I SHOULD HAVE SEEN THAT COMING

A Case Study

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Introduction

Retained to provide litigation support services resulting from a small dredging project

During our analysis of the project, Louis Berger staff identified a number of red flags in the contract document that should have alerted the contractor to potential problems.
Pre-project Investigation Activities

During the early stages of the Project, studies were performed to determine concentrations of contaminants in accumulated sediments and to evaluate appropriate strategies for potential removal and disposal.

- **SEDIMENT SAMPLING**: One sample every 500 feet, at the midpoint of drain, for chemical analysis.
- **SOIL SAMPLING**: One sample on each side slope every 500 feet for physical properties (native vs nonnative soils) and accumulated sediment.
- **ALTERNATIVE ANALYSIS**: Review of Technologies
  - HYDRAULIC
  - MECHANICAL
  - DRY DREDGING
  - Review of Disposal Options
- **EECA**: Combined above studies in an EECA
  - Preferred alternative: SEDIMENT REMOVAL & OFF-SITE DISPOSAL
  - Non-specific on dredging approach
Owner’s Engineering Oversight

“...oversee of design and construction services phased of the...project”

- Manage the preparation of technical specifications and bid documents
- Assist in bidding process and provide detailed bid analysis and comparison
- Development of work plan
- Construction management
- Communications and public relations
- Project closeout
Bidding, Contractor Selection

- RFP issued on 2 month bidding period, running from approximately December to February
- Bid documents stated objective of the work was to **restore flow capacity** in the canal
- Bidders were requested to provide information on proposed technical approach and costs
- Bids were received from four firms
  - Three firms specified removal by dredging and only one firm specified removal in the dry
  - None of the four firms specified or questioned the need for additional site investigation activities
Project Execution

- Construction was completed in two phases:
  - Phase 1 – Proof of concept
  - Phase 2 – Remainder of drain

- Visual confirmation samples collected every 100 feet for visual inspection; resampling every 25 feet of same interval; chemical confirmation sampling every 2000 feet

- At the completion of work, contractor demobilized from the site, and retainage and the bulk of contract paid

- A few months before the warranty period expired, contractor was sued for non-performance under the contract
Project Aftermath

• Site closure report rejected by regulatory agencies due to failing tests

• Conducted additional sampling and found more impacted sediment in drain
  • Probing studies - approximately 8300 cy of sediment remaining at varying depths up to 3 feet

• Hired third party engineer to evaluate results
  • Decision was made to redredge the drain
  • Engineer recommended removal in the dry
Round 1 vs Round 2

PERCENTAGE OF TOTAL CUBIC YARDS OF MATERIAL REMOVED AT THE PROJECT

PERCENTAGE OF TOTAL COST OF THE PROJECT
Red Flag Issues

• Contract language and inconsistencies in documents
• Red flag words
• Regulatory issues
Inconsistencies Within Documents

- Numerous inconsistencies in the document that were not addressed or qualified during the bid/project

- Project titled a design-build project
  - Contract language was for a design-bid-build project
  - No design work required of Contractor / No design submittals
  - Contractor did not seal drawing
  - Bid/project schedule not consistent with DB

- Technical inconsistencies
  - Remove “all” sediment/ do not remove sediment on side slopes/remove only 1 inch of soils in bottom of drain
RED FLAG WORDS
Regulatory/Legal Issues

• Project structured as a flow restoration project
  • Project was structured as a flow restoration project
  • Bidders were told it was a flow restoration project
  • AOC are not generally associated with flow restoration projects
  • EPA’s involvement with the project

• Availability of AOC or other regulatory documents for review
  • Mentioned in specifications but missing from bid package
  • Review opportunity

• Scope changes after contract signed
  • Chemical acceptance criteria were added
Controlling Risk

Three steps in controlling risk:

• Perception
• Analysis
• Management
Risk Perception

POTENTIAL RISK FACTOR

• Change to staff
• Changing/unclear stakeholder objectives
• Changing regulators and expectations
• Unforeseen conditions
• One party withholding critical information
• Unrealistic performance, specifications and contract requirements
• Measurability of project requirements/acceptance criteria
• Significant changes to the project
## Risk Analysis

<table>
<thead>
<tr>
<th>Probability</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Very Unlikely (Rare)</td>
<td>Never or will only occur under exceptional circumstances</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Highly unlikely to occur during the life of the project/activity</td>
</tr>
<tr>
<td>Possible</td>
<td>Might occur during the life of the project/activity; has occurred in the past</td>
</tr>
<tr>
<td>Likely</td>
<td>Likely to occur during the life of the project/activity; has occurred multiple times</td>
</tr>
<tr>
<td>Very Likely (Almost certain)</td>
<td>Almost certain to occur within the life of the project/activity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consequences</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negligible</td>
<td>Limited or no injuries, minor equipment damage, limited financial losses</td>
</tr>
<tr>
<td>Minor</td>
<td>Injuries requiring treatment, moderate equipment damage, moderate financial losses</td>
</tr>
<tr>
<td>Moderate</td>
<td>Numerous injuries requiring treatment, significant equipment damage and financial losses</td>
</tr>
<tr>
<td>Significant</td>
<td>Lengthy hospitalization or fatality, major equipment damage and financial losses</td>
</tr>
<tr>
<td>Severe</td>
<td>Loss of multiple lives/disabilities, widespread damage, large financial losses</td>
</tr>
</tbody>
</table>
## Risk Analysis

<table>
<thead>
<tr>
<th></th>
<th>A: Negligible</th>
<th>B: Minor</th>
<th>C: Moderate</th>
<th>D: Significant</th>
<th>E: Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Very Likely</td>
<td>Low Med</td>
<td>Medium</td>
<td>Med Hi</td>
<td>High</td>
</tr>
<tr>
<td>D</td>
<td>Likely</td>
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Risk Management

**POTENTIAL RISK FACTOR**
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**POTENTIAL MITIGATION ACTIONS**
- Continuity in staffing/transition plans/document
- Communicate and document
- Notify client when encountered and document
- Identify and document data gaps
- Identify issues early, communicate and document discussions
- Establish clear metrics if not in specifications; communicate and document with client
- Communicate and document
Lessons Learned

1. Watch for Red Flag words or other absolutes
2. Read and understand regulatory documents related to the project
3. Contract format should complement the specifications
4. Project schedule should conform to expectations established during bidding
5. Information in contract documents should be adequate for bidding the type of work planned
6. Selected technology should be appropriate to meet specification requirements
7. Ask the right questions and be willing to walk away