Construction Phase Handbook

Chapter 1

Introduction

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Construction Phase

Introduction

1.1.   This Handbook focuses on the construction of the built asset as distinct from the preparation for its construction. It aims to help prepare clients for their role in managing the progress of their projects during the construction. It is not intended as a technical manual; it is expected that clients will either have their own in-house technical resource or hire it in. The Scottish Government [Construction Capability Assessment](#) will help to identify any skills and experience gaps and assist in developing the team. This chapter provides an overview by way of an introduction to the client's role during construction.

Overview

2.1.   Clients own their project and it is they who stand to gain or lose the most and, therefore, must be at the heart of driving it towards its outcomes and success. The client should take every step to facilitate their understanding of the nature of construction and construction project management. That understanding and expertise may not be available in the client organisation and therefore it may be necessary for the client to hire in a *'client advisor'* to ensure that the client can act effectively as an *'intelligent client'* and oversee the delivery of the project.

2.2.   The intensity of the project will ebb and flow throughout the lifecycle and some stages will need more input from the client than others. This is not to say that it can be put aside or ignored at any time; rather the client must recognise the requirements at each stage and ensure that they are always in a position to make the appropriate decisions, provide direction or support when it is required and that the associated procedures are in place and accessible.

2.3.   There will be significant demands on the client during the construction stage and a disengaged client can easily be blindsided by an event with the potential for serious damage to the prospects for project success. Therefore, they must be proactive in leading the project and ensuring that it achieves its outputs and outcomes.

2.4.   From time to time, throughout the construction phase, there will be occasions when the way is lost or strayed from. This could be as a consequence of, for example, external changes or unforeseen conditions. Whatever the cause, a client who is fully engaged with the project will be better prepared and equipped to work with the project delivery team to bring the project back onto track; or, better still, prevent it from going off course in the first place.

Direction

3.1.   It is not the role of the client to simply pay for the project and then take no further interest. The client determines and is responsible for the delivery of the objectives of the project and sets the philosophy, tempo and standard for that delivery; including such aspects as quality and fair payment. This requires the client to be visible, involved, informed and focused and to build strong relationships with all

stakeholders across the project as a whole. They must fully involve themselves in the delivery of their asset whilst recognising and understanding where the lines of responsibility are drawn and give the project and contractor teams sufficient space to do their jobs. This is not necessarily a balance which will emerge automatically; it requires open and clear two-way lines of communication.

3.2.   Throughout construction there will be a constant need for decisions to be made by the client and often these will be required urgently; for example where a change to the design is required. This requires the client to be approachable, available and have processes in place to efficiently manage all eventualities whether routine or exceptional occurrences.

3.3.   Clients must challenge their consultants and contractors to ensure that sufficient impetus, resource and expertise is being applied and that appropriate advice is being provided and decisions made to ensure that the asset is delivered to the specified time, quality and cost.

Achieving the Balance

4.1.   As noted above, it is important that the client understands the lines of responsibility and maintains an appropriate grip on the project without over managing the team. This is important for a number of reasons. An overly hands-on client may stray across the contractual line and not allow the contractor to do their job, or divert them from their priorities and consequently create difficulties and confusion about the requirements. Conversely, a client who is disengaged and leaves the contractors and consultants to 'get on with it' without challenging performance and progress against the deliverables, risks a project going out of control and losing focus. Both of these are likely to negatively impact time, cost and quality and lead to poor outputs and contractual disputes. Therefore, clients must develop a situational approach which recognises when to push the team forward, when to pull it over to a new approach or direction and when to leave the team to get on with things. Understanding of the situation can be aided by the use of monitoring tools and metrics generally provided by consultants and contractors.

4.2.   Essentially this is about strong leadership and clear and appropriate communication, ensuring that everyone on the project is fulfilling their contractual requirements or job specifications. The client owns the business case and it is the business case which justifies the project, therefore the client must ensure that there is no deviation from it without formal agreement. Good project management can assist this, in particular, pro-active performance and quality management and effective systems to manage changes to the contracted delivery specification.

Focus

5.1.   The client must focus on the following key tasks:

- **Strategy** The client owns the project and therefore must set the strategy for its delivery. Any changes to this can only be made by the client.

- **Project environment** The culture surrounding the project comes from and is maintained by the client. For example, embedding quality in a project

early on and continuing to reinforce its importance will help to ensure its delivery in the project output. Conversely, a client which shows no interest in achieving a quality output will be handed a problem asset.

- **The team** A construction project relies on an appropriately resourced team. The team may change over the course of the project and it is essential that, whatever its makeup, it is effectively managed, co-location of multi-disciplinary teams has been shown to help in in team cohesion and success. The client must manage those relationships to get the best out of the team. Annex A sets out some of the key players who may be involved in the construction phase. This list is neither prescriptive nor exhaustive and the actual make up will be determined by the requirements of the project.

- **Business case** Regardless of the scale, complexity or cost of a project a business case should be prepared. This is owned by the client and provides the basis, justification and standard for delivery.

- **High-level progress** The client should focus on the wider picture rather than on monitoring detailed progress of low level tasks.

- **Decision making** The client must make decisions quickly and, importantly, accurately. During construction each decision will have a number of dependencies and delayed decision making can have serious consequences on completion. Therefore, efficient systems must be in place to support the client to deal with change and take action as appropriate and necessary.

- **Communication** This is at the heart of good project management and the client must ensure there are clear lines of communication and that everyone knows what they are, and what their part in them is. This includes internally within the project and externally to stakeholders. Having a clear meeting schedule setting out attendance requirements along with the remit and frequency is essential.

- **Stakeholder Engagement** Stakeholders define the authorising environment for a project and must be managed according to their interest whether these are ministers, senior management, site neighbours, end users, funders, or the public etc.

- **Project Monitoring** Clients must ensure appropriate project monitoring and evaluation processes and tools (such as a Benefits Register and Realisation Plan) are in place and applied to deliver, assess and disseminate lessons throughout the whole life cycle of their project. Project monitoring is a separate exercise to Scottish Government Gateway Reviews (see Chapter 13 of the Project Initiation and Business Cases Handbook) or the Scottish Futures Trust's Key Stage Reviews, however the information gathered through appropriate monitoring can be used to support these reviews.

- **Lessons learned** Clients must seek to learn from other projects and apply those lessons in time to benefit their project. They should also ensure

that learning opportunities are recognised, studied, recorded and immediately applied.

- **Health & Safety** The client is identified, under the [Construction Design Management (CDM) Regulations, 2015](#) as being accountable for the impact that their decisions and approach have on the health, safety and welfare on the project. The main duties for clients are to make sure their project is suitably managed, ensuring the health and safety of all who might be affected by the work, including members of the public. Identifying and immediately applying lessons regarding the success (or otherwise) of the health and safety practices planned and adopted throughout the whole life cycle, is essential to improving future health and safety processes and roles.

Key Tools

6.1.   Good project management, monitoring and evaluation are essential to assist the client in maintaining a good hold on the project, this includes the following:

- **Project Execution Plan** This is a document which sets out what is to be done, who is to do it and when it is to be done. It also sets out the administrative framework for delivery including protocols for meetings, risk and costs etc. This will provide the baseline against which progress of the project is managed. This is normally prepared by the external construction project manager. It is essential that it is finalised prior to contracts being awarded as compliance with it may form a part of some contracts.

- **Programme** This sets out what happens, when and in relation to what other activities. This will be prepared by the project manager to cover the whole project period and by the contractor to cover the specific and detailed construction period. The client must ensure that sufficient time is given for the overall delivery and that strategic milestones are achieved.

- **Risk Management Plan** Risk is covered in [Project Initiation and Business Cases Handbook](#). Active risk management is essential at all levels of the project and should be driven by a specific person within the permanent client team, ideally a member of the project board or accountable directly to the project board.

- **Change Control** Once the design is fixed, changes must only be considered and implemented by a formal approval process. This is known as change control. It is essential that an efficient system is put in place for processing changes and approving or rejecting them. Final sign off will normally be by the project sponsor, although the *Change Management Plan*, which will form part of the *Project Execution Plan*, may set levels of delegated authority including approval at project board level. Changes to the design can come thick and fast and are usually time critical. Late decisions will have a detrimental impact on the programme and consequently on time and project cost.

- **Delegated authority** Everyone on a project should know exactly what their authority is, that is what level of decision they are empowered to make. As well as understanding and accepting their individual responsibilities, project team members must appreciate the remit of others and the team's collective duties. This will usually be set out in an appointment letter for senior project officers and/or in the project execution plan for others. Requirements may change as the project progresses and levels should be reviewed regularly and the relevant protocols amended as required.

- **Tolerances and exceptions** It must be clear what the levels of tolerance for deviation from the plan are at which a report must be made to the next level of management in the project. The project manager must raise an exception report to the client where the project moves out-with tolerances for time, cost and quality set in the Project Execution Plan and agreed at project board. Similarly, there will be levels which require the project board to be informed. Tolerances will generally be defined along the following lines:

  o **Time**: x weeks or days, or more, plus or minus of the programme at any or a specific point in time.

  o **Cost**: x% or £x, or more, plus or minus of the estimated project or construction spend. This may also be benchmarked against a specific item of spend, milestones or any other relevant and measurable figure.

  o **Quality**: An exception against quality standards may be raised as a result of a flag raised by a Clerk of Works, or other relevant quality assurance system.

- **Reporting** Routine reports and returns will be required throughout the project and this should be set out at the beginning in the project execution plan. These, together with reporting against exceptions to tolerances, provide project owners with their eyes and ears on the health of the project and likelihood of whether it will come in on time and to cost and quality. Clients should challenge reports to ensure they are robust and that the appropriate action is being taken in response.

- **Communications plan** Good management of communications can assist any project in ensuring that the right information hits the right targets, at the right time. This is a two way street and will help inform the project as well as stakeholders. It is therefore essential to plan communications so that messages and handling is clear and that the right person deploys the right messages.

- **Cost Management Plan** Larger projects are likely to have a cost consultant managing the project cost plan and a project manager managing the cash flow projection. The client needs to be able to marry up all of these documents with the budget and ensure that funds are drawn down and paid out on time so that decisions can be made based on the most up to date cost figures and projections.

- **Quality** The client must create a quality culture within the project. In recent times there have been a number of prominent cases where the quality of construction outputs has not been delivered. The nature of quality must be clear and understood by the client and the delivery team including consultants and contractors. It has two elements to it. Firstly, it is about defining a specification which meets the functional requirements of the use and users of the built asset and, secondly, it is about delivery in all respects of that specification through its design, procurement and construction. Quality is an essential part of any construction project and it is for the client to ensure that quality is built into outputs from the very start of the project and that quality management systems are maintained throughout to assure its delivery.

- **Project Benefits Register and Realisation Plan** Benefits management is central to delivering projects and programmes successfully. The identification of benefits should occur before a project is initiated and be developed throughout the project's whole life cycle. The client must allocate appropriate resources at the outset of the project to determine clear objectives, which reflect their own requirements and those of their stakeholders. The realisation of benefits illustrate a project's success in delivering positive and measurable improvements.

- **The Construction Phase Plan** Where appropriate, under the Construction (Design and Management) (CDM) Regulations 2015 a *Construction Phase Plan* is required for every construction project. The Plan helps to organise the *Principal Contractor* (defined on the HSE webpages) and facilities their working with others to make sure that the work is carried out without risks to health and safety. It will also assist the *Principal Contractor* to comply with CDM Regulations 2015.

Summary

7.1. The client's role in the construction phase is pivotal and needs strong leadership if the project is to deliver the business case.

Construction Key Players

Client Home Team	Client Consultant Team	Contractors

IDM
SRO
Project Owner
Project Sponsor
Project Manager
Project Finance Officer
Project Administrator
Client Advisor
	Project Manager – client's representative managing project on a day to day basis.
	Contract Administrator – responsible for administering the construction contracts. Role may be carried out by any of the main consultants as appropriate although most frequently by the PM.
	Cost Consultant – provides estimates and advice regarding the costs of the construction.
	Designers
	  Architects
	   Mechanical & Electrical
	   Acoustics
	   Structural
	Construction Design and Management Co-ordinator
	Traffic planner
	Ecologist
	Archaeologist
	Site inspectors
	Commissioning Engineer
	BIM Advisor
	Space planner
		Site Agent
		Commercial Manager
		(The contractor may have different teams in place during the pre-construction, construction and post-construction phases)

Notes:
1. The exact make-up of the various teams will be dependent on the nature of the project. The key point from the client's perspective, is to understand who is who on their project and ensure that the appropriate lines of communication are established and maintained.
2. The Client Consultant Team list is not exhaustive, but identifies some of the more common consultants. The key relationships will be with the Project Manager, Contract Administrator, Cost Consultant and Designer(s).