



CONSTRUCTION
SAFETY
PARTNERSHIP

CASE STUDY

> PROJECT SUPERVISOR DESIGN PROCESS



HE Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



An Roinn Post, Fiontar agus Nuálaíochta
Department of Jobs, Enterprise and Innovation



ACEI
Association of Consulting
Engineers of Ireland
Cumann Innealtóirí Comhairle na h-Éireann





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> Case Study - Project Supervisor Design Process

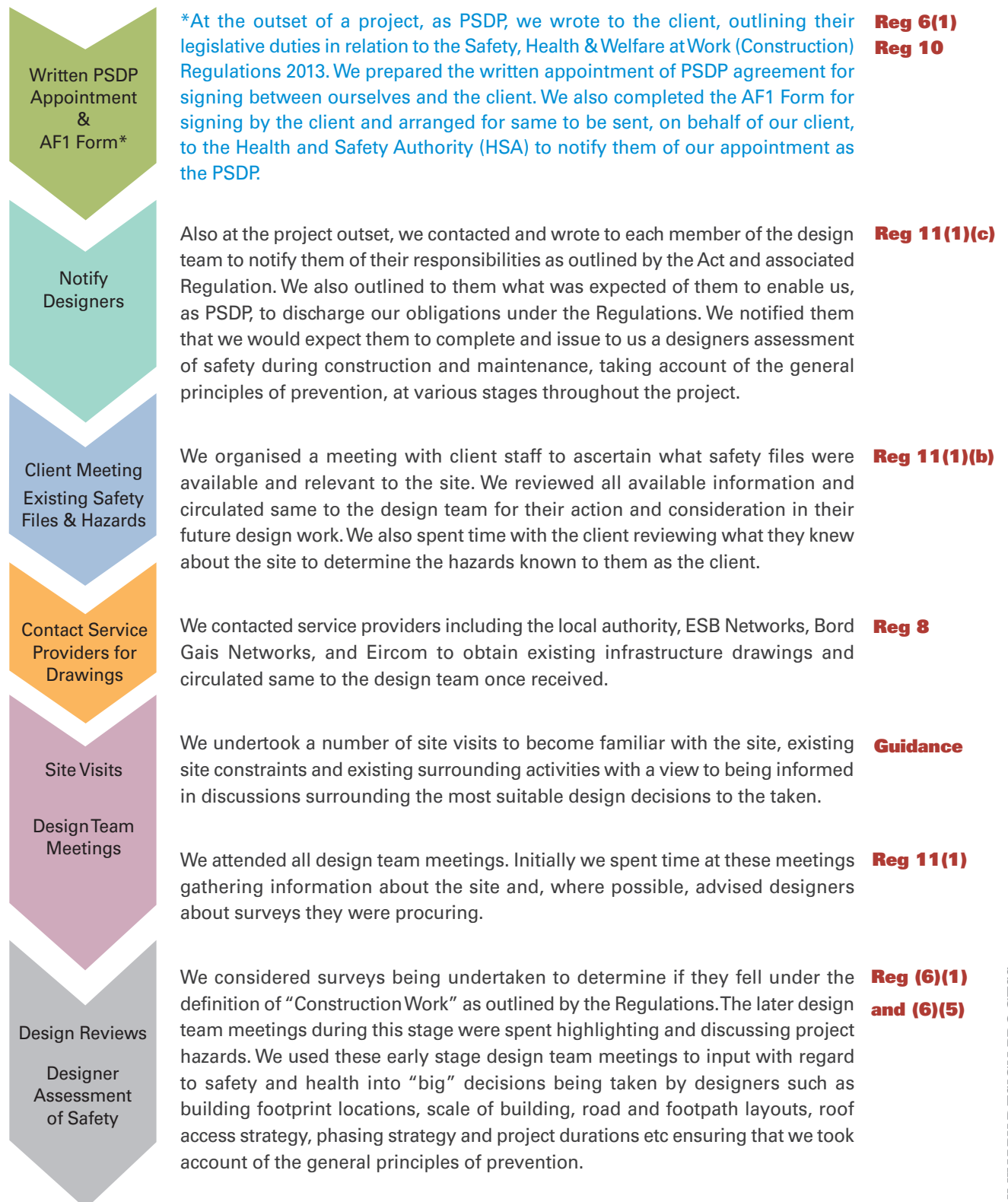
The guidance given in this document is intended as an historic case study for discharge of the role of Project Supervisor Design Process (PSDP) on a fictional project and is based on present understandings of the Safety Health & Welfare at Work (Construction) Regulations 2013, the Safety, Health and Welfare at Work act 2005 and HSA's publications. It is not a record of every action taken by the PSDP to discharge their legislative duty and should be treated as a summary document only. The completion of the steps below on a project does not ensure compliance with the Regulations. Steps and actions have been omitted for ease of understanding and comprehension. This case study should not be regarded as a legal interpretation of the Regulations or of the Act (No. 10 of 2005). Any actions noted here must be considered in the context of professional judgement being exercised by competent persons; it is not intended to provide the definitive approach in any situation. In all circumstances those best placed to decide on the appropriate action will be the parties undertaking the role of PSDP. Appropriate legal and insurance advice should be sought as necessary. The case study below notes some additional actions taken on behalf of the client

Case Study Scope of Project

This project consisted of a 4-storey educational building. The 3,500m² concrete framed building was located on a site within an active educational campus. The site had poor ground conditions and a high water table. The site was a primarily greenfield however was very overgrown with some large trees present as well as a number of existing underground services and high tension electrical overhead lines, which traversed the site. An existing road also traversed the edge of the site.

The project involved extensive associated site works. The diversions of existing roads and extensive underground services serving the existing buildings were carried out as part of an enabling works contract prior to the main building contract.





*Items which are client responsibilities and not specifically a requirement for PSDP.



> Stage 1- Preliminary Design Process

Design Reviews

Designer Assessment of Safety

We reviewed all drawings produced by designers during preliminary design with the aim of identifying hazards arising from the design or from the technical, organisational, planning, or the time related aspects of the project and applied the general principles of prevention to them. We worked with designers to eliminate the hazards or reduce the risk associated with the existing site and future proposed works.

Reg 11(1)

Commence Hazard Register

We prepared a hazard register for the project which identified the hazards present for the project and who they would affect. We noted on the register the conclusion of designers by application of the general principles of prevention by recording what design decisions had been taken for the identified hazards.

Reg 11(1)

We ensured the work of the designers was co-ordinated with regard to the safety and health of those undertaking construction by requesting the completion of designer's assessments of safety for this stage of the design works. We reviewed these assessments to ensure no conflicts or issues were present.

Reg 11(1)

Agree Safety File Format with client

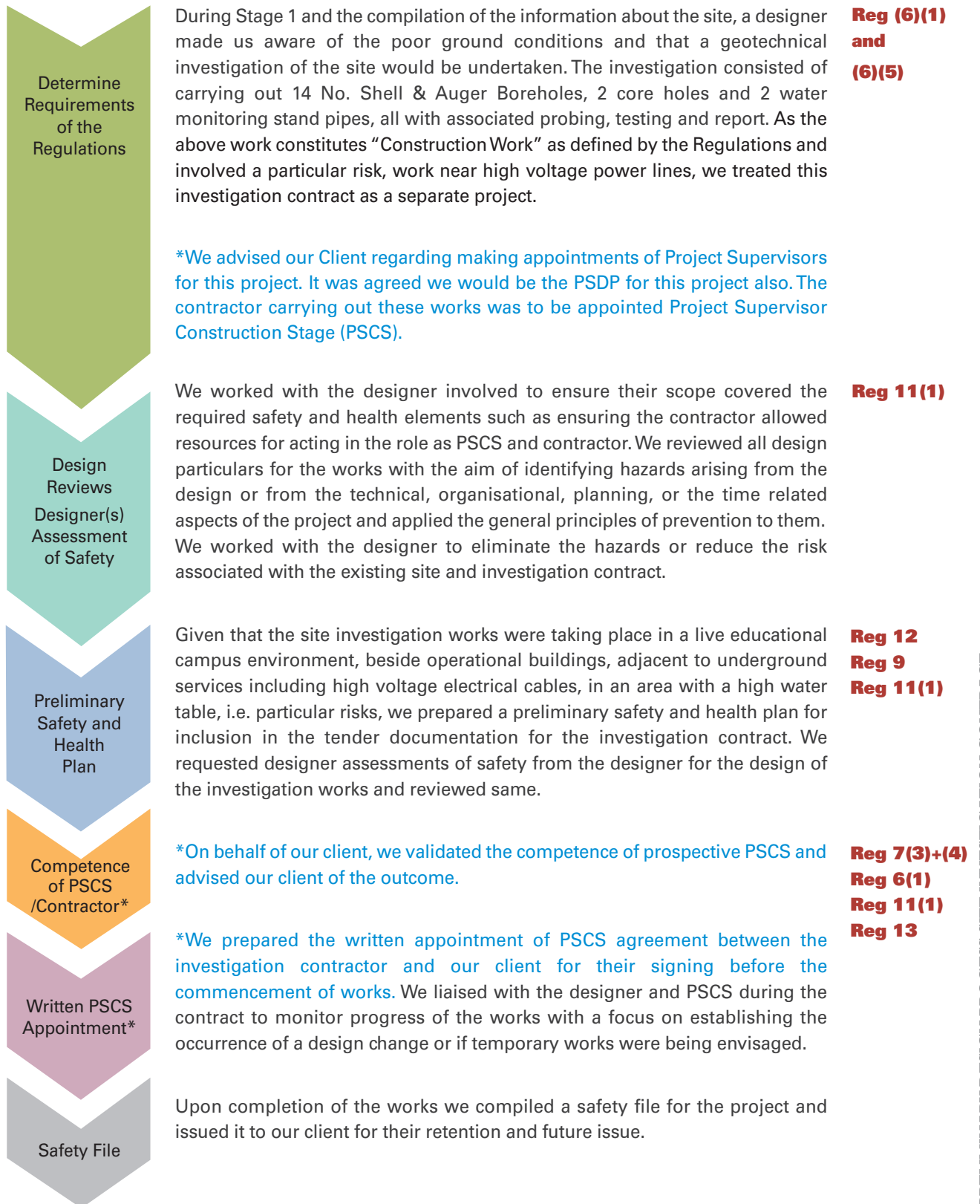
We met with the client to determine their requirements for format, layout, content requirement and delivery of the future safety file. We worked with them to agree an indicative safety file index and agreed the format of the file.

Reg 13

*Items which are client responsibilities and not specifically a requirement for PSDP.



> Stage 1- Preliminary Design Process Site Investigation Contract



*Items which are client responsibilities and not specifically a requirement for PSDP.



> Stage 1/2 – Preliminary Design Process - Enabling Works Contract



At the end of stage 1 and the start of Phase 2 the risk register for the project noted a number of safety and health hazards and risks associated with the existing site namely, the presence of existing live services, including a high voltage underground power cable and the presence of an open stream and a live road traversing the section of the site. As a result of the information gathered about the site and the hazards identified, the design team took a decision to carry out an enabling works contract to eliminate these hazards as early as possible using a dedicated contractor whose sole remit was to carry out preparatory works for the intended building. As the aforementioned work constitutes “Construction Work” as defined by the Regulations, involved more than 1 contractor and involved particular risks, we treated this enabling works contract as a separate project. **We advised our Client regarding making appointments of Project Supervisors for this project. It was agreed we would be the PSDP for this project also. The contractor carrying out these works was to be appointed PSCS.*

Reg 11(1)**Reg (6)(1)
and (6)(5)**

We worked with the designers involved to ensure their scope covered the required safety and health elements such as ensuring the contractor allowed resources for acting in the role as PSCS and contractor. We reviewed all design particulars for the works with the aim of identifying hazards arising from the design or from the technical, organisational, planning, or the time related aspects of the project and applied the general principles of prevention to them. We worked with the designers to eliminate the hazards or reduce the risk associated with the existing site and investigation contract.

Reg 11(1)

Given that the site enabling works were taking place in a live educational campus environment, beside operational buildings, within a site with a high water table and poor ground conditions, works on underground services including high voltage electrical cables, i.e. particular risks, we prepared a preliminary safety and health plan for inclusion in the tender documentation for the enabling contract. We requested designers assessments of safety from the designers involved for the design of the enabling works.

**Reg 12
Reg 9 Reg
11(1)**

**On behalf of our client, we validated the competence of prospective PSCS and contractor and advised our client of the outcome.*

**Reg 7(3)
Reg 7(4)**

**We prepared an appointment of PSCS between the enabling works contractor and our client for signing before the commencement of works.*

**Reg 11(1)
design**

We attended site meetings during the contract to monitor progress of the works with a focus on establishing the occurrence of a contractor (or subcontractor) a design change or if temporary works were involved so that we could co-ordinate the safety and health aspects of the temporary works designers work. We organised dedicated safety and health meeting with the PSCS, and relevant designers, which was held prior to the site meeting. During this meeting we discussed safety and health matters and any possible design changes to the permanent works and the undertaking of temporary works.

Upon completion of the works we, in conjunction with the PSCS and project designers, compiled a safety file for the project and issued it to our client for their retention and future issue. This safety file also formed an element of our preliminary safety and health plan for the main building works contract.

Reg 13

The main project risk register was updated to hazards which had been eliminated as a result of completing this enabling works contract.

Reg 11(1)

Design Team Meetings

We attended all design team meetings. During this stage we spent time highlighting and discussing project hazards and developing the decisions made during stage 1 of the project. We used these meetings to input into detailed design decisions undertaken by designers such as the location of actual pieces of plant, detailed roof access strategies and the specification of materials as well as the phasing strategy and intended project durations etc ensuring that we took account of the principles of prevention.

Reg 11(1)

Design Reviews

We reviewed all drawings produced by designers during detailed design with the aim of identifying hazards arising from the design or from the technical, organisational, planning, or the time related aspects of the project and applied the principles of prevention to them. We worked with designers to eliminate the hazards or reduce the risk associated with the existing site and future proposed works.

Reg 11(1)

Safety and Health Workshops

We held safety and health workshops at strategic points during the design stage where we gathered all relevant parties together to review the safety and health of all aspects of the project. During these reviews the hazard register was tabled, actioned and updated.

Reg 11(1)

Designer Assessments of Safety

All designer's assessment of safety during construction and maintenance, taking account of the principles of prevention were reviewed and any gaps between each designer's assessments was be immediately identified and addressed.

Hazard Register

We updated the hazard register for the project and continued to note on the register the conclusion of designers by application of the general principles of prevention by recording what design decisions had been taken for the identified hazards and tracked what actions remained to be completed.

Reg 11(1)

Permanent Works Design Certificates

We ensured the work of the designers was co-ordinated with regard to the safety and health of those undertaking construction by requesting the updating of designers assessments of safety for this stage of the design works. We reviewed these assessments to ensure no conflicts or issues were present.

Reg 11(1)

We requested that all designers complete and sign a permanent works design certificate for their design scope and reviewed same on completion.

Reg 11(1)





> Stage 2 - Design

Preliminary Safety and Health Plan

We prepared on a preliminary basis a safety and health plan for the purpose of providing information for the prospective project supervisor construction stage. This plan was included in the overall tender documentation. The preliminary safety and health plan included the following items:

Reg 12

- A general description of the project and of the time within which it is intended that the project will be completed,
- Site specific hazards
- Appropriate information on any other work activities taking place on the site,
- Where appropriate, work related to the project which will involve particular risks to the safety, health and welfare of persons at work including but not limited to those referred to in Schedule 1 of the Regulations
- The basis upon which the time for completion of the project was established, the conclusions drawn by designers and the project supervisor for the design process as regards the taking account of the general principles of prevention and any relevant safety and health plan or safety file, and
- The location of electricity, water and sewage connections, where appropriate, to facilitate adequate welfare facilities
- Mechanism for ongoing liaison, eg. for design activity during construction including temporary works designs.

Safety File Information Requirements included in PSHP

We ensured the safety file format agreed with the client was included in the tender documentation so the tendering PSCS and contractors were aware of the information they are required to supply and the format required.

Reg 13



PSCS
/Contractor
Competence

*We undertook an assessment of contractors competence to carry out the role of PSCS and also assessed their ability to act as a contractor.

Reg 7(3)+(4)

Written
Appointment
PSCS

*We prepared a written appointment agreement between our client and the PSCS. We ensured this appointment was signed by both parties prior to the commencement of the work.

Reg 6(1)

Reg 10

AF2 Form

*We ensured the PSCS lodged an AF2 form with the HSA.





> Stage 4 - Construction

Safety File Information Requirements

Upon appointment of the PSCS one of the first things we discussed with them was the safety file. We outlined what had been agreed with the client to date, and discussed with them what is required from them and other contractors for inclusion in the Safety File we are required to prepare at the end of the project. This enabled them to make their contractors aware of the requirement from the onset of the project.

Reg 13

Site Meetings Safety and Health Meetings

During this year long construction we attended site meetings at a frequency of fortnightly to monthly depending on the operations being planned and undertaken on site. It averaged attending a meeting every three weeks during this 12 month contract. We held safety and health review meetings with the PSCS and relevant designers and contractors with design responsibilities as required immediately before site meetings.

Reg 11(1)

Identify Designers /Designs

We reviewed the on-going works and the proposed activities for the coming month to ensure adequate co-ordination of both permanent and temporary works with regard to safety and health. We chaired and minuted this meeting.

Design Reviews Safety and Health Workshops

It was during a safety and health meeting that we learned of a contractor's proposal to change the tendered permanent works design from an insitu concrete frame to a precast concrete frame. On learning of this proposal we arranged a safety and health workshop with the client, design team, contractor and precast concrete designer and supplier where we discussed in detail the safety and health advantages and disadvantages with the change and discussed the implication for other designs decisions already taken. The design change proposal was accepted by the client and design team. From then on we treated the precast concrete frame designer as we would a designer from the design team and in a similar manner that we interacted with other contractors with design responsibilities on the project such as the piling contractor, steelwork contractor, curtain walling supplier, roof safety system contractor, fitted furniture supplier and mechanical and electrical contractors amongst others.

Reg 11(1)

We worked with concrete anchor suppliers and arranged for them to complete permanent works and temporary works design certificates as appropriate.

COP

It was similarly through safety and health and site meetings that we kept abreast of upcoming temporary works planned for the project such as the scaffolding contractor or formwork and propping contractor.

Reg 11(1)



Design Reviews
Safety and Health
Workshops

We paid particular focus to elements of their work which was project specific such as scaffolding that spanned over a loading bay to the building or the formwork required for a unique cantilevering slab. Again, we treated these designers as we did any design team member or specialist contractor.

Designers
assessments
of Safety

We reviewed all drawings produced by contractors with design responsibilities with the aim of identifying hazards arising from the design or from the technical, organisational, planning, or the time related aspects of the project and applied the general principles of prevention to them. We worked with the specialist designers to eliminate the hazards or reduce the risk associated with the existing site and future proposed works. We played particular focus on any changes made to the original intention of the design team.

Reg 11(1)

Permanent
and
Temporary
Works
Design
Certificates

We ensured the work of all designers, design team members, temporary works designers and specialist designers, was co-ordinated with regard to the safety and health of those undertaking construction by requesting the updating of designers assessments of safety for this stage of the design works. We reviewed these assessments to ensure no conflicts or issues were present. We liaised with various designers where interaction between designers was required. We requested that all designers complete and sign a permanent works design certificate(s) and temporary works design certificate(s) for their design scope and reviewed same on completion.

Reg 11(1)

Reg 11(1)

Direction

During the project one contractor with design responsibility for a project specific item for the new building refused to cooperate with our requests to complete a permanent works design certificate, or otherwise provide us with the information required by us to discharge our duty as PSDP, despite numerous communications. We expended effort to inform the contractor of their legislative duty as a designer of this project specific item. The contractor was noting that they had never been requested for this type of information before. We, in conjunction with the PSCS/main contractor, exhausted all contractual avenues to resolve the matter. We had no option but to issue a direction to the contractor in accordance with Regulation 14(1). Following the failure of the contractor to comply with this direction in the stated period we notified the HSA in writing in accordance with Regulation 14(2).

Reg 11(1)

Reg 14(1)

Update hazard
Register

We continued to monitor all designs for late design changes through monitoring correspondences, attendance at site meetings, safety and health review workshops and safety and health meetings. We continued to undertake aforementioned actions on any revised or new designs.

Reg 11(1)

We continually updated the hazard register for the project and continued to note on the register the conclusion of all designers by application of the principles of prevention by recording what design decisions had been taken for the identified hazards and recorded residual risks for the safety file.

Reg 11(1)



> Stage 5 – Safety File

Compile Designer Information

During the lifetime of the project we compiled all relevant information for the safety file including planning drawings, grant of planning permissions, fire certification reports and drawings, grant of fire applications, reports, test results, surveys etc.

Reg 13

Receive contractor information from PSCS

During safety and health meetings and site meetings we monitored the progress of the PSCS in compiling information from contractors. Nearing the completion of the project we formally requested that the PSCS provide us with the complied contractor information for the safety file.

Reg 13

Compile Safety File

Once received, we reviewed the material with permanent works designs to ensure all required information was supplied and was as per the agreed format. While the PSCS was finalising the safety file information from contractors, we coordinated the design team members input into the safety file such as gathering last construction issue drawings and specifications, reports and identifying any remaining risks associated with the works.

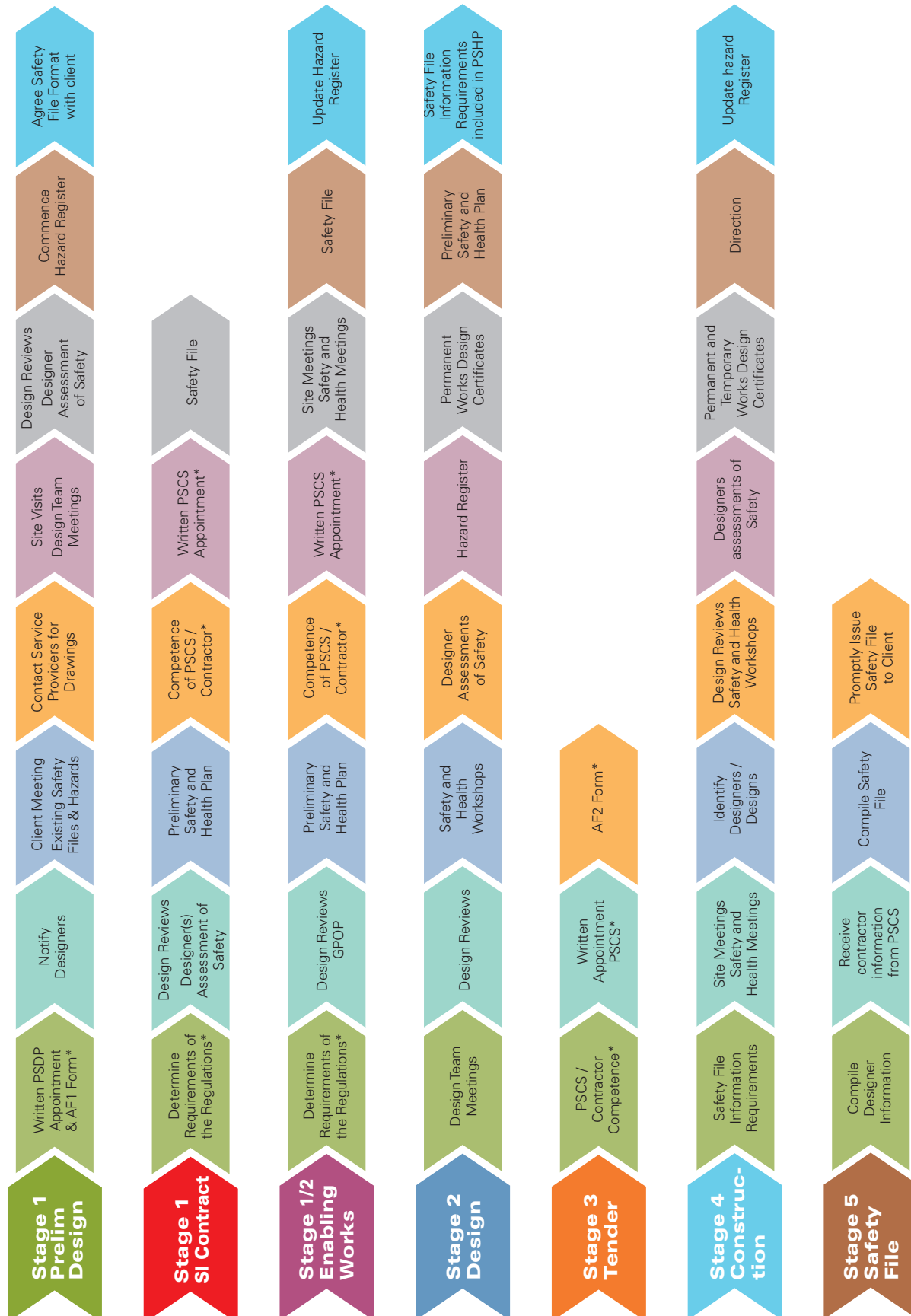
Promptly Issue Safety File to Client

Once all information was satisfactory received we compiled all of the information together to form the safety file in the format previously agreed with the client. Once completed, we promptly delivered the safety file to the client.

Reg 13(b)



➤ Case Study - Project Supervisor Design Process Flowcharts



* Items which are client responsibilities and not specifically a requirement of the PSDP.

