WHAT CONTRACTORS WOULD LIKE ENGINEERS TO BE AWARE OF

Part I: Pre-Bid

CITY ENGINEERS of MINNESOTA
HOW WE CAN HELP OUR FRIENDS THE ARCHITECTS AND OWNERS, IN THE LONG RUN
TODAY’S REALITIES FOR EVERYONE

• DO IT FASTER
• DO IT CHEAPER
• DO MORE WITH LESS
• REDUCED LEAD TIMES
• FORCING EVERYONE TO WORK OUTSIDE OF THEIR ‘SWEET SPOT’, ‘COMFORT ZONE’, OR ‘EXTENDING THEIR SCOPE OF SERVICES’
CONTRACTOR’S PRIORITIES

• DO IT SAFE
• DO IT RIGHT
• SATISFY THE CLIENT
• MAKE SOME MONEY
GOOD CONTRACTORS WANT TO HELP

• CALL US IF YOU HAVE QUESTIONS
• ALL WE WANT IS A CHANCE TO QUOTE ON JOBS WITH A LEVEL PLAYING FIELD
• IF WE HELP, PLEASE LET US KNOW WHEN THE PLANS HIT THE STREET.
• IF WE CAN’T HELP YOU, WE WILL FIND SOMEONE WHO CAN
• WE ARE NOT AFRAID TO TELL YOU TO GO TO SOMEONE ELSE WHO HAS WHAT YOU NEED
• WE WILL COME TO YOU AND GIVE A PRESENTATION ON ANYTHING YOU WANT
• READ THE SPECS!!!!
• MAKE SURE THE PLANS AND SPECS AGREE
• UPDATE YOUR SPECIFICATIONS
• ‘CANNED SPECS’ or ‘CUT and PASTE’:
  – FILL THE BLANKS IN
  – TAKE OUT THE ‘HOW TO NOTES’
  – GET RID OF THE; ‘if required’, ‘if applicable’, ‘as required’, ‘as applicable’, etc.
  – ARE TEST PILES REQUIRED, IF SO HOW MANY?
  – USE INDUSTRY STANDARDS SUCH AS FHWA, ADSC, DEEP FOUNDATION INSTITUTE’s (DFI)
• USE THE RIGHT ‘CANNED SPEC’
  – DAM/ROCK GOUTING SPEC FOR SLAB JACKING
  – ANCHOR (TENSION) SPEC FOR PILES (COMPRESSION)
  – HELICAL PILE IS NOT A DRIVEN PILE
• APPROVED EQUAL
  – TIMING AND REQUIREMENTS
  – ENSURE THE APPROVAL SPEC SECTION IS THERE
• SPECIFYING BRAND NAME MODEL
• IF IT’S A PERFORMANCE SPEC, DON’T TELL THE CONTRACTOR HOW THEY HAVE TO DO IT
• WATER TREATMENT PLANTS
• WHAT ARE YOU LOOKING FOR and WHY?
• BOX CHECKER vs ANALYTICAL THINKER
• PREQUALIFY vs SUBMITTED WITH BID
• 5 PROJECTS OF $100 MILLION IN MARKET
  – HAVE THERE BEEN 5 PROJECTS OF THAT SIZE?
  – IF THERE IS ONLY $40K OF PILES, WHY DO THEY HAVE TO BE ON $100 MILLION PROJECTS?
• DESIGNERS – HOW DIFFICULT IS THE DESIGN?
  – 5 PROJECTS WITH THE SAME PILE DESIGN
  – 2 PROJECTS WITH 5 PILE DESIGNS EACH
• LOWER TIER CONTRACTORS/DESIGNERS
PREQUALIFICATION - CANNED

DESIGNERS QUALIFICATIONS AS EVIDENCED BY ONE OR MORE OF THE FOLLOWING:

1. STATE REGISTRATION/LICENSURE AS A PROFESSIONAL ENGINEER.

2. MANUFACTURER’S WRITTEN RECOMMENDATION.

3. LIST OF THREE OR MORE SIMILAR PROJECTS DESIGNED WITHIN THE PREVIOUS THREE YEARS AND NAMES OF PROJECT REPRESENTATIVES WHO CAN VERIFY SUCH PARTICIPATION

4. (TRAINING CERTIFICATION/DIPLOMA)
• HOW DO YOU MAKE IT FAIR TO EVERYONE?
• I PUNTED IT
• DO NOT SHOP OUR IDEAS, WE DON’T SHOP YOURS
CONSTRUCTABILITY

• 30’ SINGLE PIECE PILES IN 15’ HEADROOM
• HOT DIP GALVANIZING AFTER FIELD WELDING
• PILES HAVE TO BE 3x THE DIAMETER AWAY FROM THE NEXT PILE – HELICALS LARGEST PLATE
• THE BIGGER THE PILE, THE BIGGER THE DRILL - HAVE TO CONSIDER HEADROOM and ACCESS
• HOW CLOSE TO WALL YOU CAN INSTALL (DON’T FORGET THE FOOTING AND OVERHEAD):
  – HELICAL PILES: 12” – 18” TO CENTER
  – DRILLED PIERS: 1’ + DIA (DEPTH DEPENDANT)
  – DRILL & DROP: 24” DIA MINIMUM
  – MICROPILES: 12” – 18” TO CENTER
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• IF YOU CANNOT TELL US WHAT IS THERE, HOW CAN WE TELL YOU HOW MUCH IT IS GOING TO COST?
  – WHAT’s IN THAT WALL YOU WANT US TO PUT AN ANCHOR THROUGH?
  – SOIL BORINGS:
    • NOT DEEP ENOUGH
    • FROM BEFORE THE BUILDING WAS BUILT
      – WAS FILL BROUGHT IN?
      – OVER EXCAVATED?
  – NOT IN RIGHT PLACE – UNDERPINNING ADDITION
• BFI IS CHEAP
• AVOIDING/CONTROLLING CHANGE ORDERS
• WHERE IS THE RISK? WHO HAS THE RISK?
  – MORE RISK – HIGHER PRICING
  – SOIL BORINGS- NOT DEEP ENOUGH, LACKING
  – COST ALLOWANCES HELP SHARE RISK
  – INVENTIVE BIDDING PROCEDURES
  – T&M WITH NOT TO EXCEED PRICE
• TEST PROGRAMS CAN SAVE MONEY
• TEST PROGRAMS CAN WASTE MONEY
• NO SUCH THING AS A PILE, RE-INFORCING CAGE OR BOARD STRETCHER
• OMITTING CRUCIAL SECTIONS
• 23’ CUT & FILL 20’ FROM BUILDING
• ADDS AND DEDUCTS DO NOT COST THE CONTRACTOR THE SAME, SO WHY SHOULD THEY BE PAID THE SAME?

COST/SCRAP VALUE
– HELICALS: $13.60/$0.42
– DRIVEN PILE: $42.50/$4.45
UNIT PRICING

• WHAT IS THE CONTRACTOR DOING AND WHAT ARE THEY PAYING FOR
• MATERIAL THAT HAS TO PURCHASED BY THE CONTRACTOR PRIOR TO JOB
• CONTRACTORS BALANCE THEIR BIDS
• SOIL-ROCK GROUTING
  - CUBIC FOOT OF GROUTED MASS
  - GALLON/CF/CY OF GROUT
  - BAG OF PORTLAND (NEAT CEMENT GROUT)
    - HOLE SET-UP
    - DRILLING
    - GROUTING
• PRE-BID QUESTIONS – ANY ANSWER IS BETTER THAN NONE
• MAKE A DECISION: “BETTER A GOOD PLAN NOW THAN A PERFECT PLAN TOO LATE”
• YOU WON’T GET ALL THE INFORMATION YOU WANT
• IF YOU DESIGN IT, THEN DESIGN IT
  – PILE CAP EMBEDMENT
  – WALER DETAILS
  – SOIL REPORT DOES NOT DESIGN PILES
• DON’T WRITE A PAPER ON OUR BACKS:
  – TESTING A PRODUCTION PILE TO FAILURE
  – GROUTING
• NO SPREAD FOOTINGS UNDER SPREAD FOOTINGS
• USE HELICALS
• REDESIGN SPREAD FOUNDATION
• RAISES UNDERPINNING COSTS 20% - 60%
• INCREASES RISKS
NO SPREAD FOOTINGS UNDER

EXISTING

PROPOSED

EXISTING

PROPOSED

DIFFICULT / COSTLY

LESS DIFFICULT / LESS COSTLY
NO SPREAD FOOTINGS UNDER SPREAD FOOTINGS
• USE HELICALS/MICROPILES
• REDESIGN SPREAD FOUNDATION
• RAISES UNDERPINNING COSTS 20% - 60%
• INCREASES RISKS
QUESTIONS?
What is Partnering?

Working together towards shared goals.
Definition of a Contractor:

Are greedy pigs who only care about lining their pockets?
WHO BELIEVES THIS?
Contractors are problem solvers that take great risks and try to make an honest profit for solving project owners problems and taking on these great risks?
The real answer is probably somewhere in between for most contractors and yes you will find some that land on both ends of the spectrum.

The key is to remember that not all contractors are the same so it isn't fair to think of all contractors as greedy pigs just out to fleece America.
City Engineers, the guy who has to play the Sheriff trying to keep the city and its tax payers from getting screwed over by these greedy pig contractors who seem to always want to be cutting corners on construction quality?
“Three-fourths of the miseries and misunderstandings in the world will disappear if we step into the shoes of our adversaries and understand their viewpoint.” – Ghandi
Construction Industry Litigation Costs

- Historically Construction Industry Litigation costs rise approximately 9% each year
- 36 Fortune 500 size companies were surveyed and they spent a combined $4.1 billion in litigation in one year
- 2015 - 71% of Large Construction Companies spent more than $1 million in Attorney fees each.
- 2015 – 4 out of 10 Construction Companies had to preserve or collect data from an employee’s cell phone
The Root Cause of Litigation in the Construction Industry Broken Down by the Three “C”’s

- Communication
- Coordination
- Conflict Management
PARTNERING

How Does It Work?

• Partnering’s purpose is to stimulate and facilitate active cooperation and collaboration between multiple parties.

• To be effective it needs to work for all parties involved.
Will It Work For Me?

• If you think partnering is a waste of time then you already have your answer.

• If you think partnering is a concept worth considering and exploring then hopefully the next 20 minutes will be time well spent?
General Benefits of Partnering

A. Working together between multiple groups to create a commitment for achieving mutually beneficial objectives.

B. Create synergy by maximizing the effect of each organization's resources.

C. Effective partnerships can produce results of actions and accomplishments that would not be possible by each group acting alone.

D. Creating an action plan that outlines specific activities and work products - Charter

E. Some benefits are intangible and difficult to measure like:
   i. Improved communication
   ii. Trust
   iii. Interpersonal relationships
General Benefits of Partnering Cont.

F. Break down organizational barriers that can block performance

G. Empower organizational representatives to implement programs in ways that can maximize the available resources of all participating groups

H. Create the Spirit of Teamwork even though the participants represent different organizations.

I. Create a shared Vision

J. Create Common Goals

K. Understand the needs of all groups involved in the Project.

L. Identify potential problems that could be detrimental to the project.
OHIO DOT Partnering Initiative

1. Improve Quality

2. Reduce Disputes
ODOT When to Partner and for What Types of Jobs

The partnering process is an attitude as well as a way of doing business. The “spirit of partnering should occur on every project if partnering is viewed as a way to do business. If partnering is an attitude, it makes sense to do it on every job regardless of size.

- **Scalability**
  - $150,000 project – ½ hours partnering session
  - $25,000,000 project – 3 to 8 hour partnering session
OHIO Contractors Association Identified the Challenges of Construction Projects

1. Personalities
2. Egos
3. Misconceptions
4. Poor Communications
Basic Principles of Partnering?

1. Teamwork can overcome organizational impediments (TEAMWORK MAKES THE DREAM WORK!!!)
2. The team should be empowered down the line.
3. The best approach to resolving disputes is to prevent them.
4. Shared responsibilities involves shared risks and benefits.
5. Open communication and flexible boundaries between organizations.
6. Partners maximize each other's resources.
Myths and Misconceptions: What Partnering Is and Is Not
Partnering Truths

- Partnering clarifies and manages the communication of a project.
- Partnering uncovers problems and provides structure and skills to address them.
- Partnering asks participants to commit to individual tasks to resolve issues.
- Partnering attempts to coordinate aspects of the highly fragmented nature of design and construction.
- Partnering helps project team members work together to control more of the overall project and to get to know enough about each other to increase trust.
- Partnering includes alternative dispute resolution (ADR), but only as one of a number of strategies to improve communication.
Misconceptions

• “We are partnering. We just had lunch together. Isn’t that enough?”

• “Partnering is design by committee.”

• “Partnering means I have to go along with the majority.”

• Partnering is really just the way we always used to do business, in the good old days.”

• “The formality of partnering will just get in the way of building trusting relationships.”

• “Partnering is just another label for ADR methods.”
AGC (1995) Defined Seven Elements of Partnering For It To Be Successful.

The Top 4 include:

1. Commitment to partnering by the top management of every organization involved in the project.
2. Equity in considering all stakeholders’ interests to create shared goals and commitment by all stakeholders.
3. Trust among all parties through personal relationships and open communication with mutual sharing and understanding for each party’s risks and goals.
4. A partnering charter developed jointly by all parties that identifies specific mutual goals and objectives.
First Partnering Project Agreement was in 1928

- The Empire State Building in New York City was built by a Businessman, and a group of Contractors and Engineers that completed the project in 18 months.
- Developed at a rate of four and half stories per week.
- The project’s success was an example of the Teams:
  - Continuous Cooperation
  - Spirit of Trust
  - Open Communications
  - Coordination
Corps of Engineers Does Formalized Partnering With:

- Contractors
- Watershed Agencies
- United States Natural Resources Conservation Services - NRCS
- Municipalities
- State Agencies
- Basically anyone they share projects with and have mutual goals, and common missions with.
Partnering Roles and Necessary Attendees

**Owner/Engineer:**
- District Deputy or Agency Head
- Director/Project Management Administrator
- Construction Engineer/Area Engineer
- Project Engineer
- Project Supervisor Inspector

**The Prime Contractor:**
- Owner/CEO:
- President
- Vice President
- Area Manager
- Project Manager
- Superintendent
- Foreman
- Skilled Laborer/Lead Person
The Stages of Partnering

- Stage 1 - Preplanning and Orientation
- Stage 2 - Formal Partnering Session/s
- Stage 3 - Ongoing Meetings
- Stage 4 - Close-Out Meetings/Celebrations/Follow-Up
Orientation

The purpose of the orientation to partnering is to give new construction staff a general overview on the aspects of partnering and the importance of their participation in the formal partnering session.
Preplanning

As we step out together with partnering, it is worth the time to ensure we perceive partnering in the same way.
Types of Partnering

A. Formal - led by a professional facilitator with structured goal setting and bringing Project challenges to the forefront for open discussion and problem solving.

B. In-Formal - similar to formal by not led by a professional facilitator. Used sometimes on smaller projects. Lead by a dynamic individual who knows the value that creating a project partnership can bring to a challenging construction venture. This could be a person from the owners side or the contractors side.
Raise the Issue with all Project Team Members

“What are your needs and/or concerns/expectations of this project?”

“What will you look at to know we are doing a good job?”

“What would you like to see more of? Less of?”

“Any special concerns you have about this project?”

“What’s important to you?”
An Effective Facilitator Will:

- Assist the group in working together on goals and issues
- Create an environment of openness and trust
- Aid in consensus building and commitment
- Establish credibility and trust
- Match the “personality and style” of participants
- Serve as a positive role model
- Organize the workshop
- Determine what participants want from the workshop
- Know and understand the background of the project, stakeholders, and the project
- Keep the meeting focused on issues at hand
- Encourage all to participate
- Record or appoint a recorder to take notes
- Keep the discussions moving and pertinent
- Listen to the participants
- Help the group reach consensus
- Constructively channel conflict
- Help create “THE CHARTER” that can guide the partners to success.
A Charter Defined

The Charter is a written document expressing the purpose of the project, the desires of the owner and stakeholders, and how everyone intends to work together for a successful project. The Charter is the most important take-away from the formal partnering session.
The Following are Contained in the Charter:

- Mission – purpose of the project and team
- Goals – what the team wants to accomplish
- Statements – how we work in terms of communication, sequencing, planning, coordinating, and general work flow
- Agreement – how we address and resolve conflicts/issues/problems
- Activities – for implementing this agreement
There is a familiar Indian saying about not judging a person until you have walked a mile in their moccasins.
Do I Need to Hire an External Consultant?

You may have an in-house person who is qualified and capable? However, your first few sessions may be easier with an outside facilitator. First, they have had a variety of experiences, which can be valuable for your situation. Second, they are viewed as an objective, unbiased person. However, this decision is entirely up to your discretion.
What do you have to lose?

1 to 4 hours of everyone’s time?
Questions?