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# RISK ASSESSMENT AND RISK MANAGEMENT

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# **Project Risk Assessment and Risk Management**

## **Risk**

Risk is defined by Webster as the possibility of loss or injury, peril; a dangerous element or factor. Risk, when used as a verb, is defined as to expose to hazard or danger. As the economy worsens, there is less work available and the competition for that work is increased. This combination of less available work and heightened competition reduces both a company's volume of work and the profit margins for that work. In order to compete for available work, companies are forced to accept more risk for less potential profit, i.e., companies are forced to risk their financial well being by taking on more risk. Companies are taking jobs with less profit in them from the start. This leaves companies with a much smaller margin of error for each project. What makes it worse is that there is less potential to make up for a loss on the next job. Also, companies have limited credit available to cover shortfalls. The safety net is shrinking. There is less lubricant in the machine. People are losing their sense of humor.

Companies must become more risk aware. Companies need to assess a project's potential risk and to be decisive in either avoiding or managing that risk.

## **Managing Project Risk**

The Owner, Contractor or Engineer's ability to manage project risk depends upon control. Risk can be characterized by the type of control a company has over it, viz., direct, indirect or limited.

Direct control of risk is when a company is to directly perform work that is within its area of expertise to perform and manage. The company has the greatest ability to manage this type of risk because it has the most control over it. This risk is managed by contract and performance.

Indirect control of risk is when a company subcontracts work that is within its area of expertise to perform and/or manage. This work is performed by others but can be overseen with knowledge of what is being performed and, if necessary, guided. The company has significant control over this risk but does not directly control it. This risk is managed by contract and oversight.

Limited control of risk is when a company is contractually liable for the performance of work that is performed by others and not within that company's expertise to perform or manage. The company has the least ability to manage this type of risk. This risk can only be managed by contract and monitoring.

In an EPC Contract, an owner seeks to limit its risk by having a single point of contact for construction and design services. This limited contact also limits the owner's ability to control this risk. The owner's primary means to control or reduce its risk is by the contract it signs. Once the contract is signed, the owner's ability to control its risk is limited to enforcing the signed contract and monitoring the work. By monitoring contract performance, the owner is kept apprised of the progress and quality of the work. An

owner's ability to enforce the contract is dependent upon its ability to monitor the work. The protections provided for in the contract can be lost or their efficacy greatly diminished if not asserted in a timely manner. An owner must be vigilant in monitoring the contract to ensure it is protecting the contractual rights. This vigilance includes determining whether it has the in-house capabilities and capacity to fully perform this monitoring function. The owner must recognize when additional and/or more objective monitoring services are needed to provide the necessary information in a timely manner.

The EPC contractor has different types of risk. The contractor's control over this risk varies from direct control, to indirect control to limited control depending upon whether the risk is for work that is self performed, subcontracted or controlled only by contract. Not surprisingly, much of the litigation arising from EPC projects involves risk over which the EPC contractor has limited control. One example of this is when the EPC contractor is a consortium of an engineering company and a construction company. The construction company does not do engineering work and does not have the expertise to manage the engineering. As a consortium partner, the construction company is liable for the engineering work. The only protection the construction company has against this risk is the consortium contract. The contractor's ability to manage this risk is limited to enforcing the signed contract and monitoring the engineering work. Proper monitoring is necessary to enable the contractor to timely react to problems with the engineering. If the engineering work is behind schedule, it will adversely affect both procurement and construction. When this occurs, the contractor can use the contract as a basis to sue for its harm. The better option, if the contractor is properly monitoring the work, it can assert its rights early enough to compel the engineer to perform and perhaps keep the project reasonably on track.

## **Factors That Drive Project Risk**

To better assess and manage project risk it is necessary to try to understand what drives project risk. The primary drivers of project risk are the commercial terms, contractual terms, unknown conditions, procurement issues, labor issues, weather and force majeure events. All of these drivers of project risk are best able to be managed by being properly tracking key project information and critically evaluating it on an ongoing basis.

Risk management during the pre-contract and contract phases of the project is necessarily focused on the project contract(s). There is no performance to monitor. Once the contract is signed, the risk taken on by the contract can be assessed. As the project moves forward, risk management becomes a function of monitoring contract performance and contract enforcement.

## **Tracking Project Information**

A contractor generates various types of documents in performing the contract. These project documents are used by the contractor to record, collect and/or communicate project information. These project documents are distinct from contract documents, such as the contract itself and the specifications. There are two types of

project documents. The first type of project documents are those that are used to record project set-up information. Examples of this type of document are the scope of work, project budget, responsibility matrix, organizational charts, insurance certificates, bonds, and permits. The second type of project documents are those created to collect and/or communicate project information, such as, drawings, list of items to be procured, project schedule, job construction report, applications for payment, daily log, meeting minutes, requests for information, change orders, evidence of payment, invoices and purchase orders. Contract documents and project documents used to record project set-up information must be understood and followed. Project documents that are used to collect and/or communicate project information must be accurate and timely tracked in order to make proper use of them.

## **Early Assessment of Project Risk**

Construction litigation is oftentimes like a doctor performing an autopsy. The corpse is being examined to try to understand why death occurred. This approach may yield conclusive findings but the only certainty is that the person is dead. If given the opportunity to examine the person before death, the doctor will be much better able to determine the fatal illness. If the doctor is permitted to examine the patient while she is still healthy, the doctor may be able to prevent the illness altogether. The success of a project can be measured at the end of a project but the results can not be altered, only evaluated. The same is true of project risk. Project risk is best assessed in the early stages of a project in order to avoid or control that risk.

Problems on an EPC or turnkey project that relate to engineering or procurement oftentimes do not become manifest until during the construction phase. To solve problems caused by late engineering and late procurement during the construction phase of a project is very costly. Procedures need to be established to accurately measure the progress and status of both engineering and procurement before the construction phase.

## **Attorney as Project Advocate**

The construction attorney needs to serve a role that is significantly different than his traditional role. Historically, a lawyer has been used on a construction project as the contract drafter/negotiator and litigator. There has been virtually no role served by the lawyer between the time that the contract is executed and the recognition that there is a dispute. Using a medical analogy, lawyers have been used for births, surgery and post-mortem examinations. Wellness visits have been viewed as an unnecessary expense. The role of an attorney during the project has oftentimes been relegated to that of a project neutral. Someone who acts as a judge to help resolve disputes that are brought in front of him. Instead, what is needed for a successful project is for the lawyer to act as a Project Advocate, i.e., a lawyer whose assignment is to work with the project personnel during the project to help guide the project to a successful conclusion.

In a down economy when money is tight, there is an even greater need than usual to properly manage a project. When the ability to obtain credit and/or that next project is in doubt, there is less cash available to cover up shortfalls. Although several consulting companies presently offer risk assessment and risk avoidance services, there is a need to utilize the services of an experienced construction lawyer to complete this function.

The Project Attorney should be used to help set up and to guide the project in its early stages to help minimize and manage project risk. The lawyer best serves the interests of the project by assisting in setting up a project structure that is internally consistent and provides for tracking of key project information . Once that structure is in place, potential problems can be more easily identified and managed. Periodic reviews of the project documents by an experienced litigator will provide an early warning of potential problems. These reviews involve meeting with project personnel, reviewing selected project documents and providing a written status report that objectively reviews project status. These reports will provide reliable information for management to better understand and react to project events. All of which is geared to help the project to succeed.

A salutary byproduct of the early involvement of legal counsel is the ability of counsel to promptly react to project events where counsel has often not been used or has been brought in at the last moment with little or no prior project knowledge. Consequently , when there are project events, such as subsurface conditions, changed conditions, delay events, change orders, late payment, mechanics liens, and termination , counsel can quickly jump in and assist.

## **Project Advocacy Team**

The best approach to the assessment and management of project risk is to establish a Project Advocacy Team that consists of the following three components:

### 1) Project Attorney

The Project Attorney should be experienced in the drafting and negotiating of all forms of design, engineering, construction and EPC contracts. The lawyer should also be experienced in both construction litigation and mediation. Finally, the lawyer should be knowledgeable of project management and have experience in problem solving during projects.

### 2) Project Management Consultant

The Project Management Consultant must be experienced in both managing construction projects and in forensic work. The consultant needs to be strong in both scheduling and project management. Ideally, the consultant will be knowledgeable in both engineering and construction. Finally, the Construction Consultant must be experienced in construction project cost accounting both with respect to accounting for ongoing projects and forensic accounting. These diverse abilities may require multiple persons to fill this role.

### 3) Document Consultant

The Document Consultant must be experienced in document control for both paper and electronic documents. He must be familiar with structuring a document control system on both a company and project basis

The document consultant needs to have a working knowledge of Share Point and other project management software.

## **Getting Started**

What the Project Advocacy Team does first, depends upon when they are retained. Assistance can be provided all along the project timeline. To clarify the potential role of the Project Team, a Project Risk Overview is included as Attachment 2.

Once retained, the Project Advocacy Team will provide an Initial Project Assessment. An outline of what the assessment includes is set forth in Attachment 3. The results of the Initial Project Assessment will be conveyed in a Project Report that will provide an overview of project status, summary level risk assessment and a suggested action plan. The client, whether owner, engineering company or contractor, will then determine the Action Plan that best suits its needs. This Action Plan will be developed based upon further discussions with the client. A broad form Action Plan intended to show the potential range of activities is included as Attachment 4. As part of the Action Plan, the Project Advocacy Team will provide Periodic Project Updates. Again, the frequency and content of these updates will depend upon the client's needs. An outline of a sample Periodic Project Update is set forth in Attachment 5. The Project Update becomes a written Project Status Report that is then distributed and discussed with the client.

## **Pre-Contract Risk Assessment**

If a company is going to properly manage project risk, it must initially assess project risk, establish the procedures, tracking plan and documentation to monitor project risk and then re-assess that risk on a periodic basis. Initial risk assessment is undertaken prior to executing the project agreements. Risk assessment begins with the decision to bid or otherwise pursue a project. Early risk assessment is based upon both experience from other projects and the specific circumstances of the present project. Once the decision is made to pursue a project, a company must determine what commercial terms will provide an acceptable reward for the risk that is being undertaken

The commercial terms of the agreement with the owner will determine the amount of the risk that has to be managed by the other project agreements. The best way to limit project risk is with favorable commercial terms. If a company gets a project for the right price, with a well defined scope within its area of expertise, with a favorable schedule of work and reasonable terms and conditions, risk management is less of an issue. As the project moves away from these ideal conditions, there is increased risk and this risk must be properly managed for the project to reach a favorable conclusion.

## **Contract Phase Risk Management**

Project risk is initially managed by the form of agreements that are developed and executed for the project. The company's role in the project will dictate the types of agreements required to execute the project. For example, an EPC consortium will have separate agreements with the project owner, consultants, subcontractors, suppliers and an internal agreement between the members of the consortium. The basic framework of the terms and conditions must be outlined and discussed. The relative bargaining strength of the company will determine how much control it has over the form and content of the various project agreements.

Once the commercial terms, i.e., price, scope of work, and schedule of work, have been agreed upon between the Owner and the EPC Consortium, the risk embodied in the commercial terms is translated into the project contract(s). Either in-house or outside counsel are used to either prepare the draft contract or to review and negotiate the draft contract prepared by the Owner. The EPC Consortium assesses the risk represented by the contract draft and works to manage/limit the project risk represented by this agreement. There are a limitless number of adjustments that can be made to the contract to manage/limit risk. These adjustments can range from getting more money, more time, contingencies to cover unknown conditions, establishing a reasonable mechanism for adjusting time money and scope, limiting potential damages to a specified amount, providing a reasonable dispute resolution mechanisms, etc.

The ability to influence whether a project will succeed is greatest in the early stages of the project. Construction counsel should, at a minimum, be used to critically review and assist with the finalization of the EPC Contract. The owner has the most leverage prior to signing the contract. Until the project has been awarded, the pricing of adjustments to project scope is subject to market competition. Pricing of adjustments to scope after the work has been awarded is in all likelihood more expensive because the owner has to negotiate with a single contractor and therefore has lost most of its leverage. Therefore, the owner needs to develop a well defined scope of work prior to signing the EPC contract to achieve the best pricing.

The signed EPC Contract will provide the scope of work, time schedule, price, payment terms, guaranty requirements, warranty, indemnity provisions, penalty provisions, dispute resolution mechanisms, etc. The EPC Contract must be translated into an action plan that is addressed by the other project agreements. The members of the EPC Consortium have to develop an agreement that allocates the scope of work among the members of the consortium. A responsibility matrix must be developed to assign the various project tasks so that there is as little uncertainty as possible regarding the duties and responsibilities of the members of the consortium. Experienced counsel should be utilized to finalize the agreement between the members of the consortium to help ensure that the agreement with the owner is fully addressed in the consortium agreement. Finally, counsel should be used to prepare the contracts with the company's consultants, subcontractors and suppliers to provide for the proper transfer of scope, duty and liability. Flow down provisions, incorporations by reference, coordination of the timing of performance and payment, insurance coverages and indemnity provisions are some examples of the contract provisions that must be properly coordinated.

## **Contract Implementation**

Once the Project agreements have all been signed, the key focus becomes the implementation of the project contracts. This is the stage of a project after the EPC Contract and the Consortium Contract have been signed but before a significant amount of engineering and construction has been performed, i.e., the Contract Implementation Stage. Picture the EPC and Consortium Contracts, each document is 60 to 100+ pages single space and loaded with legalize. Legal counsel have completed the task of hammering out this document through keen word-smithing and hard-nosed negotiation. The completed contracts are then handed off to the project personnel to perform the work of the project. Picture someone being handed a stack of contracts and being told to get going on the project. What you can see happening is that person setting down those contracts and proceeding in their usual fashion to get the job moving. The contract is oftentimes not properly understood and/or followed by project personnel. The contracts need to be translated into a working document that can more readily be both understood and followed.

## **Contract User's Guide**

Contract Implementation starts with creating a Contract User's Guide for the project contracts. The Contract User's Guide contains an index of the contract sections and identifies all contract attachments. In creating this guide, you also are verifying that there is a complete fully executed contract. We can all appreciate how basic this is. Unfortunately, it is not uncommon to have a project where a fully executed contract could not be located or where there was confusion over missing terms and/or attachments .

Having obtained a complete fully executed contract, the lawyer then reviews the contract to develop the user's guide. It is best to have an attorney or a contract specialist perform this review so that there is confidence that this guide is complete and reliable. A user's guide should be tailored to a specific contract and project. Attachment 1 to this paper is a sample index of a Contract User's Guide for a contract between an owner and contractor.

## **Verify the Adequacy of Project Schedules**

The project schedule is designed to track the progress of the project and to project the sequence of performance for the remainder of the project. Projects of any complexity will utilize a Critical Path Method Schedule. To create a CPM schedule, project activities are given a planned duration and arranged according to their planned sequence. To establish the planned sequence, each activity must be sequenced based upon its relationship to the other project activities. Activities that must be completed before an activity can start are defined as predecessors to that activity. Activities that can not start until after an activity starts or is completed are defined as successors to that activity. By creating this sequence of activities with the planned duration of each activity, the project plan for the sequence of the work or schedule is created.



With a project that is performed using an EPC contract, there is a need to create a single project schedule that tracks engineering, procurement and construction. This information needs to be integrated into a single schedule because the performance of engineering influences the performance of both procurement and construction and the performance of procurement influences the performance of construction. A schedule that only includes construction activities on an EPC project is not a useful means to monitor the project. For example, the start date for construction may be delayed by non-construction activities, e.g., engineering and/or procurement. The delay of the construction start date due to non-construction activities can not be captured in a schedule that only tracks construction. Construction is dependent upon the timely performance of engineering and procurement, i.e., construction is a successor to these activities. This dependency must be reflected in the project schedule and tracked if the schedule is to be a means to monitor the work of the project.

In addition to tracking time, there is a need to track labor. Labor is one of the largest costs on a project. Labor needs to be scheduled and tracked both to monitor cost and to permit adequate planning of what is oftentimes a limited resource. The planned use of manpower needs to be added into the schedule, i.e., the schedule needs to be resource loaded.

An integrated resource loaded CPM schedule is a powerful tool. However, the schedule needs to be updated on a regular basis and the EPC contractor should be required to issue schedule updates on a regular basis that are each designated as having been issued on behalf of the EPC consortium. An inability to regularly provide schedule updates that are agreed to by the consortium is a large warning sign. By requiring that schedule updates be issued by the consortium as a whole, disagreements over the schedule by the consortium members are more readily exposed and hopefully can be dealt with. Note that receiving a paper version of a computer generated CPM schedule is of little use. The schedule must be opened in its native format to determine whether there has been any manipulation of the schedule, e.g., artificial holds being placed on one or more activities. It is only after removing these holds and allowing the program to function as intended that the relationship between the activities is shown and the project duration revealed.

Finally, the fully integrated, resource loaded, updated and approved CPM schedule is no more than a history book if it is not being used to plan the performance of the work. With the "aid" of computers, schedules have become increasingly complex. They can include and track thousands of activities. The problem is that large complex schedules can be updated to show what has occurred on the project, but are difficult to use to manage the work. A balance must be struck between capturing adequate detail and having a document that has utility as a planning tool.

## **Engineering Phase Risk Management**

Identify the risks during the engineering phase.

Measuring the progress of the engineering is a scheduling function. Ideally there is a resource loaded engineering schedule that is detailed and consistently updated on at

least a weekly basis. This engineering schedule needs to be tied to a procurement schedule. Both of these schedules need to be tied into a construction schedule. Again, all of these schedules need to be resource loaded. In order to *have* a true Project Schedule requires an engineering schedule, a procurement schedule and a construction schedule with each being resource loaded and all three tied together. A true Project Schedule is needed to know the status of the Project. Without a true Project Schedule, there is no accurate way to determine the Project's status.

An experienced engineer is needed to review the scope of work, together with the drawing log and engineering schedule. RFIs and responses to RFIs should be reviewed to evaluate engineering issues. If the engineering work is split up by activities, e.g., piping, electrical, etc., check the interfaces between these activities, verify these activities are tied together, and determine where engineering as a whole stands.

## **Procurement Phase Risk Management**

Identify the risks during the procurement phase.

Measuring the progress of procurement requires an appreciation of the scope of work to be performed. The scope of work dictates the universe of items that must be procured. A procurement list must be compiled based upon the scope of work. Once compiled, there must be a responsibility matrix established to identify which party has the responsibility to procure each of the items on the list and when each item is due on site. Also, it must be clear what role each of the parties are to play regarding procurement, i.e., it must be clear who has the responsibility to:

1. Prepare Bid Packages
2. Obtain Bids
3. Review of Bids
4. Bid Selection
5. Purchase Order Preparation
6. Field Inspection
7. Procurement Progress Tracking and Order Expediting
8. Transportation to the Site
9. Receipt and Log In
10. Movement to Lay Down Area or Storage

Each project participant should have a procurement organizational chart. This chart allows for the identification of both the responsible person to perform these procurement tasks and the person that has responsibility to oversee that person's work. This helps with the overall management of procurement.

Also, there are certain items that will take longer than usual to procure. These long lead time items must be identified early on in the project and properly managed. Finally, there should be a resource loaded procurement schedule that ties into the engineering schedule.

The scope of work and procurement list must be reviewed by an experienced engineer. There is no way to verify that every procurement item has been provided for, but the procurement list must be thoroughly reviewed against the scope of work to verify it is substantially complete. This same engineer should review the responsibility matrix and the procurement schedule. The monitoring of procurement must be comprehensive and accurate.

There must be personnel performing quality assurance and quality control for procurement. Items being fabricated in the work shop must be inspected to avoid having to make corrections in the field.

## **Construction Phase Risk Management**

Identify the risks during the Construction Phase.

Measuring the progress of construction is best captured by the project schedule. Merely attaching a copy of the latest schedule serves little purpose for management. This is especially true if there are thousands of activities. Someone needs to take the time to critically review what the schedule is telling us and provide a written narrative.

Beyond the project schedule, there is a need to appreciate where the project stands in terms of estimated versus actual project costs.

## **Project Status Reports**

Proper risk assessment requires accurate information. After project systems have been set up to track key information, there is a need to harvest what has been gathered to see what it reveals. Even if tremendous effort is expended developing schedules for a project, this will have little beneficial effect if no one takes the time to analyze and report on what the schedule(s) show. This is true of any of the flows of information that are being tracked. The other risk is that even if there are reports generated concerning project status, there is a question as to the objectivity of these reports. A progress report that conveys bad news will reflect poorly on project personnel and there is a natural disincentive for someone to create and transmit such a report. An independent project review avoids this problem. This independent review will be used to develop a project status report that will assess project status and risk without any filter due to personal agendas. This enhances the ability of management to rely on these reports.

# **ATTACHMENT 1**

## **PROJECT RISK OVERVIEW**

### **I. PRE-CONTRACT PHASE**

- A. PROJECT IDENTIFICATION
- B. DETERMINATION OF COMPANY'S ROLE
- C. SELECTION OF PROJECT PARTNERS
- D. DEVELOP SCOPE OF WORK DESCRIPTION
- E. DEVELOP FRAMEWORK OF PROJECT AGREEMENTS

### **II. CONTRACT PHASE**

- A. NEGOTIATE COMMERCIAL TERMS OF CONTRACT
- B. DETERMINE DETAILED SCOPE OF WORK
- C. IDENTIFY PROCUREMENT REQUIREMENTS AND RESPONSIBILITY
- D. NEGOTIATE CONTRACT TERMS AND CONDITIONS
- E. TAILOR AGREEMENT TO LOCAL REQUIREMENTS
- F. DEVELOP INTEGRATED/CONSISTENT PROJECT AGREEMENTS
- G. DEVELOP RESPONSIBILITY MATRIX
- H. FINALIZE PROJECT AGREEMENTS

### **III. CONTRACT IMPLEMENTATION PHASE**

- A. VERIFY COMPLETENESS OF PROJECT AGREEMENTS
- B. TRANSLATE AGREEMENTS INTO ACTION PLAN
- C. DEVELOP CONTRACT USER'S GUIDE
  - 1. IDENTIFICATION OF CONTRACT DOCUMENTS
  - 2. INDEX OF CONTRACT PROVISIONS
  - 3. PROJECT RESPONSIBILITY MATRIX
  - 4. COMPANY RESPONSIBILITY MATRIX
  - 5. SPECIFY PROJECT PROCEDURES AND REQUIREMENTS
    - a. payment requirements and procedures
    - b. insurance requirements
    - c. scheduling
    - d. notice requirements
    - e. release of liens
  - 6. DEVELOP FORM LETTERS AND PROJECT FORMS
  - 7. DEVELOP, DISTRIBUTE AND EXPLAIN CONTRACT USER'S GUIDE
- D. VERIFY ADEQUACY OF PROJECT SCHEDULE(S)
  - 1. FOR ENGINEERING, PROCUREMENT, AND CONSTRUCTION
  - 2. ALL THREE SCHEDULES FULLY INTEGRATED
  - 3. RESOURCE LOADED

- E. DEVELOP DOCUMENT CONTROL PROGRAM
  - 1. PAPER DOCUMENT CONTROL SYSTEM
  - 2. PROJECT ELECTRONIC COMMUNICATION PROTOCOLS

#### **IV. PERIODIC PROJECT STATUS REPORTS**

- A. VISIT THE PROJECT SITE
- B. LEGAL REVIEW OF PROJECT DOCUMENTS
- C. MEET WITH KEY PROJECT PERSONNEL
- D. LEGAL REVIEW OF SELECTED EMAILS AND CORRESPONDENCE
- E. REVIEW PROJECT SCHEDULE(S)
  - 1. VERIFY UPDATED AND APPROVED
  - 2. DETERMINE PROJECT STATUS
- F. REVIEW STATUS OF:
  - 1. ENGINEERING
  - 2. PROCUREMENT
  - 3. CONSTRUCTION
  - 4. CHANGE ORDER REQUESTS/APPROVALS
  - 5. JOB COST REPORT
  - 6. PAYMENT HISTORY
  - 7. DOCUMENT CONTROL PROGRAM

#### **V. CHANGE ORDERS**

- A. REQUESTED/APPROVED/DISPUTED/OPEN
- B. COST AND TIME IMPACT
- C. FACTUAL BASIS
- D. RESPONSIBLE PARTY

#### **VI. DISPUTES**

- A. INFORMAL/FORMAL
- B. FACTUAL AND LEGAL BASES
- C. RISK ASSESSMENT
- D. COST ASSESSMENT
- E. ACTION PLAN TO ADDRESS/RESOLVE

## **ATTACHMENT 2**

### **Contract User's Guide: Owner / General Contractor Contract**

1. Project Organizational Chart and Company Organizational Charts
  - a. Scope of Work
  - b. Responsibility Matrix
2. Listing of Project Representatives for Each Project Participant
  - a. Contact Information
3. Notice Requirements
  - a. Form of Notice
  - b. Manner of Serving Notice
  - c. Person(s) to Receive Notice
4. Payment
  - a. Form of Payment Application
  - b. Payment Approval Process
  - c. Time Requirements for Payment
  - d. Schedule of Values
  - e. Release of Liens
  - f. Log of Applications for Payment
5. Schedule
  - a. Form of Schedule
  - b. Initial Schedule Due Date
  - c. Schedule Approval/Acceptance
  - d. Schedule Updates
6. Insurance
  - a. Listing of Insurance Coverages and Required Limits
  - b. Persons/Entities to be Listed as Insureds/Additional Insureds
  - c. Policy Requirements
  - d. Submission of Proof of Insurance
7. Bonds
  - a. Bonding Requirements
8. Permits
  - a. Required Permits
  - b. Who is Required to Obtain and Pay for Permits
  - c. Issuing Authority for Permits
  - d. Dates by which Permits to be Obtained

e. Permit Status Log

9. Drawings

- a. Project set(s) of Drawings
- b. Recording when Drawings are Received
- c. Procedure to Give Notice of Errors on Drawings
- d. Drawing Log
- e. As-Built Drawings

10. Submittals

- a. Listing of Required Submittals
- b. Form of Submittals
- c. Time Requirements for Submittals
- d. Submittal Approval

11. Shop Drawings

- a. Listing of Required Submittals
- b. Time Requirements for Submittals
- c. Submittal Approval

12. Change Orders

- a. Form of Request for Change Order
- b. Cost and Schedule Requirements
- c. Approval of Change Orders
- d. Change Order Log

13. Notice of Impact/Delay/Acceleration

- a. Form of Notice
- b. Cost and Schedule Information
- c. Time Requirements
- d. Person(s) to Receive Notice
- e. Manner of Providing Notice
- f. Company Procedure Regarding Events of Impact or Delay

14. Disputes

- a. Form of Notice of Dispute
- b. Notice Requirements
- c. Time Requirements
- d. Company Procedure Regarding Disputes

15. Safety

- a. Safety Duties
- b. Safety Requirements
- c. Hard Hats, Steel Toed Shoes, Safety Glasses, Etc.
- d. Safety Log

16. Accidents and Injuries
  - a. Reporting Requirements
  - b. Insurance Requirements
  - c. Accident and Injury Log
  
17. Hazardous Materials
  - a. Anticipated Hazardous Materials
  - b. Procedure when Hazardous Materials are Encountered
  
18. Emergency Information
  - a. Contact Persons
  - b. Telephone Numbers
  
19. Daily Log
  - a. Information to be Recorded
  - b. Log Format
  - c. Photographs
  
20. Meetings
  - a. Required Meetings/Time and Location
  - b. Companies/Persons Required to Participate
  - c. Who Conducts Meeting/Takes Minutes
  - d. Persons to Receive Meeting Minutes
  - f. Procedure/Timing to Correct or Add to Meeting Minutes
  - g. Meeting Log
  
21. Reports
  - a. Required Reports
  - b. Required Content of Reports
  - c. Time When Reports are Due
  - d. Companies/Persons to Receive Report(s)
  - e. Report Log
  
22. Accounting
  - a. Project Budget
  - b. Detailed Project Cost Estimate
  - c. Contract Amount
    - i. Log of Contract Adjustments
  - d. Job Cost Report
  - e. Purchase Order Log
  - f. Invoice Log
  - g. Payment Register
  
23. Electronic Communication
  - a. Policy Regarding Use of Emails
  - b. Need to Include Project Email Address



- c. Persons to be copied
- d. Sorting and Preservation of Emails

24. Project Site Information

- a. Drawing of Project Site
- b. Job Trailer Information
- c. Lay Down Area(s)
- d. Site Access
- e. Work Hours
- f. Site Utilities
- g. Clean-up Responsibilities
- h. Key Telephone Numbers

25. Contract Index

26. Contact Information

# **ATTACHMENT 3**

## **Initial Project Assessment**

1. Focus of Assessment
  - a. Depends upon Current Project Status
2. Initial Meeting with client
  - a. Discuss the overall project at a macro level
    - i. What is being built (scope of work)?
    - ii. Why? What need is being addresses
    - iii. Time and Cost parameters
    - iv. Identify Project Participants
    - v. Identify Project Delivery System and reason(s) for utilizing it
    - vi. Project Location and any local concerns
  - b. Identify and discuss any known concerns/problems
  - c. Discuss services to be rendered by Project Advocacy Team and due date(s) for deliverables
3. Overview of Contract(s)
  - a. Scope of Work
  - b. Price
  - c. Project Delivery System and Overall Contract Structure
  - d. Schedule
    - i. Milestone Dates
    - ii. Liquidated Damages
4. Project Schedule Status
5. Project Cost Status
6. Payment History
7. Identified Issues/Disputes
8. Project Report
  - a. Overview of Project Status
  - b. Summary Level Risk Assessment
  - c. Suggested Action Plan
    - i. Identify goals to Reduce Risk
    - ii. Identify Goals to Improve Contract Performance
9. Lump Sum Price for Initial Project Assessment
10. Due Date for Deliverables for Initial Project Assessment
11. Estimate of Future Cost of Services

# **ATTACHMENT 4**

## **Action Plan**

An Action Plan would include any or all of the following:

- 1) Initial meeting with Project field personnel
  - a. Walk the Project Site with field personnel and discuss the overall Project
  - b. Discuss documentation to be developed, tracked, gathered and logged
  - c. Discuss Project status and how to track and log Project status
  - d. Acquire/Develop Project and company organizational charts
  - e. Project Manager to meet with Document Consultant
    - i. Discuss overall document control system
    - ii. Discuss how email will be handled, sorted, preserved
    - iii. Discuss what information will be exchanged electronically
    - iv. Discuss Electronic Communication Protocols
  
- 2) Gather key documents:
  - a. Contract(s) between the Owner and the Contractor
    - i. verify it is complete, has all the attachments and is fully executed
  - b. Contract(s) between the Owner and the Engineer
    - ii. verify it is complete, has all the attachments and is fully executed
  - c. Contract(s) between the Owner and any other consultant of subcontractor
    - i. verify it is complete, has all the attachments and is fully executed
    - ii. verify it is compatible with and properly tied to the Owner's contract with the Contractor and Architect/Engineer
  - d. Scope of Work document
  - e. Listing of Procurement Items
    - i. Long Lead Time Items
    - ii. Dates when items are Due on Site
    - iii. Procurement Organizational Chart
    - iv. Procurement Responsibility Matrix
  - f. Project Schedule
    - i. Contract Project Schedule
    - ii. Listing of Major Milestones and Due Dates
    - iii. Log of all Approved Schedule Updates
  - g. Project Budget
  - h. Job Cost Report
    - i. All Meeting Minutes
  - j. All Applications for Payment
  - k. All Evidence of Payment
  - l. Procurement Log
  - m. Insurance Certificates
  - n. Requests for Information
    - i. including any responses

- o. Requests for Change Order
  - i. including any approved change orders
- p. Drawing log
- q. Technical Reports
- r. Status Reports
- s. Permit log
- t. Project and company organizational charts
- u. Responsibility Matrix
- v. Key correspondence and email

#### 4. Review Key Documents

- 5. Document Tracking System:
  - a. Summary Listing of Key Documents
  - b. Listing of Contracts
  - c. Listing of Insurance Certificates
  - d. Begin Preparing Document Tracking System for:
    - i. Project Schedule
    - ii. Meeting Minutes
    - iii. Procurement
    - iv. Purchase Orders
    - v. Invoices
    - vi. Bid Packages
    - vii. **RFIs**
    - viii. Change Orders
    - ix. . Applications for Payment
    - x. Payments
  - e. Correspondence Database
  - f. Email Database

- 6. Prepare Project Status Report of Present and Forecasted Status of:
  - a. Project Budget
  - b. Project Schedule
  - c. Design
  - d. Engineering
  - e. Procurement
  - f. Permitting

- 7. Prepare Project Issue Summaries with Resolution Status Regarding:
  - a. Permitting
  - b. Site
  - c. Environmental
  - d. Design .
  - e. Engineering
  - f. Procurement**
  - g. Construction

# **ATTACHMENT 5**

## **Periodic Project Updates**

1. Site Visit
  - a. Meet with Project Personnel
  - b. Walk the Project Site
  - c. Prepare Site Visit Report
  
2. Review Key Project Documents
  - a. Review of Project Schedule
  - b. Review of Current Job Cost Report
  - c. Review of Current Budget Status/Contract Amount
  - d. Review of Project Logs
  - e. Review of Project Status Reports
  - f. Review of Project Issue Summaries
  - g. Review of Other Key Project Documents
    - i. Contentious emails or Correspondence
    - ii. Key Meeting Minutes
    - iii. Reports or Studies
  - h. Prepare Brief Status Report for each Key Set of Documents
  
3. Prepare and Discuss Project Status Report