Description of Services for

CIVIL WORKS

2019

Foreningen af
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FRI

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PREFACE

This description of services (YBA 19) serves as the basis for consultancy agreements in connection with civil works.

> In the event of any discrepancy between the Danish and the English version of the description of services, the Danish version shall prevail.

The consultant’s services and fees are contractually based on 'General Conditions for Consulting Services within Building and Engineering' (ABR 18).

The description of services describes the contract tendering process made on the basis of a tender design. A tender design will typically consist of both disciplines or contracts put out to functional tender and by other disciplines or contracts whose design is complete and therefore constitute a construction project ready for production.

It is assumed that functional tenders are as a minimum based on an approved project proposal.

It should be noted that in connection with tenders based on a construction project, the choice of materials and components (makes) specifically offered by the contractors is yet to be considered.

Early contractor involvement based on a civil works programme or a civil works programme and an outline proposal is not covered by the description of services, and reference is instead made to Description of Services for Client Consultancy (YBB 19). The description of services has been written for building projects but may also be used for civil works subject to relevant adjustments.

An agreement should be drawn up in a form corresponding to the standard agreement form prepared by the Danish Association of Consulting Engineers and the Danish Association of Architectural Firms.

It should be noted that services provided by the consultant comprise only services within the consultant’s area of responsibility as clearly defined to be included in the consultancy agreement. The description of services must be adapted to the specific project in connection with the preparation of a project-specific description of services. For a specific guide, refer to the website of the Danish Association of Consulting Engineers.

The description of services does not refer to legislation and regulations governing specific civil works, public sector building projects or non-profit housing projects. Such legislation and regulations are assumed to serve as the basis for the actual civil works.

The description of services does not refer to requirements, see the Danish Building Regulations, but more widely to regulatory requirements. Similarly, definitions and concepts related only to the Danish Building Regulations have

been left out. If the Danish Building Regulations are relevant for parts of a civil works project, reference is made to the Description of Services for Building and Landscape.

The description of services is prepared with a view to defining phases, roles and the division of services between consultants and client, and between individual consultants. Moreover, the description of services is prepared in particular with a view to defining responsibility and services for design manager, design consultants, project follow-up, construction management and site supervision.

Moreover, the description of services defines the consultants' responsibility for describing and coordinating the cooperation with the civil works contractors following conclusion of a mutual agreement. This also applies when contractors, after conclusion of an agreement, are to provide design services.

The description of services is suitable for large and/or more complex projects under ABR 18.

For small or simple projects, where ABR 18 is used in a simplified form, a simplified description of services should also be used.

The description of services is not suitable for agreements concluded with a consumer.

Chapter 0 contains a glossary which defines selected terms used in the description of services.

For civil works where the client has special requirements for the use of ICT, including digital design and digital delivery, an ICT specification must be prepared as basis for the tender and agreement. The ICT specification defines the digital delivery of the agreed project documentation.

The Danish Association of Consulting Engineers has prepared a guide for 'Description of Services for Civil Works' 2019 offering good advice on how to understand and use the description of services.

The Danish Association of Consulting Engineers and the Danish Association of Architectural Firms prepare individual codes of practice for a number of specific areas, and reference is made to their websites www.frinet.dk and www.danskeark.dk for the latest versions of the publications.

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0. DEFINITIONS

The following terms used in the description of services must be construed as they are defined below.

Works

Works means the services provided by the individual workmen/contractors within their own discipline, such as sewerage and pipe, earth, surfacing, planting and construction works etc.

Work schedule

Work schedules are the individual contractors' detailed plans for the execution of their own works. The work schedule comprises a plan for any of the contractor's services related to the design.

Working drawings and bills of quantities

Working drawings and bills of quantities mean the technical drawings and bills of quantities needed by the contractor to be able to deliver a given civil works element based on the construction project, such as bending schedules for reinforcement, formwork drawings, lists of plants for planting, etc.

Archive research

Archive research for the area of the civil work or civil works comprises search in relevant archives to uncover and include relevant knowledge, such as existing preliminary studies, historical maps, pre-project documentation, easements, profits and restrictive covenants related to the area of the civil works.

Decision plan

A decision plan is a plan for the decisions to be made by the client during the phases of the civil works.
The decision plan forms part of the consultant's service plan.

User

A user or groups of users are persons appointed by the client to comment on the consultant's proposal or project to ensure that the civil works is fit for use.

Users work under the client's management and may not consider proposals or changes without the client's acceptance.

Building meeting

Building meeting means meetings with the client's contractors with a view to facilitating the performance of the task and promoting the progress of work.

Client

The client is the entity that hires consultants and contractors to perform the task.

Client meeting

Client meeting means meetings between the client and the consultants or the lead contractor during which the performance of the task, progress, budgets and contractual matters, etc. are discussed.

Client consultant

The client consultant is a consultant who provides consultancy to and assists the client in connection with the performance of the task in cooperation with the client's other consultants and with the contractors.

Split consultancy

Split consultancy means that the entire task is performed by several consultants, including possibly one or more design contractors, who have each concluded an agreement with the client.

Financial framework

The financial framework means a budget for design and construction of a building or civil works project that governs the consultants' design.

The financial framework must be determined based on a risk analysis and a clarification of how identified risks should be handled or capitalised as part of the framework.

Overall budget

The overall budget for a civil works project comprises both the financial framework and the client's other expenses in realising the civil works project.

The client's other expenses include all expenses in addition to the financial framework, typically acquisition of property, the client's internal expenses, external fees, the client's expenses for arrangement and fitting out of the civil works etc.

The overall budget must be determined based on a risk analysis and a clarification of how identified risks should be handled or capitalised as part of the budget.

Detailed time schedule

Detailed time schedule for construction means a time schedule that coordinates the contractors' work schedules into an overall plan.

Digital building model

Digital building model means one or more digital models (typically in 3D) that jointly represent a structure or civil works. Individual digital models from

individual consultants or design contractors are termed discipline models, while a collection of discipline models is termed common model.

Operating budget for technical operation and maintenance

An operating budget for the technical operation and maintenance of the civil works comprises expenses for supplies to the civil works as well as for the operation and maintenance of the civil works for a number of years – usually 10 years.

The technical operating budget does not contain administration or property tax costs, etc. just as expenses related to the intended use of the civil works are not included.

Operational requirements after delivery

Operational requirements after delivery means specific requirements for the operational condition or performance of the civil works after delivery and initial operation.

Operating and maintenance manual

The operating and maintenance manual is prepared to optimise and systematise operations for the civil works.

The operating and maintenance manual describes operating activities and inspection routines that are necessary in order for the civil works to operate satisfactorily after delivery to the client.

Contractor

Means the supplier or contractor with whom the client has entered into an agreement on delivery and/or construction of all or parts of the civil works.

Subject to agreement, the contractor contributes with a project for its works and regulatory approvals of such works.

The contractor coordinates project, procurement, construction, etc. with its sub-contractors.

Contractor design

Contractor design means design carried out by the contractor at its own risk.

Contract

A contract is a collection of technical services or sub-contracts of an overall contract, e.g. contract for separate works, combined contract or main contract.

Discipline

A discipline is the allocation of contracts into specialist fields, e.g. into the civil works trade, electrical engineering trade, paving trade, gardening trade etc.

Proposal phase

The proposal phase consists of outline proposal and project proposal and constitutes the phases during which the client's requirements and wishes are incorporated into the project. The only thing left after the completion and approval of the project proposal is the technical design and completion of the project documents for regulatory processing, tendering process and construction.

Functional tendering

Functional tendering for a contract comprises invitation to tender on the basis of functional requirements and a defined project and design and based on defined assumptions and performance requirements. It is up to the contractor to comply with the requirements and document such compliance, including, where necessary, to prepare a construction project as specified in the invitation to tender.

It is assumed that functional tendering of a part of the civil works will not take place until an overall and approved project proposal is available.

System products are also normally tendered as functional tendering.

In the consultancy agreement concluded on the basis of ABR and YBL, it is assumed that in the tender and agreement documents for the consultancy service, the client considers the scope of functional tendering for the civil works in question. This is most expediently clarified in a dialogue with the consultant before concluding an agreement.

If the scope of functional tendering is adjusted following conclusion of an agreement, it must be done in the project proposal phase at the latest.

Statement of completion

Statement of completion means the consultant's written statement to the client on the completion of a project phase with a view to obtaining the client's approval.

The same term is used for the contractor's written statement to the client on the completion of the contractor project or a phase in the project with a view to obtaining the client's approval, and the term is also used in connection with the contractor's completion of the contract.

Preliminary inspection

Preliminary inspection means an inspection of the progress of the civil works and the progress of the contractor's test of technical systems and installations prior to the finishing civil works with a view to coordinating such works.

The preliminary inspection comprises an overall assessment of the scope and materiality of defects.

The preliminary inspection can take place at once or be divided into sections or contracts.

Geometry

The **assumed geometry** means that the scale and location of parts of civil works have been coordinated and illustrated so as to form a basis for an overall space allocation. Configuration and location have yet to be established.

Defined geometry means that the configuration and location of parts of civil works have been determined so as to form a basis for a decision on coordinated solutions. Detailed and final processing as well as mutual coordination are yet to be established.

Final geometry means that the configuration and location of parts of civil works are detailed and coordinated so as to form a basis for production preparation and construction without further mutual coordination.

Review

See project review.

Interface

Interface between consultancy tasks means the part of a task that interfaces with another task and depends on or is important for its design, meaning that mutual coordination is required. The relationship with existing buildings or civil works may also constitute an interface.

Interface between contracts means the part of a contract that interfaces with another contract or an existing building or existing civil works and relies on or is important for its design, meaning that mutual coordination is required.

Interface description

An interface description clearly accounts for the following for the functional tendering in question:

- content and scope of service, including requirements for project documentation and other documentation to be provided by the contractor
- design basis
- interfaces to the rest of the civil works, including tolerances, absorption of power, absorption of movements, noise conditions, hydraulic conditions, etc.
- performance requirements
- approval procedure.

The interface description may be an independent document or form part of the overall tender design.

Main time schedule

Main time schedule for consultancy services means a realistic time schedule specifying the start and completion of the consultant’s performance of the task. The main time schedule should also specify a deadline for the consultant’s preparation of a service plan, the client’s approval deadlines and expected completion date for the contract.

The main time schedule with any agreed amendments is termed ‘The agreed main time schedule’.

Main time schedule for contractor services means similar milestones for the individual contractors' performance of and delivery of the works as well as milestones for the contractors' preparation of a work schedule, including for the contractor's documentation, design as basis for the client's approvals, preliminary inspection, etc.

The main time schedule must also contain relevant milestones for the design and construction of any utility lines and utility systems by utility companies and other utility owners.

ICT process manual

ICT process manual means a cooperation document that establishes the framework for digital cooperation. As a minimum, the document is updated in connection with each phase to the required extent. The ICT process manual is prepared on the basis of the project ICT specification.

ICT specification

ICT specification means an agreement appended to the description of services establishing any of the client's requirements for ICT (Information and Communication Technology).

Stakeholders

Stakeholders means:

- property owners and other private stakeholders directly affected by the civil works project
- citizens, civic groups and private organisations with relevant interest in the establishment, design or use of civil works.

Check

See design check.

Inspection plan

An inspection plan means a plan for the nature, scope and documentation of the contractor's control activities.

Tender quality control plan means a systematic, schematic overview that outlines the client's minimum requirements for the content and scope of the quality documentation, which the contractor must provide to the client, and adjusted to the civil works in question. Inspection plans will normally be divided into disciplines.

The contractors will prepare final inspection plans on the basis of the tender quality control plans.

Quality plan

Quality plan for design means a plan for the quality management and quality assurance activities to be carried out in respect of the civil works design, including both consultant design and contractor design.

Quality plan for construction means a similar plan for the quality management and quality assurance activities to be carried out in connection with the construction of the civil works. The quality plan leads to an inspection plan.

Quality assurance

Quality assurance means activities that serve to prevent defects in civil works and to ensure that a chosen quality is maintained during design and construction.

Utility coordination

Utility coordination means the service of handling relations with utility owners in the area of the civil works for the purpose of coordinating any re-laying or establishment of utility lines or utility systems by utility owners, with due consideration to the design and construction of the civil works.

Utility coordination is managed by a utility coordinator appointed by the client in cooperation with the utility owners.

The utility coordinator handles relations with the client, utility owners, design manager, consultants, construction manager, etc.

LER – The Danish Register of Underground Cable Owners

LER contains information about the owners of underground utility lines. The purpose of the register is to ensure that consultants, contractors and other excavators can quickly and easily get hold of the owners of the utility lines in a relevant excavation area and obtain information about the location of the utility lines.

Reference is made to ler.dk for further information about the Danish Register of Underground Cable Owners and what utility owners and utility lines are covered.

Materials

AB/ABR 18 and the description of services use ‘materials’ as a wide concept comprising materials, components and other individual parts and products that are built together and constitute building parts and form part of the overall civil works.

Authorities and utility owners

Authorities and utility owners mean:

- authorities that lay down the terms and conditions for the planning, design, construction and use of civil works
- utility companies which have or are to establish utility lines or utility systems within or in proximity to the area of the civil works and which may be in charge of the supply to area of the civil works
- private utility owners who have or are to establish utility lines or utility systems within or in proximity to the area of the civil works.

Care plan

A care plan for landscape architectural works describes routine work during the four seasons as well as the expected development in the vegetation and pavement of the facility and the resulting special works over a fixed term of years. The care plan specifies the quality and care level for various landscape facilities and possibly also for individual components.

Design meeting

Design meetings are meetings between the design manager, the design consultants and any design contractors.

Project conference

Project conference means a conference taking place shortly after conclusion of a construction contract and before the building and civil works start.

In connection with the project conference, the client and its consultant(s) and contractor(s) consider the tendered and agreed project as well as any project contributions and proposals for choice of material from contractors and suppliers. The purpose is to create a common understanding of the project, to give the contractor a chance to impact the construction process by pointing out inexpediencies in the project, to eliminate risks and improve the handling of risks and to eliminate uncertainties and inadequacies in the project.

Subject to agreement, the project conference can be repeated in case of subsequent, material changes to the project.

Project conference may also be undertaken by the design contractor as an element in its assignment of its project to any sub-contractors and contracting engineers.

Project review

Project review means a coherent and systematic review of a project as part of quality assurance with a view to assessing the project’s ability to meet the project requirements and identifying relevant problems.

Design check

Design check is a systematic review of the prepared project documentation and calculations with a view to eliminating discrepancies, errors and deviations, including in interfaces to the works of others.

The design check is also intended to check that general standard and regulatory requirements are observed.

Project optimisation

Project optimisation means assessing and possibly incorporating proposals for alterations, improvements or lowering of costs of specific parts of structures and civil works in respect of an approved project or project conditions.

Project optimisation is usually initiated by proposals from contractors in connection with or following conclusion of the agreement.

Any decision to optimise a project should also clarify any derived consequences for other parts of civil works, and the fee related to the consultant's assessments and redesign should be included in the client's overall assessment of whether the change should be implemented.

Project specification

Project specification means a specification of the technical consultant's project during construction caused by questions from the site supervision or contractor that necessitates a clarification of the project requirements.

Project specification does not comprise project changes or project optimisation.

Registration of changes and obstacles

Registration of changes and obstacles means an overview of required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees.

Risk analysis

A risk analysis includes identification and assessment of relevant risks for a building project in respect of the stage of the design or building project. In addition to project and design matters, a risk analysis should also focus on the project organisation, other stakeholders, regulatory matters, occupational health and safety, environmental matters, climate impacts, tendering and contracting matters, programming, calculation uncertainties and cost management, etc. The analysis must be adapted to the nature and complexity of the building project. The client contributes to the mapping of relevant risks.

The risk analysis forms the basis of a clarification in dialogue with the client regarding the management of identified risks, and the financial consequences should also be incorporated in the relevant budgets to the necessary extent.

Successive calculation is a tool that can be applied for capitalising the financial consequences.

Consultant

A consultant is a technical consultant who takes on the job of solving a given task, including typically engineering services as well as an architect, landscape architect, etc.

Consultant design

Consultant design means design carried out by the consultant at its own risk.

Consultant design may take place based on proposals from the contractor.

'As built'

'As built' comprises documentation of the civil works made, including adapted project documents to reflect the construction.

As a general rule, ‘as-built’ documentation must comply with general requirement made by authorities and utility companies. Any rectification of the project in addition to this is determined in the consultancy agreement and relevant construction contracts.

System delivery

System delivery means that a system provider designs, adapts and delivers one or more system products for civil works, possibly including installation.

System product

A system product is a technologically complex part of civil works developed as a ready, modularised and variable product or a catalogue item.

Lead consultant

Lead consultant means a consultant or a group of independent consultants who under one agreement with the client undertake to solve all or the most critical consulting tasks in a project.

Any design contractors do not form part of the lead consultancy.

Tender quality control plan

See inspection plan.

Tender programme

Tender programme means a main time schedule included in the tender design as basis for submission of tenders. The level of detail of the tender programme depends on the type of tendering procedure and allocation of contracts and includes a time schedule for:

- invitation to tender and conclusion of agreement
- project conference
- consultant design, contractor design, etc. after invitation to tender and conclusion of contract
- regulatory processing and approval
- key milestones and significant subordinate milestones for the performance of the individual contracts (start and completion)
- commissioning and testing of technical facilities
- preliminary inspection
- inspection for defects and delivery
- initial operation
- penalty-triggering milestones

The tender documents should also describe other matters that are relevant to the contractor’s planning, including any restrictions on the construction site, expected days lost, etc.

Tender design

Tender design is the design that together with the tender and contract conditions, etc. forms the basis of the contract tendering process.

The level of detail of the tender design generally corresponds to a construction project, unless it for specific contracts, disciplines or system products is customary or has been agreed that the tendering process should take place as functional tendering.

Construction project

The consultant's updated project that, together with the project prepared by contractors, constitute the overall, complete and coordinated project as basis for the contractors' purchasing, preparation and construction of the civil works.

Deferred works

Deferred works are works that, subject to agreement, will be carried out after the overall civil works project has been delivered. Deferred works may not prevent the delivery and initial operation of the civil works.

Examples are works conditional on the season or weather, such as asphalting and planting.

Selected parts

Selected parts means that the consultant selects essential elements/parts of the civil works to be detailed in the project. The selected parts illustrate typical parts (something that occurs many times) or critical parts (something that is complex in terms of technical solution or buildability).

Service plan

A service plan is a plan for the services of the consultant and client, including:

- design by phases until tendering
- milestones for the client's provision of information as basis for design and the client's decisions in each phase.
- plan for regulatory processing
- any stakeholder/user involvement, consultations, etc.
- draft plan for consultant design, contractor design, etc. after invitation to tender and conclusion of contract
- milestones for the consultant's deliverables and the client's approvals.

1. INITIAL CONSULTANCY

Initial consultancy comprises:

1.1 Appraisal

1.2 Civil works programme

The scope of the services will depend on the current project and the client's needs and is determined in cooperation with the client on the basis of a proposal by the consultant.

1.1 Appraisal

The appraisal represents an initial processing of the client's thoughts, ideas and requirements with a view to deciding whether to implement the task.

1.1.1 Contents

The client's idea is presented in a report. This report analyses the potential of the client's idea and assesses whether and how the idea can be implemented.

Investigations of existing conditions, including agreed archive research, are summarised in the appraisal.

The appraisal must also include relevant information about the intended civil works site, including details of soil conditions, groundwater, pollution and contamination.

The appraisal must include an analysis and an assessment of traffic conditions, access conditions, etc. where relevant for the project.

The appraisal may include investigations of alternative proposals, including in respect of location and utility line routing.

The appraisal must contain an overall description of the client's requirements and wishes for the civil works project, including quality requirements and any requirements for aesthetic quality level.

The appraisal must include an analysis of needs and functions, including e.g. an analysis of accessibility conditions.

The appraisal must include an account of any expectations the client may have towards the sustainability and energy requirements of the civil works project.

The appraisal may contain an analysis of landscape history, topography, flora, fauna, climate, etc.

The appraisal must include a description of the client's expectations towards the lifecycle of the civil works.

The appraisal must include a description of the client's expectations towards the climate adaptability of the civil works.

The appraisal must include an account of any special requirements the client may have for health and safety during construction and operation.

The appraisal must include accounts of negotiations held with relevant stakeholders.

The appraisal must include an organisational chart for the civil works project. A description must be given of how decisions are made, including any need for stakeholder analyses, consultation and user involvement in connection with the civil works programme.

The appraisal must include an assessment of the need for special advisors etc. in relation to the design and construction of the civil works project.

1.1.2 Commissioning and operation

The appraisal must include the client’s special requirements and wishes for the commissioning of the civil works project, testing of technical systems and installations as well as operation.

1.1.3 Authorities and utility owners

The appraisal must include a description of zoning and regulatory requirements.

The appraisal must include an overall assessment of public utilities.

The appraisal must include important information about existing utility lines and utility systems as well as about known plans for planned utility lines and utility systems.

The appraisal must include proposals for further clarification of regulatory and utility matters, including any zoning and environmental conditions, need for EIA screening, EIA statements, etc.

1.1.4 Programming

The appraisal must include a timeframe for the completion of the project, including particularly critical milestones going forward such as milestones for commitment to site acquisition, time schedule for any re-laying or establishment of utility lines by utility owners, financing, etc.

1.1.5 Cost management

The appraisal must include proposals for the overall budget for project implementation, including an estimate of site acquisition costs, compensation, construction costs, client deliverables, fees and other costs, unforeseen costs, etc.

The budget must be defined in relation to the design and re-laying or establishment of utility lines and utility systems by utility companies and other affected utility owners.

The budget must include a description of the budget assumptions and definition, price basis and uncertainties.

The appraisal must include an overall operating budget for the technical operation and maintenance of the civil works project.

The appraisal must include an account of the client's expectations towards the implementation of operational and whole-life cycle cost considerations, and documentation of this in connection with the realisation of the project.

The appraisal must include a preliminary risk analysis focusing on quality, regulatory matters, stakeholders, programming, cost management, etc. The consultant must obtain information for such analysis from the client, relevant authorities, utility companies, etc.

1.1.6 Quality assurance

The consultant reviews the appraisal and its basis.

1.1.7 Project documentation

The appraisal includes a report with relevant illustrations and appendices showing the layout of the civil works and the extent of the area of the civil works.

The appraisal must include existing drawings detailing the location and size of the area of the civil works, as well as particulars of traffic conditions, nature, soil conditions, groundwater, pollution, easements and restrictive covenants, zoning, etc.

The appraisal must also include existing relevant drawings and information about existing utility lines, civil works and buildings.

If no drawings are available, the client may charge the consultant with recording, measuring, plotting and digitising any existing spaces, utility lines, civil works and buildings.

In connection with tasks involving renovation or conversion of existing utility lines and civil works, the appraisal must include preliminary surveys for use in programme work, including an account of the use of the civil works, the environmental conditions of the area, the combination of materials used in the civil works and a structural survey relative to the intended use.

The project documentation comprises:

- overall report
- appendices regarding the area of the civil works, utility lines, civil works and buildings, etc.
- preliminary survey of any existing utility lines, civil works and buildings included
- overall budget and risk analysis
- review report.

1.1.8 Client

The client obtains existing drawings, details of area conditions, ownership, etc.

The client provides information about the possibilities of realising the project in terms of costs and any wishes in respect of cost effectiveness.

The client participates in necessary meetings, including with a view to commenting on and confirming the basic assumptions for the appraisal and the civil works project.

After assessing the documentation and its conclusions, the client decides whether further details are needed to supplement the documentation or whether the appraisal can form the basis for preparing a civil works programme.

The client will determine whether the design specification is to include EIA screening and/or EIA statement and how this work is to be organised.

If the client involves other consultants, such involvement must be coordinated with the lead consultant.

If the civil works programme is to form the basis for tendering, the client must decide on the type of tendering procedure and allocation of contracts.

The client approves the appraisal before initiating the civil works programme.

1.2 Civil works programme

The civil works programme is a coordinated summary of the client's requirements and wishes for the civil works project as well as the design and construction of the civil works.

The level of detail of the civil works programme is adapted to the size, complexity and organisation of the civil works.

If an EIA screening and/or EIA statement is to be made, these will be carried out in parallel with the civil works project by the consultant appointed by the client, and the consultant will coordinate its work with such consultant.

Utility coordination will be undertaken by the utility coordinator appointed by the client and the consultant will coordinate its work with the utility coordinator.

1.2.1 Content

The civil works programme is prepared on the basis of the approved appraisal, which lists the necessary conditions for the further development of the project.

The civil works programme must contain a description of requirements and wishes for the architecture, function and construction method of the civil works.

The civil works programme must include a description of the physical requirements for civil works, structures, utilities, lighting installations and for the quality of surfaces and materials and any aesthetic quality level as well as sustainability objectives to be met.

The civil works programme must set out the scope of and requirements for any traffic management systems, including traffic signal systems and electronic variable information or instruction signs.

The civil works programme must include a statement of the basic assumptions of the civil works project, i.e. geotechnical, environmental, topographical, climatic and hydraulic conditions, archaeology, area conditions, legal matters as well as special regulatory requirements, existing public utilities, operation and maintenance, etc.

The civil works programme must include information about what property owners and other private stakeholders are directly affected by the civil works.

The civil works programme must include information about civic groups and private organisations etc. with relevant interest in the establishment of the civil works.

The consultant informs the client of the client's responsibilities in relation to health and safety legislation, including requirements for health and safety coordinators during design and construction, respectively.

The civil works programme must state any special requirements for health and safety and health and safety coordination during design, construction and operation.

The civil works programme must state any special requirements for accessibility in addition to those contained in the Danish Building Regulations and other legislation.

The civil works programme must state any special energy requirements and specify any related assumptions.

The civil works programme must state any special sustainability requirements, and specific goals must be defined, including any certification requirements.

The civil works programme must state any special requirements made by the client for the lifecycle of the civil works.

The civil works programme must state any requirements made by the client for the climate adaptability of the civil works.

The analysis of needs and functions of the appraisal is updated.

The civil works programme must determine the type of tendering procedure and allocation of contracts, including contract for separate works, main contract or lead contract.

The civil works programme must include an organisational chart as well as procedures for communication and cooperation between the parties involved in the civil works project.

The civil works programme must determine the scope of meeting activities with external parties, including the consultant's participation in client meetings, user meetings, etc.

The civil works programme must include the client's requirements for the design and construction of the civil works.

The civil works programme must determine the extent to which tendering should be made as functional tendering.

The civil works programme must include a specification of any requirements the client may have for digital design and the delivery of digital project and operational data. This is stated in an ICT specification.

In connection with digital design, any requirements for the use of a common digital communication platform for exchange and sharing of project documentation are defined.

The civil works project must include a proposal for a decision plan for project decisions and approvals, which the designers must incorporate in the service plan and obtain from the client.

The consultant may in cooperation with the client handle stakeholder analysis, user involvement etc., and the civil works programme must consider the client's expectations for stakeholder management and user involvement during design and construction and the related services of the designers.

The civil works programme must specify any special requirements for quality assuring the design and construction.

The civil works programme must include the client's requirements in respect of the scope of construction management and site supervision, including the extent to which the consultant must be present on the construction site or be on call.

1.2.2 Commissioning and operation

The civil works programme must include an overall assessment of the operational conditions.

The civil works programme must include the client's special requirements for preliminary inspection, commissioning, delivery and initial operation.

The civil works programme must include the client's special requirements for the operations and maintenance manual for the civil works, including requirements for the use of digital tools and specific digital programs in connection with operation and maintenance.

1.2.3 Authorities and utility owners

The civil works programme must include information about overall regulatory requirements, including zoning matters and easements and restrictive covenants as well as title plans, levelling survey, environmental matters, discharge conditions and public utility and sewer connections. Relevant information about the use, traffic and road conditions and accessibility conditions of the area of the civil works must also be specified in the civil works programme.

The civil works programme must state any special requirements for the discharge of surface water to recipient and specify any related assumptions.

The civil works programme must include utility information from LER (the Danish Register of Underground Cable Owners) obtained by the utility coordinator.

The civil works programme must include a statement by the utility coordinator on existing and planned utility lines and utility systems and on the need for re-

laying or special considerations in connection with the construction of the civil works.

In the civil works programme, reference must be made to any EIA screening or EIA statement.

On the basis of the above and the civil works in question, the civil works programme must specify the expected zoning process and regulatory processing, and the utility companies relevant for the civil works must also be stated.

1.2.4 Programming

The civil works programme includes a main time schedule that sets out the timeframe for preparing proposal, design and construction, including milestones for the parties' contract negotiations, milestone for presentation of the consultant's service plan, the phases of the design, regulatory processing, milestones for the client's approval, the tendering phase, contract negotiations with contractor/contractors, project conference, subsequent consultant design and contractor design, mobilisation and construction as well as for commissioning and test of technical facilities, preliminary inspection, delivery, etc.

The main time schedule must also set out milestones for conversion or establishment of utility lines and utility systems, coordinated with the construction of the civil works project.

1.2.5 Cost management

The civil works programme must include the client's overall budget for the civil works.

The budget is usually prepared on the basis of estimated unit prices. If the civil works consist of different civil works units, these will be assessed individually.

The budget must be defined in relation to the design and re-laying or establishment of utility lines and utility systems by utility companies and other affected utility owners.

Available funds are set aside for contingencies, building site costs and winter measures likely to occur during construction of the civil works.

The budget must contain information about the price index used and the expected price adjustments.

The budget must specify the financial framework, comprising budget items, which the consultant is responsible for budgeting and maintaining.

The budget must also outline any other budget items included in the overall budget and which are budgeted and maintained by the client.

The budget must include a description of the budget assumptions and definition.

The civil works programme must include an overall operating budget for the technical operation and maintenance of the civil works.

The civil works programme must include an account of the client's requirements for the implementation of operational and whole-life cycle cost

considerations, and documentation of this in connection with the realisation of the project.

The civil works programme must include a risk analysis focusing on quality, regulatory matters and stakeholders, programming, cost management, etc., and must assess the need for and the scope of risk management activities during the design and construction phases.

As part of the risk analysis, the consultant must make a critical review of the overall budget and its assumptions and discuss this with the client. In this connection, the consultant and the client must ensure that the overall budget, including the financial framework, is adequately described to form the basis for the further design, and that the financial framework is realistically defined in relation to the civil works to be handled by the design consultants.

1.2.6 Quality assurance

The consultant must make a review, i.e. a coherent and systematic review of the civil works programme and its basis to ensure that requirements for the quality of the civil works (architecture, function, construction method) are adequately described to form the basis for drawing up a proposal.

The review must also comprise the requirements of the civil works programme for the planning, design, construction, regulatory processing and time schedule of the civil works.

The review must include interfaces to any EIA screening and/or EIA statement and in relation to any utility coordination.

The consultant must review the civil works costs to ensure that the budget prepared reflects the requirements and wishes of the civil works programme.

The civil works programme is updated after the quality assurance is complete.

1.2.7 Project documentation

The civil works programme is usually made in an actual programme that describes the client’s requirements and wishes for the quality (architecture, function and construction method) of the civil works.

The civil works programme is accompanied by relevant appendices.

Depending on the nature of the project, preliminary designs may also be prepared indicating functional principles and diagrams that describe e.g. area layout and functional relationships.

Normally, drawings are prepared showing the layout of the civil works and the extent of the area of the civil works, and relevant drawings of the area of the civil works and any existing buildings, utility lines and civil works must be included.

The civil works programme also comprises separate documents etc. that determine the client’s requirements for the planning, tendering, design and construction of the civil works as well as relevant appendices.

The consultant’s review of the civil works programme and its basis are appended.

Documentation of the client's requirements and wishes for the civil works, including related conditions, thus comprises a civil works programme with appendices, including:

- preliminary studies
- information and relevant drawings regarding the area of the civil works and existing buildings and facilities
- any EIA screening and/or EIA statement
- information about regulatory matters and utilities, including utility line protocol prepared by the utility coordinator.

Documentation of the client's requirements for design and construction also comprises a project-specific description of services with appendices, including:

- organisational description and chart for the design and construction of the civil works
- definition and specification of services on the basis of the description of services
- determination of parts of civil works/contracts for which functional tendering can be carried out
- ICT specification in case of a requirement for digital design and delivery
- description of required approval process for authorities and utility companies
- any requirements for stakeholder/user involvement etc.
- decision plan for client decisions
- main time schedule
- overall budget for the civil works and the financial framework
- operating budget for technical operation and maintenance
- risk analysis
- any requirements for quality assurance

Review of the overall project documentation.

1.2.8 Client

The client assigns the approved appraisal to the consultant as the basis for preparing the civil works programme.

The client participates in the civil works programme phase, including the initiation of functional analyses, stakeholder analyses, clarification of budget frameworks, etc.

Unless otherwise agreed, the client will convene, preside over and take minutes of client meetings.

The client appoints any representatives and defines their responsibilities.

EIA screening and/or EIA statement is undertaken by the client, unless the service has been transferred to the consultant or to a third party.

Utility coordination and documentation are undertaken by the client, unless the service has been transferred to the consultant or to a third party.

Prior to preparation of proposals and project, the client must ensure:

- that any EIA screening and/or EIA statement has/have been prepared and approved as basis for the civil works programme.
- that utility coordination in the civil works programme phase has been completed and approved as basis for the civil works programme.
- that an approved civil works programme has been prepared
- the quality level of civil works is determined with consideration to intended purpose of the civil works
- programme requirements are consistent with the construction and operating finances of the civil works
- that a description has been prepared of the assumptions and risks related to the civil works programme, the overall budget for the civil works project and the financial framework
- that a risk analysis has been prepared and that it is adequate in respect of the civil works programme, the civil works and the overall costs
- that a description of consultancy services has been drawn up that clearly defines the services provided by the consultant during design and construction, including the extent to which the consultant must design utility lines and undertake construction management and supervision.
- that any requirements for classification, digital communication, digital design, digital tendering and digital delivery of project and operational data are specified in an ICT specification
- that a detailed main time schedule has been prepared and that reasonable time is provided for the design for tendering, the tendering process, design for construction, regulatory processing, construction as well as for commissioning and delivery.

The client must decide the extent to which its tasks in pursuance of health and safety regulations can be assigned to a third party, including the provision of health and safety coordination, during design and construction, respectively.

The client approves the civil works programme and related appendices as a basis for initiating the preparation of proposal and design.

2. DESIGN MANAGEMENT

Design management consultancy comprises planning, coordination, management and follow up during the proposal and design phases of the civil works project and in connection with project follow-up, including in relation to:

- consultants and any design contractors
- relationship with authorities, utility owners, etc.
- programming, costs and quality of the civil works
- relationship with the client.

The description of services is divided into the following sections:

2.1 Design management

2.2 ICT management for tasks where digital design has been agreed

ICT management is undertaken as part of the design management process, and the ICT manager reports to the design manager.

If one consultant undertakes the overall project, this consultant will be responsible for the design management.

The client may, subject to agreement between the parties, undertake design management.

2.1 Design management

The design manager handles relations between the client and consultants, including any design contractors.

2.1.1 Content

The design manager ensures that an approved civil works programme is available.

The design manager ensures, prior to the preparation of proposal and design, that the type of tendering procedure and allocation of contracts have been decided, and the design manager must ensure that it is agreed whether and to what extent the civil works project is tendered as functional tendering on the basis of functional requirements and proposals in connection with the conclusion of the consultancy agreement.

The design manager is responsible for cooperation between the consultants and ensures coordination of project work performed by the individual consultants, with particular focus on interfaces.

The design manager communicates the cooperation with the utility coordinator which coordinates in relation to utility companies and other affected utility

owners if utility lines and utility systems are to be re-laid or established by those parties.

The design manager ensures that significant traffic diversions or other restrictions during the construction period are clarified and coordinated.

The design manager is also responsible for cooperation between consultants and design contractors in respect of the tendered contracts.
However, the design manager is not responsible for coordination between a contractor and its subcontractors and suppliers.

The design manager is responsible for the coordination of the architecture, landscaping, structures and installations of the civil works.

The design manager coordinates in respect of the sustainability objectives of the civil works.

The design manager checks that the client has delegated competence and responsibility and has established ways of communication.

The design manager determines the form of cooperation in concert with the individual consultants and the client; this work includes defining the responsibilities of the consultants on the basis of agreements concluded with the client.

The design manager draws up an organisational chart for design and project follow-up.

The design manager is responsible for ensuring that the client receives adequate information, that the client is provided with a basis on which to make decisions and that any approvals and decisions made by the client are communicated to the consultants.

The design manager convenes and presides over design meetings during the design phase and prepares minutes, including meetings with design contractors during the construction project phase.

The design manager participates in client meetings. The scope of such participation must be determined in the consultancy agreement.

The design manager coordinates the process of inviting tenders.

With the assistance of consultants, the design manager prepares tender letter and tender conditions and evaluation.

The design manager prepares a draft for a construction contract and special conditions/building project specification based on proposals from the consultants.

The design manager ensures that the special conditions/building project specification, along with the consultants' work descriptions, defines the cooperation and interfaces between consultants and design contractors after contracting, including in relation to any design performed by the consultant and/or the contractor/contractors.

Where digital design has been chosen, the design manager ensures that requirements for the design contractor's participation in interdisciplinary consistency and collision control are specified in the tender documents.

With assistance from the consultants, the design manager monitors that the client regularly updates the overview of required changes and informs the client of any disagreements with a view to settling such disagreements.

The design manager coordinates services to be provided by the consultants as stipulated in health and safety legislation.

With assistance from the consultants and the construction manager, the design manager prepares a proposal for the building site plan.

The design manager ensures that the health and safety coordinator is informed of structural and installation choices, choice of materials, building site plan, any particularly hazardous work, technical aids needed in the construction phase, the scope of safety measures, etc.

The design manager ensures that records of documents, drawings and models, etc. are prepared and updated.

The design manager presents all tender documents to the client for approval.

With assistance from the consultants, the design manager coordinates the evaluation and recommendation of tenders submitted.

The design manager provides consultancy to the client in respect of the scope and nature of construction management and site supervision.

If the client has assigned this to the design manager, the design manager will convene a project conference meeting with each contract and will preside over and take minutes of such meetings.

The design manager coordinates the consultant’s work in the construction project phase, including in relation to consultant design and contractor design.

The design manager coordinates project follow-up by the consultants during the construction phase.

The design manager ensures that overall document and drawing records are updated throughout the design and construction process.

2.1.2 Commissioning and operation

The design manager coordinates the consultant’s planning and documentation of the preliminary inspection.

The design manager coordinates the consultant’s collection and assignment of ‘as-built’ material and operating and maintenance manuals.

2.1.3 Authorities and utility owners

The design manager handles the dialogue with the utility coordinator which coordinates in relation to utility companies and other affected utility owners in relation to utility owners' re-laying or establishment of utility lines and utility systems in connection with the civil works.

The design manager handles any advance dialogue and coordinates other negotiations with authorities and utility companies for the purpose of obtaining the regulatory approvals and other necessary permits for construction of the civil works. The design manager is assisted by the consultants.

The design manager ensures that applications for regulatory permits and any applications for exemption are prepared and submitted to the client for approval.

The design manager ensures that an application for regulatory permits is submitted together with the relevant documentation and oversees that the regulatory permit is granted.

The design manager ensures that any conditions in the regulatory permits are settled in cooperation with the client, consultants and construction management.

In cooperation with the consultants, the design manager will prepare an overview of the required basis for operating permit and will assign it to the designers, the construction manager and the site supervision.

Following the conclusion of contracts with the contractors, coordination regarding regulatory matters will be handled together with the construction manager and the contractors.

The design manager assists the construction manager in connection with the construction manager's submission of statement of completion and application for operating permit.

2.1.4 Programming

The design manager prepares and updates an overall service plan together with the consultants and the utility coordinator and will oversee that the service plan is observed.

On the basis of the decision plan of the civil works programme, the design manager will incorporate the decision plan into the service plan.

The design manager prepares and updates the main time schedule for the tendering and construction of the civil works together with the consultants, utility coordinator and the construction manager.

The main time schedule must comprise milestones for the tendering phase, milestones for contract negotiations with the contractor/contractors, milestone for presentation of the contractors' work schedules, milestone for preparation of an overall detailed time schedule for the construction, milestones for the client's approvals, project conference and subsequent consultant design, contractor design, mobilisation and construction and for commissioning and test of technical facilities, preliminary inspection and delivery, etc.

The main time schedule must also include milestones for the design and relaying or establishment by utility companies and other affected utility owners of utility lines and utility systems in connection with the civil works.

On completion of each proposal and design phase, the design manager will forward a statement of completion to the client together with the project documentation of its own and the consultants' services relevant to the phase.

2.1.5 Cost management

Before preparing proposals based on the civil works programme and contributions from the individual consultants, the design manager will review,

comment on and update the budget and budget limits, etc. for the financial framework forming the basis of the preparation of proposals.

In this connection, the financial framework must be broken down to clearly define which framework the individual consultants must observe.

The design manager must ensure that the assumptions of the civil works programme regarding the design and re-laying or establishment by utility companies and other affected utility owners of utility lines and utility systems are updated.

The design manager reviews, comments and updates the risk analysis of the civil works programme with contributions from the individual consultants.

In cooperation with the client, it is ensured that the budget for the financial framework is defined with respect to the other budget items prepared and maintained by the client.

Before preparation of proposal and design, the design manager will review the updated budget for the financial framework as well as the updated risk analysis with the client to ensure a mutual understanding of the project costs and risks.

The design manager must notify the client if the financial framework is deemed inadequate to realise the planned civil works project, and the design manager must, with the assistance of the consultants, provide general guidance to the client in respect of its options.

The design phase is initiated if the updated budget and risk analysis are approved by the client.

If the updated budget and risk analysis are not approved by the client, the design manager must await the client’s instructions before initiating further work.

The budget for the financial framework is updated at the end of all design phases and is forwarded for the client’s approval together with an overview of required and agreed design changes and their consequences for the budget.

If the design manager, with the assistance of the consultants, becomes aware of circumstances that will affect the financial framework, the design manager must notify the client as soon as possible.

If the financial framework, considering the agreed design changes, is exceeded, an agreement must be made to either adjust the financial framework or the design.

After receipt of tenders, the design manager will update the budget for the financial framework and prepare an overall recommendation to the client that compares the most recently approved budget for the financial framework with the tender results. This recommendation is drawn up on the basis of contributions from the individual consultants.

During the construction project phase and the construction phase, the design manager will assist the construction manager in updating the budget for the financial framework.

With the assistance of the designers, the design manager will prepare the operating budget for the technical operation and maintenance of the civil works

during the project proposal phase and will update the operating budget during the construction design phase.

In each proposal and design phase, the design manager must, with the assistance of the designers, prepare a risk analysis focusing on quality, regulatory matters, stakeholders, programming, cost management, etc.

2.1.6 Quality assurance

The design manager prepares an overall quality plan for quality assurance in cooperation with and with contributions from the consultants. The plan will determine the scope of and milestones for review and control, including the contractors' review and control of any contractor design.

In connection with digital design, the design manager will make sure that the scope of collision and consistency control is determined and that collision and consistency controls are carried out, including in relation to utility lines which are designed and constructed by utility companies and other utility owners.

In connection with digital design, the ICT manager will assist the design manager in its planning and quality assurance, including in relation to consistency and collision control.

The design manager coordinates and collects interdisciplinary project reviews during the proposal and design phases, including in relation to any contractor design.

The design manager collects QA documentation from the consultants and design contractors after the proposal and design phase.

The design manager makes sure that the project is updated following quality assurance.

The design manager coordinates the consultants' preparation of supervision plans.

2.1.7 Project documentation

Overall, the design manager's services comprise services in each of the proposal and design phases below.

In connection with each phase, the design manager must establish the frameworks for the consultants' work in the phase, including:

- cooperation structure with series of meetings and participants
- service plan, including document record of the documentation of the phase
- plan for change management
- plan for regulatory processing and processing by public utility companies
- time schedule and service plan
- financial framework, which each of the consultants is responsible for making budgets for and maintaining
- risk analysis follow-up
- quality plan.

During each phase the design manager must:

- document the decisions made in the phase by means of minutes/memos
- clarify and check off decisions and choices with the client.

At the end of a phase, the design manager must prepare, update or collate:

- statement of completion for the phase
- the project
- review memo
-
- authority status
- status of negotiation with utility companies and other affected utility owners
- main time schedule
- service plan
- budget for the financial framework, which the consultants are responsible for preparing budgets for and maintaining
- risk analysis.

The documentation to be provided by the design manager is specified under the relevant phases.

2.1.8 Client

The client ensures that a design manager is appointed whenever relevant – no later than before commencement of the proposal and project phases.

The client ensures that a person is appointed to be in charge of any EIA screening and/or EIA statement, unless such service is undertaken by the client.

The client ensures that a utility coordinator has been appointed, unless the service is undertaken by the client.

The client ensures that agreement is made with utility companies and other affected utility owners on the design and re-laying or establishment by the utility owners of utility lines and utility systems.

In connection with the initiation of the proposal phase, the client will approve the budget for the financial framework updated by the design manager as well as the updated risk analysis.

The client grants the design manager appropriate authorisation, etc.

The client approves the type of tendering procedure and the allocation of contracts.

Unless otherwise agreed, the client undertakes health and safety coordination during the design phase and prepares the framework for the health and safety plan and log.

Unless otherwise agreed, the client will convene, preside over and take minutes of client meetings during all phases.

The client regularly records required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees and coordinates this with the design manager.

The client's other services are specified under the relevant phases.

The client approves the project after each phase.

The client approves the updated main time schedule and the consultant's updated service plan after each phase.

The client undertakes contractual review of the draft tender design prepared by the consultants, including tender conditions, special description/building project specification, construction contracts, etc.

The client approves the updated budget for the financial framework after each phase, including any required and agreed changes during the phase.

The client prepares and updates its own budget for other costs after each phase.

The client approves the recommended tenders and enters into construction contracts.

The client takes out any necessary insurance.

Unless otherwise agreed, the client will convene, preside over and take minutes of project conference meetings.

2.2 ICT management

In respect of agreed digital design work, the ICT manager is responsible for coordinating any digital cooperation between the consultants, design contractors, the client and any authorities together with the design manager.

In cooperation with the utility coordinator, the ICT manager handles the digital cooperation with utility companies and other affected utility owners in connection with the utility owners' re-laying or establishment of utility lines and utility systems.

The digital design cooperation is organised based on the ICT specification of the consultancy agreement. If no ICT specification has been prepared, the ICT manager will organise the digital cooperation together with the consultants and the utility coordinator.

2.2.1 Content

The ICT manager establishes and manages the ICT organisation of the civil works project as part of the overall project organisation.

The ICT manager participates in design meetings to the extent possible with a view to supporting the ICT cooperation and arranges, presides over and takes minutes of other necessary meetings about the ICT cooperation in the project.

The ICT manager must ensure that an ICT process manual is prepared for the agreed digital data exchange and project documentation and that this manual is communicated to all the client's agreement parties.

The ICT manual must describe:

- method for digital communication and data structures
- method for digital design and digital interdisciplinary communication between the parties

- method for handling the interfaces and properties of the technical models
- method for digital exchange and formats
- method for digital phase delivery
- method for digital delivery.

In connection with digital tendering, the ICT manager must manage the process and monitor the digital implementation of the overall tendering process as described in the ICT specification, including plan and coordinate the digital structure of the tender documents.

The ICT manager establishes requirements for the contractor's ICT services in the tendering project.

The ICT manager ensures that the agreed methods are followed.

The ICT manager assists the design manager in connection with its coordination of collision and consistency control based on the technical models.

2.2.2 Commissioning and operation

The ICT manager assists the design manager with its coordination of digital data in connection with commissioning and operation.

2.2.3 Authorities and utility owners

The ICT manager's services are also handled in relation to utility companies and other affected utility owners which design re-laying or establishment of utility lines and utility systems.

2.2.4 Programming

The ICT manager participates in drawing up and updating a service plan and main time schedule, including programming of exchange and delivery of digital data.

2.2.5 Cost management

No special services.

2.2.6 Quality assurance

The ICT manager establishes the framework to ensure that building models and other digital data can be used to support quality assurance.

2.2.7 Project documentation

In connection with the beginning of the phase, the ICT manager must establish the frameworks for the consultants' digital cooperation in the phase, including:

- the digital communication and use of any shared communication platform
- method for and scope of digital exchanges between the design parties
- assistance to the design manager in connection with incorporation of requirements for the interfaces and properties of the technical models
- in connection with tendering, determination of method and frameworks for digital tendering

- updating of the project's ICT process manual
- plan for performing consistency and collision controls.

At the end of the phase, the ICT manager must prepare, update or collate:

- ICT process manual
- common model
- documentation of consistency and collision control.

2.2.8 Client

- The client provides the consultant with an adequate digital basis in the format and structure agreed.
- The client ensures that other consultants and parties related to the project commit to the ICT cooperation, including affected utility companies and other affected utility owners.

3. PROPOSALS

Consultancy in connection with proposals comprises

3.1 Outline proposal

3.2 Project proposal

The outline proposal and the project proposal make up the proposal phase and may be implemented on an ongoing basis as one phase.

In connection with the conclusion of a consultancy agreement, it is agreed whether and to what extent the project will be tendered on the basis of functional requirements and proposals.

The services to be provided by the consultant are coordinated with those of the other designers under the management of the design manager, and the consultant participates in design meetings in this connection.

The services to be provided by the consultant are coordinated with utility companies and other utility owners which are to re-lay or establish utility lines. Such coordination takes place under the management of the utility coordinator.

The consultant must thus provide information on its area of responsibility as the basis for this coordination, including for example in relation to environment, geometry and other relevant interfaces.

The consultant participates in client meetings. The scope of such participation is determined in the consultancy agreement.

The consultant must perform its obligations as designer in accordance with health and safety legislation, and must within its area of responsibility contribute to the preparation of the basis for a health and safety plan and log.

3.1 Outline proposal

The outline proposal is a motivated proposal for the completion of the task on the basis of an approved civil works programme.

3.1.1 Content

The outline proposal contains a description of the proposal, including the basis of the proposal, its aesthetic idea, functions of the civil works, proposals for the general choice of materials, technical construction principles as well as reflections on operation and maintenance.

Information about any material changes in the civil works programme and its basis must be reported to the design manager on a regular basis.

3.1.2 Commissioning and operation

Requirements for commissioning, delivery and initial operation of the civil works as well as for operating and maintenance manual are prepared in accordance with the phase.

3.1.3 Authorities and utility owners

The consultant provides the design manager with relevant material to obtain the required acceptances, basic approvals and/or exemptions from the authorities.

In cooperation with the design manager, the consultant participates in negotiations with authorities and negotiations with utility companies on utility matters regarding the civil works.

In cooperation with the utility coordinator, the consultant participates in negotiations with utility companies and other utility owners affected by the civil works.

3.1.4 Programming

In cooperation with the design manager, the consultant assists in preparing and updating the service plan.

In cooperation with the design manager, the consultant contributes to preparing main time schedule for the tendering and construction of the civil works.

The main time schedule must comprise milestones for the tendering phase, milestones for contract negotiations with the contractor(s), milestone for presentation of the contractors' work schedules, milestone for preparation of an overall detailed time schedule for the construction, milestones for the client's approvals, project conference and subsequent consultant design and contractor design, mobilisation and construction and for commissioning and test of technical facilities, preliminary inspection, delivery, etc.

The main time schedule must also contain relevant milestones for the design and construction of any utility lines and utility systems by utility companies and other utility owners.

3.1.5 Cost management

The agreed financial framework from the civil works programme phase forms the basis for the budgeting of the responsibilities of the individual consultants.

At the beginning of the phase, the individual consultants will provide the design manager with updated cost estimates for the parts of the project for which they are individually responsible. All cost estimates must be prepared in accordance with the level of detail and the assumptions on which the financial framework is based.

The individual consultants update the assumptions of the civil works programme in relation to the definition of the financial framework regarding the design and re-laying or establishment by utility companies and other affected utility owners of utility lines etc.

The individual consultants must notify the design manager if the financial framework for the consultant's responsibilities is considered inadequate to realise the planned civil works.

The individual consultants must ensure that the approved financial framework is not exceeded in connection with the design.

The consultant must notify the design manager if a significant risk arises that the cost estimates will be exceeded.

At the end of the phase, the consultant must forward an overall, updated cost estimate to the design manager, which, following the client's approval of the phase, constitutes the approved financial framework.

If the civil works consist of different civil works units, these will be assessed individually.

The consultant must contribute with relevant information for the design manager's processing of the cost assumptions for the financial framework.

On the basis of the risk analysis of the civil works programme, the consultant assists the design manager in preparing a risk analysis focusing on quality, programming, costs, etc.

3.1.6 Quality assurance

The consultant reviews the outline proposal to ensure:

- that the outline proposal can form the basis of a project proposal
- that the requirements of the civil works programme for the overall quality of the civil works (architecture, function, construction method) and for costs and programming are met

with due consideration to any subsequently agreed changes.

The consultant participates in an interdisciplinary project review and documents this review within its own area of responsibility.

In connection with digital design, the digital models will form part of the quality assurance.

The outline proposal is updated after the quality assurance is complete.

The consultant hands over the QA documentation to the design manager.

3.1.7 Project documentation

Depending on the nature of the project, the following documents are prepared.

Design manager

Assisted by and using the basis prepared by the designers, the design manager will prepare or update the following documentation:

- statement of completion for the phase
- status for the regulatory processing of the civil works and documentation
- status of negotiations with utility companies and other affected utility owners
- main time schedule
- service plan

- budget for the financial framework
- risk analysis
- QA documentation of the quality assurance of the phase

ICT manager

Assisted by and using the basis prepared by the designers, the ICT manager will prepare, update or collect the following documentation:

- ICT process manual
- common model
- documentation of consistency and collision control.

Consultant

Within its own area of responsibility

Descriptions etc.:

- description of the proposal, including the idea behind the proposal, functions, considerations regarding construction methods, etc.
- description of completed analyses and preliminary studies on which the proposal is based
- proposal for general choice of materials
- description of area layout.

Drawings:

- site plan, levels and section views at a scale relevant for the task.

In connection with digital design, a technical model will be prepared and include:

- selected civil works, parts of civil works and any building parts which account for the expected geometry of the overall proposal.

3.1.8 Client

During the preparation of the outline proposal, the client participates in meetings about e.g. the architecture, functions, constructional solutions, etc. of the civil works.

The client approves the consultant’s service plan for the phase and any updated plans for subsequent phases.

The client approves the updated main time schedule.

The client regularly records required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees.

The client approves the updated budget for the financial framework.

The client updates the overall budget, including its own budget for other expenses.

The above services must be provided several times during the phase as and when needed.

The client approves the project documentation prepared during the phase as set out in the service plan.

The client approves the outline proposal as basis for drawing up the project proposal.

3.2 Project proposal

The project proposal is a processing of the approved outline proposal to such a degree that any decisions that are decisive for the project have been made and incorporated into the proposal.

3.2.1 Content

The project proposal is the basis upon which the client makes its decisions on the aesthetic, functional, technical and financial solution of the project in question, principles of operation and maintenance as well as financing.

All investigations, including registration of existing conditions needed for the further design process, must be completed.

3.2.2 Commissioning and operation

Requirements for commissioning, delivery and initial operation of the civil works as well as for operating and maintenance manual are prepared in accordance with the phase.

3.2.3 Authorities and utility owners

The consultant provides the design manager with relevant material to obtain the required acceptances or basic approvals from the authorities.

The consultant updates the documentation for the regulatory matters of the civil works.

In cooperation with the design manager, the consultant participates in negotiations with authorities and negotiations with utility companies on utility matters regarding the civil works.

In cooperation with the utility coordinator, the consultant participates in negotiations with utility companies and other utility owners affected by the civil works.

3.2.4 Programming

In cooperation with the design manager, the consultant assists in updating the service plan and main time schedule.

3.2.5 Cost management

The budget for the financial framework from the outline proposal phase, as approved by the client and design manager, forms the basis for budgeting of the areas of responsibility of the individual consultants.

At the beginning of the phase, the individual consultants will provide the design manager with updated cost estimates for the parts of the project for which they are individually responsible. All cost estimates must be prepared in

accordance with the level of detail and the assumptions on which the financial framework was based when the previous phase was approved.

The individual consultants update the assumptions of the outline proposal in relation to the definition of the financial framework regarding the design and re-laying or establishment by utility companies and other affected utility owners of utility lines and utility systems.

The individual consultant must ensure that the cost estimates are not exceeded in connection with the design.

Information about any changes in relation to previously approved phases and their assumptions must be reported to the design manager on a regular basis. Similarly, the consultants must notify the design manager if a significant risk arises that the cost estimates will be exceeded.

At the end of the phase, the consultant must submit an overall, updated cost estimate to the design manager.

If the civil works consist of different civil works units, these will be assessed individually.

The consultant must contribute with relevant information for the design manager's processing of the basis for the financial framework.

The consultant prepares the operating budget for the technical operation and maintenance of the civil works within its own area of responsibility.

On the basis of the risk analysis of the outline proposal, the consultant assists the design manager in preparing a risk analysis focusing on quality, programming, cost management, etc.

3.2.6 Quality assurance

The consultant reviews the project proposal to ensure:

- that the project proposal can form the basis for preparing a tender design
- that the project proposal is consistent with the particulars of the outline proposal
- that the requirements of the civil works programme for the overall quality of the civil works (architecture, function, construction method) and for costs and programming are met

with due consideration to any subsequently agreed changes.

The consultant participates in an interdisciplinary project review and documents this review within its own area of responsibility.

Digital design involves digital quality assurance in the form of collision and consistency control of building models as part of the interdisciplinary project review.

The project proposal is updated after the quality assurance is complete.

The consultant hands over the QA documentation to the design manager.

The consultant informs the design manager of any special or risk-related matters found during the review.

3.2.7 Project documentation

Depending on the nature of the project, the following documents are prepared:

Design manager

Assisted by and using the basis prepared by the designers, the design manager will prepare or update the following documentation:

- statement of completion for the phase
- status for the regulatory processing of the civil works
- status of negotiations with utility companies and other affected utility owners
- main time schedule
- service plan
- budget for the financial framework
- operating budgets for the technical operation and maintenance of the civil works
- risk analysis
- documentation of decisions made during the phase
- QA documentation of the quality assurance of the phase

ICT manager

Assisted by and using the basis prepared by the designers, the ICT manager will prepare, update or collect the following documentation:

- ICT process manual
- common model
- documentation of consistency and collision control.

Consultant

Within its own area of responsibility

Descriptions etc.:

- description of the proposal, including the idea behind the proposal, functions, proposed solutions for the civil works, etc.
- description of completed analyses and preliminary studies on which the proposal is based
- proposal for general choice of materials
- description of area layout.

Drawings:

- site plan, levels and section views at a scale relevant for the task.

In connection with digital design, a technical model will be prepared and include:

- selected civil works, parts of civil works and any building parts which account for the determined geometry of the overall proposal.

3.2.8 Client

During the preparation of the project proposal, the client participates in required meetings about e.g. the architecture, functions, constructional solution, etc. of the civil works.

The client approves the consultant's service plan for the phase as well as any updated plans for subsequent phases.

The client approves the updated main time schedule.

The client regularly records required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees.

The client approves the updated budget for the financial framework.

The client updates the overall budget, including its own budget for other expenses.

The above services must be provided several times during the phase as and when needed.

The client approves the project documentation prepared during the phase as set out in the service plan.

The client approves the project proposal as basis for the further design process.

4. REGULATORY PROJECT

Consultancy in connection with a regulatory project comprises preparation of necessary applications for regulatory permits and collection of the relevant basis.

Accordingly, the consultant must supplement the project to the required extent to ensure that the applications for regulatory permits can be submitted.

The services to be provided by the consultant are coordinated with those of the other designers under the management of the design manager, and the consultant participates in design meetings in this connection.

The services to be provided by the consultant are coordinated with utility companies and other utility owners which are to re-lay or establish utility lines. Such coordination takes place under the management of the utility coordinator.

The consultant must thus provide information on its area of responsibility as the basis for this coordination, including in relation to environment, geometry and other relevant interfaces.

The consultant participates in client meetings. The scope of such participation must be determined in the consultancy agreement.

The consultant must perform its obligations as designer in accordance with health and safety legislation, and must within its area of responsibility contribute to the preparation of the basis for a health and safety plan and log.

4.1 Content

The consultant prepares an overview of the required basis for applications for regulatory permits for the civil works in respect of its own area of responsibility.

The individual consultants and any design contractors must therefore prepare any necessary supplementary project documentation for the purpose of the applications.

In cooperation with the design manager, the consultant will collect the basis for the applications for regulatory permits in respect of its own area of responsibility from the consultants and any design contractors, including necessary documentation, see the regulatory requirements.

In cooperation with the design manager, the consultant prepares a draft for a possible application for exemption from the regulatory requirements, including

any application for exemption from other planning, easements and restrictive covenants, etc.

The consultant assists the design manager in connection with the design manager's preparation of draft applications for regulatory permits.

The consultant assists the design manager with the design manager's review of draft applications for regulatory permits with appendices on behalf of the client with a view to obtaining the client's approval.

The consultant assists the client in submitting applications for regulatory permits. If the client has authorised the design manager or a third party, the consultant will assist either of these parties instead.

4.2 Commissioning and operation

Within its own area of responsibility, the consultant assists the design manager in updating requirements for commissioning, delivery and initial operation as well as for operating and maintenance manual, etc. in relation to the regulatory requirements.

4.3 Authorities and utility owners

The consultant assists the design manager in any dialogue with the authorities in connection with the applications for regulatory permits and their consideration.

4.4 Programming

The consultant notifies the design manager of any consequences for the main time schedule and the service plan in connection with the applications for regulatory permits and their consideration.

4.5 Cost management

The consultant assesses the costs related to the applications, including fees and any special costs, and informs the design manager.

In cooperation with the design manager, the consultant prepares a risk analysis of regulatory matters and any consequences in terms of quality, programming and cost management.

4.6 Quality assurance

The consultant reviews the applications for regulatory permits and their basis in respect of its own area of responsibility to ensure that the material is adequate.

The regulatory project is updated after the quality assurance is complete.

The consultant hands over the QA documentation to the design manager.

The consultant informs the design manager of any special or risk-related matters found during the review.

4.7 Project documentation

The project documentation comprises:

Design manager

- risk analysis of regulatory matters
- minutes of any meetings with the authorities
- relevant correspondence
- applications for regulatory permits.

Project documentation and drawings are provided digitally in accordance with regulatory requirements.

ICT manager

No special services.

Consultants

- design basis for applications for regulatory permits.

In respect of digital design:

Building models are detailed only in relation to any requirements, see the regulatory requirements.

4.8 Client

The client may grant authorisation to the design manager or a third party for the purpose of preparing applications and engaging in other dialogue with authorities and utility companies.

The client regularly records required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees.

The client approves the draft applications for regulatory permits together with their basis and any applications for exemption.

The client approves other documentation prepared by the design manager.

5. TENDER DESIGN

The tender design describes the project clearly and at such level of detail that it can form the basis for tendering, contracting, preparation of construction project and construction.

Regulatory matters must be clarified so that the tender design together with the construction project provides final clarification of the provisions of the regulatory requirements for the project.

The tender design is generally determined in accordance with the construction project, see chapter 6.

However, for building parts for which functional tendering has been agreed, the scope of the tender design is adapted, as agreed. However, it should at least correspond to the project proposal, see chapter 3.2.

The services to be provided by the consultant are coordinated with those of the other consultants under the management of the design manager, and the consultant participates in design meetings in this connection.

The services to be provided by the consultant are coordinated with utility companies and other utility owners which are to re-lay or establish utility lines. Such coordination takes place under the management of the utility coordinator.

The consultant must thus provide information on its area of responsibility as the basis for this coordination, including in relation to environment, geometry and other relevant interfaces.

The consultant participates in client meetings. The scope of such participation must be determined in the consultancy agreement.

The consultant’s services are provided within the consultant’s area of responsibility.

The consultant must perform its obligations as designer in accordance with health and safety legislation, and must within its area of responsibility contribute to the preparation of the basis for a health and safety plan and log.

5.1 Content

The consultant assists the design manager in preparing the tender letter and tender conditions and evaluation.

Within its own area of responsibility, the consultant prepares a proposal for a construction contract and special conditions/building project specification as

well as other general tender documents with a view to supporting the design manager's coordination and final preparation of such documents.

The consultant prepares work specifications, drawings, bills of quantities and tender and calculation basis as basis for the tendering process.

As part of the tender documents, the consultant determines the scope of the contractor's participation in project conference meetings.

The consultant specifies the scope of any design process to be carried out by the consultant after contracting in the tender documents.

The consultant sets out requirements for the scope of the contractors' design and documentation of such design.

In connection with digital design, the ICT specification forms part of the basis of the contractor design.

In connection with digital design, the tender documents must specify which technical models that may need to be further detailed by the consultant and which models that need to be further detailed or prepared by a design contractor.

As part of the tender documents, the consultant determines the scope of the consultant's assessment of contractor design.

The consultant prepares a tender quality control plan, including requirements for the contractor's documentation of review and control of any contractor design as well as for documentation of performance control.

The consultant prepares a draft supervision plan for site supervision within its own area of responsibility.

In cooperation with the design manager and the other consultants of the project, the consultant assists in inviting tenders, evaluating tenders submitted, technical and cost clarifications, preparing recommendation of tenders and in the final contract negotiation.

5.2 Commissioning and operation

The tender design must include requirements for testing technical systems and installations.

The tender design must include requirements for preliminary inspection, delivery and rectification of defects, etc.

The tender design must include requirements for the contractor's delivery of 'as-built' documentation and operating and maintenance manuals, etc.

5.3 Authorities and utility owners

The consultant assists the design manager in assessing the terms and conditions of the regulatory permits and in communicating these to the other relevant consultants and any design contractors.

The consultant participates in any negotiations with authorities.

In cooperation with the utility coordinator, the consultant participates in negotiations with utility companies and other utility owners for the purpose of

ensuring that the construction of the civil works is defined and coordinated with utility works carried out by utility companies and other utility owners.

The tender design must specify requirements for the contractors' documentation as basis for obtaining regulatory permit for operation.

The tender design must specify requirements for the contractors' documentation in relation to works carried out on behalf of or coordinated with utility companies or other utility owners.

5.4 Programming

In cooperation with the design manager, the consultant assists in updating and providing the final details of the main time schedule as basis for the tendering process.

In cooperation with the design manager, the consultant assists in updating the service plan.

5.5 Cost management

The consultant must regularly update the budget for the financial framework within its own area of responsibility and inform the design manager of any project changes that impact the budget.

The budget is sub-divided in accordance with the allocation of contracts.

Following receipt of tenders, the consultant assists the design manager in updating the overall budget for the overall financial framework.

If the overall, updated budget for the financial framework – after receipt of tenders – appears to exceed the agreed variances in relation to the approved financial framework, the client may require that the project be revised in cooperation with the consultant if the project and the agreed terms and conditions of the project revision are specified in the consultancy agreement.

If the overrun of the approved financial framework is the result of:

- an agreed price adjustment
- change in the project as agreed with the client
- change in the specified budget assumptions
- conditions which the consultant is able to render probable that the consultant was not or could not have been aware of at the time when the budget was updated

a project revision is made, if required, with full payment to the consultant.

If an agreement to redesign the project involves another consultant and so results in redesign expenses on the part of that consultant, the client is obligated pay such expenses directly to the consultant in question, possibly with recourse against the consultant being responsible for the overrun.

On the basis of the risk analysis of project proposal and regulatory project, the consultant assists the design manager in preparing a risk analysis focusing on quality, programming, costs, etc.

5.6 Quality assurance

The consultant performs reviews and checks by systematically going over the tender design and the tender documents for the purpose of ensuring that:

- the tender design is consistent with the particulars of the project proposal
- the individual items of the project material are consistent with one another

with due consideration to any subsequently agreed changes.

The consultant participates in an interdisciplinary project review and documents this review within its own area of responsibility.

Digital design involves digital quality assurance in the form of collision and consistency control of building models as part of the interdisciplinary project review.

The tender design is updated after the quality assurance is complete.

The consultant hands over the QA documentation to the design manager.

5.7 Project documentation

Depending on the nature of the project, type of tendering procedure and allocation of contracts, a tender design is prepared, including the following documentation, as a basis for inviting tenders:

Design manager

Assisted by and using the basis prepared by the consultants and as basis for the tendering, the design manager will prepare the following documentation:

- tender letter
- overall list of documents and drawings
- tendering conditions
- draft construction contract
- Special conditions/building project specification
- main time schedule.

Assisted by and using the basis prepared by the consultants, the design manager will also prepare or update the following documentation:

- status for the regulatory processing of the civil works and documentation
- status for negotiations with utility companies and documentation
- service plan
- budget for the financial framework
- overview of agreed project changes that impact the budget
- risk analysis
- QA documentation of the quality assurance of the phase

ICT manager

In connection with digital design, the ICT manager will prepare, update or collect:

- common model

- documentation of consistency and collision control
- description of the digital structure of the tender documents
- description of the digital structure of volume extracts and bill of quantities, including any measuring rules applied
- description of ICT requirements for the design contractors in the form of e.g. ICT specification and ICT process manual.

Consultants

The tender documents contain the following documentation:

- work specifications, incl. interface specifications
- bills of quantities
- tender and calculation basis
- drawings and/or any digital building models
- tender quality control plans.

The project documents must be structured so as to ensure coherence between bills of quantities, descriptions, drawings and any building models.

5.8 Client

During the preparation of the tender design, the client participates in required meetings about e.g. the architecture, functions, constructional solutions, etc.

The client approves the consultant's service plan for the phase and any updated plans for subsequent phases.

The client approves the updated main time schedule.

The client approves the conditions of the regulatory permits as basis for the further design process and for the tendering process and construction.

The client regularly records required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees.

The client approves the updated budget for the financial framework.

The client updates the overall budget, including its own budget for other expenses.

The above services must be provided several times during the phase as and when needed.

The client approves the project documentation prepared during the phase as set out in the service plan.

On the basis of the consultant's recommendation, the client approves the tender design as basis for inviting tenders.

The client reviews the draft tender documents, construction contracts, etc., drawn up by the consultant for compliance with contract law.

If required, the client participates in a revision of the project as stipulated in 5.5. Cost management above.

The client takes out any necessary insurance.

6. CONSTRUCTION PROJECT

The construction project is based on received and accepted tenders from contractors and constitutes a processing of the tender design into a final project so that it may form the basis for the contractors' purchasing, preparation and construction of the civil works.

The construction project must ensure final clarification of regulatory requirements

The construction project is prepared by the consultant or partially by contractors as determined in the tender design.

The services to be provided by the consultant are coordinated with those of the other consultants and any design contractors under the management of the design manager, and the consultant participates in design meetings in this connection.

The services to be provided by the consultant are coordinated with utility companies and other utility owners which are to re-lay or establish utility lines. Such coordination takes place under the management of the utility coordinator.

The consultant must thus provide information on its area of responsibility as the basis for this coordination, including in relation to environment, geometry and other relevant interfaces.

The consultant participates in client meetings. The scope of such participation must be determined in the consultancy agreement.

The consultant's services are provided within the consultant's area of responsibility.

The consultant must perform its obligations as designer in accordance with health and safety legislation, and must within its area of responsibility contribute to the preparation of the basis for a health and safety plan and log.

6.1 Content

The consultant's service comprises supplementary design as described in the tender design to the extent that design can most appropriately take place – after entering into the contract – based on the contractor's project or choice of materials.

The consultant participates in project conference meetings with the contractors as set out in the consultancy agreement and the tender design.

The consultant participates in design meetings with other consultants and contractors as set out in the tender design.

The consultant reviews any project documentation prepared by contractors to ensure that the project is consistent with the requirements and intentions of the tender documents, including interfaces with other contracts.

6.2 Commissioning and operation

The requirements of the tender design for testing technical systems and installations of the tender are updated.

The requirements of the tender design for preliminary inspection, delivery and rectification of defects, etc. are updated.

The requirements of the tender design for the contractor's delivery of 'as-built' documentation and operating and maintenance manuals, etc. are updated.

6.3 Authorities and utility owners

The consultant provides the design manager with the updated regulatory project.

The consultant participates in any negotiations with authorities.

In cooperation with the utility coordinator, the consultant participates in any negotiations with utility companies and other utility owners.

The consultant receives an updated project for utility lines and utility systems constructed by utility companies and other utility owners.

6.4 Programming

The consultant assists the construction manager in updating the main time schedule for the construction of the civil works to the extent that it has not been assigned to the contractors. The main time schedule is updated with agreements concluded with the contractors and is termed the agreed main time schedule.

In cooperation with the design manager, the consultant assists in preparing and updating the service plan.

6.5 Cost management

The consultant assists the construction manager in updating the budget for the financial framework.

The consultant updates the operating budget for the technical operation and maintenance of the civil works within its own area of responsibility.

On the basis of the risk analysis of the tender design, the consultant assists the design manager in preparing a risk analysis focusing on quality, programming, costs, etc.

6.6 Quality assurance

The consultant conducts internal review and control of the consultant's construction project.

The consultant participates in an interdisciplinary project review with other consultants and design contractors and documents this review within its own area of responsibility.

Digital design involves digital quality assurance in the form of collision and consistency control of building models as part of the interdisciplinary project review.

The construction project is updated after the quality assurance is complete.

The consultant hands over the QA documentation to the design manager.

6.7 Project documentation

The consultant's tender design is updated with any project revisions following project conference meetings or consultant design following the tendering process.

The consultant's project must refer to the project prepared by contractors, where the contractor's project constitutes the basis for the construction work.

Accordingly, the consultant's updated project, together with any project prepared by contractors, constitutes the overall construction project.

Depending on the nature of the project, the following documents are prepared:

Design manager

Assisted by and using the basis prepared by the consultants, the design manager will prepare or update the following documentation:

- status for the regulatory processing of the civil works and clarification of the terms and conditions of permits
- status for negotiations with utility companies and clarification of the terms and conditions of permits
- main time schedule
- service plan
- budget for the financial framework
- operating budgets for the technical operation and maintenance of the civil works
- risk analysis
- QA documentation of the quality assurance of the phase

ICT manager

Assisted by and using the basis prepared by the designers, the ICT manager will collect or update the following documentation:

- common model
- documentation of consistency and collision control.

Consultants

Descriptions etc.:

- updated work specifications or amendment sheets
- updated tender quality control plans

- update of description of area layout.

Drawings:

- updated drawings comprising general drawings, layout drawings, building component drawings and detailed drawings.

In connection with digital design, discipline models will be prepared and include:

- final geometry of civil works, parts of civil works and any building parts.

6.8 Client

During the preparation of the construction project, the client participates in required meetings about e.g. the architecture, functions, constructional solutions, etc. of the civil works.

The client approves the consultant's service plan for the phase.

Unless otherwise agreed, the client will convene, preside over and take minutes of project conference meetings.

On the basis of the recommendation from the consultants, the client will consider whether any optimisation proposals from contractors should be incorporated into the construction project and will enter into an agreement on paying the consultants for the incorporation of the proposals into the project, and the client will enter into any addenda with the contractors.

The client regularly records required and agreed changes and any obstacles as well as their consequences for the project in terms of programming, costs and fees.

Following recommendation from the construction manager, the client will approve the updated budget for the financial framework.

The client updates the overall budget, including its own budget for other expenses.

The above services must be provided several times during the phase as and when needed.

On the basis of the consultant's recommendation, the client will approve the construction project as basis for the construction phase.

7. CONSTRUCTION

Construction phase consultancy comprises:

7.1 Construction management during the construction phase

7.2 Site supervision during the construction phase

7.3 Project follow-up during the construction phase

Consultancy in connection with the construction phase is undertaken until delivery. However, activities related specifically to preliminary inspection, defects inspection, delivery, rectification of defects and 1-year inspection are described in chapter 8.

7.1 Construction management during the construction phase

A construction manager is appointed before the civil works commences.

The construction manager undertakes cost and time management of the construction of the civil works, including the coordination of the consultant's site supervision during the construction phase and ensures the coordination of common construction site activities.

The scope of construction management during the construction phase is established in an agreement between the client and the construction manager.

The construction manager draws up a plan for construction management during the construction phase until delivery and the 1-year inspection has taken place.

7.1.1 Content

The construction manager ensures that the client has delegated competence and responsibility and has established ways of communication.

The construction manager ensures that project conference meetings are held and participates in such meetings as defined in the consultancy agreement and the tender design.

The construction manager ensures that approved quality plans and inspection plans are provided by the contractors.

The construction manager represents the client in matters involving the contractors in respect of organisation and performance of work and has the powers as stipulated in section 28 of AB 18 ('General Conditions for the Provision of Works and Supplies within Building and Engineering'), unless otherwise agreed.

The construction manager updates the building site plan during the construction phase.

The construction manager assists the health and safety coordinator in completing and updating the health and safety plan.

The construction manager ensures that health and safety coordination takes place during the construction phase.

The construction manager undertakes the preparation of the administrative rules on the overall supervisory function and oversees the compliance with such rules.

The construction manager coordinates overall site supervision.

The construction manager ensures that the ICT requirements specified in the agreement basis on objective and use of digital communication and digital building models are observed during the construction phase.

The construction manager convenes and presides over building meetings and prepares minutes of such meetings.

The construction manager presents problems encountered and any proposals for project changes during the construction phase to the design manager with whom it is agreed how to address such problems or changes.

The construction manager participates in client meetings during the construction phase. The scope of such participation must be determined in the consultancy agreement.

The construction manager prepares reports for the purpose of informing the client of the progress of the civil works in terms of programming and costs and makes arrangements for the client’s approval of transactions during the civil works.

7.1.2 Commissioning and operation

No separate activities.

7.1.3 Authorities and utility owners

The construction manager registers the commencement of the civil works with the authorities.

The construction manager handles relations with authorities and utility companies in respect of construction site functions.

The construction manager undertakes coordination in relation to the re-laying or establishment of utility lines and utility systems by utility companies and other utility owners.

The construction manager assists the design manager in connection with the design manager’s clarification of the terms and conditions of regulatory permits.

7.1.4 Programming

The construction manager manages the overall programming of the civil works and the related documentation.

The construction manager assists the design manager in preparing the main time schedule forming the basis of the tendering process.

The construction manager updates the main time schedule in respect of the agreed main time schedule in cooperation with the site supervision and the contractors.

The construction manager collects work schedules from the contractors and assesses their adequacy.

The construction manager collects work schedules from utility companies and other utility owners that are to re-lay or establish utility lines and utility systems and assesses whether they have been coordinated with the construction of the civil works.

On the basis of the agreed main time schedule and work schedules from the contractors and work schedules from utility companies and other utility owners, the construction manager will prepare a detailed time schedule for the final design and construction of the civil works.

The construction manager registers the progress of work on the basis of information provided by the site supervision and records weather conditions and any delays due to bad weather. Such registration normally appears from minutes of site meetings.

The construction manager prepares a monthly report to the client on the progress of the civil works in terms of programming and, with the assistance of the site supervision, arranges for the programming implications of changes made during the civil works to be agreed with the parties involved.

7.1.5 Cost management

The construction manager obtains performance bonds from the contractors.

During the construction project phase and the construction phase, the construction manager is in charge of the progress of the civil works in terms of costs and updates the monthly budget for the financial framework.

The construction manager approves on-account bills and invoices based on recommendations from the site supervision and keeps construction accounts.

In cooperation with the site supervision, the construction manager considers claims made by the contractors.

Depending on the authority given to the construction manager by the client, the construction manager may either consider the claim or present the claim to be settled by client together with its recommendation.

The construction manager prepares a monthly report to the client on the progress of the civil works in terms of costs and, in cooperation with the design manger and site supervision, arranges for additional payments made during the course of the civil works to be approved by the client.

The construction manager prepares and updates quarterly risk analyses focusing on quality, regulatory matters, programming and costs during the construction phase.

7.1.6 Quality assurance

With assistance from the design manager and site supervision, the construction manager reviews the updated budget for the financial framework.

7.1.7 Project documentation

The construction manager's ongoing reporting to the client, the other consultants and the contractors serves to provide the parties with an overview of the progress of the civil works and any challenges in respect of quality, programming and costs with a view to promoting clarification and construction and delivery of the civil works, see the agreements concluded.

Construction manager

- plan for construction management
- quality plan and inspection plans prepared by the contractors
- work schedules prepared by the contractors
- updated main time schedule
- updated detailed main time schedule
- reports on the progress of the civil works in terms of programming
- provision of performance bonds from the contractors
- updated budget for the financial framework and report on the progress of the costs of the civil works.
- recommendations to the client on any changes that impact quality, regulatory matters, programming or costs management
- minutes of site meetings
- risk analyses.

7.1.8 Client

Before provision of consultancy, the client must prepare an organisational chart stating the competences and responsibilities of authorised persons or other persons.

The construction manager's authority, see section 28(2) of AB18, must be stated.

The client convenes, presides over and takes minutes of project conference meetings, but may assign such duties to the design manager.

The client assesses and approves any alterations in writing based on a recommendation from the construction manager.

The client regularly records required and agreed alterations and any obstacles as well as their consequences for the project in terms of programming, costs and fees and coordinates this with the construction manager.

The client pays any on-account bills and invoices presented by the construction manager.

The client updates the overall budget, including its own budget for other expenses.

Unless otherwise agreed, the client undertakes health and safety coordination during the construction phase.

7.2 Site supervision during the construction phase

The site supervision is appointed before the civil works commences.

The site supervision undertakes the quantitative and qualitative control in the form of random supervision.

The scope of such supervision is laid down in an agreement between the client and the site supervision.

The site supervision draws up a plan for the agreed site supervision.

7.2.1 Content

On the basis of the supervision plan, the site supervision performs on-site checks to ensure that work is undertaken in accordance with the project and as stipulated in the construction contracts.

The site supervision participates in project conference meetings as set out in the consultancy agreement and the tender design.

The site supervision obtains any necessary project specifications from the project follow-up and informs the construction manager of any related consequences in terms of programming and costs.

The site supervision makes sure that the contractors receive revised drawings and any digital building models.

The site supervision assesses working drawings and calculations, material, colour, design and installation samples within its own area of responsibility.

The site supervision uses digital building models and ICT tools as described in the project ICT specification and/or ICT process manual.

The site supervision provides the construction manager with the information needed to perform its coordinating and administrative functions.

The site supervision participates in building meetings to the extent agreed.

The site supervision participates in client meetings. The scope of such participation must be determined in the consultancy agreement.

7.2.2 Commissioning and operation

No separate activities.

7.2.3 Authorities and utility owners

The site supervision makes spot checks to verify that the conditions of the authorities and utility companies for the performance of the work are observed.

The site supervision makes spot checks to verify that the contractors arrange for the required inspections by the authorities and utility companies.

7.2.4 Programming

The site supervision assists the construction manager in drawing up and updating the construction main time schedules.

The site supervision assists the construction manager in assessing the contractors' work schedules and in connection with the preparation of an overall detailed time schedule for the civil works.

The site supervision prepares progress reports.

7.2.5 Cost management

The site supervision assists the construction manager in managing the budget in connection with any changes in the scope of contracts.

The site supervision makes spot checks of the contractor's documentation of works provided on a quantities basis in respect of the supervision plan and verifies on-account bills.

The site supervision checks variation orders for any alteration services and verifies them.

The site supervision verifies invoices for any alteration services.

The site supervision verifies invoicing.

7.2.6 Quality assurance

The site supervision checks that the contractors' quality plans and inspection plans are compliant with the requirements of the tender documents.

The site supervision performs checks as specified in the supervision plan and prepares supervision notes.

7.2.7 Project documentation

The site supervision prepareS supervision notes, reports on building site staffing and equipment, work performed, etc., in respect of its own area of responsibility.

Site supervision

- supervision plan
- progress reports
- documentation of check of services provided on a quantities basis
- verified on-account bills and invoices
- supervision notes.

7.2.8 Client

The client approves material samples and construction tests as stipulated in the project documentation.

7.3 Project follow-up during the construction phase

The service is a design service related to the part of the project prepared by the design consultant.

Project follow-up is undertaken by the design consultant.

Project follow-up must contribute to ensure that the construction, including any design by contractors, is consistent with the intentions of the project.

For information about performance control, see 7.2 Site supervision.

7.3.1 Content

The services are provided during the construction phase and comprise services in continuation of the preceding design phases in the form of required project clarifications of the design consultant's project.

The design consultant participates in project conference meetings as set out in the consultancy agreement and the tender design.

Project specifications may be documented as memos, minutes and/or a revised project, depending on the nature of the specification.

In connection with project follow-up, it must be ensured that relevant project documentation is handed over to the construction manager and site supervision.

The design consultant assists the site supervision in assessing working drawings and calculations and material, colour, design and installation samples within its own area of responsibility.

7.3.2 Commissioning and operation

No separate activities.

7.3.3 Authorities and utility owners

The consultant assists the construction management and supervision in assessing the consequences of any changes during construction.

7.3.4 Programming

The design consultant assists the site supervision in assessing the consequences of any project specifications in terms of programming.

7.3.5 Cost management

The design consultant assists the site supervision in inviting tenders and assessing such tenders in connection with project specifications.

7.3.6 Quality assurance

The design consultant regularly performs internal reviews and checks its own project specifications to ensure that the project continues to be consistent with the particulars of the construction project.

The tender design is updated after the quality assurance is complete.

7.3.7 Project documentation

Design manager

The design manager ensures that the following documentation is handed over to the client.

Design consultants

- updated project following project specifications during the construction phase.

7.3.8 Client

On the basis of the design consultant's recommendation, the client approves any project specifications performed by the consultants.

8. DELIVERY

Consultancy in connection with delivery comprises

8.1 Construction management in connection with delivery

8.2 Site supervision in connection with delivery

8.3 Project follow-up in connection with delivery

Consultancy in connection with delivery describes the activities specific to the delivery phase.

8.1 Construction management in connection with delivery

The construction manager undertakes cost and time management of the delivery of the civil works, including the coordination of the consultant's site supervision in connection with delivery and ensures the coordination of common construction site activities.

The scope of construction management in connection with delivery is established in an agreement between the client and the construction manager.

8.1.1 Content

The construction manager organises, convenes and manages the delivery meeting with assistance of the site supervision. In this connection, the construction manager must:

- manage defects lists from the site supervision
- prepare a delivery protocol
- ensure that defects and any deferred work are described in the delivery protocol, that a price has been fixed for such work and that a deadline has been set for rectification or performance.
- ensure that the contractors' QA documentation, operating and maintenance manuals, etc. are available or that a deadline has been agreed for the provision of such documentation and material
- ensure that the contractors' and consultants' 'as-built' documentation etc. is available or that a deadline has been agreed for the provision of such documentation.

The construction manager organises and manages the 1-year inspection with the assistance of the site supervision. In this connection, the construction manager must:

- collect defects lists from the client and hand these over to the site supervision

- collect defects lists from the site supervision
- prepare 1-year inspection protocol
- ensure that any defects are specified in the 1-year inspection protocol, that prices have been fixed for such defects and that a time schedule for rectification has been made
- ensure that a deadline is set for performing the 1-year inspection for any deferred work
- assess whether the performance bond can be reduced.

The construction manager must also ensure that the 1-year inspection of any deferred work is carried out.

8.1.2 Commissioning and operation

With assistance from the site supervision, the construction manager convenes and conducts preliminary inspections and prepares the preliminary inspection protocol.

The construction manager oversees that technical systems are tested.

The construction manager oversees that operating and maintenance manuals prepared by contractors are collected.

The construction manager monitors that ‘as-built’ project prepared by contractors is collected.

8.1.3 Authorities and utility owners

The construction manager is responsible for submitting statements of completion and obtaining operating permits from authorities and utility companies.

8.1.4 Programming

The construction manager prepares a detailed time schedule for preliminary inspection and delivery.

The construction manager plans the 1-year inspection.

8.1.5 Cost management

The construction manager prepares final construction accounts. The overall construction accounts must be prepared at least 60 working days after delivery and must be updated in final at least 30 days after the 1-year inspection.

The overall and final construction accounts must also specify the budget for any outstanding work or payments as well as any costs related to defects etc.

8.1.6 Quality assurance

The construction manager reviews the delivery protocol and construction accounts with the assistance of the design manager and site supervision.

8.1.7 Project documentation

Comprises the final documentation of the civil works.

Construction manager

- preliminary inspection protocol
- documentation of test of technical systems and installations carried out by the contractors
- delivery protocol with appendices
- 1-year inspection protocol with appendices
- construction accounts and final construction accounts.

8.1.8 Client

The client participates in the preliminary inspection and approves the preliminary inspection protocol.

The client participates in the delivery meeting and signs the delivery protocol.

The client convenes the 1-year inspection.

The client forwards a list of defects to the construction manager, which must be considered at the 1-year inspection.

The client participates in the 1-year inspection and signs the 1-year inspection protocol.

8.2 Site supervision in connection with delivery

8.2.1 Content

The site supervision participates in the preliminary inspection to the extent agreed.

The site supervision prepares a defects list for the delivery meeting, participates in the meeting and ensures at an inspection that the defects are rectified.

The site supervision prepares a defects list for the 1-year inspection, participates in the inspection and ensures at an inspection that the defects are rectified. The defects list must include any defects stated by the client.

8.2.2 Commissioning and operation

The site supervision assists the construction manager in planning the preliminary inspection, participates in such inspection for its own contracts and prepares contributions for the preliminary inspection protocol for its own contracts.

The site supervision monitors that tests required by authorities and utility companies and as required in the project documentation are carried out by the contractors and checks that the outcome is consistent with the conditions.

The site supervision obtains operating and maintenance manuals etc. required by the authorities and utility companies, and as required in the project documentation, from the contractors and hands them over for project follow-up.

‘As-built’ documentation and project are obtained from the contractors and handed over for project follow-up.

8.2.3 Authorities and utility owners

The site supervision collects documentation from the contractors as basis for the statement of completion and obtaining operating permits from authorities and utility companies and hands over the documentation to the design manager.

The site supervision assists the construction manager with information for statements of completion to authorities and utility companies.

8.2.4 Programming

The site supervision assists the construction manager in preparing a detailed time schedule for preliminary inspection and delivery.

The site supervision assists the construction manager in planning the 1-year inspection.

8.2.5 Cost management

The site supervision makes spot checks of the contractor's documentation of final accounts of services provided on a quantities basis.

The site supervision verifies final accounts.

8.2.6 Quality assurance

The site supervision checks the contractors' documentation to the extent specified in the supervision plan and prepares supervision notes to that effect.

8.2.7 Project documentation

Site supervision

- documentation of final check of services provided on a quantities basis
- verified final accounts
- supervision notes regarding delivery
- defects lists in connection with delivery
- defects lists in connection with 1-year inspection
- verification of the contractor's rectification of defects.

8.2.8 Client

The client approves documentation in connection with the delivery.

8.3 Project follow-up in connection with delivery

8.3.1 Content

The service comprises the design consultant's activities in connection with delivery.

8.3.2 Commissioning and operation

The design manager organises the method and format of delivery of 'as-built' documentation and operating and maintenance manuals, etc. in compliance with any agreements to that effect. If digital delivery has been chosen, the

method and format is organised in accordance with the ICT specification and with support from the ICT manager.

The design consultant receives updated ‘as-built’ project documentation from the supervisor, including any digital ‘as-built’ building models prepared by the contractors in accordance with the consultant’s requirements, see the agreement basis with the individual contractors.

The design consultant makes an ‘as-built’ update of its own project as a result of the consultant’s project changes and project specifications. The update is carried out to the extent that it results in regulatory approval and operating permit within the consultant’s area of responsibility.

The consultant’s digital building models are only updated to the extent that it is necessary for preparing the above documentation.

The design consultant receives operating and maintenance manuals prepared by the contractors in accordance with the consultant’s requirements, see the agreement basis with the individual contractors.

8.3.3 Authorities and utility owners

The design consultant provides the design manager with the updated regulatory project, see 8.3.7 and in accordance with the requirements, see the regulatory permits.

The design manager collects or prepares documentation as basis for the operating permit, see the requirements of authorities and utility companies, and hands this over to the construction manager.

8.3.4 Programming

No separate activities.

8.3.5 Cost management

The design consultant provides assistance to the site supervision in connection with the site supervision’s assessment of the final accounts.

8.3.6 Quality assurance

The design consultant reviews and checks its own updated ‘as-built’ project.

8.3.7 Project documentation

Design manager

The design manager ensures that the following documentation is handed over to the client.

Design consultants

- updated project ‘as built’ to the extent necessary to obtain regulatory approval and operating permit.
- overall operating and maintenance manuals.

8.3.8 Client

On the basis of the design consultant's recommendation, the client approves the ‘as-built’ project.

9. OTHER SERVICES

The consultant may, if agreed with the client, provide the following services or, on behalf of the client, arrange for such services to be provided by other parties.

ICT in civil works

If the client wants one or more of the services specified in 9.1 - 9.10 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.1 Classification

Classification of digital project information through the use of a common classification system. In making the classification, the system, purpose and scope of the classification must be defined in an ICT specification.

9.2 Digital communication

The service may involve the use of a common digital communications platform for the exchange and sharing of project documentation that is common to several project parties.

The service must be defined in an ICT specification.

9.3 Establishment of communications platform

The service may involve the establishment, administration and operation of a common digital communications platform (e.g. project web).

The service must be defined in an ICT specification.

9.4 Digital design

The service comprises the preparation of one or more digital models as the basis for coordinated design, analysis and project documentation.

Each party is responsible for its own models and for ensuring that they are well-structured and mutually coordinated and contain objects with properties that enable sorting, filtering and extraction corresponding to the phases of the delivery.

Digital design involves collision and consistency control.

To the extent that technical models form the basis for the project documentation, the technical models must, at the client's request, be provided together with the project documentation.

The exchange and delivery of models must take place in open formats and must be defined in an ICT specification.

9.5 Digital tendering

The service comprises digital management of the tendering phase, including preparation of structured digital tender documents, selection and management of tendering portal and assessment of the digital quality of digital tenders received. The service must be defined in an ICT specification.

9.6 Digital delivery

The service comprises the delivery of digital project documentation or digital 'as-built' documentation on the basis of specific client requirements. The service must be defined in an ICT specification.

9.7 Digitalisation of existing conditions

The service encompasses the digitalisation of existing areas, civil works and any buildings in digital models or drawings to the extent agreed.

9.8 Special visualisation

This service may comprise photorealistic visualisation, 3D visualisation, architectural photos, animations, video and interactive presentations. This service may also comprise the preparation of physical models on the basis of the above.

9.9 Other digital services

Other digital services may comprise 4D visualisations (programming), 5D visualisations (programming and costs), assistance in connection with the client's establishment of communications platform, implementation of software in the client's system, etc.

9.10 Internet portal

Establishment and operation of a publicly accessible Internet portal with information about the project for users, citizens and other stakeholder groups.

Risks and cost management

If the client wants one or more of the services specified in 9.11 - 9.14 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.11 Cost analyses

Preparation of special estimates carried out according to the client's special requirements.

Calculations of the cost consequences of alternative scenarios.

Preparation of operating budgets according to the client's guidelines.

Preparation of investment plans and profitability calculations.

Preparation of whole-life cost assessments or whole-life cycle cost calculations comprising capitalisation of the overall construction and operating costs during the lifecycle of the civil works.

9.12 Risk analyses

Assistance in connection with risk analyses according to the client's guidelines, including performance of analyses of special risk-related conditions as required by the client in relation to the design, construction and operation of the civil works.

9.13 Risk management

Management (risk management) of identified risks according to the client's guidelines.

9.14 Insurance

Assistance in connection with the obtaining of guidance on insurance types in connection with the design, construction and operation of the civil works, including any assistance in connection with obtaining quotes for insurance through an insurance broker.

Preliminary studies and planning

If the client wants one or more of the services specified in 9.15 - 9.26 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.15 Public planning

The consultant may offer assistance in connection with public planning that is a condition for the civil works to be realised.

Public planning may include:

- EIA screening or EIA statement
- local authority plan
- sector planning
- local development plan.

Including assistance in connection with:

- listing or terms for listing

- nature protection
- environmental protection
- traffic planning.

The client cooperates with the consultant on the conditions for such planning.

9.16 Registration of existing conditions

Compilation of a register of existing civil works. This comprises an assessment of the state of the civil works before rebuilding and serves as documentation for the owner and the authorities.

The registration covers those parts of the civil works included by the renovation and rebuilding, as well as adjacent parts, to the extent that these involve a risk of damage to the planned works.

Registration may also include surrounding civil works or buildings if these may be affected by the construction work.

The registration is updated if the conditions change during the further design process or the physical performance of work.

The registration process can be extended with surveys, measurement and mapping of existing areas, civil works, photographic registration of existing conditions, recording of archaeological investigations and relevant archive research.

The registration process can also be extended to include ordering on behalf of the client of TV inspection of utility systems, investigation of the corrosion state etc. of steel structures or reinforcement.

9.17 Landscape analysis

Assistance in the analysis of the history, human geography, topography, flora, fauna, climate, etc. of a landscape in connection with the preparation of an appraisal.

9.18 Geotechnical investigations

Initial geotechnical assessments based on available existing investigations in the area in question, supplemented by individual geotechnical drilling and water table monitoring, if required.

Development of a programme for geotechnical investigations as a basis for design work, including estimates of such investigations.

Any ordering on behalf of the client of geotechnical investigations comprising field work, laboratory tests, geological evaluation and classification, reporting, including drilling profiles as well as determination of strength parameters and design water levels.

Follow-up during the construction phase.

9.19 Geophysical surveys

Any ordering on behalf of the client of geophysical borehole logging as a supplement or substitute for the geotechnical investigations.

Development of a programme for geophysical surveys, including estimates of such surveys.

Any ordering on behalf of the client of geophysical surface mapping, for example using geoelectrical resistivity measurements, georadar or seismic data to map the characteristic geological formations and to correlate the borehole data.

9.20 Hydrogeological surveys

Any ordering on behalf of the client of hydrogeological preliminary studies based on existing geological and hydrogeological information.

Development of a programme for hydrogeological surveys or pumping tests, including estimates of such surveys or tests.

Completion of short- or long-term pumping tests to determine the hydraulic parameters for dimensioning of dewatering plant and reinfiltration plant.

Regulatory processing, supervision and follow-up during operation of civil works.

9.21 Climate proofing

Assistance in connection with determination of requirements for the climate proofing of the civil works, including determination of design rainfall, sea level rise, etc.

9.22 Hydraulic surveys

Completion of hydraulic surveys and analyses of the hydraulic capacity of the existing civil works and analyses in connection with the compliance with future functional requirements.

Surveys and analyses are conducted by means of relevant software based on available hydraulic models.

9.23 Environmental surveys, area of civil works

Collection of information about the area of the civil works and compilation of history, including assessment of the likelihood of pollution and contamination and the nature of such pollution and contamination.

Development of a programme for environmental investigations, including estimates of such investigations.

Any ordering on behalf of the client or performance and documentation of interviews of property owners and other relevant parties with a view to assessing the possibility of pollution/contamination sources and their nature.

Any ordering on behalf of the client of environmental investigations, analysis of samples and processing of test results. Reporting on investigations, including assessment of the extent and nature of pollution and contamination, proposals for remedial action and estimates of the costs of such action.

Follow-up during the construction phase.

Negotiation with authorities.

9.24 Environmental investigations, civil works or buildings

Collection of basic information regarding any existing civil works or buildings and preparation of a report that assesses the likelihood of the presence of pollution environmental and health-harming substances and their nature.

Development of a programme for environmental investigations, including estimates of such investigations.

Any ordering on behalf of the client of environmental investigations comprising analysis of samples, processing of test results, reporting on the investigations, including assessing the extent and nature of environmental and health-harming substances, proposals for remedial action and estimates of the costs of such action.

Follow-up during the construction phase.

Negotiation with authorities.

9.25 Noise and vibration

Initial assessment of existing noise conditions based on available existing investigations in the area of the civil works.

Development of a programme for noise investigations, including estimates of such investigations.

Ordering on behalf of the client of measurements of existing noise conditions and planning and design of appropriate measures to reduce noise and vibration during construction of the civil works and from the finished installation.

9.26 Official duties

Preparation of material for and participation in official duties such as inspection and expropriation, including preparation for and negotiations with authorities.

Preparation of relevant documentation of the outcome of such official duties and negotiations etc.

Utility coordination

If the client wants one or more of the services specified in 9.27 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.27 Utility coordination

Assistance in connection with the handling of the dialogue with utility companies and other utility owners related to the area of the civil works, including:

- collection of information from utility companies and other utility owners regarding any re-laying of existing or establishment of planned utility lines and utility systems
- meetings with utility owners

- development of utility line protocols
- development of coordinated utility line plans
- development of time schedules for the planning, design and construction by utility companies and other utility owners of utility lines and utility systems coordinated with the construction of the civil works
- assistance in connection with the definition of the cost management of and responsibility for planned utility lines and utility systems
- assistance in connection with the coordination of the construction of planned utility lines and utility systems, including joint trenches etc.
- coordination of the above with the design manager and contract manager of the civil works project.

Utility coordination does not include dimensioning, design, construction management and supervision of the individual utility lines or utility systems.

Stakeholders and users

If the client wants one or more of the services specified in 9.28 - 9.29 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.28 Stakeholders and users

Assistance in connection with stakeholder analyses.

Assistance in connection with the preparation of communication strategy and communication plan in relation to stakeholders and users.

Organisation and holding of meetings etc. with stakeholders

Organisation and establishment of user involvement, including special user seminars etc.

9.29 Other meeting activities

Assistance and participation in other meetings, including preparation of materials for and participation in:

- general meetings and board meetings
- political meetings
- team building
- workshops, start-up seminars, etc.

in connection with the planning and construction of the civil works.

Disputes

If the client wants one or more of the services specified in 9.30 - 9.31 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.30 Mediation

Assistance in connection with planning, preparation or holding of mediation, see section 65 of AB18, or other conflict management model.

9.31 Inspection and survey or arbitration

Assistance in connection with planning, preparation or holding of inspection and survey or arbitration or in connection with other legal dispute between the client and a third party.

Sustainability

If the client wants one or more of the services specified in 9.32 - 9.34 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.32 Sustainability management

Assistance in connection with the listing of requirements for, prioritising and defining levels for sustainability.

Coordination, allocation and management of sustainability-related tasks and services.

Sustainability management may be undertaken as part of the design management or as a separate service in which the sustainability manager reports to the design manager.

9.33 Sustainability certification

Reporting, documentation and communication for compliance with sustainability requirements in relation to a predefined requirements specification, reporting system or certification system for sustainability.

Certification level to be determined.

9.34 Sustainability, individual services

Sustainability consultancy may comprise a number of individual services, including analysing, assessing and optimising the social, environmental, financial, process and technical qualities of the project.

The services can be agreed individually or by referring to an agreed requirements specification or a certification system that can comprise e.g.:

- whole-life cost calculations
- life-cycle analyses
- resource optimisation
- climate proofing.

Occupational health and safety

If the client wants one or more of the services specified in 9.35 - 9.36 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.35 Health and safety coordination during the design phase

The consultant may undertake to handle the client's obligations in respect of health and safety coordination during the design phases.

The consultant is, as a minimum, obligated to deliver the services so as to ensure that the client's obligations in respect of health and safety coordination are observed.

9.36 Health and safety coordination during the construction phase

The consultant may undertake to handle the client's obligations in respect of health and safety coordination during the construction phase.

The consultant is, as a minimum, obligated to deliver the services so as to ensure that the client's obligations in respect of health and safety coordination are observed.

Accessibility

If the client wants one or more of the services specified in 9.37 - 9.39 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.37 Special requirements for accessibility

Assistance in ensuring compliance with special accessibility requirements in addition to those provided in the Danish Building Regulations, the Danish Road Standards and other legislation, including instructions and guides to promote accessibility.

9.38 Accessibility audit

Assistance in connection with accessibility audit to assess whether the Danish Road Standard 'Circulation areas for all – universal design and accessibility' has been observed.

9.39 Guides on accessibility

Preparation of guides, including user guides on the accessibility conditions of the civil works.

Traffic and lighting systems

If the client wants one or more of the services specified in 9.40 - 9.44 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.40 Traffic safety audit

Assistance in connection with traffic safety audit to assess whether the civil works conforms with traffic safety rules.

The Danish Road Standard 'Traffic safety audit' may be used.

9.41 Lighting systems

Consultancy services in connection with lighting systems, beyond what is described as belonging to the consultant's area in the civil works programme.

9.42 Signage consultancy

Consultancy beyond road signs of types A, B, C, D and E and road markings in accordance with the Danish Road Traffic Act.

Assistance in connection with the establishment of other road signs, information signs and direction signs, and the establishment of portals for all signs can be provided subject to further agreement.

9.43 Traffic management systems

Assistance in connection with permanent traffic management systems, beyond what is described as belonging to the consultant's area in the civil works programme.

9.44 Traffic diversion during the construction period

Assistance in connection with measures to maintain traffic flow during the construction period, if the necessary measures are so complex that the contractor cannot be required to provide them. This may for example include temporary traffic management systems, signage and road markings.

Fittings, fixtures and equipment, client deliverables

If the client wants one or more of the services specified in 9.45 - 9.47 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.45 Fittings, fixtures and equipment

Fittings, fixtures and equipment may include fittings, fixtures and equipment in connection with the function of the civil works, street furniture, etc. as well as fittings, fixtures and equipment in buildings related to the civil works.

The consultant may assist in specifying fixed/non-fixed standard fittings, fixtures and equipment.

The consultant may assist in the design etc. of special fittings, fixtures and equipment.

The consultant may prepare a time schedule for purchasing, delivery and installation and coordinate such activities against the main time schedule.

The consultant may prepare a budget for purchasing, installation, etc.

9.46 Client deliverables

The consultant may undertake tendering, purchasing and coordination of any client deliverables, including fittings, fixtures and equipment.

9.47 Artistic decoration

The consultant may assist in connection with the organisation and negotiation related to artistic decoration

The consultant may assist in connection with the coordination and incorporation or artistic decoration into the civil works.

Tendering procedure

If the client wants one or more of the services specified in 9.48 - 9.51 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.48 Market dialogue

Assistance in connection with conducting market dialogue with contractors or suppliers prior to tendering with a view to obtaining potential tenderers' proposal for optimising planned tendering procedures, including sub-division and terms, etc.

The market dialogue can assist to clarify market interest and the interest of relevant tenderers in the tendering procedure.

9.49 Prequalification

Assistance in connection with the implementation of a prequalification round.

9.50 Tendering under the Danish Act on Tendering Procedures for Work Contracts or EU directive

Assistance in connection with EU procedure in accordance with the Danish Act on Tendering Procedures for Work Contracts or other EU directive and tendering under the Danish Act on Invitation to Submit Tenders.

9.51 Negotiation according to the Danish Act on Tendering Procedures for Work Contracts or EU directive

Assistance in connection with negotiations to be conducted in accordance with the Danish Act on Tendering Procedures for Work Contracts or other EU directive as well as negotiation in accordance with the Danish Act on Invitation to Submit Tenders.

Design and construction

If the client wants one or more of the services specified in 9.52 - 9.62 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.52 Project optimisation

The consultant may assist in connection with project optimisation after the tendering procedure, including:

- technical and cost assessment of alternatives proposed by contractors
- recommendation to the client on any choice of alternatives
- coordination of selected alternatives with other consultants and contractors
- updating of the consultant's project with selected alternatives
- quality assurance of updated project

9.53 Project changes

- review of project changes or alternative projects prepared by other consultants
- preparation of project changes or alternative projects ordered by the client, including as a consequence of changes in the projects of other consultants
- assistance in implementing project changes (i.e. redesign works that bring the project forward to the same stage as it had before the change)
- quality assurance of updated project

9.54 Compliance with special regulatory requirements

Assistance to ensure compliance with requirements in addition to existing requirements contained in legislation, provisions, etc., governing the civil works in question.

Assistance to ensure compliance with requirements contained in legislation, provisions, etc., taking effect after the conclusion of the consultancy agreement.

9.55 Detailed time schedules

Preparation of detailed time schedules in addition to those described for the individual phase.

9.56 Special quality assurance

Assistance in connection with quality assurance comprising client requirements for special quality assurance in the form of organisation and documentation of quality assurance as specified by the client in connection with the design and construction processes.

9.57 Extended construction management

Assistance in connection with construction management in addition to what is described in 7.1.

9.58 Extended site supervision

Assistance in connection with site supervision in addition to what is described in 7.2.

In each case, the need for extended site supervision must be assessed on the basis of the nature of the project and the qualifications of the contractors to perform adequate checks.

9.59 Special tests

Completion of laboratory and model testing.

9.60 Working and assembly drawings

Working and assembly drawings are usually provided by the individual contractor. If deemed more expedient in the relevant project that the consultant provides such drawings, a separate agreement must be concluded with the client in this respect.

9.61 Signage

Assistance in connection with signage, in addition to the signage required by the Danish Building Regulations and other legislation, including the choice and design of signage.

9.62 Measurement of work performed

The extent and level of detail of the measurement are subject to agreement between the parties.

Delivery and operation

If the client wants one or more of the services specified in 9.63 - 9.66 below to be included, it is a condition that the service is clearly specified in the agreement.

If the parties have not made a specific agreement as to the scope of the service, the consultant will determine the scope of the services.

9.63 Commissioning

The service may include management of a detailed commissioning process.

The service may also include assistance in connection with the planning and activities in the commissioning process, including in connection with:

- participation in the commissioning organisation
- documenting that commissioning requirements have been incorporated in all project phases
- contributing to the commissioning manager's commissioning plan
- answering outstanding issues in the commissioning log
- answering comments found in connection with the review carried out by the commissioning group
- contributing to test scenarios and content of test templates
- contributing to training content
- participation in commissioning test.

9.64 'As built'

'As-built' services are provided to bring the project documentation to a level at which the documents and the currently completed project are consistent with one another to the extent specified in addition to the update required to obtain regulatory approval and operating permits within the consultant's area of responsibility.

9.65 Assistance in connection with commissioning and operation

Assistance in connection with the client's commissioning of the civil works in addition to assistance described in the project, including e.g. in connection with the client's establishment of an operating organisation.

Assistance in connection with the preparation of a care plan for landscape works related to the civil works.

Assistance in connection with the client's operation and maintenance of the civil works, including e.g. documentation of agreed operation and maintenance.

Assistance in connection with registration or measurement of specific requirements for the operational condition or performance of the civil works after delivery and initial operation, including with reference to 'APP Operating Requirements'.

9.66 5-year inspection

Inspections will be made subject to agreement.

The service may also include technical assistance for 5-year inspections carried out by another consultant.

Prepared by

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