>Chamber ID / Pole ID</th><th>CP Engineer</th><th>Planned Activity</th><th>Joint Survey Time</th><th>Openreach Attendee</th></tr>
<tr><td>50349686</td><td>POLE123</td><td>N. Janner</td><td>Visual inspection to ascertain whether an aerial cable can be attached.</td><td>21/02/2017 11:00</td><td>O. Beatty</td></tr>
<tr><td><pick list></td><td><pick list></td><td><pick list></td><td>Free text</td><td>n/a</td><td>n/a</td></tr>
</table>
[+] Add row

3. The CP User selects the appropriate Prospect ID from a pick list of all the Orders associated with the CP.

4. The CP User selects the appropriate Chamber ID or Pole ID from a pick list of all the Assets associated with the Prospect. (The DPA Solution should make it clear to the CP User that that a Prospect ID needs to be selected before the Chamber ID or Pole ID).

5. The CP User selects the appropriate CP Engineer from a pick list of all the Accredited Engineers associated with the Prospect.

6. The Planned Activity free text field allows the CP User to add details of the activities their engineer plans to carry out at the Chamber/Pole.

7. The CP User repeats steps 2 to 6 for each structure Asset their engineers will be surveying on the day in question.

8. The CP User clicks the [Submit] button/link to submit their daily whereabouts.

<u>By Location</u>
1. The CP User navigates to a saved search in a map of the area they are working in.

2. The CP User clicks on the engineer's location/ or the engineer selects their location using GPS on their mobile device.

3. CP User selects a Prospect ID.

4. CP User selects Engineer.

5. CP User selects time and date.

6. The CP User clicks the [Submit] button/link to submit their daily whereabouts.
</td></tr>
<tr><td>Alternative Paths</td><td></td></tr>
<tr><td>Postcondition</td><td>General:
• The Daily Whereabouts have been added to the DPA Solution for reference by OP and CP Users.

User Interface:
• The Daily Whereabouts page/report provides visibility of the CP reported Daily Whereabouts.

Database:
• A Daily Whereabouts data record is created for each row submitted and is associated with the Prospect, Asset, CP User (submitted by) and CP User (engineer).</td></tr>
<tr><td>Exception Paths</td><td></td></tr>
<tr><td>Other</td><td>~</td></tr>
<tr><td></td><td></td></tr>
</table>

3.2.11 CP_UC010: Survey: CP User Submits Notification of Survey Completion

Use Case	CP User Submits Notification of Survey Completion
XRef	CP_UC010
Trigger	CP navigates to the *Prospect* page and retrieves the Prospect in question
Precondition	The DPA Solution is available for access, User administration complete
Basic Path	1. Once the CP User has successfully retrieved the Prospect they want to progress the *Prospect* page will be displayed. 2. The CP User selects the *Survey* tab. 3. CP User clicks *[*Submit Notification of Survey Completion*]* button/link to submit their Notification of Survey Completion. 4. The DPA Solution sends a confirmation email to the CP if configured.
Alternative Paths	
Postcondition	On completion of the Basic Path: Database: • The Survey Status of the Survey is set to "Survey Complete". • The CP User who submitted the survey results is associated with the Survey data record and the date and time of the submission is recorded.
Exception Paths	
Other	~

Works

3.2.12 CP_UC011: Works: CP User Creates Works Order

Use Case	CP User Creates Works Order
XRef	CP_UC011
Trigger	CP User navigates to the *Works tab of the Prospect* Page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. Once the CP User has successfully retrieved the Prospect they want to request Works for, the *Prospect* page will be displayed. (Note, if the CP has more than one open Prospect requiring Works, a separate Works Order must be submitted for each Prospect). 2. The CP User selects the *Works* tab. 3. The DPA Solution presents the CP User with a table like that shown below which shows any existing Works Orders related to the Prospect. Any Asset for which the [Works Order required] tick-box was ticked during use case CP_UC015 (CP User Creates Deployment Plan Approval Request) will be included on the table with a *Works Order Status* of "Not Submitted" ready for completion by the CP User.

Asset	Product	Qty	Cost	Work to be Carried Out by CP	Evidence to Support Request for Works	CP Contact	Status	Decision Reason	Openreach Contact	Openreach Notes
BOX123	Cable recovery (heavy)	2	£640.00	[ ]	*<free text>*	<pick list>	Submitted			

Use Case	CP User Creates Works Order
	<table><tr><td></td><td>- per 100m</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>POLE 123</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Not Submitted</td><td></td><td></td><td></td></tr></table> [+] Add row 4. To raise a new Works Order related to the Prospect, the CP User clicks the *[Add row]* button/ link, which causes the DPA Solution to create a new empty row for the CP User to input the request details into. 5. The CP User selects an Asset from a pick list of all the Assets associated with the Prospect or by selecting the Asset via the map and adding to the Works list. 6. The CP User selects the required product/ service from a pick list. The pick list will only present products/ services applicable to the Asset type selected in step 5. 7. The CP User selects the quantity of the product/ service required. 8. The DPA Solution populates the Cost field based on the product/ service and quantity selected in steps 6 and 7. (Note that billing is out of scope for the DPA Solution). 9. If the CP is willing to carry out the work itself on the understanding that Openreach will reimburse the CP the cost of the work shown in the *Cost* column, the CP User ticks the *Work to be Carried Out by CP* tick box. 10. The CP User provides the necessary evidence to support the request for works. 11. The CP User selects a CP contact from a pick list. 12. Steps 4 to 10 can be repeated as required. 13. The CP User clicks the *[Submit]* button/link to submit their new Works Order(s).
Alternative Paths	It must also be possible to delete a new row from the table prior to submission. It must also be possible to cancel a previously submitted Work Order.
Postcondition	General: • The CP User has submitted a Works Order ready to be assessed by an OP User. User Interface: • The new Work Order(s) are associated with the Prospect, via the Prospect Assets in question, and therefore will appear on the *Works* tab of the *Prospect* page with a status of "Works Order Submitted". • A notification email has been send to the CP if configured. Database: • The new Work Order(s) are created with the Works Order Status = "Works Order Submitted" and associated with the Prospect Assets in question.
Exception Paths	
Other	~

3.2.13 OP_UC002: Works: OP User Creates Works Order

Use Case	OP User Creates Works Order
XRef	OP_UC002

<table>
<tr><th>Use Case</th><th>OP User Creates Works Order</th></tr>
<tr><td>Trigger</td><td>Openreach identify the need for build works or enabling works in relation to a CP's Prospect. (By raising a Work Orders against the Prospect, the CP is afforded visibility of the Works Order and its status.)

OP User navigates to the Works tab of the Prospect Page.</td></tr>
<tr><td>Precondition</td><td>• The DPA Solution is available for access.
• User administration complete.</td></tr>
<tr><td>Basic Path</td><td>1. Once the OP User has successfully retrieved the Prospect they want to raise a Works Order for, the Prospect page will be displayed.

2. The OP User selects the Works tab.

3. The DPA Solution presents the OP User with a table like that shown below which shows any existing Works Orders related to the Prospect. Any Asset for which the [Works Order required] tick-box was ticked during use case CP_UC015 (CP User Created Deployment Plan Approval Request) will be included on the table with a Works Order Status of "Not Submitted" ready for completion by the CP User.

<table>
<tr><th>Asset</th><th>Product</th><th>Qty</th><th>Cost</th><th>Work to be Carried Out by CP</th><th>Evidence to Support Request for Works</th><th>CP Contact</th><th>Status</th><th>Decision Reason</th><th>Openreach Contact</th><th>Openreach Notes</th></tr>
<tr><td>BOX123</td><td>Cable recovery (heavy) - per 100m</td><td>2</td><td>£640.00</td><td>[ ]</td><td><free text></td><td><pick list></td><td>Submitted</td><td></td><td></td><td></td></tr>
<tr><td>POLE 123</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Not Submitted</td><td></td><td></td><td></td></tr>
</table>
[+] Add row

4. To raise a new Works Order related to the Prospect, the OP User clicks the [Add row] button/ link, which causes the DPA Solution to create a new empty row for the OP User to input the request details into.

5. The OP User selects an Asset from a pick list of all the Assets associated with the Prospect or by selecting the Asset via the map and adding to the Works list.

6. The OP User selects the required product/ service from a pick list. The pick list will only present products/ services applicable to the Asset type selected in step 5.

7. The OP User selects the quantity of the product/ service required.

8. The DPA Solution populates the Cost field based on the product/ service and quantity selected in steps 6 and 7. (Note that billing is out of scope for the DPA Solution).

9. The OP User provides the necessary evidence to support the request for works.

10. The OP User selects a CP contact from a pick list.

11. Steps 4 to 10 can be repeated as required.

12. The OP User clicks the [Submit] button/link to submit their new Works Order(s).</td></tr>
<tr><td>Alternative Paths</td><td>It must also be possible to delete a new row from the table prior to submission.

It must also be possible to cancel a previously submitted Work Order.</td></tr>
<tr><td>Postcondition</td><td>General:
• The OP User has submitted a Works Order.</td></tr>
</table>

Use Case	OP User Creates Works Order
	User Interface: • The new Work Order(s) are associated with the Prospect, via the Prospect Assets in question, and therefore will appear on the *Works* tab of the *Prospect* page with a status of "Works Order Accepted". • A notification email has been send to the CP if configured. Database: • The new Work Order(s) are created with the Works Order Status = "Works Order Accepted" and associated with the Prospect Assets in question.
Exception Paths	
Other	~

3.2.14 CP_UC012: Works: CP User Cancels a Works Order

Use Case	CP User Cancels a Works Order
XRef	CP_UC012
Trigger	CP User wishes to cancel a submitted Works Order
Precondition	• The DPA Solution is available for access. • User administration complete. • The Works Order to be cancelled does not have a *Works Order Status* of 'Complete' and the *Works Start Date Time* < today. • The Works Order to be cancelled was raised by the CP.
Basic Path	1. The CP User navigates to the relevant submitted Works Order. 2. The CP User clicks *[Cancel Works Order]*. 3. The DPA Solution must ask the CP User to confirm their wish to cancel the Works Order. This on-screen message must include the *Works Order ID*, *Prospect ID* and *Prospect Nickname* if available. 4. The CP User selects *[Confirm]*.
Alternative Paths	The CP User can abandon the cancellation.
Postcondition	General: • The *Works Order* has been cancelled User Interface: • A confirmation email has been send to the CP, if configured. Database: • The Works Order data record *Works Order Status* is set to 'Cancelled'. • The Works Order data record has been associated with: ○ the CP User that cancelled the Works Order. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	
Other	

3.2.15 OP_UC003: OP User Cancels a Works Order

Use Case	OP User Cancels a Works Order
XRef	OP_UC003
Trigger	OP User wishes to cancel a submitted Works Order
Precondition	• The DPA Solution is available for access. • User administration complete. • The Works Order to be cancelled does not have a *Works Order Status* of 'Complete' and the *Works Start Date Time* < today. • The Works Order to be cancelled was raised by the Openreach.
Basic Path	1. The OP User navigates to the relevant submitted Works Order. 2. The OP User clicks *[Cancel Works Order]*. 3. The DPA Solution must ask the OP User to confirm their wish to cancel the Works Order. This on-screen message must include the *Works Order ID*, *Prospect ID* and *Prospect Nickname* if available. 4. The OP User selects *[Confirm]*.
Alternative Paths	The CP User can abandon the cancellation.
Postcondition	General: • The *Works Order* has been cancelled User Interface: • A confirmation email has been send to the CP, if configured. Database: • The Works Order data record *Works Order Status* is set to 'Cancelled'. • The Works Order data record has been associated with: ○ the OP User that cancelled the Works Order. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	
Other	

3.2.16 OP_UC004: Works: OP User Assesses Works Order

Use Case	OP User Assesses Works Order
XRef	OP_UC004
Trigger	OP User navigates to the *Works Orders* page which presents to the OP User a list of outstanding Works Orders prioritised based on Openreach defined criteria. It may be appropriate for a OP User to be able to search for outstanding Works Orders based on other criteria, such as Geographical location, CP, etc.
Precondition	• The DPA Solution is available for access. • User administration complete. • A Works Order has been submitted by a CP.
Basic Path	1. By one of the following methods, the OP User navigates to the *Works Orders* page, populated with the details of outstanding Works Orders:

Use Case	OP User Assesses Works Order
	a. Following a link provided within a DPA Solution generated email alert regarding outstanding Works Orders. b. Searching for outstanding Works Orders. c. Via a search for outstanding Works Orders relating to a *Prospect ID*. 2. The OP User assesses the CP's Works Order based on Openreach defined criteria. The OP User marks the Works Order as accepted or rejected. Where a Works Order is rejected the OP User must select a *Works Order Rejection Reason Code* and provide an explanation within the *Works Order Decision Reason Text* field. 3. For accepted Work Orders the OP User has the option to click *Manage Order* to input information about start date and time (as per use case OP Updates Work Order). 4. OP User clicks the *[Submit]* button/link to submit their Works Order assessments. 5. The DPA Solution validates the OP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the OP User to make the corrections. 6. If validation is successful, the DPA Solution provides an on-screen confirmation message.
Alternative Paths	a) <u>Save Works Order assessment without submitting</u> At any point is the process, the OP User can save an uncompleted, partially completed or completed assessment for later completion and submission, in which case the Work Order Status is set to "Works Order Assessment Not Submitted". b) <u>Resume a saved Works Order assessment</u> The DPA Solution will provide a means for a OP User to search for and a retrieve a saved Works Order assessment. Once retrieved, the DPA Solution will present the uncompleted, partially completed or completed assessment and allow the OP User to continue as per the basic path or carry out any of the other alternative paths. c) <u>Delete a Works Order assessment</u> At any point is the process, the DPA Solution will provide a means for the OP User to delete the saved Works Order assessment. The DPA Solution must ask the OP User to confirm their wish to delete the Works Order assessment. d) <u>Insert an SLA Clock Event</u> Refer to OP_UC001, Alternative Path d).
Postcondition	<u>On completion of the Basic Path:</u> General: • The DPA Solution has been updated with the results of the Works Order assessment. User Interface: • The results of the assessment are visible on the *Works* tab of the *Prospects* page. • A notification email has been send to the CP. Database: • If the OP User rejected the works order, the Works Order data record in question has its *Works Order Status* set to ''Works Order Rejected'. • If the OP User accepted the works order, o If the Works Order relates to a Prospect where the Deployment plan has yet to be accepted by Openreach, the *Works Order Status* is set to "Works Order Accepted Awaiting Deployment Plan Approval". (i.e. the ordered works will be hold-on until the Deployment plan is accepted). o Otherwise the *Works Order Status* is set to "Works Order Accepted" • The saved Works Order data record has been associated with: o the OP User that submitted the saved Works Order assessment <u>On completion of the alternative path – a) Save Works Request assessment without submitting:</u> • The saved Works Order data record has been associated with: o the OP User that saved the saved Works Order assessment

Use Case	OP User Assesses Works Order
	• OP inputted information inputted thus far is saved against the saved Works Order data record as appropriate. • Other associations will be saved depending on the information entered by the OP User thus far. No validation will be performed for missing information.
Exception Paths	
Other	~

3.2.17 CP_UC013: Works: CP User Re-submits Works Order

Use Case	CP User Re-submits Works Order
XRef	CP_UC013
Trigger	CP User navigates to the *Works tab of the Prospect* Page.
Precondition	• The DPA Solution is available for access. • User administration complete. • Works can only be requests in relation to Assets for which the CP has an approved Survey plan and the start date of that Survey plan is less than or equal to today.
Basic Path	1. By one of the following methods, the CP User navigates to the *Works* tab or the *Prospect* page: a. Following a link provided within a system generated email alert regarding outstanding Works Orders. b. Searching for outstanding Works Orders. c. Via a search for outstanding Works Orders relating to a *Prospect ID*. 2. Once the CP User has successfully retrieved the Works Order, it is displayed, or if the CP User has searched via Prospects, the CP User selects to *Works* tab. 3. The DPA Solution presents the CP User with a table like that shown below which shows any existing Works Orders related to the Prospect.

Asset	Product	Qty	Cost	CP comments regarding required work	CP Contact	Status	Decision Reason	Openreach Contact	Openreach Notes
BOX123	Cable recovery (heavy) - per 100m	2	*£640.00*	*Redundant BT copper needs removing*	N Jannier	Rejected	Cable is not redundant. Awaiting connection	O Beatty	

[+] Add row

4. The CP User reviews the *Decision Reason* for the rejection.
5. If required, the CP User raises an alternative Works Order as per the basis path of CP_UC011.

Alternative Paths	It must also be possible to cancel a previously submitted Work Order.
Postcondition	If an alternative Works Order is submitted the postconditions are as per CP User Creates Works Order.

Use Case	CP User Re-submits Works Order
Exception Paths	
Other	~

3.2.18 OP_UC005: Works: OP User Updates Works Order

Use Case	OP User Updates a Works Order
XRef	OP_UC005
Trigger	OP User navigates to the *Works Orders* page which presents to the OP User a list of outstanding Works Orders prioritised based on Openreach defined criteria. It may be appropriate for a OP User to be able to search for outstanding Works Orders based on other criteria, such as Geographical location, CP, etc.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	6. By one of the following methods, the OP User navigates to the *Works Orders* page, populated with the details of outstanding Works Orders: a. Following a link provided within a system generated email alert regarding outstanding Works Orders. b. Searching for outstanding Works Orders. c. Via a search for outstanding Works Orders relating to a *Prospect ID.* 7. The OP has the option to update the Works Order with: *a.* *Works Start Date Time* b. *Notes* (free text) *c.* *Works Completion Date Time* 8. OP User clicks *[Submit]* button/link to submit their updates to the Works Order. 9. The DPA Solution validates the OP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the OP User to make the corrections. 10. If validation is successful, the DPA Solution provides an on-screen confirmation message.
Alternative Paths	a) Insert an SLA Clock Event Refer to OP_UC001, Alternative Path d).
Postcondition	On completion of the Basic Path: General: • The DPA Solution has been updated with the Works Order update. User Interface: • The update is visible on the *Works* tab on the *Prospects* page. • A notification email has been send to the CP if configured. Database: • The Works Order data record in question is updated with the appropriate: ○ *Works Order Status* (i.e. if a *Works Completion Date* is entered the Works Order Status will be set to "Worked Order Complete"). ○ *OP Notes* ○ *Works Start Date Time* ○ *Works Completion Date Time* • The saved Works Order data record has been associated with: ○ the OP User that submitted an update.

Use Case	OP User Updates a Works Order
Exception Paths	
Other	~

3.2.19 CP_UC014: Works: CP User Updates a Works Order

Use Case	CP User Updates a Works Order
XRef	CP_UC014
Trigger	CP User navigates to the *Works Orders* page which presents to the CP User a list of outstanding Works Orders prioritised based on Openreach defined criteria.
Precondition	• The DPA Solution is available for access. • User administration complete. • There is a Works Order for which *Work to be Carried Out by CP* = "True".
Basic Path	1. The CP User navigates to the relevant submitted Works Order for which Work to be Carried Out by CP = "True". 2. The CP has the option to update the Works Order with: a. *Works Start Date Time* b. *Notes* (free text) c. *Works Completion Date Time* 3. CP User clicks *[Submit]* button/link to submit their updates to the Works Order. 4. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections. 5. If validation is successful, the DPA Solution provides an on-screen confirmation message.
Alternative Paths	
Postcondition	<u>On completion of the Basic Path:</u> General: • The DPA Solution has been updated with the Works Order update. User Interface: • The update is visible on the *Works* tab on the *Prospects* page. • A notification email has been send to the CP if configured. Database: • The Works Order data record in question is updated with the appropriate: ○ *Works Order Status* (i.e. if a *Works Completion Date* is entered the Works Order Status will be set to "Worked Order Complete"). ○ *Notes* ○ *Works Start Date Time* ○ *Works Completion Date Time* • The saved Works Order data record has been associated with: ○ the CP User that submitted an update.
Exception Paths	
Other	

Deployment

3.2.20 CP_UC015: Deployment: CP User Creates Deployment Plan Approval Request

Use Case	CP User Creates a Deployment Plan Approval Request
XRef	CP_UC015
Trigger	CP User navigates to the *Prospect* page for the Prospect in question.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. Having navigated to the *Prospect* page for the Prospect in question, the CP User selects the *Deployment* tab. 2. The DPA Solution sets on-screen map extent to show the results of the Prospect with all the Assets included in the retrieved Prospect highlighted and any Assets included in a related Survey selected and highlighted such that these can be easily differentiated. 3. CP User reviews the selected Assets and if necessary reselects Assets they would like to use in their Deployment by using the following selection functions: - Select all (Assets included in retrieved search) - Unselect all (Assets included in retrieved search) - Select individual Asset - Deselected individual Asset - Select the Assets within a lassoed area of the map - Deselect the Assets within a lassoed area of the map - Reset 4. For each selected Asset, the CP User adds the CP Cables and CP Equipment they intend to deploy, details of any intention to break out of a Chamber, and provides an indication of whether a Works Order needs to be raised to cover necessary build works, as follows: i. The CP User can click the *[Intended Cable]* button which will allow the input of the following information relating to a cable the CP intends to deploy: o *Type*: A pick list will allow the CP User to select Sub Duct, Copper, Blown Fibre Tubing (BFT), Cable Optical Fibre (COF), etc. o Application: A pick list will allow the CP User to select Duct, Trunk, Drop Wire or Aerial. o *Outside Diameter* in millimetres. o *Road Crossing:* Tick box ticked by CP User if the cable will be crossing a road. o *Breaking Strain*: Required for Drop Wires and Aerial Cables. In Kilonewtons (KN). o *Cable Label*: Free text. ii. Step i is repeated as required. iii. The CP User can click the *[Intended Equipment]* button which will allow the input of the following information relating to equipment the CP intends to deploy: o *Equipment Type*: A pick list will allow the CP User to select DP Terminal Box, Inline Joint or Manifold iv. Step iii is repeated as required. v. If the CP intends to break out of a Chamber, the CP User ticks the *[Breakout Required]* tick-box and enters the following details: o The CP User selects either *'Exchange', 'Left', 'Right'* or *'Far'* from a pick-list. The walls are named from the perspective of standing with your back to the exchange.

Use Case	CP User Creates a Deployment Plan Approval Request
	○ *X Measurement:* The CP User then enters the measurement, in millimetres, that the intended break out will be from the left side of the wall. ○ *Y Measurement:* The CP User then enters the measurement, in millimetres, that the intended break out will be from the bottom of the wall. *vi.* If, based on information available via the DPA Solution or obtained having carried out a Survey, the CP believes build works will be required relating to this Asset, the CP User ticks the *[Works Order required]* tick-box. This will create an incomplete Works Order to be completed via one of the Works Order use cases. 5. CP User selects a CP Critical Contact to assign to the proposed Deployment from the CP's list of critical contacts. (In the case of a Critical Defect being found Openreach will need to contact the assigned critical contact as a matter of urgency). 6. CP User selects a CP Engineer to assign to the proposed Deployment from the CP's list of accredited engineers. The CP User repeats this step as required (minimum is 1 engineer). Note: Engineer accreditation is out of scope for this system requirements specification but it is assumed that accredited engineers will have been added to DPA Solution. 7. CP User types or uses a calendar dialogue to select the *Expected Deployment Start Date*. Validation will check that this is 15 clear days from today. 8. CP User types or uses the calendar dialogue to select the *Expected Deployment End Date*. 9. CP User clicks *[Submit]* button/link to generate and submit their Deployment approval request based on the Assets they selected on the on-screen map and the additional information they inputted into the on-screen form. 10. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections. 11. If validation is successful, the DPA Solution provides an on-screen confirmation message including the *Prospect ID* and a *Deployment ID*.
Alternative Paths	a) <u>Save Deployment Plan Approval Request without submitting</u> Once the on-screen form has been presented, the CP User can save the uncompleted, partially completed or completed form for later completion and submission. b) <u>Resume a saved Deployment Plan Approval Request</u> The DPA Solution will provide a means for a CP User to search for and a retrieve a saved Deployment plan approval request associated with the CP in question. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed form and allow the CP User to continue as per the basic path or carry out any of the other alternative paths. c) <u>Delete a Deployment Plan Approval Request</u> Once the on-screen form has been presented, the DPA Solution will prove a means for the CP User to delete the Deployment plan approval request. The DPA Solution must ask the CP User to confirm their wish to delete the Survey plan approval request. d) <u>Download Printable Deployment Plan Approval Request</u> Once the on-screen form has been presented, the CP User can download the uncompleted, partially completed or completed form and map in a printable format (e.g. PDF).
Postcondition	<u>On completion of the Basic Path:</u> General:

Use Case	CP User Creates a Deployment Plan Approval Request

	• A Deployment plan approval request has been submitted for Openreach's review.
	
	User Interface:
	• A confirmation email has been send to the CP.
	• An alert email has been sent to OP (if configured).
	
	Database:
	• A Deployment data record has been created with the *Deployment Status* set to 'Submitted for Approval'.
	• CP Cable and CP Equipment data records are created and associated with the relevant Prospect Asset records.
	• For any Asset for which the *[Works Order required]* tick box is ticked, Works Order records will be created with *Works Order Status* = "Works Order Not Submitted" and associated with the Prospect Asset.
	• The Deployment data record has been associated with:
	  ○ the CP User that submitted the Deployment approval request
	  ○ the CP User assigned as the Critical Contact
	
	<u>On completion of the alternative path – a) Save Deployment Plan Approval Request without submitting:</u>
	• A Deployment data record has been created with the *Deployment Status* set to 'Not Submitted'.
	• The Deployment data record has been associated with:
	  ○ the CP User that saved the Deployment approval request
	• Other associations will be saved depending on the information entered by the CP User thus far. No validation will be performed for missing information.

Exception Paths	
Other	~

3.2.21 CP_UC016: Deployment: CP User Cancels a Deployment

Use Case	CP User Cancels a Deployment
XRef	CP_UC016
Trigger	CP User wishes to cancel a submitted Deployment
Precondition	• The DPA Solution is available for access. • User administration complete. • The Deployment to be cancelled does not have a *Deployment Status* of "Deployment Complete" or "Deployment Cancelled".
Basic Path	1. The CP User navigates to the relevant Deployment. 2. The CP User clicks *[Cancel Deployment]*. 3. The DPA Solution must ask the CP User to confirm their wish to cancel the Deployment. This on-screen message must include the *Deployment ID*, *Prospect ID* and *Prospect Nickname* if available. 4. The CP User selects *[Confirm]*.
Alternative Paths	The CP User can abandon the cancellation.
Postcondition	General: • The Deployment has been cancelled User Interface: • A confirmation email has been send to the CP, if configured.

Use Case	CP User Cancels a Deployment
	Database: • The Deployment data record *Deployment Status* is set to 'Cancelled'. • The Deployment data record has been associated with: ○ the CP User that cancelled the Deployment. • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	
Other	

3.2.22 OP_UC006: Deployment: OP User Assesses a Deployment Plan

Use Case	OP User Assesses a Deployment Plan
XRef	OP_UC006
Trigger	OP User navigates to the *Deployment Plan Approval Requests* page which presents to the OP User a list of outstanding Deployment plan approval requests prioritised based on predefined criteria. It may be appropriate for a OP User to be able to search for outstanding Deployment plan approval requests based on other criteria, such as geographical location, CP, etc.
Precondition	• The DPA Solution is available for access. • User administration complete.

Basic Path	1. By one of the following methods, the OP User navigates to the *Deployment Plan Approval Request Assessment* page, populated with the details of a Deployment plan approval request:
	  a. Following a link provided within a system generated email alert regarding the Deployment plan approval request.
	  b. Searching for outstanding Deployment plan approval requests and selecting a request to work on.
	
	2. The DPA Solution will highlight to the OP User if there are any Work Orders raised by the CP against any of the Prospect Assets where the *Work Order Status* is "Works Order Not Submitted", "Works Order Submitted", "Works Order Assessment Not Submitted" or "Works Order Rejected" and no subsequent Work Order has been raised by the CP and approved by Openreach for same Prospect Asset. If such a Work Order exists the DPA Solution will not allow the Deployment plan to be approved, i.e. the OP User must first ensure these Work Orders have been accepted.
	
	3. The OP User assesses the suitability of the CP's expected Deployment start and end dates based on Openreach defined. Where the dates are not acceptable the OP User may input agreed Deployment start and end dates following dialogue with the CP (the dialogue required between Openreach and the CP to agree Deployment start and end dates may be external to the DPA Solution).
	
	4. The OP User assesses the suitability of the Prospect Assets included in the CP's Deployment plan and the suitability of the intended CP Equipment and CP Cables based on Openreach defined criteria. The OP User marks each Prospect Asset included in the CP's Deployment plan as approved or rejected. Where rejected the OP User must select an *Asset Deployment Plan Rejection Reason Code* and provide an explanation within the *Asset Deployment Plan Decision Reason Text* field.
	
	5. OP User clicks *[Submit]* button/link to submit their Deployment plan assessment. If all the Prospect Assets were approved, the Deployment plan as a whole is approved, otherwise it is rejected.
	
	6. The DPA Solution validates the OP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the OP User to make the corrections.

Use Case	OP User Assesses a Deployment Plan
	7. If validation is successful, the DPA Solution provides an on-screen confirmation message.
Alternative Paths	a) Save Deployment Plan Assessment without submitting At any point is the process, the OP User can save the uncompleted, partially completed or completed assessment for later completion and submission. b) Resume a saved Deployment Plan Assessment The DPA Solution will provide a means for a OP User to search for and a retrieve a saved Deployment plan assessment. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed assessment and allow the OP User to continue as per the basic path or carry out any of the other alternative paths. c) Delete a Deployment Plan Assessment At any point is the process, the DPA Solution will provide a means for the OP User to delete the Deployment plan assessment. The DPA Solution must ask the OP User to confirm their wish to delete the Deployment plan assessment. d) Insert an SLA Clock Event Refer to OP_UC001, Alternative Path d).
Postcondition	On completion of the Basic Path: User Interface: • A notification email has been send to the CP Contact. Database: • The Deployment data record in question has had *Deployment Status* set to 'Deployment Plan Approve / Rejected'. • If the Deployment plan is approved the *Prospect Status* is set to "Deploying". • If the Deployment plan is approved the *Available Capacity RAG* is recalculated for each of the Duct Section and Pole assets associated with the Deployment. (The *Available Capacity RAG*s will be subject to further amendment if the completed Deployment deviates from the Deployment plan). • If the Deployment plan is approved, any Works Orders raised against Prospect Assets included in the Deployment plan which have a *Works Order Status* of "Works Order Accepted Awaiting Deployment Plan Approval" will have their *Works Order Status* updated to "Works Order Accepted" • If the Deployment plan is rejected, any Works Orders raised against Prospect Assets included in the Deployment plan which have a *Works Order Status* of "Works Order Accepted Awaiting Deployment Plan Approval" will have their *Works Order Status* updated to "Works Order Rejected" and the *Works Order Rejection Reason* Code will be set to a pre-defined code such as "Associated Deployment Plan Rejected". • The Deployment data record has been associated with: o the OP User that submitted the Deployment plan assessment • The following OP inputted information is saved against the Deployment data record: o *Deployment Agreed Start Date* and *Deployment Agreed End Date* (these may differ from the *Deployment CP Preferred Start Date* and *Deployment CP Preferred End Date*). • The following OP inputted information is saved against each Prospect Asset data record associated with the Deployment: o *Asset Deployment Plan Rejection Code* o *Asset Deployment Plan Decision Reason Text* On completion of the alternative path – a) Save Deployment Plan Assessment without submitting: • The Deployment data record has been associated with: o the OP User that saved the Deployment plan assessment • OP inputted information inputted thus far is saved against the Deployment data record or Prospect Asset data record as appropriate. • Other associations will be saved depending on the information entered by the OP User thus far. No validation will be performed for missing information.

Use Case	OP User Assesses a Deployment Plan
Exception Paths	
Other	~

3.2.23 OP_UC007: Deployment: OP User Creates a Deployment Plan Proposal based on a Rejected Deployment Plan Approval Request

Use Case	OP User Creates a Deployment Plan Proposal based on a Rejected Deployment Plan Approval Request
XRef	OP_UC007
Trigger	OP has rejected the Deployment plan approval request.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. In order to avoid a CP having multiple Deployment plan approval requests rejected by Openreach for the same Prospect, the DPA Solution provides a means by which an OP User can propose to the CP an alternative Deployment plan based on a rejected Deployment plan approval request. 2. Having rejected a Deployment plan approval request the OP User clicks *[Propose alternative Deployment Plan] button/link*. It must possible to carry out this action both immediately following the rejection of the CP's Deployment plan approval request, or any time after. 3. The DPA Solution presents to the OP User the CP's rejected Deployment plan approval request, along with the *Asset Deployment Plan Rejection Reason Code* and *Asset Deployment Plan Decision Reason Text* associated with each Prospect Asset Item included in the CP's Deployment plan. 4. The OP User is then able to make amendments to the CP's Deployment plan, i.e. to the Assets to be utilised; the dates; etc. This may require the use of the map view to select alternative assets. 5. Once the necessary amendments have been made, the OP User clicks *[Submit]* button/link to generate and submit their Deployment plan proposal. 6. The DPA Solution validates the OP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the OP User to make the corrections. 7. If validation is successful, the DPA Solution provides an on-screen confirmation message including the *Prospect ID* and a *Deployment ID*.
Alternative Paths	a) <u>Save Deployment Plan Proposal without submitting</u> Once the on-screen form has been presented, the OP User can save the uncompleted, partially completed or completed form for later completion and submission. b) <u>Resume a saved Deployment Plan Proposal</u> The DPA Solution will provide a means for a OP User to search for and a retrieve a saved Deployment plan proposal. Once retrieved, the DPA Solution will allow the CP User to continue as per the basic path from step 3 onwards or carry out any of the other alternative paths. c) <u>Delete a Deployment Plan Proposal</u> Once the on-screen form has been presented, the DPA Solution will provide a means for the OP User to delete the Deployment plan proposal. The DPA Solution must ask the OP User to confirm their wish to delete the Deployment plan proposal.
Postcondition	<u>On completion of the Basic Path:</u> General:

Use Case	OP User Creates a Deployment Plan Proposal based on a Rejected Deployment Plan Approval Request

	• A Deployment plan proposal is available for the relevant CP to view on the DPA Solution and submit (i.e. akin to a Deployment plan approval request of status "Deployment Plan Not Submitted".
	
	User Interface:
	• An alert email has been sent to the relevant CP User (if configured).
	
	Database:
	• A Deployment data record has been created with the *Deployment Status* set to 'Deployment Plan Proposed by Openreach'.
	  • The Deployment data record's *Deployment Plan Proposed by OP User* is set to the OP User ID of the OP User.
	• The Deployment data record has been associated with:
	  ○ the Prospect
	  ○ the OP User that submitted the Deployment plan proposal
	  ○ the CP User assigned as the Critical Contact
	
	<u>On completion of the alternative path – a) Save Deployment Plan Proposal without submitting:</u>
	• A Deployment data record has been created with the *Deployment Status* set to 'Deployment Plan Proposed by Openreach Not Submitted'. A Deployment record of this status is not visible to a CP User.
	• The Deployment data record has been associated with:
	  ○ the OP User that saved the Deployment plan proposal (*Deployment Plan Proposal by OP User*)
	• Other associations will be saved depending on the information entered by the OP User thus far. No validation will be performed for missing information.

Exception Paths	
Other	~

3.2.24 CP_UC017: Deployment: CP User Submits a Deployment Plan proposed by Openreach

Use Case	CP User Submits a Deployment Plan proposed by Openreach
XRef	CP_UC017
Trigger	CP receives email notification that Openreach has proposed a Deployment plan. CP navigates to the *Deployment* tab of the *Prospect page* or accesses Deployment plan from link in notification email.
Precondition	• The DPA Solution is available for access. • User administration complete.

Basic Path	1. By one of the following methods, the CP User navigates to the *Deployment Plan Approval Request* page, populated with the details of a rejected Deployment plan approval request:
	  a. Following a link provided within a system generated email alert regarding the Deployment plan proposal.
	  b. Searching for outstanding Deployment plan proposals.
	
	2. The DPA Solution sets on-screen map extent to show results of the retrieved Deployment plan with all the Assets included in the retrieved Deployment plan highlighted. The assets should be presented on the map such that the CP User can distinguish between those assets that were on the CP's original Deployment plan and those that have been proposed by Openreach.

Use Case	CP User Submits a Deployment Plan proposed by Openreach
	3. The CP user can also view the Deployment plan form in order to review the details of the Deployment plan being proposed by Openreach. The assets should be presented on the form such that the CP User can distinguish between those assets that were on the CP's original Deployment plan and those that have been proposed by Openreach. 4. If necessary, the CP User can make changes to the proposed Deployment plan (see postconditions to understand the impact of changes). 5. CP User clicks *[Submit]* button/link. 6. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections. 7. If validation is successful, the DPA Solution provides an on-screen confirmation message including the existing *Prospect ID* and *Deployment ID*.
Alternative Paths	a) <u>Save Deployment Plan Approval Request without submitting</u> Once the on-screen form has been presented, the CP User can save the uncompleted, partially completed or completed form for later completion and submission. b) <u>Resume a saved Deployment Plan Approval Request</u> The DPA Solution will provide a means for a CP User to search for and a retrieve a saved Deployment plan approval request associated with the CP in question. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed form and allow the CP User to continue as per the basic path from step 5 onwards or carry out any of the other alternative paths. c) <u>Download Printable Deployment Plan Approval Request</u> Once the on-screen form has been presented, the CP User can download the uncompleted, partially completed or completed form and map in a printable format (e.g. PDF).

Postcondition	<u>On completion of the Basic Path:</u>
	General:
	• A Deployment plan is either automatically approved or a Deployment plan approval request has been submitted for Openreach's review, depending on changes made during step 4 (see below).
	
	User Interface:
	• A confirmation email has been send to the CP.
	• An alert email has been sent to OP (if configured).
	
	Database:
	• If, in step 4, changes were made to the Prospect Assets, intended CP Cables, intended CP Equipment, *Deployment CP Preferred Start Date* or *Deployment CP Preferred End Date*, the *Deployment Plan Status* will be will be set to "Deployment Plan Submitted for Approval" and the Deployment plan will be subject to a further assessment by Openreach.
	• If, in step 4, no changes were made to the Prospect Assets, intended CP Cables, intended CP Equipment, Deployment CP Preferred Start Date or Deployment CP Preferred End Date, the Deployment Plan Status will be will be set to "Deployment Plan Approved" and the *Available Capacity RAG* is recalculated for each of the Duct Section and Pole assets associated with the Deployment. (The Available Capacity RAGs will be subject to further amendment if the completed Deployment deviates from the Deployment plan).
	• The Deployment data record has been associated with:
	  ○ the CP User that submitted the Deployment plan
	  ○ the CP User assigned as the *Critical Contact*
	
	<u>On completion of the alternative path – a) Save Deployment Plan Approval Request without submitting:</u>

Use Case	CP User Submits a Deployment Plan proposed by Openreach
	• A Deployment data record has been created with the *Deployment Status* set to 'Deployment Plan Not Submitted'. • The Deployment data record has been associated with: ○ the CP User that saved the Deployment approval request • Other associations will be saved depending on the information entered by the CP User thus far. No validation will be performed for missing information.
Exception Paths	
Other	~

3.2.25 CP_UC018: Deployment: CP User Re-Submits Deployment Plan Approval Request

Use Case	CP User Re-submits a Deployment Plan Approval Request
XRef	CP_UC018
Trigger	CP receives email notification that Openreach has rejected their Deployment plan. CP navigates to the *Deployment* tab of the *Prospect page* or accesses Deployment plan from link in notification email.
Precondition	• The DPA Solution is available for access. • User administration complete.

Basic Path	1. By one of the following methods, the CP User navigates to the *Deployment Plan Approval Request* page, populated with the details of a rejected Deployment plan approval request:
	  a. Following a link provided within a system generated email alert regarding the Deployment plan approval request.
	  b. Searching for outstanding Deployment plan approval requests.
	2. The DPA Solution sets on-screen map extent to show results of the retrieved Deployment plan with:
	  a. All the Assets included in the retrieved Deployment plan highlighted.
	  b. All the rejected Prospect Assets graphically differentiated.
	CP User can also view Deployment items in tabular format, with rejection reasons.
	3. The CP User reviews each rejected Prospect Asset and the *Asset Deployment Plan Decision Reason Text* and makes amendments regarding which Prospect Assets are included in the Deployment and/or the intended CP Cables and intended CP Equipment as required.
	4. If necessary, the CP User can also update the *Deployment CP Critical Contact* and the *Deployment CP Preferred Start* and *End Date*s.
	5. CP User clicks *[Submit]* button/link to generate and submit their Deployment approval request based on the Assets they selected on the on-screen map and the additional information they inputted into the on-screen form.
	6. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections.
	7. If validation is successful, the DPA Solution provides an on-screen confirmation message including the existing *Prospect ID* and *Deployment ID*.

Alternative Paths	a) Save Deployment Plan Approval Request without submitting Once the on-screen form has been presented, the CP User can save the uncompleted, partially completed or completed form for later completion and submission.

Use Case	CP User Re-submits a Deployment Plan Approval Request
	b) Resume a saved Deployment Plan Approval Request The DPA Solution will provide a means for a CP User to search for and a retrieve a saved Deployment plan approval request associated with the CP in question. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed form and allow the CP User to continue as per the basic path from step 5 onwards or carry out any of the other alternative paths. c) Delete a Deployment Plan Approval Request Once the on-screen form has been presented, the DPA Solution will prove a means for the CP User to delete the Deployment plan approval request. The DPA Solution must ask the CP User to confirm their wish to delete the Deployment plan approval request. d) Download Printable Deployment Plan Approval Request Once the on-screen form has been presented, the CP User can download the uncompleted, partially completed or completed form and map in a printable format (e.g. PDF).
Postcondition	As per CP_UC015, CP User Creates a Deployment Plan Approval Request Based on Survey Results.
Exception Paths	
Other	~

3.2.26 CP_UC019: Deployment: CP User Submits Notification of Deployment Completion

Use Case	CP User Submits Notification of Deployment Completion
XRef	CP_UC019
Trigger	CP User has completed the actual deployment in the field after submitting Deployment plan. CP User navigates to *Deployment* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User selects the previously saved Deployment plan that they wish to retrieve. 2. The DPA Solution sets on-screen map extent to show results of the retrieved search with all the Assets included in the retrieved search highlighted. 3. CP User compares the Prospect Assets, CP Cables and CP Equipment included in the approved Deployment plan against the actual deployment undertaken in the field: a. If the actual deployment undertaken in the field matches the approved Deployment plan, CP User selects *Deployed as per Approved Plan* = “True” b. If the actual deployment undertaken in the field deviated from the approved Deployment plan, CP User selects *Deployed as per Approved Plan* = “False” i. If the CP User selects *Deployed as per Approved Plan* = “False”, the DPA Solution allows the CP User to make changes by raising a replacement Deployment plan to reflect the actual deployment undertaken in the field. The new Deployment data record’s *Deviation Replacing Approved Deployment Plan* field is set to the *Deployment ID* of the Deployment being replaced. ii. All the entries in terms of associated Prospect Assets and CP Cables and CP Equipment are copied across to the new Deployment. iii. The CP User then makes the necessary amendments 4. CP User clicks *[Submit]* button/link

Use Case	CP User Submits Notification of Deployment Completion
	5. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections. 6. If validation is successful and the CP User selected *Deployed as per Approved Plan* = "True" in Step 3a above, the DPA Solution provides an on-screen confirmation message. 7. If validation is successful and the CP User selected *Deployed as per Approved Plan* = "False" in Step 3b above, the DPA Solution provides an on-screen confirmation message confirming the *Deployment ID* of the replacement Deployment record.
Alternative Paths	a) Save a Notification of Deployment Completion submission without submitting Once the on-screen form has been presented, the CP User can save the uncompleted, partially completed or completed form for later completion and submission. b) Resume a saved Notification of Deployment Completion submission The DPA Solution will provide a means for a CP User to search for and a retrieve a saved notification of Deployment completion submission associated with the CP in question. Once retrieved, the DPA Solution will set the map extent to that saved and present the uncompleted, partially completed or completed form and allow the CP User to continue as per the basic path. c) Delete a Notification of Deployment Completion submission Once the on-screen form has been presented, the DPA Solution will prove a means for the CP User to delete a notification of Deployment completion submission. The DPA Solution must ask the CP User to confirm their wish to delete the notification of Deployment completion submission. d) Download Printable Notification of Deployment Completion submission. Once the on-screen form has been presented, the CP User can download the uncompleted, partially completed or completed form and map in a printable format (e.g. PDF).
Postcondition	On completion of the Basic Path: If CP User selected *Deployed as per Approved Plan* = "True" in Step 3a above: User Interface: • This Prospect is now presented as Deployed. • A confirmation email has been send to the CP. • An alert email has been sent to OP (if configured). Database: • The Deployment record's *Deployment Status* set to 'Deployment Complete'. • The Deployment data record has been associated with the CP User that submitted the results. If CP User selected *Deployed as per Approved Plan* = "False" in Step 3b above: User Interface: • This Prospect is now presented as Deployed. • A confirmation email has been send to the CP. • An alert email has been sent to OP (if configured). Database: • The Deployment record's *Deployment Status* set to 'Deployment Deviated'. • The Deployment data record has been associated with: ○ the CP User that submitted the results • A new replacement Deployment data record is created with *Deployment Status* set to 'Deployment Plan Submitted for Approval'; *Deviation Replacing Approved Deployment Plan* set to the *Deployment ID* of the replaced Deployment record. • The *Available Capacity RAG* is recalculated for each of the Duct Section and Pole assets associated with the replaced Deployment record so that the replaced Deployment record no longer impacts the available capacity of these assets. (The *Available Capacity RAG* is not

Use Case	CP User Submits Notification of Deployment Completion

	recalculated for the Duct Section and Pole assets associated with the replacement Deployment record until that Deployment plan is approved. See OP_UC006).
	• The replacement Deployment data record has been associated with:
	  ○ the CP User that submitted the results
	
	<u>On completion of the alternative path – a) Save notification of Deployment completion without submitting:</u>
	• A Deployment data record has been created with the *Deployment Status* set to 'Deployment Results Not Submitted'.
	• The Deployment record has been associated with:
	  ○ the CP User that saved the survey approval request
	• Other associations will be saved depending on the information entered by the CP User thus far. No validation will be performed for missing information.

Exception Paths	
Other	~

Connection

3.2.27 CP_UC020: Connection: CP User Submits Confirmation of Network Connection

Use Case	CP User Submits Confirmation of Network Connection
XRef	CP_UC020
Trigger	CP has completed all Deployment activities in the field. CP has made its network live. CP navigates to the *Connection* tab.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User selects the previously saved Deployment. 2. The DPA Solution sets on-screen map extent to show results of the retrieved search with all the Assets included in the retrieved search highlighted. 3. CP User reviews order information as required. 4. CP User clicks *[Connected]* button/link. 5. The DPA Solution validates the CP User inputted information and, if necessary, aborts the submission process and instead clearly highlights any invalid or missing information and allows the CP User to make the corrections. 6. If validation is successful, the DPA Solution provides an on-screen confirmation message including a Submission Reference Number.
Alternative Paths	
Postcondition	<u>On completion of the Basic Path:</u> User Interface: • A confirmation email has been send to the CP. • An alert email has been sent to OP (if configured). Database:

Use Case	CP User Submits Confirmation of Network Connection
	• The Prospect data record has the *Prospect Status* set to 'Connected'.
Exception Paths	
Other	~

User and System Administration

3.2.28 CP_UC021: User and System Administration: CP User Access

Use Case	Authentication: CP User Access
XRef	CP_UC021
Trigger	CP navigates to *Log in* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User is presented with *Log in* page 2. CP User enters *CP User ID* 3. CP User enters *Password* 4. CP User clicks *[Log in]* 5. CP User is authenticated 6. CP User is presented with the DPA Solution *home screen*.
Alternative Paths	<Forgotten *CP User ID*> <Forgotten *Password*> <Incorrect *CP User ID* > <Incorrect *Password*> <*Password* reset>
Postcondition	General: • The CP User has logged in to the DPA Solution. User Interface: • CP User in presented with the DPA Solution *home screen*. Database: • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	<CP User cancels log in>
Other	~

3.2.29 OP_UC008: User and System Administration: OP User Access

Use Case	Authentication: OP User Access
XRef	OP_UC008
Trigger	OP navigates to *Log in* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. OP User is presented with *Log in* page. 2. OP User enters *OP User ID.*

Use Case	Authentication: OP User Access
	3. OP User enters *Password.* 4. OP User clicks *[Log in].* 5. OP User is authenticated. 6. OP User is presented with DPA Solution *home screen.*
Alternative Paths	<Forgotten *OP User ID*> <Forgotten *Password*> <Incorrect *OP User ID* > <Incorrect *Password*> <*Password* reset>
Postcondition	General: • The OP User has logged in to the DPA Solution. User Interface: • OP User in presented with the DPA Solution *home screen*. Database: • Data records created/updated as required by the DPA Solution for audit purposes.
Exception Paths	<OP User cancels log in>
Other	~

3.2.30 OP_UC009: User and System Administration: OP Admin User Amends System Configuration

Use Case	OP Admin User Amends System Configuration
XRef	OP_UC009
Trigger	OP Admin User navigates to *System Configuration* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	This use case is intended to provide examples of system configuration possibilities and in not exhaustive. Please reference to the design Principles section. 1. OP System Admin User is presented with site modules (e.g. Survey, Works, Deployment, Stage One Deployment). 2. OP User selects module he/she wishes to change (e.g. user selects Works). 3. OP User selects *Edit*. a. OP User navigates to item he/ she wishes to change (e.g. description of Works product) b. OP User edits item (e.g. changes text description). c. OP User clicks save. 4. OP User selects Delete a. OP User navigates to item he/ she wishes to delete (e.g. Works product) b. OP User clicks delete item. c. The DPA Solution prompt says 'Are you sure you want to delete this item?' d. OP User clicks save. 5. OP User selects Add item a. OP User is presented with fields that must be completed. b. OP User completes fields c. OP User clicks save.

Use Case	OP Admin User Amends System Configuration
	6. OP User is presented with confirmation that changes have been made.
Alternative Paths	<User can abandon the process at any time>.
Postcondition	Relevant data items are updated. The edited data record has been associated with: ○ the OP User that submitted the system configuration changes.
Exception Paths	
Other	~

3.2.31 OP_UC010: User and System Administration: OP Admin User Registers New User

Use Case	OP Admin User Registers New User
XRef	OP_UC010
Trigger	OP User navigates to *System Users* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. OP Admin User (OP User) is presented with a list of Users for its organisation 2. OP User selects Add New User. 3. OP User is presented with a web form with fields that are mandatory for completion, like that shown below: **Field** / **Type** OP User or CP User — Pick list First Name — Free text Surname — Free text Email Address — Free text Work Telephone Mobile Telephone Accredited Engineer — Boolean Accreditation Expiry Date — Date Surveyor — Boolean Underground — Boolean Overhead — Boolean Third Party Employer — Free Text 4. OP User selects user permissions from: a. Read-only b. Approval 5. OP User selects Save. 6. OP User is presented with confirmation that an invitation has been emailed to the new User.
Alternative Paths	<User can abandon the process at any time>.

Use Case	OP Admin User Registers New User
	<New user email address is incorrect, System admin user receives notification email that the invitation has bounced>
Postcondition	• A new user data record has been created with the associated permissions. • A notification email is sent to the new user.
Exception Paths	
Other	~

3.2.32 CP_UC022: User and System Administration: CP User Edits Own User Preferences

Use Case	CP User Edits Own User Preferences
XRef	CP_UC022
Trigger	CP User navigates to *User Preferences*
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User is presented with options to modify Notifications. 2. CP User is presented with a list of site modules: a. Prospect b. Survey c. Works d. Deployment e. Daily Whereabouts Each module in the list has buttons adjacent to it 'Immediate Email', 'Weekly Summary' or 'Never'. 3. CP User selects notification preference for each module as required. 4. CP User selects Save. 5. CP User presented with confirmation that notification preferences have been updated.
Alternative Paths	<User can abandon the process at any time>.
Postcondition	• User notification data record has been updated with the notification preferences selected and user receives notifications as per selection.
Exception Paths	
Other	~

3.2.33 OP_UC011: User and System Administration: OP User Edits Own User Preferences

Use Case	OP User Edits Own User Preferences
XRef	OP_UC011
Trigger	OP User navigates to *User Preferences*.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. OP User is presented with options to modify Notifications. 2. OP User is presented with a list of site modules: a. Prospect

Use Case	OP User Edits Own User Preferences
	b. Survey c. Works d. Deployment e. Daily Whereabouts Each module in the list has buttons adjacent to it 'Immediate Email', 'Weekly Summary' or 'Never'. 3. OP User selects notification preference for each module as required. 4. OP User selects Save. 5. OP User presented with confirmation that notification preferences have been updated.
Alternative Paths	<User can abandon the process at any time>.
Postcondition	• User notification data record has been updated with the notification preferences selected and user receives notifications as per selection.
Exception Paths	
Other	~

3.2.34 CP_UC023: User and System Administration: CP User Submits Help Request

Use Case	CP User Submits Help Request
XRef	CP_UC023
Trigger	CP User navigates to *Help* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. CP User selects Contact Site Administrator. 2. CP User is presented with a free field text box. 3. CP User completes query. 4. CP User selects *Submit*. 5. CP User is provided with confirmation that their query has been sent to the Site Administrator.
Alternative Paths	<User can abandon the process at any time>.
Postcondition	• A notification email is sent to the OP Admin User with Help Query and CP User details.
Exception Paths	
Other	~

3.2.35 OP_UC012: User and System Administration: OP Admin User Obtains Audit Report

Use Case	OP Admin User Obtains Audit Report
XRef	OP_UC012
Trigger	OP Admin User navigates to *Reporting* page.
Precondition	• The DPA Solution is available for access. • User administration complete.
Basic Path	1. OP Admin User is presented with report categories. For example: a. Usage: i. Last used report ii. Download requests (number of unique files downloaded per user)

Use Case	OP Admin User Obtains Audit Report
	b. Workflow Management for each workflow (Expressions of Interest, Survey, Deployment, Works) iii. Time taken for OP User to assess a request or submission iv. Time taken to fulfil a Works Order. 2. OP User selects Report Type. 3. OP User selects Filters (e.g. time period, CP) 4. OP User selects *[Generate Report]*. 5. OP User is presented with the Report. 6. OP User selects *[Download]*. 7. OP User selects download format (MS Excel, MS Word, PDF) 8. Report downloads and opens in the OP User's device application.
Alternative Paths	<User can abandon the process at any time>.
Postcondition	• The required report is obtained.
Exception Paths	
Other	~

3.3 Non-functional requirements

The DPA Solution shall meet the requirements set out in this section.

3.3.1 Security

The DPA Solution must be built on a proven secure platform.

As a minimum authentication (log in) of users must be required once per session and all applicable functionality will be available to the user following authentication. Obligations for CP users with regards to security must be clear and unambiguous.

Security requirements relating to Openreach data and systems shall be produced by Openreach.

3.3.2 Performance

Capacity requirements are provided in this section. Indicative quantities for user and storage requirements are provided based on current best estimates, though it is noted that one of the design principles of the DPA Solution is that it needs to be scalable. Therefore, the DPA Solution should be able to support high volumes of transactions as use of Openreach duct and pole infrastructure increases overtime.

Capacity

The DPA Solution must be able to support a minimum of 500 concurrent active users without any degradation of performance. A degradation of performance is defined as a failure to meet one or more of the transaction response time requirements detailed in Table 3 below.

It is expected that active users will comprise a mix of those set out in section 2.3; that proportionately it is likely that there will be a small number of users performing substantial transactions (such as obtaining/downloading information and completing survey plans), and a larger user community performing light transactions such as submitting (engineer whereabouts).

The geographical information systems interface must be able to display mapping and asset data, and support the download of data for a minimum 10 square kilometre area or 15MB file size (e.g. GML) download, whichever is reached first, as a single query and download request.

Furthermore, whilst it is appreciated that a fair usage policy may be necessary to ensure the DPA Solution can achieve the transaction response time requirements detailed in Table 3 below, any such policy must allow the users of any given CP organisation to collectively make up to 100 queries and download requests in any given 24-hour period, or up to 2,000 queries and download requests in any given calendar month.

Storage capacity must be available to cater for the following volumes as a minimum:

Table 3: Storage Capacity

Entity	Anticipated number of instances	Retention policy (minimum)
PIA Order (Allowing for movement of order through each process stage: Expression of Interest, Survey, Build, Stage One Build, Confirmation.)	10,000 at any one time	Live system: 3 years from order closure On-line archive (accessible by CPs): 3 – 5 years from order closure Off-line archive (accessible by OP): 8 years from order closure
Works (Requests, progress and completion)	5,000 a month	Live system: 3 years from works completion On-line archive (accessible by CPs): 3 – 5 years from works completion Off-line archive (accessible by OP): 8 years from works completion
Daily engineer whereabouts update	500 per day	Live system: 1 year from update

Transaction response times

The DPA Solution must provide a responsive interface to the user in all circumstances. When a user is waiting for a response from the DPA Solution a progress indicator should be displayed either as a progress bar when a longer wait time can be expected (e.g. when generating an Audit report) or as a simplified progress indicator when a shorter wait time is anticipated.

The following table provides an outline of the expectation for minimal response times for selected transaction types. It is expected that other transaction type not listed will perform to a similar standard.

Table 4: Transaction response times

Transaction type	Description of measurement points	Expected response times in 95% of occasions[9]
User sign in	**Start**: User has entered user name and password details and clicks ">". **Finish**: DPA Solution presents the DPA Solution homepage or a message to indicate failed log in.	<8 secs
Display of geographical information in maps	**Start**: User has selected location. **Finish**: DPA Solution presents selected location and sets map extent	<5 secs
Display of asset data/ layer in maps	**Start**: User has selected location, map extent is set, and user has selected required layer. **Finish**: DPA Solution presents geographical information for asset data/ layer on map.	<2 secs per layer
Retrieve previously saved searches and orders	**Start**: User has selected an Order number in required module (e.g. Expression of Interest, Survey, Build, Stage One Build, Confirmation/ Connection) **Finish**: DPA Solution presents Order details (asset data etc).	<4 secs
Display of a form to provide plans, completion notifications and approval/ rejection.	**Start**: User selects relevant process/ form button, e.g.: • Expression of Interest Request • Survey Plan Request • Survey Results • Deployment Plan • Deployment Results • Confirmation of Connection • Engineer Whereabouts • Works Request **Finish**: DPA Solution presents form ready for User completion or review	<2 secs
Submission of a form to provide plans, completion notifications and approval/ rejection.	**Start**: User selects Submit or Save once form has been completed. **Finish**: DPA Solution displays acknowledgement to user and relevant data records are updated.	<3 secs
Email notifications	**Start**: Item has been changed in the DPA Solution for which the user has a set a preference to be immediately alerted. **Finish**: Notification message has been submitted to the external email provider.	<1 minute
Administrative update	**Start**: User selects item where changes are required. **Finish**: Existing settings are displayed ready for amendment.	<2 secs

[9] When user is using a standard ADSL connection or other connection offering between 4 and 10Mbps download and 400 to 800 Kbps upload speeds.

Transaction type	Description of measurement points	Expected response times in 95% of occasions[9]
Provide management information report	**Start**: User has set filters for report and selects *Generate Report*. **Finish**: Report is displayed to user.	<10 secs

Exportable File Formats

Search results displayed in the DPA Solution shall be exportable in Open Geospatial Consortium compliant formats (for example, GML.)

3.3.3 Availability

The DPA Solution must be a live system that can be accessed 7 days a week, 7am to 7pm to enable CPs to provide work requests and receive updates in normal working hours (for desk based and field staff).

The DPA Solution must be accessible via the standard internet, and from corporate IT systems.

The DPA Solution must be remotely accessible by all users regardless of the accessing device's fixed or mobile type.

3.3.4 Service Management

Openreach must provide ongoing support and maintenance for the DPA Solution. They must provide a helpdesk that is capable of receiving faults/incidents and requests relating to the DPA Solution, and must operate as a minimum between Monday and Friday, 9am to 5pm. Within these parameters, support will comprise:

Fault and Request Management

Users must be able to report faults and requests relating to the DPA Solution to the helpdesk via email and / or telephone. Fault and request cases will be acknowledged, responded to and resolved.

Cases shall be acknowledged by confirming receipt and assigning a case number.

The helpdesk should contact the relevant user and attempt to diagnose and fix the DPA Solution related fault, or fulfil DPA Solution related request. If a fault cannot be fixed via the helpdesk it will be passed to second line support for further investigation and resolution.

The following resolution times will apply:

Table 5: Fault resolution service requirements

Case type	Description/ example	Resolution time
Critical fault	The service is unavailable	4 hours
Major fault	A module of the service is unavailable, key functionality is unavailable	1 day
Minor fault	Minor functionality is unavailable	2 days
Requests	e.g. New user set up, password re-set, help	4 hours

Case type	Description/ example	Resolution time
Requests for Information	e.g. Request for impact statement for proposal of changes to the DPA Solution	10 days

Problem cases may be opened to manage one or more incidents that have an unknown root cause, and exhibit similar symptoms.

Access Management

The DPA Solution must provide a way to manage users such that users can be added and removed, and permissions and preferences configured. System administrator use cases require that OP users are able to set up and add new users to the DPA Solution.

Reporting

The DPA Solution or helpdesk must be able to provide management information reports for the following items accessible by Openreach users:

Table 6: DPA Solution Management Reporting requirements

Reporting	Report content
Fault, request and problem cases	Case type (critical, major, minor, request)
	Case category/ description
	Case open date and time
	Case resolved date and time.
	Case notes should also be made available upon request.
Storage capacity	Metrics showing storage in use per site module

Release Management

A process must be in place to manage the deployment of new software releases. As a minimum this must include:

1. Planning.
2. Scheduling.
3. Testing.
4. Controlled deployment.
5. Version control and configuration management.

3.4 Test requirements

In the delivery of the DPA Solution, Openreach must provide for the following test requirements.

3.4.1 Test Plan

A test plan must be produced to include the following criteria as a minimum:

1. Test Approach (overview of the testing which will be undertaken to verify and validate the requirements within this document);
2. Test Environment description, and how it represents the final deliverable environment and system architecture(s); i.e. in terms of functional & non-functional requirements coverage.
3. Test tool(s) description (software/hardware used to provide test management & execution).
4. Version control procedure (software release and regression testing processes);
5. Defect management procedure (including critical, major and minor/cosmetic defect fix estimates, and defect review process);
6. Test schedule, detailing key product releases and test milestones;
7. Description of test/live data artefacts to be used during test execution;
8. User Acceptance Testing (UAT) will be required to validate the finished DPA Solution product. The Test Plan should include a proposal for a set of test cases to be executed at a UAT event.

3.4.2 RVTM (Requirements Verification Traceability Matrix)

Openreach's development team should complete the tracing of the design & test case references against the use cases included in this document using a Requirements Verification Traceability Matrix (RVTM).

3.4.3 Acceptance process

Acceptance of the DPA Solution will be dependent on the following test criteria:

1. 0 'Critical' defects in final build (prior to UAT);
2. 0 'Major' defects in final build (prior to UAT);
3. 0 'Critical / Major' defects present following the UAT event;
4. Acceptance of the path to fix for 100% of minor / cosmetic defects.

4 Estimate of Development Cost and Timescales

4.1 Introduction

Mott MacDonald have modelled and estimated the effort and cost required to develop the DPA Solution. These estimates are based on:

- The functional (use cases) and non-functional requirements set out in this document.
- Our experience of previous software development projects and our judgements about the complexity of the development required.
- A review of evidence gathered by Ofcom under its formal powers relating to the systems developments for Openreach's Infrastructure Discovery (Maps) tool.

4.2 Scenarios

We have provided a range of broad estimates for the timescales and cost of developing the DPA solution, drawing a distinction between the following scenarios.

Whether the systems development is 'Greenfield' or 'Non-Greenfield'. We assume that 'Greenfield' development does not require extensive integration with existing legacy systems (such as multiple operational and back-office databases and tools) and therefore the resource requirement will be lower.

We note that Openreach has already developed and implemented the Infrastructure Discovery (Maps) tool that provides some mapping functionality. Therefore, we have provided a broad estimate of the costs and timescales for the 'Full development' of the DPA solution (i.e. assuming no mapping functionality has been delivered to date); and 'Some mapping functionality already delivered' (i.e. where the timescales and costs relate to implementing the functionality in the DPA solution that is incremental to the mapping functionality).

4.3 Assumptions

All scenarios and estimates are based on:

(1) A blend of the following FTE resources:

- 4 x Software developers
- 2 x Business Analysts
- 1 x Development Manager
- 1 x Project Manager
- 1 x Tester
- 1 x Trainer

(2) The following resource day rates:

Table 7: Day rates

Role	Day rate
Software Developer	£550
Business Analyst	£650
Development Manager	£850
Project Manager	£750
Tester	£450
Trainer	£550

Source: These are based on industry estimates of current contractor day rates. These are fully-costed to include contributions for National Insurance, pensions and associated overheads.

- The estimates do not include annual licensing costs for mapping, which are estimated to cost £200,000 per annum
- The estimates do not include the costs of hosting for storage of the DPA solution.
- The scenarios provided relate to base case estimates.
- All scenarios assume that the DPA solution uses data derived from Openreach's existing PiPeR database (as explained in Section 2 of this report).

4.4 Estimates of cost and timescales

Table 8: Estimates of cost and timescales

Type	Scope	Days of effort	Cost £ (m)	Time (months) min	Time (months) max
Greenfield	Some mapping functionality already delivered	1,556	1.06	12	14
Greenfield	Full development	1,994	1.36	14	18
Non-Greenfield	Some mapping functionality already delivered	3,647	2.49	23	28
Non-Greenfield	Full development	4,707	3.21	28	34

Appendices

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A. Requirements Gathering Approach

A.1 Requirements Gathering Approach

Mott MacDonald has consulted with Ofcom, Openreach and a small selection of CPs and their partners to understand:

- End user requirements
- Ofcom's requirements
- Openreach's existing systems and processes, and their planned developments.

A variety of methods were used:

- Interviews, meetings and teleconference calls.
- Document review.
- Review of stakeholder responses to Ofcom's Initial proposals to develop an effective PIA remedy document, published 6 December 2016.
- Review of information provided by Openreach to Ofcom under Ofcom's formal information gathering powers.

A.1.1 Meetings and Teleconference calls

[✂] – Redacted for confidentiality

Meetings and semi-structured interviews were held with the following groups of stakeholders:

Table 9: Meetings and teleconference calls

Meeting	Attendees	Format and date
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]
[✂]	[✂]	[✂]

A.1.2 Documents

The following Openreach documents (with the filenames below) have been reviewed to ensure existing processes are understood and taken into consideration:

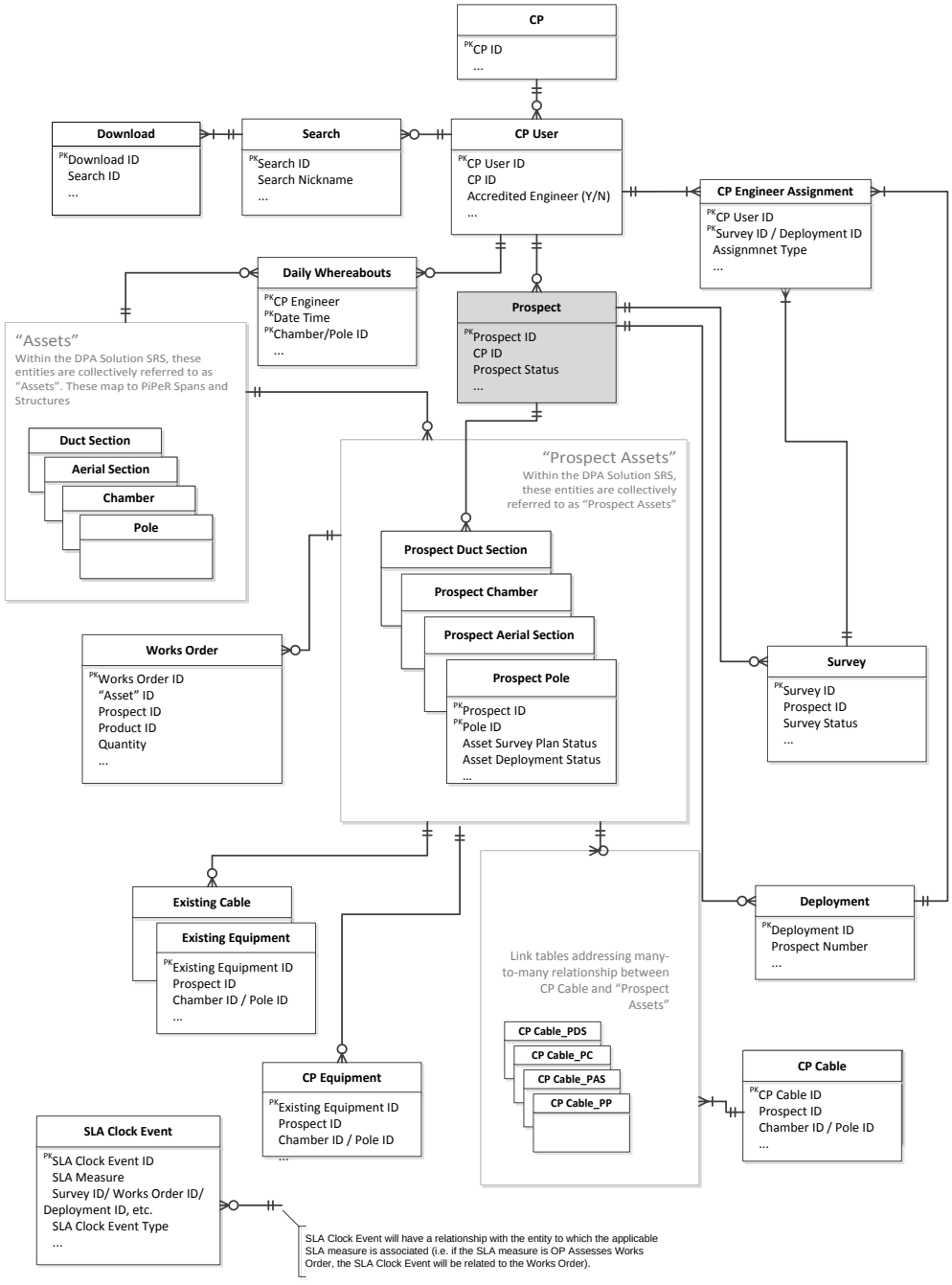
Table 10: Documents

Document Title	File name
Proof of Concept Press Notice "Openreach trials new duct and pole sharing process" Jul 06, 2016	Proof of concept press notice.docx
Ofcom and Openreach PIA Discussion presentation	20160311 – BT – PIA Process charts from Openreach.pdf
FTTP Design process: Overview of Urban and rural areas	20160623 OR FTTP planning presentation.pdf
BT Planning Process:	
Access network planning and implementation standard job pack	20160623 sample job pack part 1.pdf 20160623 sample job pack part 2.pdf 20160623 sample job pack part 3.pdf
Duct and Pole Sharing Ref Offer, Business Processes:	
Duct and pole sharing – Process Description	Piaprocessv2.doc
Daily Whereabouts form	Daily_Whereabout.xls
Duct and Pole Sharing – Forecasting Form	Duct and pole Sharing – Forecasting Form.zip
Duct Space Record	Duct_Space_Record.xls
Duct and Pole Sharing Accreditation form	Duct_and_Pole_Sharing_Accreditation_CRF.zip
Duct and Pole Sharing inflight change form	Duct_and_Pole_Sharing_inflight_change_CRF.zip
Duct and Pole Sharing cessation form	Duct_and_Pole_Sharing_cessationCRF.zip
Duct and Pole Sharing combined form	Duct_and_Pole_Sharing_combined_CRF.zip
Duct/ Pole Space record Index	PIA_DSR_and_PSR_Index.doc
Pole Space Record	Pole_Space_Record.xls
Duct and Pole Sharing Ref Offer, technical Specifications:	
Section 4 – Safety: Working on the Openreach Network – General Risks	Access Network Risks V48.pdf
Section 5 – plant specifications	Various files
Section 6 – QoS and accreditation	Various files
Section 6 – QoS audit	Various files
Duct & Pole Sharing Space Prospect Engineering Principles	Duct and pole sharing space Prospect principles (issue 1).doc
Issue 4 Duct & Pole Sharing Engineering Principles	Duct_and_pole_sharing_engineering_principles_issue_4.pdf
PIA Schedules:	
Agreement for the provision of Physical Infrastructure Access	PIAConditions_Version_1_4.pdf
Agreement for Physical Infrastructure Access Schedules 1 to 11	Various files
Systems guides and specifications:	
Dialogue Services Product Guide June 2016	2016 11dialogue_services_prodict_guide.pdf
Infrastructure Discovery map tool, Customer User Guide	2016 11 InfrastructureDiscoveryuserguide.pdf
Infrastructure Discovery Web Service R2700 version 1.0	2016_11_id_interfacespec.pdf
Openreach Web Services User Guide for Openreach Services	Openreach_Web_Services_CP_UserGuidev47 (002).doc
OR-3610-Passive Infrastructure Access Phase 1	OR-3610_Passive Infrastructure Access-Phase 1_Draft 0 1.doc

B. Illustrative Data Structure

B.1 Entity relationship diagram

The following is an illustrative Entity Relationship Diagram that could provide the underlying data structure for the DPA Solution.



B.2 Entity data specification

The following tables provide an illustrative data specification for each of the Entities identified. This is intended to aid the reader's comprehension the use cases. The data attribute listed represent those identified during the development of this specification.

PK notates the primary keys.

	Entity:	Duct Section ("Asset")		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Duct Section ID	text	Not null	(Maps to a PiPeR Span asset)
	Start Chamber	Chamber ID	Not null	Chamber.Chamber ID
	End Chamber	Chamber ID	Not null	Chamber.Chamber ID
	Duct Section Type	list	Span type as per PiPeR	
	Cross-Sectional Area of All Bores	number	Not null In mm^2	
	Available Capacity RAG	number (percentage)	Not null Derived	
	…			

	Entity:	Chamber ("Asset")		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Chamber ID	text	Not null	(Maps to a PiPeR Structure asset)
	Grid Reference	grid reference	Not null	
	Chamber Type	list	Structure type as per PiPeR	
	…			

	Entity:	Aerial Section ("Asset")		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Aerial Section ID	text	Not null	(Maps to a PiPeR Span asset)
	Start Pole	Pole ID	Not null	Pole.Pole ID
	End Pole	Pole ID	Not null	Pole.Pole ID
	Aerial Section Type	list	Span type as per PiPeR	
	…			

	Entity:	Pole ("Asset")		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Pole ID	text	Not null	(Maps to a PiPeR Structure asset)
	Grid Reference	grid reference	Not null	
	Pole Type	list	Structure type as per PiPeR	

Available Capacity RAG	number (percentage)	Not null Derived	
…			

	Entity:	CP		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	CP ID	text	not null	
	CP Organisation Name	text	not null	
	…			

	Entity:	CP User		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	CP User ID	text	Not null	
	Password	text	Not null	
	CP ID	CP ID	Not null	CP.CP ID
	Surname	text	Not null	
	First Name	text	Not null	
	Email Address	text	Not null	
	Work Telephone	varchar	Not null if *Mobile Telephone* is null.	
	Mobile Telephone	varchar	Not null if *Work Telephone* is null.	
	Third Party Employer	text	Optional	
	Prospect Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
	Survey Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
	Works Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
	Deployments Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
	Daily Whereabouts Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
	…			

	Entity:	OP User		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	OP User ID	text	Not null	
	Password	text	Not null	
	Surname	text	Not null	
	First Name	text	Not null	
	Email Address	text	Not null	

Work Telephone	varchar	Not null if *Mobile Telephone* is null.	
Mobile Telephone	varchar	Not null if Work*Telephone* is null.	
Permissions	pick list	'Read-only', 'Approval'	
Prospect Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
Survey Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
Works Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
Deployments Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
Daily Whereabouts Notification Preference	pick list	'Immediate Email', 'Weekly Summary' or 'Never'.	
…			

Entity:	**Search**		
Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK Search ID	auto number	Not null	
Created By	CP User ID	Not null	CP User.CP User ID
Search Nickname	text	Optional Consider restricting characters not suitable for inclusion in a filename.	
Search Timestamp	timestamp	Not null	
Top Left of Rectangle	grid reference	Not null	
Bottom Right of Rectangle	grid reference	Not null	
Duct Sections Layer Visible	boolean	Not null	
Bores Layer Visible	boolean	Not null	
Chambers Layer Visible	boolean	Not null	
Aerial Sections Layer Visible	boolean	Not null	
Poles Layer Visible	boolean	Not null	
Local Issues Layer Visible	boolean	Not null	
Openreach Planned Works Layer Visible	boolean	Not null	
…			

Entity:	**Download**		
Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK Download ID	auto number	Not null	

Search ID	Search ID	Not null	Search.Search ID
Download Timestamp	timestamp	Not null	
Filename	text	Not null	
…			

	Entity:	Prospect		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Prospect ID	auto number	Not null	
	Prospect Nickname	text	Optional Consider restricting characters not suitable for inclusion in a filename.	
	CP ID	CP ID	Not null	CP.CP ID
	Created By	CP User ID	Not null	CP User.CP User ID
	CP Contact	CP User ID	Not null	CP User.CP User ID
	Prospect Status	list	Not null Values: "Prospect Not Submitted" "Prospect Not Submitted - Deleted" "Expression of Interest" "Cancelled" "Surveying" "Deploying" "Connected" "Decommissioning" "Closed"	
	…			

	Entity:	Prospect Duct Section ("Prospect Asset")		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
PK	Duct Section ID	Duct Section ID	Not null	Duct Section.Duct Section ID
	Asset Prospect Status	pick list	Not null Values: "Asset Prospect Expression of Interest" "Asset Prospect Submitted for Approval" "Asset Prospect Assessment Not Submitted" "Asset Prospect Rejected" "Asset Prospect Approved"	

		"Asset Prospect Cancelled"	
Asset Survey Status	list	Not null Values: "Asset Survey Plan Not Submitted" "Asset Survey Plan Not Submitted - Deleted" "Asset Survey Plan Submitted for Approval" "Asset Survey Plan Assessment Not Submitted" "Asset Survey Plan Rejected" "Asset Survey Plan Approved" "Asset Survey Plan Cancelled" "Asset Survey Plan Complete"	
Asset Survey Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Asset Survey Plan Decision Reason Text	text		
Stage One Deployment Intention	boolean	Not null	
Joint Survey Required		"False" "True - set by OP" "True - set by CP"	
Joint Survey CP Engineer	CP User ID		CP User.CP User ID
Joint Survey CP Preferred Date Time	date/time		
Joint Survey OP Attendee	OP User ID		OP User.OP User ID
Joint Survey Agreed Date Time	date/time		
Deployment Status	list	Values: "Asset Deployment Plan Not Submitted" "Asset Deployment Plan Submitted for Approval" "Asset Deployment Plan Assessment Not Submitted" "Asset Deployment Plan Rejected" "Asset Deployment Plan Approved" "Asset Deployment Plan Proposed by Openreach" "Asset Deployment Plan Proposed by Openreach Not	

		Submitted" "Asset Deployment Results Not Submitted" "Asset Deployment Cancelled" "Deployment Complete"	
Deployment Plan Route Sequence	Integer		
Start EnRoute End	pick list	"Start", "En Route" or "End"	
From Chamber ID	Chamber ID		Chamber.Chamber ID
To Chamber ID	Chamber ID		Chamber.Chamber ID
Asset Deployment Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Asset Deployment Plan Decision Reason Text	text		
…			

	Entity:	**Prospect Chamber ("Prospect Asset")**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
PK	Chamber ID	Chamber ID	Not null	Chamber.Chamber ID
	Asset Prospect Status		Not null Values: "Asset Prospect Not Submitted" "Asset Prospect Submitted for Approval" "Asset Prospect Assessment Not Submitted" "Asset Prospect Rejected" "Asset Prospect Approved" "Asset Prospect Cancelled"	
	Asset Survey Plan Status		Not null Values: "Asset Survey Plan Not Submitted" "Asset Survey Plan Submitted for Approval" "Asset Survey Plan Assessment Not Submitted" "Asset Survey Plan Rejected" "Asset Survey Plan Approved" "Asset Survey Plan Cancelled"	

Asset Survey Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Asset Survey Plan Decision Reason Text	text		
Stage One Deployment Intention	boolean	Not null	
Joint Survey Required		"False" "True - set by OP" "True - set by CP"	
Joint Survey CP Engineer	CP User ID		CP User.CP User ID
Joint Survey CP Preferred Date Time	date/time		
Joint Survey OP Attendee	OP User ID		OP User.OP User ID
Joint Survey Agreed Date Time	date/time		
Deployment Status	list	Values: "Asset Deployment Plan Not Submitted" "Asset Deployment Plan Submitted for Approval" "Asset Deployment Plan Assessment Not Submitted" "Asset Deployment Plan Rejected" "Asset Deployment Plan Approved" "Asset Deployment Plan Proposed by Openreach" "Asset Deployment Plan Proposed by Openreach Not Submitted" "Asset Deployment Results Not Submitted" "Asset Deployment Cancelled" "Deployment Complete"	
Deployment Plan Route Sequence	auto number	Not null	
Start EnRoute End		"Start", "En Route" or "End"	
Breakout Required	boolean	"True" or "False".	
Breakout Required Wall	pick list	"Exchange", "Left", "Right" or "Far"	
Breakout Required X Measurement	Integer	In millimetres	
Breakout Required Y Measurement	Integer	In millimetres	
Inline Joint Required	boolean	"True" or "False".	
Asset Deployment Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	

Asset Deployment Plan Decision Reason Text	text		
…			

	Entity:	Prospect Aerial Section ("Prospect Asset")		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
PK	Aerial Section ID	Aerial Section ID	Not null	Aerial Section.Aerial Section ID
	Asset Prospect Status	list	Not null Values: "Asset Prospect Not Submitted" "Asset Prospect Submitted for Approval" "Asset Prospect Assessment Not Submitted" "Asset Prospect Rejected" "Asset Prospect Approved" "Asset Prospect Cancelled"	
	Asset Survey Plan Status	list	Not null Values: "Asset Survey Plan Not Submitted" "Asset Survey Plan Submitted for Approval" "Asset Survey Plan Assessment Not Submitted" "Asset Survey Plan Rejected" "Asset Survey Plan Approved" "Asset Survey Plan Cancelled"	
	Asset Survey Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
	Asset Survey Plan Decision Reason Text	text		
	Stage One Deployment Intention	boolean	Not null	
	Joint Survey Required	list	"False" "True - set by OP" "True - set by CP"	
	Joint Survey CP Engineer	CP User ID		CP User.CP User ID
	Joint Survey CP Preferred Date Time	date/time		
	Joint Survey OP Attendee	OP User ID		OP User.OP User ID

Joint Survey Agreed Date Time	date/time		
Deployment Status	list	Values: "Asset Deployment Plan Not Submitted" "Asset Deployment Plan Submitted for Approval" "Asset Deployment Plan Assessment Not Submitted" "Asset Deployment Plan Rejected" "Asset Deployment Plan Approved" "Asset Deployment Plan Proposed by Openreach" "Asset Deployment Plan Proposed by Openreach Not Submitted" "Asset Deployment Results Not Submitted" "Asset Deployment Cancelled" "Deployment Complete"	
Deployment Plan Route Sequence	Integer	Not null	
Start EnRoute End	pick list	"Start", "En Route" or "End"	
From Asset			
To Asset			
Asset Deployment Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Asset Deployment Plan Decision Reason Text	text		
…			

	Entity:	**Prospect Pole ("Prospect Asset")**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
PK	Pole ID	Pole ID	Not null	Pole.Pole ID
	Asset Prospect Status		Not null Values: "Asset Prospect Not Submitted" "Asset Prospect Submitted for Approval" "Asset Prospect Assessment Not Submitted" "Asset Prospect Rejected"	

		"Asset Prospect Approved" "Asset Prospect Cancelled"	
Asset Survey Plan Status	list	Not null Values: "Asset Survey Plan Not Submitted" "Asset Survey Plan Submitted for Approval" "Asset Survey Plan Assessment Not Submitted" "Asset Survey Plan Rejected" "Asset Survey Plan Approved" "Asset Survey Plan Cancelled"	
Asset Survey Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Asset Survey Plan Decision Reason Text	text		
Joint Survey Required	list	"False" "True - set by OP" "True - set by CP"	
Joint Survey CP Engineer	CP User ID		CP User.CP User ID
Joint Survey CP Preferred Date Time	date/time		
Joint Survey OP Attendee	OP User ID		OP User.OP User ID
Joint Survey Agreed Date Time	date/time		
Asset Deployment Status	list	Values: "Asset Deployment Plan Not Submitted" "Asset Deployment Plan Submitted for Approval" "Asset Deployment Plan Assessment Not Submitted" "Asset Deployment Plan Rejected" "Asset Deployment Plan Approved" "Asset Deployment Plan Proposed by Openreach" "Asset Deployment Plan Proposed by Openreach Not Submitted" "Asset Deployment Results Not Submitted" "Asset Deployment Cancelled"	

		"Deployment Complete"	
Deployment Plan Route Sequence	auto number	Not null	
Start EnRoute End	list	Not null "Start", "En Route" or "End"	
CP DP Terminal Box Intentions	boolean	"True" or "False"	
CP Inline Joint Intentions	boolean	"True" or "False"	
CP Manifold Intentions	boolean	"True" or "False"	
Asset Deployment Plan Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Asset Deployment Plan Decision Reason Text	text		
…			

	Entity:	**Daily Whereabouts**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	CP Engineer	CP User ID	Not null	CP User.CP User ID
PK	Date Time	date and time	Not null	
PK	Chamber ID / Pole ID	Chamber ID / Pole ID	Not null	Chamber.Chamber ID or Pole.Pole ID
	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
	Planned Activity Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
	Planned Activity Text	text		
	System Prompted from Agreed Joint Survey	boolean	True or False	
	Joint Survey Date Time	date and time		
	Openreach Attendee	OP User ID		OP User.OP User ID
	Reported By	CP User ID		CP User.CP User ID
	…			

	Entity:	**Survey**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Survey ID	auto number	Not null	
	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
	Survey Request Raised by	CP User ID	Initially null	CP User.CP User ID

Survey Status	list	"Survey Plan Not Submitted" "Survey Plan Not Submitted - Deleted" "Survey Plan Submitted for Approval" "Survey Plan Assessment Not Submitted" "Survey Plan Rejected" "Survey Plan Approved" "Survey Cancelled" "Survey Complete" (Note that each associated Prospect Asset Item has its own Survey Status)	
Survey Required for Diversionary Works	boolean	Initial "False".	
Survey Critical Contact	CP User ID	Initially null	CP User.CP User ID
Survey CP Preferred Start Date	date	Initially null	
Survey CP Preferred End Date	date	Initially null	
Survey Agreed Start Date	date	Initially null	
Survey Agreed Preferred End Date	date	Initially null	
Survey Completion Submitted By	CP User	Not null	CP User.CP User ID
Survey Completion Submission Date Time	timestamp	Not null	
…			

	Entity:	**CP Engineer Assignment**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	CP User ID	CP User ID	Not null CP User.Accredited Engineer = True	CP User.CP User ID
PK	Survey ID / Deployment ID	Survey ID / Deployment ID		Survey.Survey ID or Deployment.Deployment ID
	Assignment Type	pick list	"Survey" or "Deployment"	
	…			

	Entity:	**Works Order**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Works Order ID	auto number		
	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
	Works Order Initiated by	list	“CP”, “Openreach”.	

Works Order Raised by	CP User ID / OP User ID	Initially null	CP User.CP User ID OP User.OP User ID
Work to be Carried Out by CP	boolean	Initially "false". Can only be True if Work Order Initiated by = "CP".	
Works Order Status	list	Initially null Values: "Works Order Not Submitted" "Works Order Submitted" "Works Order Assessment Not Submitted" "Works Order Rejected" "Works Order Accepted Awaiting Deployment Plan Approval" "Works Order Accepted" "Works Order Cancelled" "Works Order Complete"	
Works Order Rejection Reason Code	pick list	To be defined by Openreach, reflecting Openreach criteria.	
Works Order Decision Reason Text	text		
Chamber ID / Pole ID / Duct Section ID	Chamber ID / Pole ID / Duct Section ID	Not null	Chamber.Chamber ID / Pole.Pole ID / Duct Section.Duct Section ID
Product ID	pick list	Not null	
Quantity	integer	Not null	
Evidence to Support Request for Works	text		
CP Contact	CP User ID	Not null	CP User.CP User ID
OP Contact	OP User ID	Initially null	OP User.OP User ID
Notes	text	Initially null	
Works Start Date Time	date and time		
Works Completion Date Time	date and time		
…			

Entity:	**Existing Cable**		
Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK Existing Cable ID	auto number		
Prospect ID	Prospect ID	Not Null	Prospect.Prospect ID
Chamber ID / Pole ID	Chamber ID / Pole ID	Not null and must be a PiPeR Structure asset of an appropriate type	Chamber.Chamber ID / Pole.Pole ID

		(chamber, man hole, etc.).	
In Preferred or Second Choice Bore	pick list	Chambers: "In Preferred Bore", "In Second Choice Bore" Poles: "Not Applicable"	
Cable Type	pick list	"Sub Duct", "Copper", "Blown Fibre Tubing (BFT)", "Cable Optical Fibre (COF)", etc.	
Cable Application	pick list	"In Duct", "Trunk", "Drop Wire" or "Aerial"	
Outside Diameter	integer	Not null. In millimetres	
Cable Label	text	Optional	
Suspect Redundant	boolean	"True" or "False"	
…			

	Entity:	**Existing Equipment**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Existing Equipment ID	auto number		
	Prospect ID	Prospect ID	Not Null	Prospect.Prospect ID
	Chamber ID / Pole ID	Chamber ID / Pole ID	Not null and must be a PiPeR Structure asset of an appropriate type (chamber, man hole, etc.).	Chamber.Chamber ID / Pole.Pole ID
	Equipment Type	pick list	DP Terminal Box', 'Inline Joint' or 'Manifold'.	
	Suspect Redundant	boolean	"True" or "False"	
	…			

	Entity:	**CP Cable**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	CP Cable ID	auto number		
	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
	Chamber ID / Pole ID	Chamber ID / Pole ID	Not null and must be a PiPeR Structure asset of an appropriate type (chamber, man hole, etc.).	Chamber.Chamber ID / Pole.Pole ID
	Cable Type	pick list	"Sub Duct", "Copper", "Blown Fibre Tubing (BFT)", "Cable Optical Fibre (COF)", etc.	

Cable Application	pick list	"In Duct", "Trunk", "Drop Wire" or "Aerial"	
Outside Diameter	integer	Not null. In millimetres	
Breaking Strain	integer	Required for Drop Wires and Aerial Cables. In Kilonewtons (KN).	
Cable Label	text	Optional	
Road Crossing	boolean	"True" or "False" Applicable to drop wires.	
…			

	Entity:	**CP Equipment**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	CP Equipment ID	auto number		
	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
	Chamber ID / Pole ID	Chamber ID / Pole ID	Not null and must be a PiPeR Structure asset of an appropriate type (chamber, man hole, etc.).	Chamber.Chamber ID / Pole.Pole ID
	Equipment Type	pick list	"DP Terminal Box", "Inline Joint", "Manifold", etc.	
	…			

	Entity:	**Deployment**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	Deployment ID	auto number	Not null	
	Prospect ID	Prospect ID	Not null	Prospect.Prospect ID
	Deployment Raised by	CP User ID (or OP User ID)	Initially null	CP User.CP User ID (or OP User.OP User ID)
	Deployment Status	list	Initially null Values: "Deployment Plan Not Submitted" "Deployment Plan Submitted for Approval" "Deployment Plan Assessment Not Submitted" "Deployment Plan Rejected" "Deployment Plan Approved" "Deployment Plan Proposed by Openreach"	

		"Deployment Plan Proposed by Openreach Not Submitted" "Deployment Results Not Submitted" "Deployment Cancelled" "Deployment Deviated" "Deployment Complete" (Note that each associated Prospect asset item has its own Deployment Status)	
Deployment Plan Proposed by OP User	OP User ID	OP User ID, where an OP User has proposed an alternative Deployment Plan. Otherwise, null.	OP User.OP User ID
Deviation Replacing Approved Deployment Plan	Deployment ID	Initially null	Deployment.Deployment ID
Deployment Critical Contact	CP User ID	Initially null	CP User.CP User ID
Deployment CP Preferred Start Date	Date	Initially null	
Deployment CP Preferred End Date	Date	Initially null	
Deployment Agreed Start Date	Date	Initially null	
Deployment Agreed End Date	Date	Initially null	
…			

	Entity:	**SLA Clock Event**		
	Attribute	**Data type**	**Validation rules**	**Foreign Key**
PK	SLA Clock Event ID	auto number	Not null	
	SLA Measure	list	"Works Order Assessment"; "Deployment Plan Assessment"; etc.	
	Survey ID / Works Order ID / Deployment ID / etc.	Survey ID / Works Order ID / Deployment ID / etc.	Not null	Survey.Survey ID / Works Order.Works Order ID / Deployment.Deployment ID / etc.

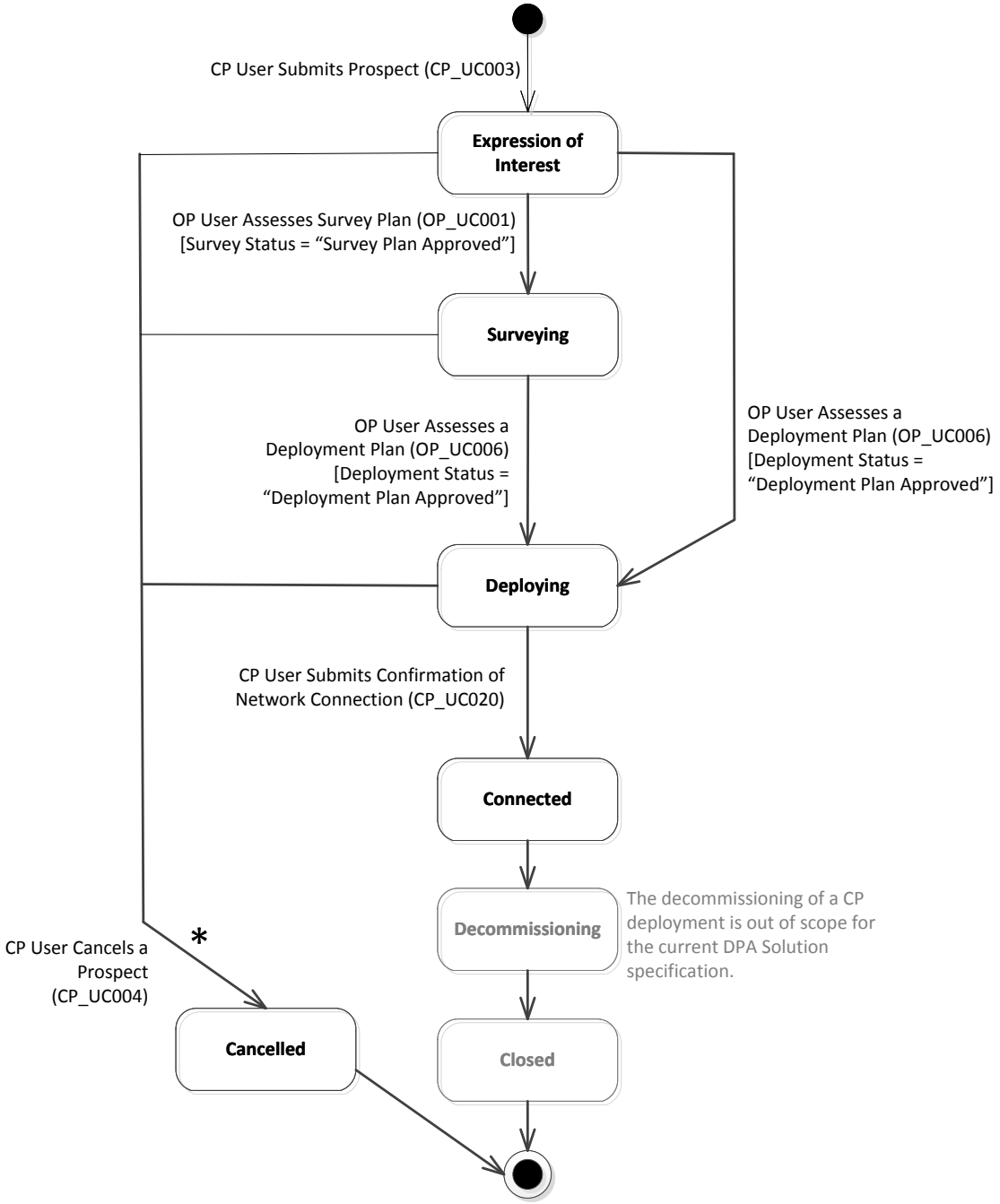
SLA Clock Event Type	list	"Stop"; "Restart". "Restart" not valid (or will be ignored by the reporting system) where there is no preceding "Stop" awaiting a "Restart". Rules may need to be developed to cope with situations where a further "Stop" is created where there is a preceding "Stop" still awaiting a "Restart". It may be appropriate to allow the overlaying of multiple stops.	
Related Stop	SLA Clock Event ID	Null if SLA Clock Event Type = "Stop". If SLA Clock Event Type = "Restart", this field holds the association with the related stop. Required in order to cope with the overlaying of multiple stops.	SLA Clock Event.SLA Clock Event ID
SLA Clock Event Timestamp	date and time	Not null	
SLA Clock Auto Restart Time	date and time	If null, an SLA Clock Event of SLA Clock Event Type = "Restart" is required in order for the SLA reporting to determine the duration of the Stop period (if no "Restart" then the duration of the Stop period will extend to the closure of the task subject to the SLA. If not null, no "Restart" is required and the SLA reporting will calculate the duration of the Stop period based on the SLA Clock Event Timestamp and the SLA Clock Auto Restart Time.	

SLA Clock Event Reason Code	list	Required if SLA Clock Event Type = "Stop". To be defined by Openreach, reflecting Openreach criteria.	
SLA Clock Event Reason Text	text		
…			

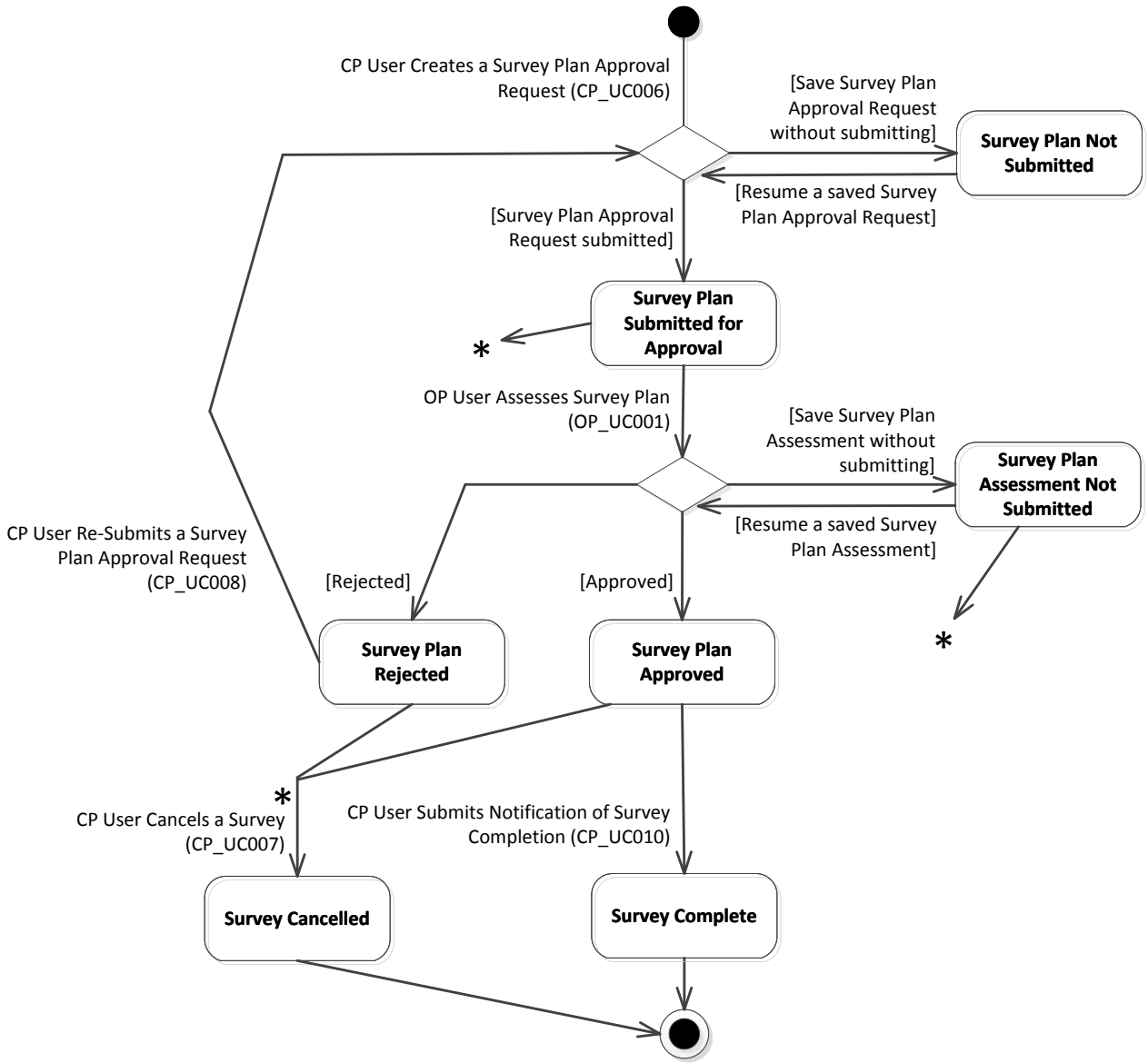
B.3 Entity state machine diagrams

The following state machine diagrams illustrate the state transitions for the key entities, namely: Prospect, Survey, Deployment, and Works Order.

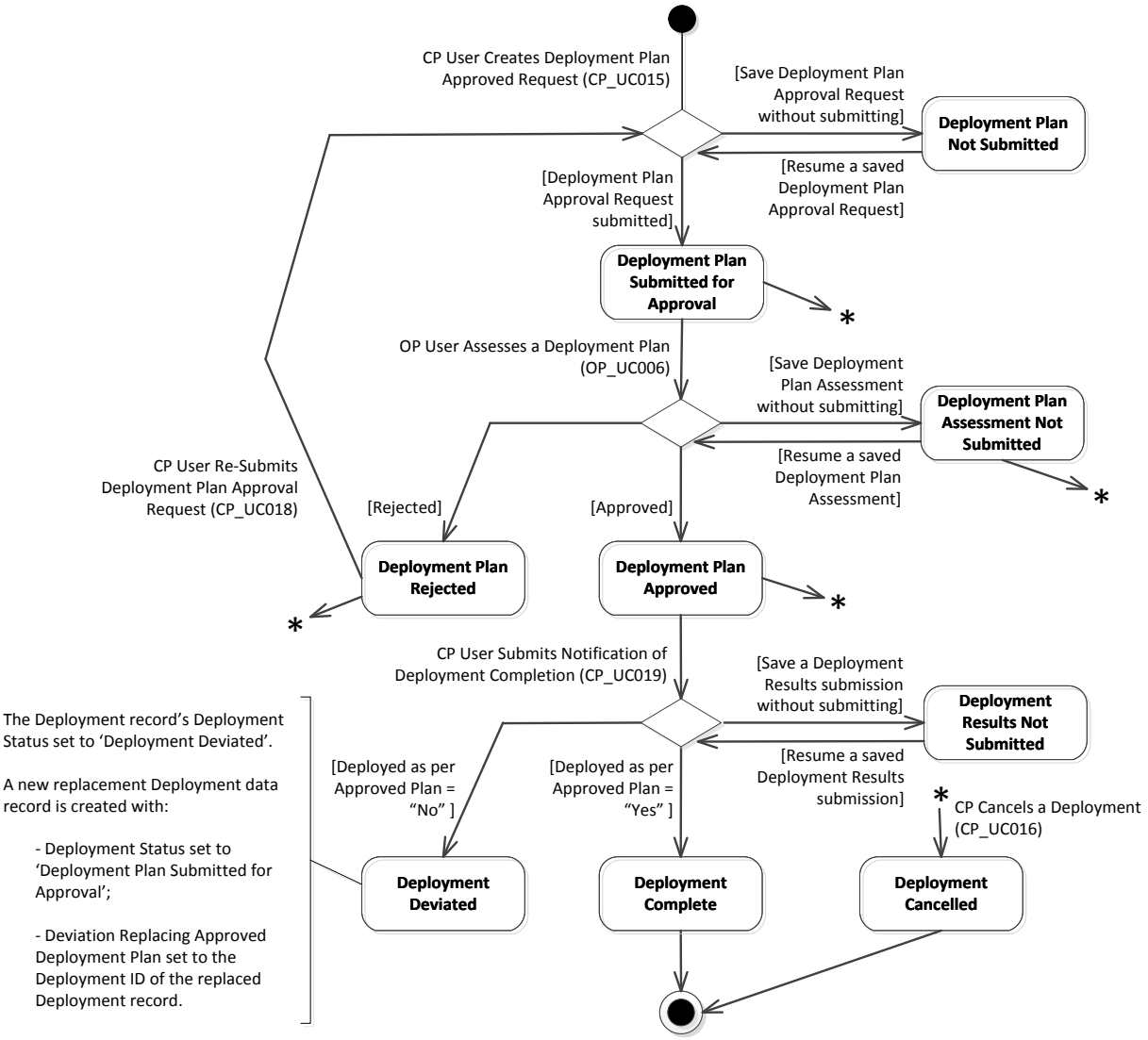
State Machine Diagram: **Prospect**



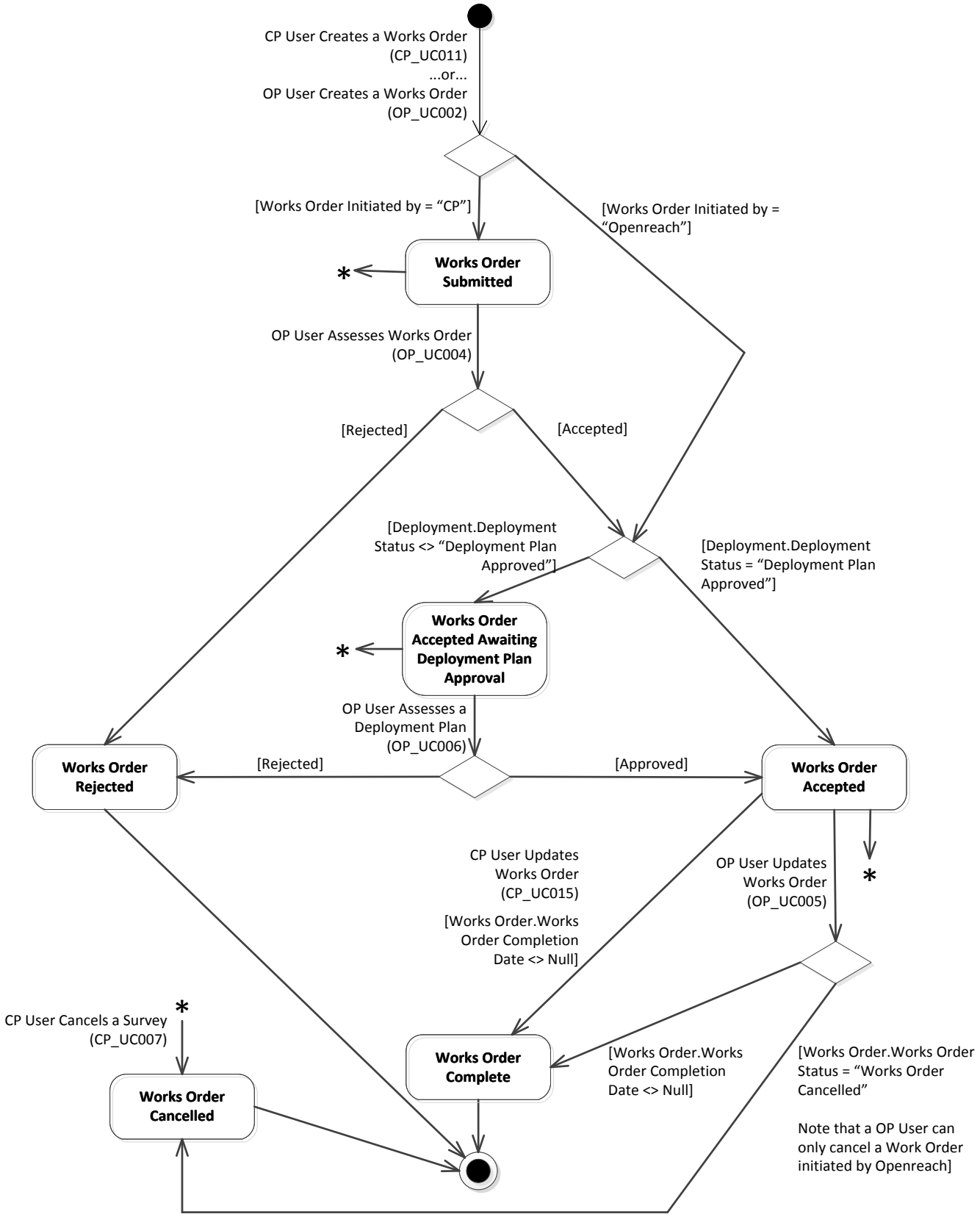
State Machine Diagram: **Survey**



State Machine Diagram: **Deployment**



State Machine Diagram: **Works Order**



C. Glossary

Assets

Assets is the term to collectively describe the parts that make up the duct and pole infrastructure, and include Duct Sections, Chambers, Aerial Sections, and Poles (i.e. the assets referred to as Span and Structures within PiPeR).

Connection

Connection is the term used to describe the final activity undertaken to connect a customer's premises to the access network.

CP

A CP is a Communications Provider; a supplier interested in making use of Openreach's duct and pole infrastructure.

Deployment

Deployment is the term used to describe the activities a CP undertakes to install their equipment (cables, etc.) into Openreach ducts and pole infrastructure.

DPA Solution

The Duct and Pole Access Solution (DPA Solution) is the online system accessible by Openreach and Communication Providers that enables the exchange of information about CPs requirements for use of Openreach's duct and pole infrastructure. The DPA Solution enables CPs to view and download information about duct and pole infrastructure in geographical formats. The DPA Solution enables CPs and Openreach to exchange information about Expressions of Interest, Surveys, Deployment, and Works.

Expression of Interest

An Expression of Interest is the point at which a CP communicates to Openreach that it is interested in the ducts and poles in a geographical area. The Expression of Interest is made by way of a Prospect record being created in the DPA Solution for that CP.

OP

OP is an abbreviated term for Openreach use within use case references.

Physical Infrastructure Access

Physical Infrastructure Access (PIA) is Openreach's current product that enables CPs to order space in Openreach's duct and pole infrastructure.

Prospect

A Prospect is a route made up of duct and pole assets that a CP is working on. A Prospect is made up of assets and moves through a lifecycle of statuses (Expression of Interest, Surveying, Deploying, Connected).

Survey

A Survey is the activities that a CP may choose to undertake to check and validate the information provided by Openreach about duct and pole routes and assets. Surveys might be carried out in the field obtain the information necessary to plan deployment.

Works

Works are those activities which may be required in order that a CP can make use of duct and pole infrastructure. Works may include, for example, installing additional capacity or clearing blockages.