

COLLABORATIVE WORKING

INTRODUCTION

One of the most risky activities in the construction industry is usually associated with underground works as foundation and geotechnical projects. Specialty contractors need to estimate the impact of soil conditions on production rates and the costs associated with works that are not possible to assess always knowing that underground conditions might change in the same job sites from one corner to the other. The same issues not only refers to geotechnical risks but to other implied risks associated with underground works. Based on experience and practice, contractors have to always estimate something and invent methods in order to solve a problems and most of the time this is taken for granted and not fully appreciated by the rest of the project construction team or by the client, especially for large and/or complex geotechnical project.

The ultimate goal for every owner in a project is to build something on time, to specifications, and at the lowest possible price. This is what most specialty contractors have to face whether they work as general contractors or as subcontractors. Some sophisticated owners have chosen to award projects on Best Value approach but these are limited and today most of the owners are risk adverse and prefer a risk free contract for them at least. Most of the time owners and stakeholders do not fully appreciate the risks associated with underground works and this also means that they are not able to determine the right value for the money, safely and with the highest possible standards.

The collaborative form of contracts are an intelligent and modern process where there are no parties in permanent conflict but a team with the same goal: award and complete the project for the proper value for money. There is a risk share across all parties and collective ownership of opportunities and responsibilities associated with delivery of the project or service. Any “gain” or “pain” is linked with good or poor performance overall and not to the performance of individual parties.

The collaborative contracts and especially the ultimate partnering approach, the Alliance, basically means being able to demonstrate that the project resulting cost is a genuine value for money and that there is commitment by all the involved parties to respect this target that goes beyond the relationship owner-contractor-subcontractor. One of the main reasons for applying such type of contracts around the world is related to the nature of the project: usually a very difficult or large project where there is not clear nor well defined information available or there are risks not easy to allocate. Sometimes a project where the owner looks for some special output in terms of innovative technical solutions or special performance.

An alliance contract creates a collaborative environment without the need for new organizational forms. By having one alliance contract, all parties are working to the same outcomes and are signed up to the same success measures. There is a strong sense of your problem is my problem, your success is my success. Alliancing is a form of long term partnering on a project [or program of works] in which a financial incentive scheme links the rewards of each of the alliance members to specific and agreed overall outcomes and in which all aspects of the arrangement are incorporated in legally binding contracts.

COLLABORATIVE PRINCIPLES

Commitment, behavior and avoidance of disputes are among the main principles and key factors for the success of a collaborative working.

Commitment is extremely connected to the principles of trust and good faith by each party involved in the construction project and their ability to:

- a. Believe in the partnering relationship and be prepared to change any old habits which are inconsistent with the partnering ethos;
- b. Agree objectives that are mutually beneficial to all parties and that involve truly shared risks/gains;

DRAFT

- c. Pursue effective transparency through open book documentation and reporting.

Where all parties involved trust each other and act in good faith, they are more likely to share their strengths and also disclose perceived weaknesses or the threats to the project. If these weaknesses and threats can be eliminated or mitigated, the project will benefit. Trust is also more likely to have other advantages such as improved staff morale and retention, improved stability, a lower emphasis on paperwork and bureaucracy, and ultimately fewer disputes.

An emphasis on creating and sustaining the right behaviors is also central to effective collaborative working. Successful alliances will have an in depth understanding of the behaviors needed to deliver the client's business requirements (or outcomes). An emphasis on behaviors is not soft and vague, it is performance focused and highly aligned with business requirements.

From the initial decision that collaborative working is appropriate, there is an emphasis on selecting the right people with the right attitude. The selection of the main partners and strategic supply chain members will invariably place an emphasis on behavioral capability and culture. Technical competency will invariably be a pre-qualification aspect and is not the predominant criteria in making the final partner selection. This initial emphasis on culture and behaviors will extend through to the ongoing assessment of individuals within the organization and the development of teams that make up the overall delivery organization. Successful application of these behaviors includes assessment of the client's corporate behavior and the client's employees' personal behaviors and attitudes.

Leaders within the partnering team will challenge the organization to deliver improved performance and also encourage innovation as part of the response. In doing so there is an acceptance that failure will occur. There is also a collective ownership of the failure that arises from this challenge and innovation. Successful collaborations will respond to failure by learning what went wrong and embedding that learning in future activity, they do not seek to blame particular individuals or organizations. However, a no blame approach does not mean no accountability; partnering teams will use a more open and constructive culture to be clear about accountability and responsibility and how they manage performance. A collaborative approach to improvement is driven by a shared expectation for excellence and high standards. If parts of the team do not meet the required performance, provide the right capability or meet the behavioral requirements they are managed, as would any under-performing team in a high performing environment.

Avoidance of disputes, similarly to the other key factors, requires a strong willingness by all parties to discard the traditional habits of the construction industry.

This assumption does not mean that dispute provision should not be included in the partnering contract. Indeed an essential ingredient in the partnering arrangement is an appropriate dispute resolution procedure which should operate as a problem-solving framework, as opposed to an adversarial environment. If non-adversarial relationships are needed, partnering projects should have layered dispute resolution processes. Instruments frequently used in construction partnering arrangements are the following:

- a. An agreement to "act in a spirit of mutual trust and cooperation".
- b. Risk registers as a risk management (not blame apportioning) tool for the early identification of threats to the success of the project.
- c. Early warning meetings to discuss, reduce and/or eliminate risks.
- d. Tiered management called upon to consider any residual issues. For example, at site level, then middle management, escalating to senior management if needed.
- e. Alternative dispute resolution, for example mediation.

A collaborative approach finally needs a commercial model to encourage and set the right environment for the project. Commercial incentives are needed to drive the desired behavior as well as reward the required performance in all the partnering teams. In each case, the commercial terms encouraged joint delivery, bringing the collaborating organizations together in a 'one-for-all' approach. The performance of the team is driven from a clear baseline, rather than bottom up or negotiated targets. This will be

DRAFT

accompanied by an open book approach to costs, for all organizations including the client. All aspects of performance will start from clearly visible baselines, for cost this could be a current cost base or the project/program affordability. Baselines and incentives are not just focused around costs. The same principle of incentivizing performance against baseline performance can be applied to schedule safety, environmental, operability, sustainability and customer satisfaction.

At the same time, business and project risk should be clearly and jointly identified at the outset as part of an on-going risk management process. Risk items should then be allocated to the part of the team best placed to manage that risk. The commercial model should facilitate the risk allocation.

BENEFITS

Benefits for Owner:

- Deliberate alignment of owner's objectives and participants commercial interests (performance = value = reward).
- Greater opportunity to manage risks through sharing and collaboration.
- Broader allocation – through collective assumption – of all risks.
- Integration of teams reduces resources burden – “More for Less”.
- Earlier participation of expertise can lead to improved decision making and project outcomes.
- Genuine focus on enabling high performance and innovation.
- Transparency of all governance and commercial issues.
- No disputation – but healthy creative conflict.

Benefits for Participants:

- Opportunity for greater returns for delivering improved value.
- Greater opportunity to more effectively influence and manage the “whole” rather than “parts”.
- Whilst broader exposure to risks – including risks with no ability to influence or control – liability is capped.
- Improved staff engagement through opportunities for genuine career/skills enhancement.
- Reputational benefits – selection relying upon capability not tender and recognition for success.

CASE HISTORIES

USACE LPV 111 East Back Levee Reach, New Orleans (Louisiana) - USA

Main Facts Sheet of TREVIICOS work:

- Soil mixing project for Levee Stabilization (total volume treated 1,681,579 cy).
- 5.3-mile long stretch of earthen levee varying from + 17 ft. to +28 ft.
- Contract amount for Trevi was around USD 100 Mln over a total contract amount for the whole portion of project awarded to the general contractor equal to USD 300 Mln.
- The schedule of work was 439 calendar days (14.43 months).

DRAFT

- Resources required: 8 Deep Mixing Method rigs working two 12 hours shifts/day 5.5 days/week.

When hurricane Katrina struck the New Orleans area in late August of 2005, severe inundation of large areas of the City occurred and many people lost their lives over the course of the next several days. Levees all around the City failed, but the worst hit area of the City is a portion of eastern New Orleans, the section named LPV 111 (Lake Pontchartrain Vicinity).

In September 2005, shortly after the storm had passed, the US Army Corps of Engineers (USACE) began two major efforts; the first was a quick response effort to repair and replace the levees protecting the most populous areas of the City. Subsequently, the USACE began the second phase, as required by Congress, the upgrading of the hurricane protection to the 100 year level. The repairs to LPV 111 fell in the latter category, 5.3 miles of levee that had been almost totally degraded.

The USACE decided to implement a relatively new contracting process termed Early Contractor Involvement (ECI). This method advanced the contractor involvement into all phases of the project including design. This contracting process, as used on this project, allows segregating the project into phases, and making decisions on continuation of the work with the selected contractor at the completion of each phase, including re-pricing of the next phase where required.

On LPV 111, after initial award, the contractor was heavily involved with the design of the project including means, methods, engineering and specifications. The contract for LPV 111 was awarded to a Joint Venture of Archer Western Contractors LTD and Alberici Constructors (AWA) in alliance with TREVIICOS South (TIS) who was nominated to perform the Deep Soil Mixing (DMM) portion of the work. At the time of award, the project was still in the design phase, being designed by URS Corporation, (URS) and the design was less than 35% complete. In order to advance the schedule, the ECI process was started shortly after award. The first phase involved the contractor providing Preconstruction Services, essentially integrating the contractor fully into the design team, creating a form of Design/Build project delivery system. Meetings were held among the various parties on a regular basis, sometimes daily to discuss the on-going design effort. The parties involved were all the major stakeholders, USACE, URS, AWA and TIS. Project plans were reviewed for constructability and revised as needed in order to optimize the productivity of the Deep Soil Mixing tooling and equipment. No portion of the design or specification process was deemed off limits to this team effort, including the specification and these were modified in order to insure that the highest quality product was delivered.

The decision by the USACE to adopt a new contracting method, Early Contractor Involvement, allowed a major necessary project to proceed in a technically sound manner with a minimum of delays. The project went from very preliminary design to completion within a period of less than two and one half years. The USACE encouragement of contractor involvement in design and specification formulation allowed a newer type of technology to be employed on this massive a scale in a short period of time.

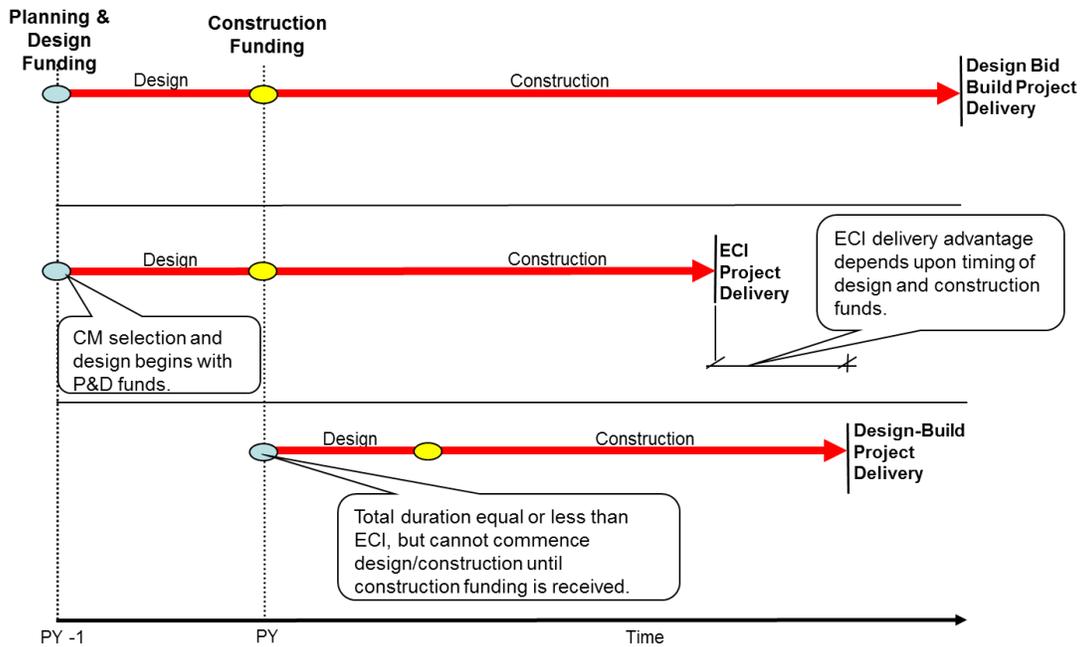
ECI Contracting under the Federal Acquisition Regulations of United States is generally based on the following guidelines:

- A Fixed Price Incentive (successive targets) contract IAW FAR 16.403.
- A project delivery method where the Corps engages the services of a general contractor to provide “preconstruction services” concurrent with design effort.
- The contract includes the Government’s ability to exercise an option for the construction.
- Provides for successive target price adjustments as the design matures, with the objective of managing the final construction cost to optimum.
- Contract includes terms and conditions to allocate risk among the parties.

Acquisition Strategies Comparison

Phase	Traditional Acquisition	Early Contractor Involvement
Design	Completed prior to advertisement of construction contract	Preconstruction Services – construction contractor provides input on design constructability, VE, means & methods, construction phasing, etc
Award	Complete designs are used to advertise and award construction contract	Construction option - awarded when major design decisions are complete and price negotiated (designs may be <100%)
Construction	NTP and construction begins after award of contract	Construction can begin <i>prior</i> to final designs being completed

Delivery Timelines Comparison



TREVIICOS project schedule as executed:

Main Events	Date
<i>Proposal Date</i>	6/17/2009
<i>Preconstruction Award</i>	6/29/2009
<i>Anticipated Production Start</i>	11/9/2009
<i>Actual Production Start</i>	1/14/2010

<i>Anticipated Project Completion</i>	4/05/2011
<i>Actual Project Completion</i>	3/18/2011

Incentives clauses applied under ECI delivery method:

FAR 52.216-17, Incentive Price Revision – Successive Targets

- Defines ceiling price (ECC)
- Outlines alternative if firm fixed price agreement is not reached:
 - ✓ Profit adjustment formula (% negotiated)
 - ✓ Profit increases if final price is lower than Initial Target Cost
 - ✓ Profit decreases if final price is higher than Initial Target Cost
 - ✓ Final price determined after completion of work, using profit from profit formula
- Failure to agree is not subject to Disputes clause
- Incentive
 - ✓ Profit can go up as CM controls/cuts costs between the Midway and Firm Target Prices.

Benefits for USACE and US Government:

- Model allowed to arrive at well documented fair and reasonable costs
- ECI contract vehicle allowed the Government to make common sense changes to the contracts prior to fixing the price
 - ▶ Facilitated both price increases/decreases
 - ▶ Encompassed the Non-Federal sponsor concerns
 - ▶ Eliminated the need for modifications
- Streamlined the administrative process for both the Government and the Contractor and saved costs for both parties
- Allowed for additional resources as necessary to maintain the contract completion dates.

Contract	Initial Target Price	Initial Ceiling Price	Final Negotiated Price	Difference
LPV 111.01 Archer, Western, Alberici (TIS)	\$294,894,736	\$411,600,000	\$342,275,251	\$69,324,749
LPV 145 Chalmette Levee Constructors	\$357,245,988	\$488,000,000	\$237,128,127	\$250,871,873
LPV 146 St. Bernard Levee Partners	\$280,484,886	\$452,000,000	\$272,294,417	\$179,705,583
LPV 148.02 Cajun Construction	\$300,000,000	\$380,000,000	\$349,999,235	\$41,582,109
IHNC-01 Seabrook Alberici Constructors	\$154,000,000	\$181,450,000	\$164,511,456	\$16,938,544
Sub-Totals >>>	\$1,462,857,130	\$1,924,850,000	\$1,366,427,142	\$558,422,858
Savings to the Government:				29%

Source: *Early Contractor Involvement: HPO's Key to Success*, Luis A. Ruiz, P.E. Chief, Geotechnical Branch Jacksonville District, 28 August 2013 SAME Post Meeting.