

# Case Study: Statutory Utility Management

## Thameslink Programme

### 1. Background

There are many utilities, but this case study considers two main types; those that supply Network Rail's own buildings and stations, and those in the way of projects. Organising supplies is covered by a number of existing documents such as 'How to change utility supplies' NRL3/ENV/305 and several others. Those utilities in the way of a project can be more problematic. They are likely to be 'statutory utilities' i.e. those wholly owned by one of the licenced utility companies. This licence grants them a great deal of authority which can have a powerful effect on how a project is delivered.

Any major and many smaller projects will necessarily have an involvement with the statutory utility companies and the Thameslink Programme was no exception. The beginning of the programme and up to Key Output 1 saw the Programme learn several valuable lessons in the management of statutory utilities; the most obvious of which was that it could not progress the next phase, Key Output 2, without significant improvement. Looking around the industry, best practice companies understand that properly managed utility work can enhance safety, save a vast amount of money and time and offer risk reduction and cost avoidance. Thameslink Programme secured the necessary skills and a significant item among the new outputs was the creation of *The Statutory Utilities Management Procedure*.

This procedure and its associated process maps are very comprehensive and generate benefits which start from pre-assessment of works and continue to close out. The application of the lessons learnt using this document captured savings in time, millions of pounds, reduced risk while enhancing safety and quality. To understand how this would be achieved and to quantify it, a tracker was kept.

### 2. Lessons learnt from the management of statutory utilities

- Employ staff who are skilled, experienced and understand the legislation surrounding statutory utilities and ensure the contractor does too.
- At an early stage, i.e. GRIP 2 or 3, carry out a utility search and a full and comprehensive survey. This could be carried out by specialist contractor, on behalf of the designer (the commissioning of the survey needs input from the surveyor to ensure the correct output).
- The above should be assembled into a 3D CAD model which can be used:
  1. to build a realistic budget
  2. to build a realistic programme
  3. by the design team
  4. for clash detection
  5. for planning
  6. for the re-ordering services
  7. and finally, as an 'as-built' (provided it has been kept up-to-date).
- The 3D CAD model should be provided with the tender documents and the contractor should use it to record *all* work involving utilities, i.e. installations, removals, diversions and protection work (line styles and descriptors are defined so that Network Rail and contractors use the same drawing referencing system).
- Contracts should be re-written to incentivise the contractor to challenge utility estimates and costs generally.
- The main contractor should investigate all opportunities for 'contestable' work, both for single services and in areas of multiple service trenches.
- Review the designer's scope and deliverables for Ground Investigations and stats surveys, ensuring a

competent specialist is used.

- Consider issuing a street works notice (Section 85) for the areas where work will take place. This is particularly effective on projects spanning several years. It will not stop the utility companies installing new plant but any equipment that is installed will have to be moved at their cost.
- The contractor needs to confirm the accuracy of the 3D model using electronic tracing, ground penetrating radar, trial holes and normal surveying techniques.
- The contractor's slit trenching is for confirmation only – it is far too late in the day if unknown services are discovered during construction.
- Data from *all* excavations should be fed back to the 3D model. Either to keep it up-to-date or to confirm the accuracy of it.
- Photogrammetry techniques were developed to enable anyone with a mobile phone to carry out an accurate 3D survey of an excavation.
- A note should be included on the drawings that a confirmation survey is required following demolition.
- Definition of responsibilities, escalation process and contact details with statutory utility companies needs to be clearly defined at the start up meeting.
- C4's need to be understood in detail and challenged if necessary.
- C9 reviews should take place.

### **3. Benefits of Process, Procedure and Capability**

Some of many the benefits which can accrue from the pre-assessment and continue through to close out are:

- Provides expertise to manage the interface with Utilities companies who are stakeholders and uniquely under law cannot be instructed directly by Network Rail.
- Provides expertise for understanding initial C4 estimates properly, challenging them if necessary and creating realistic budgets.
- Provides a method to create a utilities specific programme with realistic timescales which in turn:
  - (i) Highlights issues that require escalation
  - (ii) Identifies conflicts with the critical path
  - (iii) Adequately informs the risk register
  - (iv) Enables resource planning.
- Provides options to challenge statutory utilities works such as:
  - (i) Cost sharing legislation
  - (ii) Value engineering
  - (iii) Best procurement solution, i.e. 'contestable works' self-lay, Registered contractors or utility itself.
- Issuing of a street works notice that prevents utility companies charging to divert plant installed subsequently – this can be very beneficial on projects spanning several years.
- Reducing the costs of acquiring utilities records.
- A 3D CAD utility model is a more efficient method of collating and analysing utility records:-
  - (i) It enables efficient clash detection
  - (ii) It supports Pre-Construction Information Pack
  - (iii) It informs the permit to dig process
  - (iv) Ability to create virtual trial holes reducing the need for duplicate surveys
  - (v) Enables better design reviews
  - (vi) Informs the value engineering of the statutory proposals
  - (vii) Acts as an 'as-built' (providing it has been kept up-to-date).
- Our photogrammetry techniques enable anyone with a mobile phone to carry out an accurate 3D survey

of an excavation – no need to wait for a surveyor.

- Using this method, Thameslink Programme was able to maintain a BIM structured approach as required for BIM Level 2.
- End of the work a C9 review process and checklist for expenditure and approval of the final accounts which usually reveals more benefits.
- Aligned with GRIP assurance process and approval of the stage-gates as a project progresses – a process Sir Peter Hendy, in his capacity as Chairman of Network Rail, noted should be strengthened.

#### **4. Summary**

Future infrastructure programmes and projects will have to match the commercial and best practice companies in their ability to adequately manage statutory utilities. Internal capability can also provide flexibility, economies of scale for shared staff and knowledge. The best practice procedures and process that have been in place for Thameslink Programme can be straightforwardly applied to future projects to quickly deliver these benefits.

#### **About the author**

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#### **Further information**

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