REGION 6
ROCKY MOUNTAIN REGION
AK. AZ. CO. ID. MT. NV. NM. UT. WY

REGION 7
FAR WEST REGION
CA. HI. OR. WA

Region 7- Commercial Building Division

February 7-9, 2019

ANSWER PACKAGE

Problem Statement

Solano County Classroom & Vocational Training Center

Fairfield, CA

Problem Sponsor:

HENSEL PHELPS
Plan. Build. Manage.

Associated Schools of Construction Competition
Region 7 – Commercial Building Division
February 7-9, 2019

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PROBLEM SPONSOR

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I. COMMERCIAL DIVISION TIME TABLE

THURSDAY, FEBRUARY 7TH

Opening Conference / Distribute Problem / Establish Presentation Order ..... 6:00 AM
First Progress Meeting / RFI's Due ..... 10:00 AM
Lunch Delivered to Rooms ..... +/-12:00 PM
Second Progress Meeting / Question Session ..... 2:00 PM
Subcontractor Interviews (10 min. / team)..... 2:30 – 7:00 PM
Dinner Delivered to Rooms ..... +/-5:30 PM
Proposals Due ..... 11:00 PM

FRIDAY, FEBRUARY 8TH

Interview Materials Due (all teams) ..... 6:45 AM
Interviews Start ..... 7:00 AM
Project Debriefing..... 6:30 PM

SATURDAY, FEBRUARY 9TH

Career Fair ..... 8:00 AM -12:00 PM
Awards Ceremony..... 11:00 AM

II. PREFACE

WELCOME to the 2019 ASC Student Competition. All participants are to be commended for the personal time and financial commitment made in preparing for and attending this competition. The construction industry has noted these sacrifices and the premier student population that is competing here. This is evident in the quantity and quality of companies attending the Career Fair.

The student competition is designed to challenge each team to different facets of the construction industry. Each team's estimating, scheduling, organization, leadership, productivity, and communication skills will be tested and enhanced while participating in this competition.

The competition will present each participant with construction industry exposure that may not otherwise be experienced until after working in the industry. It is Hensel Phelps' desire to present each team member with real life situations through this competition. Some of these "experiences" may seem uncomfortable and/or appear to contain no logic. Be aware the real world is very often not kind, fair, or logical! The construction industry will present situations where people are less than pleasant, and pressure is applied to the extreme, but it will also provide great feelings of accomplishment and team camaraderie. Some questions, both in real life and in this competition, may have multiple answers and some questions may have no correct answer. The superior level of the student competitors attending the competition should embrace these challenges and recognize the value of these lessons.

The judges in the interview portion of this competition may seem to "put you through the wringer" with tough questions and references to deficiencies in your written proposal. Although it is human nature to "take it personal", please understand that these lessons are for the good of your development and excellence. It is not the intent of the judges to frustrate and alienate you, yet the spirit of competition places a duty on the judges to ask the hard questions that will allow team rankings to occur. At the end of the competition each team member should reflect on the knowledge and experience gained, and hopefully the judges can become mentors and friends to you.

As a driven team member, realize that all teams have come to the competition with the main goal of WINNING! However, with so many competitors, also realize that there can only be one winner announced. As an intelligent, driven, and committed individual, you should recognize the vast knowledge, industry exposure, and experience gained in competing and finishing this problem. This is the real reason all teams and individuals are competing. Yes, it is true, every person competing is a winner, regardless of the final overall placement. Make sure you, and your team, understand this; it does make a difference!

Determination of the Winner is based on a uniform grading scale for the written portion of the competition coupled with the oral presentation, judged by a seasoned multi-member judge panel. The combination of these two components, in the scoring ratios listed, determines the overall team placement. Overall team placements will not be posted, but feedback will be provided after the competition.

Congratulations for participating and Good Luck!

III. PROBLEM SCENARIO (Jeff Wellenstein)

(Competing schools will represent a Project Team that must evaluate the following project.)

The Northern California District Office is about to have an influx of personnel available as several large jobs are coming to an end, so it's important to procure a project for their next assignments. The team has landed a few large projects; however, they unfortunately will not commence for some time. To ensure the retention of your employees you will need a short duration project that has a quick trigger. Furthermore, your district has recently promoted many younger staff members and needs a project that will provide an opportunity to grow and develop in preparation for the larger projects in the future.

Hensel Phelps has an extensive history of building correctional facilities all over the country. This experience was further developed in Northern California within the past 5 years as the company completed 5 correctional projects. The staff's design-build expertise in this market sector paired with trade partner relationships that were created on these projects will assist in the proposal process for this upcoming opportunity that your team recently discovered.

Due to the approval of California State Bill 1022 (SB 1022), taxpayer monies have been approved for usage on a new vocational training facility that will be built in Solano County. SB 1022 is a program to promote valuable re-entry into society and eliminate recidivism or the tendency to reoffend. Officially titled "SB 1022 Classroom and Vocational Training Center Solano, CA" (CVTC) has a budget of $20,000,000.

Because the budget is already predetermined, the bid proposal will focus on providing the best value for the price. There are 26 Best-Value Enhancements to the base project scope (i.e. Add Alternates) that the Design Team and Owner have assembled that your team must review and determine if they can be incorporated into the project scope all while delivering the project for the original budget of $20,000,000. The Owner will also award additional technical points for other value-added enhancements or no-cost betterments. You must assemble a bid proposal and advise the District Manager which enhancements your team decides to include in the bid for this project. Your recommendation is due by 11:00 PM tonight, and you will be asked to present your findings in a Project Opportunity Review meeting with Upper Management tomorrow. Interim progress meetings are scheduled for 10:00 AM and 2:00 PM today (Thursday, February 8th).

Any questions should be delivered via email to HPCCRENO2019@gmail.com in PDF format using the Request for Information form (RFI) to the senior management team prior to the 10:00 AM meeting. Response to these RFI's will be emailed back as soon as they are answered. The RFI form is provided in Section X. The 2:00 PM meeting will be for verbal questions and answers only.

Please note that some of the written questions occur later than the Project Opportunity Review meeting, at a future point in the project. Consider these a "Time Warp" and answer them with that understanding. This is to challenge the team on the full realm of construction issues.

For the oral presentation on Friday, all teams shall include students representing the company's Project Manager, Superintendent, Estimator and Scheduler; other roles will be at the team's discretion. The 30-minute presentation should allow for 20 minutes of team presentation and 10 minutes of questions and answers. Your presentation should focus on the following topics: Cost, Schedule, Site Utilization, Construction Planning, Value Enhancements, Quality and Safety. Creativity and innovation are encouraged, **shallow marketing pitches are not.**

IV. PROJECT INFORMATION (Jeff Wellenstein)

The CVTC project is in Fairfield, CA on property owned by Solano County. There are two existing County correctional facilities adjacent to the project site. Other facilities on this property include an alternative high school, a school bus yard, and an animal shelter.

The project consists of two buildings: A 10,000 SF classroom building (Building A) and a 30,000 SF vocational education building (Building B). Building A contains a security booth, search rooms, (2) holding cells, an open office space for the staff and instructors, and (7) classrooms in which County employed teachers will educate inmates. Building B is composed of (8) vocational training bays, each of which are dedicated to a different vocational skill (diesel maintenance, auto maintenance, carpentry, welding, sheet metal, electrical, and plumbing). Additionally, Building B has shared classrooms between vocational bays, instructor offices, tool rooms, and inmate restrooms. The large asphalt area surrounding the buildings will be utilized as a big rig training pad.

Inmates that qualify to be trained at this facility must meet several criteria including good behavior, reason for incarceration, and likelihood of recidivism. Subsequently, the CVTC facility is “detention light” and does not have the same level of security as a typical correctional environment. The two holding cells in Building A are not intended for overnight usage but rather for temporary detainment until the inmate can be transferred back to the adjacent facilities. Additionally, inmates will be granted access to use tools and equipment in the vocational training bays.

The project site is a barren field with Class B soils requiring an additional 2 feet of engineered fill at the building pads, hardscape areas and asphalt paving. In addition to the engineered fill, the building foundations require 4” aggregate base and 10ML vapor barrier under the varying slab thicknesses. There are no interior drain inlets in the asphalt-paved areas, the site is designed to provide 43% retainage capacity with bioswales and a retainage area that surround the site all funneling down to a metered-release outlet at the southwest corner of the jobsite. A security fence will be erected along the perimeter of the new structures.

Both Building A and Building B are pre-engineered metal buildings consisting of structural steel columns, metal girts and purlins, 2” thick High Performance Continuous Insulation (HPCI) panels and corrugated metal sheathing. The roofs are standing seam metal roofs. All MEP equipment is set on equipment pads adjacent to the buildings. Photovoltaic panels are depicted on the eastern portion of the roof of Building B.

The Contract Time allocated for Substantial Completion of the construction of the Work is Fourteen (14) months. A Labor Agreement has been approved for this project. All Contractors must comply with the requirements of the Project Labor Agreement. In addition, the Sheriff’s Department requires background clearances for all individuals who will work on the site.

Good luck and let’s go win this project!

V. PROBLEM OUTLINE

Structure and tab your documentation according to the following outline. Include only the information requested in **Section VI. Submission Requirements.**

VI. SUBMISSION REQUIREMENTS:

Please note that some of the following questions do not fit into the time frame of the Problem Scenario described earlier (i.e. they occur earlier or later in the construction phase), consider these a "Time Warp" and answer them with that understanding.

0.1 EARLY DELIVERABLE - BIOGRAPHIES

Although this item has past, as a requirement of the Pre-Problem Statement, your team's final score may reflect a small point deduction if you failed to comply with this item in a timely and professional manner.

0.2 QUALITY OF SUBMITTED PROPOSAL

The appearance and organization of proposals is important in the construction industry as it is often our first opportunity to interact with a new Owner and/or impress the upper management in our company. We want them to see the professional image we are trying to portray and be able to find and understand the information we are presenting. Points will be awarded in this section based upon the appearance and organization of your team's submitted response to the following problems.

0.3 TIMELINESS OF PROPOSAL

Unless stated otherwise, one (1) hard copy and two (2) electronic copies of your proposal are due at 11:00 PM, as per the Time Table in Section I. A ½ point penalty will be deducted from the team's score for each minute the proposal is turned in late.

1. General Summary

Written by Ryan Perry

In your meeting with upper management tomorrow, your team is responsible for identifying which of the 26 Best-Value Enhancements should be added to the base project scope, all while delivering the project for the original budget of $20,000,000. Your team has been reviewing the project documents, proposal summaries from trade partners interested in the project, as well as internal estimates for scope buyout assistance. Use all this knowledge to provide your upper management with your final cost breakdown in the form of a General Summary and identify your recommendation on which enhancements Hensel Phelps can include to maximize our technical score.

PART A: Enhancement Summary

Use the Enhancement Summary spreadsheet included in Section X.1.1 to identify which of the enhancements have been included in your proposal. Use the values given in Section X.1.1 along with the final amounts as determined within Section 2 (Estimate), Section 3 (General Conditions), and Section 4 (Proposal Summary) to complete the General Summary spreadsheet, compiling the cost estimate of each enhancement, where it is not provided. Please note, each enhancement has a different “Point Value” associated to it. This will come into play in Part D.

PART B: Contingency

Bid contingency is typically carried on a project for buyout risks and general construction issues. At this juncture, your team needs to determine what the contingency value should be on this project. Please keep in mind, contingency is typically carried as a percentage (typically between 0% and 5%).

You will need to populate your new proposed contingency percentage within the General Summary spreadsheet. In addition, a short narrative (single page maximum) explaining the risks that would justify the contingency you are including.

PART C: Fee

The final item to review is our fee percentage. Based on your understanding of the project, determine what fee percentage should be allocated, while still maintaining the budget of the project. Remember, fee is not always directly correlated to the project itself, but rather can be determined for the good of the company. Also, Fee only includes overhead and profit, it does not include any added costs for bonds, insurance or other outstanding costs. One thing to keep in mind, Fee typically includes our general administrative fee, which includes our estimating and district office overhead, usually valued at 2.75% of the project value.

Your team shall review the project budgets and determine what our fee percentage should be on this project. The proposed fee percentage shall be populated in the General Summary spreadsheet included in Section X.1.2 which will finalize the total project cost. Another short narrative (single page maximum) shall be submitted describing why the percentage was selected.

PART D: Final Recommendation and General Summary

After all information has been gathered for the Enhancement Summary, review the project pricing and compile the General Summary (Section X.1.2) utilizing the final amounts as determined within

Section 2 (Estimate), Section 3 (General Conditions), and Section 4 (Proposal Summary), where omitted.

Your team is responsible for determining what recommendations you will propose to upper management. Provide a written narrative (single page maximum) that indicates which enhancements have been included in your proposal, and why you elected to include these.

As the budget for this project is predetermined at $20,000,000 remember that this job will be awarded to the best value for the price. In other words, the project will be awarded to the team that can stay within budget and provide the highest "Point Value" when adding up the points associated to the enhancements included in your General Summary.

General Summary Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in native format (Excel) of your Enhancement Summary.
2. Submit one (1) hard copy and two (2) electronic copies of narrative for Part B.
3. Submit one (1) hard copy and two (2) electronic copies of narrative for Part C.
4. Submit one (1) hard copy and two (2) electronic copies of narrative for Part D. Submit one (1) hard copy and two (2) electronic copies in native format (Excel) of your General Summary.

ANSWER:

PART A: See attached Enhancement Summary in Section X.1.1.a.

PART B: Contingency
After reviewing the contract documents, and running through the estimates, proposal summaries and change management sections, your team has determined that there may be some fundamental design issues with the enhancements on this project. The purpose of contingency is to carry some budget to account for any of those undisclosed risks that may come about and to be able to mitigate them to the best of your ability. You also understand that there are some buyout risks and further design risks that may come about from many of the enhancements that are not fully designed at this time.

It is because of these findings that we elected to carry a contingency percentage of 1.5%. This will give us the risk coverage that we need for the remaining coordination with the enhancements and construction issues along with some potential design issues we uncovered. Even though this project is not a design build project, we elected to carry some contingency to cover the enhancements that are not fully designed and coordinated which justifies some contingency. The added mezzanines, as well as the roll-up door grilles required additional design and engineering which could be absorbed through contingency.

PART C: Fee
Fee is subjective and typically ranges from 3% – 6% depending on project location and market conditions and opportunity for fee enhancements. We want to remain competitive, and we recognize this is a good project for us, in that it will allow many of our staff that currently live in the California Central Valley to remain there and not have to be placed on jobs in the Bay Area. With that in mind and the nature of the stipulated sum, we elected to go with a 4.5% Fee, which kept us under the stipulated sum value and allowed us to be competitive, yet still profitable and make this a worthwhile project for us.

PART D: See attached General Summary in Section X.1.2.a.

Our team spent a lot of time budgeting and running pricing exercises on this project, and we were able to determine that we could stay under the stipulated sum value of $20,000,000 while providing all 26 of the enhancements listed by the Owner, as well as a quality enhancement for the training area floors. We have folks available that are ready to move off the other projects in the California Central Valley that are wrapping up, which means we can begin purchasing and signing up trade partners immediately once we are awarded the project.

Winning this project would be a perfect scenario for our company and our employees, it would allow us to support our employees in this region, which are our greatest resource. This project is centrally located, has a relatively timely schedule and is a perfect opportunity for some of our employees who are new to their positions to step up, take charge and learn their roles.

2. ESTIMATE

Written by Nadine Rivera & Lissette Flores

Hensel Phelps strives to maximize our value for Owners on every project. The Owner at the Solano County Classroom and Vocational Training Center (CVTC) Project has requested each contractor to submit, as part of their proposal, design enhancements that add value to their bid. The procurement team understands that to gain an advantage over competitors and develop a great relationship with this Owner, they must remain flexible and provide the best-valued enhancements for this project.

PART A: Concrete Estimate

The CVTC provides a unique opportunity for Hensel Phelps to self-perform work, including CFCI Equipment and all cast-in-place concrete scope. As the Lead Estimator, you have been tasked to put together a comprehensive value to furnish and install the complete cast-in-place concrete scope of work. The estimate is composed of earthwork, formwork, concrete material, place & finish, labor, and equipment.

Use the provided contract drawings to quantify the value of cast-in-place concrete to be installed on Building A and B, specifically:

- Continuous Footing
- Spot Footings
- Slab on Grade
- VPAD Mechanical Pads

PART B: Owner Requested Enhancement Estimate

In addition to the cast-in-place concrete estimate in Part A, as the Lead Estimator, you are tasked to provide an estimate for the cast-in-place concrete footings for the enhancements that the Owner/Designer requested. As in Part A, utilize the contract documents and supplemental information to determine your estimate for the enhancements described below:

Owner/Designer Requested Enhancement:

- No. 03 – Drilled Canopy Footings
- No. 23 – Enhancement Spot Footings
- No. 24 – Enhancement Spot Footings
- No. 25 – Enhancement Spot Footings
- No. 26 – Enhancement Spot Footings

PART C: Hensel Phelps Enhancement

The procurement team working on the proposal consists of a Project Manager and Superintendents that have extensive knowledge of correctional facilities. To increase the odds of winning this project, the team has come up with additional items that will add value to the proposal. These items have not been requested by the Owner as additional enhancements and are not included within the construction documents. However, the procurement team believes that the probability of the Owner awarding the project to Hensel Phelps is increased if these design elements are included in the bid proposal to get the most accurate cost value and, at the same time, support HP's construction activities.

One of the proposed added design elements is epoxy flooring in lieu of sealed concrete floors as shown in the Room Finish Schedule A610. By enhancing these areas with an epoxy flooring system, the cost of cleaning up oil spills goes down drastically, saving time and money. Also, this enhancement increases the durability in these high use areas as well as saving the cost to repair concrete chips and cracks in the future. Additionally, installing epoxy flooring saves the construction team from having to protect the sealed concrete during ongoing construction activities.

As the Lead Estimator, you have been tasked with estimating the epoxy flooring enhancement in lieu of the sealed concrete floors. Use the provided contract documents and the supplemental information to determine your estimate for the enhancement described below.

Hensel Phelps Enhancement:

- Installation of an epoxy flooring system in lieu of sealed concrete.

PART D: Fee

While understanding the extent of self-perform work on this project, determine what Fee percentage will be allocated to your Estimate. The proposed Fee percentage shall be populated in the Estimate Spreadsheet, Section X.2.1, on Tabs A, B, and C. A short narrative (single page maximum) shall be submitted describing why the percentage was selected.

Supplemental Information
Use the information below, found in Section X, in preparing your estimate:

- (X.2.1 Tab A, B, C) - Estimate Spreadsheet, this spreadsheet has been formulated for your use in compiling data, all teams will use the same format. Please fill in the required quantities, unit costs, tax, and fee on this spreadsheet.
- (X.2.2) – Local Ready-Mix Concrete Pricing, use this sheet for material unit costs.
- (X.2.3) – Historical Cost Data Sheet, this resource is to be used for unit rates cost for labor, and equipment once quantities are determined.
- (X.2.4) – Concrete Labor Production Rates
- (X.2.5) – Epoxy Data Sheet, this resource is to be used for unit rates for material.
- (X.2.6) – Slab Edge & Grade Beam Details RFI

Clarifications and Exclusions
To keep all teams estimates consistent, please follow the guidelines below:

- Do NOT modify the Estimate Spreadsheet.
- Do NOT include additional material to account for concrete waste, it is accounted for in the units.
- Do NOT provide any other concrete components other than the items listed above.
- Do NOT include additional material or labor to account for patching of exposed concrete.
- Do NOT include any reinforcing steel in your estimate, this is listed as an additional value and is provided.
- Assume the excavations for footings are neat dug to the dimensions provided in the drawings.

Estimate PART A, B, C & D Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in native format (Excel) of your completed estimate spreadsheet of the following items including any additional assumptions made to complete this estimate.

- Part A) Concrete Estimate
- Part B) Owner Requested Enhancement Estimate
- Part C) Hensel Phelps Added Enhancement Estimate

2. Submit one (1) hard copy and two (2) electronic copies of the completed Cost Data Sheet (Section X.2.3).

3. Submit one (1) hard copy and two (2) electronic copies of narrative for Part D.

ANSWER: Reference Concrete Estimate Section X.2.1.a.

A 10% Fee was applied to Tabs A & B for the self-performing concrete scope. Keeping in mind the overall budget of the project and extent of concrete scope, we applied a 10% fee to cover layout, clean-up, environmental, overhead, and profit for this scope. Separate GR's and GC's are typically carried for self-performing concrete. Since they were not broken out in this case, the additional costs will be carried within the 10% Fee.

A 4.5% Fee is applied to Tab C since the Epoxy Flooring enhancement was installed by another Subcontractor. Keeping this fee in line with the overall project fee, allowed us to stay within the stipulated sum while maintaining profit.

3. GENERAL CONDITIONS

Written by Richard Franssen

General Conditions are real construction costs that are not immediately quantifiable by the untrained eye as the costs are associated with on-site management, supervision, and contract administration. General Conditions (GC's) are the costs incurred during a construction project that are not manifested and seen as work in place, but they are integral to the success and flow of the job. GC's are a critical component to risk and management and afford the contractor the ability to forecast costs, staffing, and project needs.

At the outset of the job, a GC Estimate is required to forecast the associated project costs. A draft of the GC Estimate and Staffing Matrix has been provided, see Section X.3.1 and X.3.2. Part of this project is providing enhancements to the proposal to provide additional value to the Owner. You have been tasked with reviewing this GC Estimate and Staffing Plan for completeness and to identify if there are opportunities to make an overall reduction in GC's to help fund enhancements and increase our likelihood of being awarded the project.

Please Note:

- GC's include all the operating costs and expenses for your on-site salaried supervision.
- Project Executives are to be carried by District overhead and not included in GCs.
- Home-office overhead is not included in GCs. However, satellite project offices and relocation costs will be billed to the project.
- Supervisory staff positions should be allocated to the project as the team sees fit to complete the work and closeout.
- All GC's associated with direct work such as subcontracts and specific costs of work are carried within the specific scope budget; therefore, those costs are not to be included in the overall GC breakdown.
- The project is allowed up to four interns over the summer. All costs associated with the moving and housing of interns are provided by the jobsite.
- Reference Schedule, Section 5, for Notice to Proceed and Substantial Completion information.
- Assume Material Sales Tax of 8.375%
- Permit Fees are carried by the Owner.
- Contractor's Fee is not carried within the GC's, see General Summary in Section 1.
- Bonding and Insurance Fees are not carried within the GC's, see General Summary in Section 1.

PART A: Staffing Plan & General Conditions Estimate

A draft Staffing Plan and GC estimate have been provided, see Section X.3.1 and X.3.2. This draft was developed and shows the staffing levels the superintendent would ideally have on the project. The draft GC estimate was developed by a young estimator that has not completed one previously. Unfortunately, with this level of staffing and GC's we would not be competitive due to budget dollars going to GC's instead of being able to fund enhancements. You are responsible for doing a review of both documents to identifying where staffing and/or GC's might be heavy and where modifications can be made to increase available budget for enhancements as noted in Section 1. The typical range of revenue per salaried staff month for a project of this size is around $180,000/month. Use this as a guide while making modifications to staffing levels. Ensure that with these modifications you maintain the ability to manage the project from Notice to Proceed through Final Completion.

Review the Draft GC's provided in Section X.3.1 to calculate the overall value for the GC's. Modifications are to be kept to the quantity of each item. Do not change budgets or formulas.

Review the Draft Staffing Plan using the matrix found in Section X.3.2. Each staff member's total dedicated duration on the project should be included on the form to accurately project staffing costs as these durations are pulled to the GC estimate. Modifications are to be kept to the months assigned to each position.

As you modify the Staffing Plan and GC's spreadsheet take note of your assumptions and justifications to convey your rationale to upper management. Grading will be based on logic and reasoning of your recommendations along with getting to the appropriate budget to manage the work. Any pertinent information to justify your matrix should be written in the assumptions and justifications section of the spreadsheet.

Your goal is to provide a complete GC's and Staffing Plan while identifying if there are opportunities to help fund enhancements.

PART B: Schedule Extension General Conditions

(TIME WARP ONE MONTH INTO CONSTRUCTION, CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS UNLESS OTHERWISE NOTED)

You are one (1) month into the project and the State Fire Marshal is not available to support the project due to the California wildfires. After attempting to coordinate and work with the Fire Marshal, it is apparent that the project schedule will be impacted. In Section 5 a justification summary has been developed to explain the impact to the project and has resulted in a schedule extension.

Using this information your team must now submit pricing for extended GC's associated with the schedule impact. There are multiple ways of evaluating GC's and the Owner does not want to get into the fine details of our GC's involved with reviewing a GC spreadsheet and staffing plan. For this section assume the total GC's, including staffing, are $2,500,000 prior to the extension. Your task is to provide a justification letter for increased staffing and GC's. In the justification letter focus on providing an explanation of how the submitted value was developed using metrics. Use the letter template provided in Section X.3.3 for the letter submission. Keep the letter to 300 words or less.

General Conditions PART A Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in native format (Excel) of your updated Staffing Matrix.
2. Submit one (1) hard copy and two (2) electronic copies in native format (Excel) of your updated General Conditions cost matrix.

General Conditions PART B Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in native format (PDF) of your justification letter.

ANSWER:

PART A Staffing Matrix & General Conditions Estimate: See Section X.3.1.a Section X.3.2.a

PART B Schedule Extension General Conditions: See Section X.3.3.a.

4. PROPOSAL SUMMARY (TAB ANALYSIS)

Written by Isaac Gilles

Solano County has a limited budget and needs an experienced contractor capable of building the facility as well as adding value. As an experienced builder, many of the successes of a project are determined during the early stages of the project with creative purchasing. With $20,000,000 in the budget and an aggressive 14-month schedule, it is imperative we get quality comprehensive proposals from our trade partners. In order to win this job, we will need to purchase the job proficiently, so we can incorporate as many enhancements as possible. We have a smaller team on this job, so it is up to the project engineer and office engineers to evaluate the bids and complete the Proposal Summary. Your task is to analyze the trade partners' proposals and select the subcontractor with the best value package.

Since the estimating team is busy pricing the enhancements, you have been asked to focus on some of the more significant scopes of work. The bids for CMU, Earthwork, Structural Steel, and Mechanical just hit your desk, review them and assess which subcontractors you will partner with for these scopes. If you can capture a complete scope for these proposals, not only will we achieve the budget goals, but field operations are sure to run more smoothly.

The estimator on this project has recommended that you make use of bid tabs to ensure that all proposals have a complete and comparable scope. After analyzing each subcontractor's proposal, do not hesitate to contact them if there is any suspicion of double ups between other bid tabs, scope gaps, or other discrepancies. Each bid tab needs to be accompanied with the appropriate check questions to ensure the subcontractor's scope is whole. Your estimator has assumed several necessary check questions, but as you review the scope you may deem it necessary to expand your check question list. Sometimes it takes multiple conversations to effectively gauge a subcontractor's intended scope.

The estimator has calculated a budget in the Scope Desired column based on what they believe the complete scope is worth. Be aware that the values for these line items are projected estimates based off historical data and trends. It is not uncommon for actual values to vary due to market conditions, escalation, labor rates, level of difficulty, etc.

As you are comparing subcontractor bids on the Proposal Summary, keep the following contract requirements in mind:

- The prime contract requires we meet Local Labor and Business Requirements of 25%.
- Company policy requires payment and performance bonds on all subcontracts over $50,000.
- Silica provisions are being enforced and OSHA is looking to make an example out of non-compliant contractors.
- There are security clearance requirements for this project and workers are required to be badged. While this may not necessarily be quantifiable monetarily, the requirement could result in ineligible trade partners.
- The sheriff's department does not allow weekend work.
- Please note bids were due February 6, 2019 @ 2pm.

In summary, you are tasked with finding a fully comprehensive trade partner. The lowest bidder is not always the right answer, so if you aren't familiar with them, sometimes it's prudent to seek out a reference. It is your job to compare complete scopes to determine the correct value to carry. If a contractor has not included a certain cost/scope use Blue Numbers. Blue Numbers are estimated values derived by your estimating team or through values provided by other

subcontractors that did capture the scope and provided a breakout number. These numbers can be plugged into other bidders quotes to complete the scope. Red Numbers (Negative Plug Numbers) can be used for the opposite of a Blue Number when a subcontractor includes too much scope and a deduction is needed to get to the right scope to accurately compare bids.

The subcontractor proposals are included in Section X.4.2. Carefully read through each proposal and fill in the missing line items on the Bid Tabs provided in Section X.4.1, using blue and red numbers where necessary. Once you have completed your review, select a trade partner and indicate the total cost by circling the complete value of the required scope of work.

You will be allowed to briefly interview each subcontractor "by phone" to ask general scope questions not already included in their proposals or to clarify inclusions or exclusions within their proposals. A representative for each trade will visit your room between 2:30 PM and 7:00 PM. Each trade will be represented by a separate member of the Hensel Phelps team, giving you the opportunity to interview multiple subcontractors at once. You will be allotted ten (10) minutes to conduct all your interviews. Please note that this is intended to be a realistic exercise. Your subcontractors may be rude or evasive; but keep in mind, this is not an attempt to frustrate the team, but rather to represent the real difficulties encountered in real-life purchasing scenarios.

Proposal Summary Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies in (Excel) of each proposal summary for Part A with all subcontractor cells filled in and the selected subcontractors total value circled.
2. Submit one (1) hard copy and two (2) electronic copies with a brief narrative for each of the (4) scopes (500 or less words in total) explaining why the subcontractor for each scope was chosen.

ANSWER: Reference Proposal Summary (Tab Analysis) Section X.4.2.a and key points below for each trade partner selection.

Earthwork:

- ***"ABC Aggregates" – Second High Bidder (Red number needed for Structural Fill, Blue number needed for rock trailer)***
- ***"Dirt Lovers" – Highest Bidder***
- ***"Mother Nature Movers" – Low Bidder (Red Number for Structural Fill)***
- ***"Tonka Toys" – 2nd Lowest Bidder (Red Number needed for Concrete and associated AB)***

Structural Steel:

- ***"Steel Improvement" – 3rd Lowest Bidder, unreliable subcontractor.***
- ***"Prosperity Construction –2nd Lowest Bidder with complete scope (Red Number needed for Forklift, used 28K Forklift in lieu of crane saved $30K)***
- ***"We Can Fix It Steel" – Low Bidder, not able to bond***
- ***"Steel Academy" – Highest Bidder***

Masonry:

- ***"Master Builders" – 2nd Lowest Bidder with complete scope.***
- ***"Block It Up" – High Bidder after correction to add reinforcing for enhancements (They only had block in their original number).***
- ***"The Block Champ" – Lowest Bidder with complete scope (not willing to go through badging and security clearance nor follow OSHA's silica provisions)***

Mechanical:

- ***"Cool Runnings HVAC" – Low Bidder with complete scope (Has temporary interior building condition in their base number)***
- ***"Sea Breezie Mechanical" – Second High Bidder (Blue Number needed for Fire Stopping and Interior Building Conditioning and Condensate Piping)***
- ***"Ice Box LLC" – Lowest Bidder with least amount of captured scope (Blue Numbers needed for majority of check questions.) Highest Bidder afterwards.***

5. SCHEDULE

Written by Eric Freedman & Jon Peltz

PART A: CPM Schedule

As the Project Superintendent, one of your key roles is to develop a comprehensive CPM Schedule which will be submitted to your Upper Management for review. You know a lot of work is ahead of you which requires detailed thinking and understand of how to properly build the Project. Your schedule will contain high level and detailed planning to guide your field and office team in delivering a successful project.

The project schedule is a fundamental tool utilized to properly plan and manage any project. A well-developed schedule will communicate and direct all parties along the path to completion and success. The CPM will effectively outline your plan of attack to execute the project.

This schedule shall be formatted and comprised of the following criteria:

A. Presentation Criteria
   i. Column Format
      a. At a minimum show the following columns to the left of the timescale (Gantt Chart): Activity ID, Activity Description, Original Duration (OD), Start, Finish, and Total Float (see Figure “A” example below).:

Figure A:

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float

   ii. Activity count: No less than 275 and no more than 500 activities.
   iii. There should be a continuous logic flow of critical path activities from the Notice to Proceed through Final Project Completion.
   iv. Organize your activities so they are easy to read, grouped intuitively and follow proper sequence to present a nice schedule “flow.”

B. Work Breakdown Structure (WBS)

In order to maintain flow and composition, schedules are typically organized by a WBS. The WBS is the outline of a schedule and acts as an umbrella to capture the theme or specific nature of an activity set. A WBS can contain multiple layers and subsets to aid in the organization of the activities, or it can be simply based on the structure and complexity of the schedule.

You will need to elaborate within the base WBS as much as required for the schedule to reflect the activity tasks you create and to convey specific scopes of work. This could mean area delineation, scope break out, etc.; however, you must keep the base WBS per your General Superintendents instructions:

i. Contract Milestones with Interim Milestones
ii. Preconstruction Schedule
iii. Construction Schedule
iv. Closeout

The following (i. – iii.) is the base WBS provided by your General Superintendent. There are Maximum Working Days (MWD) shown after certain WBS for assistance, which you are not required to match to the exact day; but they serve as a duration guide. Each WBS should contain a breakdown of activities which will demonstrate your knowledge of the entire project, its systems and subsystems to ensure a complete functioning buildout of the Solano County CVTC. Several WBS subcategories have been provided to assist in the building of your schedule. Remember, this only serves as a guideline, you will need to further detail the WBS as necessary and most importantly incorporate the activities required to show the full flow of work from start to finish.

i. Milestones (Constrained Dates)
   a. NTP to Substantial Completion is 393 calendar days
   b. Notice to Proceed (February 11th, 2019)
   c. Interim Milestones
   d. Substantial Completion (March 10th, 2020)
   e. Final Completion (April 10th, 2020)

ii. Preconstruction
   f. Buyout
   g. Submittals
   h. Procurement

iii. Construction
   i. Mobilization
   j. Site/Earthwork
   k. Building
   l. Commissioning

iv. Closeout

C. CPM Schedule Body Breakdown

i. Calendar:
   a. The schedule should be on a standard 5-day work week calendar and should account for all state of California non-work days (holidays).
   b. The following Figure “B” anticipated rain day calendar will need to be accounted for and applied to any/all activities that rain could potentially impact:

Figure B:

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Rain Day(s)	5	6	8	1	4	2	0	0	0	3	4	7

   - 40 Days of rain shall be incorporated for the entire duration of the project (within the NTP to Final Completion Date).

   c. There will be no overtime or Saturday’s available to work due to prison regulations

ii. Milestones:
   a. Notice to Proceed (NTP) - The Notice to Proceed date marks the date that the contract between you and the Owner has been issued. This will be the date utilized for the start of the contractual durations. This will also provide the date for when actual work on the project

can begin, such as buyout, preconstruction and mobilization for construction.

b. Substantial Completion - Substantial Completion is defined as "the building can be used for its intended purpose." To satisfy this requirement, all construction activities shall be substantially complete, the building systems must be energized and operational, and all code required inspections must be complete including the State Fire Marshal sign-off for Temporary Certificate of Occupancy. Final commissioning and punch list activities are required to be complete.
c. Final Completion - Final Completion designates the date that trainings, close out documentation and final billings (Subcontractor and Owner) have been completed and submitted to the Owner.

iii. Buyout and Scope Purchasing:
   a. Hensel Phelps will need to sign up subcontractors to perform various scopes of work and will need to ensure that this subcontractor is capable to perform the work needed.
   b. Assume the estimating department cannot buyout all scopes of work during the same time, however, there may be opportunity to purchase similar scopes concurrently.
   c. Assume 10 workings days to allow for Buyout scopes noted below. You may need to add additional scopes to facilitate any submittal requirements.
      - Metal Structure
      - Fire Alarm
      - Mezzanine Structure
      - Fire Sprinkler
      - HVAC Units
      - Security Glazing
      - Security Electronic Systems
      - Detention Doors and Frames
      - Detention Hardware
      - Electrical System

iv. Submittal Preparation, Review & Approval:
   a. Submittal preparation and review allows time for your subcontractors to provide you with the product data (PD) and shop drawings (SD) related to their material and scope of work that they plan to utilize on the project. This time is also utilized for Hensel Phelps, the Design Team and Owner to review the submittal information for design compliance and acceptance.
   b. Assume a minimum period of 10 working days for subcontractors to create submittals, 5 working days for internal review of submittals, 5 working days for submission and review to Architect/Engineer, and 5 working days for submission and review by the Owner/Fire Marshal (AHJ). Note that some submittals maybe a longer duration to generate and some may be shorter, it is your discretion to change the duration, but be sure it is a well thought out decision.
   c. Provide Submittal activities for the following scopes:
      - Metal Building Structure Submittals
      - Doors, Frames and Hardware Submittals

- Light Fixture Submittals
- Glazing Submittals
- Metal Stairs Submittals
- HVAC Unit Submittals
- Electrical System Submittals
- Fire Suppression Submittals

v. Material Procurement:
   a. Material procurement is a very important aspect of any Project. In many cases, the material can't get on site fast enough to facilitate the Schedule. Before a Subcontractor can start material procurement, you need approved submittals from the Hensel Phelps, Architect/Engineer and the AHJ (Owner/Fire Marshal). Similarly, to other sections, utilize the best activity as a predecessor to the Subcontracting procuring material. The schedule should depict material procurement (fabrication and delivery) of the following items.
      - Metal Structure (40 WD)
      - Light Fixtures (80 WD)
      - Door Hardware (40 WD)
      - Doors and Frames (60 WD)
      - Glazing (50 WD)
      - Mezzanine Metal Stairs (45 WD)
      - HVAC Units (60 WD)
      - Transformer (60 WD)
      - Switch Board (50WD)
      - Panelboards (40 WD)
      - Security System (60 WD)
      - Fire Suppression (30 WD)
   b. Material Procurement activities cannot begin until its associated Buyout and Submittal activities have been completed.

vi. Commissioning:
   a. Include commissioning activities for the following systems:
      - Security Systems
      - Electrical Systems
      - Mechanical System
      - Plumbing
      - Lighting Control
      - Fire Alarm
   b. Activities to assist in the Equipment Testing & Commissioning schedule buildout:
      - Final Start Equipment Connections/Terminations
      - Startup Equipment
      - Test and Balance Air & Water
      - Set/Install Equipment
      - Pre-Functional Testing
      - Functional Testing & Sign-Off
      - Energize Equipment
      - Fire Marshal Final Inspection & Sign-off

- Training
    i. Note: Not all activities listed apply to all systems and they are not in sequence order. As the builder, you will need to apply all applicable activities to the necessary equipment / systems prior to their startup and testing. You can group certain activities as you like, but they need to be clear.

D. General schedule buildout and activity notes for assistance:
    i. Punch List
        a. Before you can punch a space, you need to ensure you complete your "Work to Complete". A 'Work to Complete' list is generated by Hensel Phelps and identifies all remaining items the Subcontractors need to install prior to Owner/Architect Punch List.

PART B: Time Impact Analysis (TIA)

Time Impact Analysis (TIA) is a scheduling technique used to assess and quantify the effects of an unplanned event, namely a change which increases the work scope, but can be used in other ways. A TIA can also be used to evaluate potential impacts to the schedule for acceleration or delay. In order to perform the TIA you need to follow the below steps.

1. Complete the CPM Schedule in Part A.
2. Create a copy of the CPM Schedule in Part A and incorporate the impacts below.
3. Evaluate the impacted Schedule. Review the critical path of the project, total float and free float to help determine the overall impact on the project.
4. Document the impact to the schedule using the TIA template provided in Section X.5.1.
5. Provide a narrative to the impacts observed on the project schedule in Section X.5.1.
6. Develop a mitigation strategy to recover lost time in Section X.5.1.
7. Provide a narrative of the mitigation strategy the Project team is proposing in Section X.5.1.
8. Provide a narrative conclusion of the overall impact, mitigation strategy and final time extension on the substantial completion of the Project in Section X.5.1.

(TIME WARP TO SUBMISSION OF STRUCTURAL STEEL SHOP DRAWINGS TO THE SFM. CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS)

The project team is coordinating and finalizing structural steel shop drawings with the Trade Partner and design teams for approval by the State Fire Marshal's (SFM) office.

After working through the design team's review, the Shop Drawings were ready to be submitted to the Fire Marshal's Office for final review. Unfortunately, the project team was informed at time of submission that the review process is experiencing major delays due to the large influx of projects currently in review and staff shortage due to California Wildfire support. To expedite reviews the Project team decided to split the packages into Building A, Building B, and the mezzanines. Building B and the Mezzanines were reviewed in time to support the schedule, but the shop drawings were delayed on Building A by 90 calendar days.

Prepare a Time Impact Analysis (TIA) for preparation to the Owner explaining the delay and provide justification for a time extension to the schedule. Your team should consider any mitigation measures allowable per contract and propose the best solution to minimize the length of the schedule extension.

Schedule PART A Deliverables:

1. Submit two (2) electronic copies of the Full Baseline CPM Schedule in Native File Format (i.e. XER file).
2. Submit one (1) hard copy and two (2) electronic copies (PDF) of the following CPM Reports:
    a. Full CPM with no WBS: Filtering all activities sorted by start.
    b. Primary Critical Path with no WBS: Sorted by start date.
    c. Full CPM with WBS: Sorted by start date.

Schedule PART B Deliverables:

1. Submit one (1) hard copy and two (2) electronic copies (.xls) of your Time Impact Analysis (TIA).
    a. Time Impact Analysis (TIA) Completed Template X.5.1
    b. CPM Schedule Report Showing the Impacts
    c. Impacted CPM Schedule .xer file

ANSWER:

PART A – See Section X.5.A.2.a.a, X.5.A.2.b.a and X.5.A.2.c.a

PART B – See TIA Answer Packet Narrative in Section X.5.B.1.a.

6. COORDINATION OF WORK

Written by James Johnson

(TIME WARP TO CONCRETE PREPARATION AND DEVELOPMENT OF LIFT DRAWINGS. CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS)

You are the field engineer responsible for placing the concrete footings for Building B only. One of the activities that needs to be complete prior to placing concrete is to ensure all concrete footing requirements are coordinated for the metal building columns and the mezzanine system approved as a bid enhancement by the Owner. Coordination of these requirements is typically done by lifting information from multiple sources and compiling them on one drawing, known as a Lift Drawing, for use in the field. The importance of this drawing is to ensure that all material being installed does not interfere with other trades potentially causing conflict or schedule delay in the field.

Through the pass down from your Area Superintendent you come to understand that the mezzanine system shown in the contract documents is diagrammatic and the requirements for the mezzanine system are specific to the system included in our proposal to the Owner. Therefore, extensive coordination will need to be done between the building footings and the approved mezzanine submittals to ensure mezzanine footings are sized appropriately and coordinated in the proper locations.

1. Utilizing the structural drawings within Section X.6.2, and the approved shop drawings for the mezzanine system included in Section X.6.3 show the location and size of all required footings for the project. Your lift drawing shall be compiled on the template provided in Section X.6.1. At a minimum your lift drawing should include the following items:

    a. All grid lines shown in the contract documents
    b. Sizes of all spot footings and exterior wall footings
    c. Elevations to the top of all footings on the floor plans
    d. Dimensions from grid lines to center line to locate all spot footings
    e. Any and all details lifted from the contract drawings needed to build the footings
    f. Assume the elevation of SOG is 100’
    g. List all reinforcement requirements for each footing

Coordination of Work Deliverables:

1. Submit one (1) 11” x 17” hard copy and two (2) electronic copies (pdf) of Section X.6.1 depicting locations and size of all building, building column, and mezzanine column footings.

ANSWER: See Section X.6.1.a.

7. CHANGE MANAGEMENT

Written by Kyle Nelson

(TIME WARP TO START OF UNDERGROUND UTILITIES. CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS)

Your project team has mobilized, and you have started pushing forward with the underground utility work that occurs early on in your construction schedule. Can-U-Dig-It LLC (CUDI), your underground utility subcontractor, is one week into their scheduled install duration and have completed their layout and survey. This morning Willy, their onsite foreman barges into your office with an announcement…"We got a problem!"

Willy proceeds to explain that after completing their survey of the existing utility tie-ins and starting some of the initial trench work for the sanitary sewer (SS) lines, they found that the current design does not provide enough slope for the SS to tie-in to the existing sewer main. Your team investigates further and confirms Willy's analysis that in some locations the slope shown for the SS line in the drawings does not conform to the plumbing code requirement of having 2% minimum slope to allow sanitary waste to exit the jobsite.

You need to notify the Owner and get your findings to the design team immediately, so the team can work towards a constructible solution.

PART A: Submit an RFI

Submit an RFI to the design team on the provided RFI form (Section X.0.3). Outline the slope issue and reference a specific example from the drawings where designed slope will be less than 2%. Document the current stage of construction you are in and request a revised design solution. Be clear and concise. This RFI will likely accompany meetings and coordination efforts with the Owner and design team to help facilitate the best possible resolution but documenting this design issue is a contractual requirement and a timely submittal of this RFI is critical.

Note: The earlier an RFI is submitted the sooner you will be able to coordinate with and get a response from the design team and subsequently be able to review impacts with your trade partners.

CHANGE MANAGEMENT ADDENDUM 1

As expected, the design team has issued design Bulletin #1 to address the changes required to SS line. The bulletin adds a sewer lift station that pumps sanitary waste out of a new 20' deep collection well.

You have given the Owner the expected notice of cost and schedule impacts associated with this change, but it is up to you and your team to analyze, assemble and submit those impacts in a timely manner for Owner review and approval.

PART B: Finalize a Change Order Request (COR) to the Owner

Booker T. (Can-U-Dig-It's project manager) has provided you the attached change order request outlining their cost and schedule impacts to perform this additional work (Section X.7.1) Given the magnitude of the change, Booker has priced the change as an entirely new scope of work/bid. In addition, Booker has included pricing from a 3rd tier electrical subcontractor, Zapp Electric, for the electrical components associated with the new lift station. You need to review Booker's change

order as well as the change order from his electrician (Zapp) and fill in the required dollar values on the "Subcontractor" cost tab and "Summary" tab on the attached COR template (Section X.7.2).

We owe the Owner fair pricing for this change, so be sure to review Booker's pricing and ensure that is accurate, fair and captures only the added scope. You know that CUDI's cost of work for the original scope prior to this change was $95,000. Booker is scheduled to be in your office at 2:00PM this afternoon so if you have any questions related to his COR you can ask him at that time.

Your superintendent has provided a summary of the Hensel Phelps labor, materials and equipment that will be needed to facilitate this added scope (reference Section X.7.3) The costs for those items need to be included in the Owner change order request.

Create an Owner Change Order Request using the template provided (Section X.7.2). Please consider the following and note you may change the cells to conform to the requirements listed below, but be cautious when doing so:

- Review the Can You Dig It (CUDI) change order request Booker T provided (Section X.7.1) After reviewing the proposal, and confirming its accuracy, validity and entitlement, input the subcontractor's final costs into the "Subcontractor" tab and "Summary" tab on the Owner change order request form (Section X.7.2).
    - You will have an opportunity to ask Booker any questions related to CUDI's COR at your 2PM meeting.
    - Allowable Subcontractor Mark Up's on Subcontractors Change Orders:
        - Overhead and Profit: 15%
        - Bonds and Insurance: 2%
- Use the Wage Rate Sheet provided (Section X.7.4) to verify that fair rates are applied in the change order.
- Hensel Phelps will have additional labor, material and equipment costs to facilitate this change. Reference the LME summary email provided by your superintendent (Section X.7.3) and add those items to the "LME" cost tab on the Change Order Request form.
    - Allowable Hensel Phelps Mark Up's on Self Performed Change Orders:
        - Overhead and Profit : 15%
- For Owner Change Orders, contractor's fee is applied to Direct Costs, Bonds & Insurance.
- Cost of Work Contractor Bonds and Insurance is 1.1%
- Hensel Phelps allowable Contractor's Fee on subcontractor change orders is 6%.

Enter the Hensel Phelps and subcontractor costs on their corresponding tabs and ensure everything totals correctly on the summary sheet. Provide a brief narrative of the change where indicated on the summary sheet and present the final COR to your project manager for review.

Change Management PART A Deliverable:

1. Submit your RFI to the Owner via email to HPCCRENO2019@gmail.com **no later than 10:00AM.** Bring a hard copy of your RFI to the 10:00AM Progress and RFI meeting.

Change Management PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of the native format (Excel) of the Owner Change Order Request.
2. Submit one (1) hard copy and two (2) electronic copies (PDF) of the markups (if any) on the original CUDI/Zapp change order requests outlining any revisions made.

ANSWER:

PART A: See attached RFI in Section X.7.1.a

PART B: See attached Owner Change Order Request in Section X.7.2.a and Sub COR Markups in Section X.7.3.a

8. PERSONNEL ISSUES

Written by Lissette Flores

(TIME WARP TO CEILING CLOSEOUT. CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS)

Julie is a Field Engineer at the CVTC project. Her scope of work responsibilities includes everything related to mechanical, electrical, and plumbing (MEP) in the project. The project is currently in the overhead ceiling close-in phase and Julie needs to coordinate all inspections, with the Inspector of Record (IOR), to ensure completion of each scope that will soon be covered above the ceiling.

As the Superintendent for the project, John coordinates and oversees the project in the field. Over the past three weeks, John has noticed inconsistencies with Julie's performance and has persistently asked her to have all ceiling inspections completed before the scheduled date. One of John's biggest concerns is that Tile All (the acoustical ceiling subcontractor) will arrive on site in a week and all inspections must be approved before their arrival.

A week later, John received an angry phone call from Kent the Tile All foreman. Kent ranted about how Julie had e-mailed him a color-coded map of the only areas where he could place the ceiling tile, however, this new map would delay him substantially since he would have to drop tile out of sequence. He also told John that if this issue was not resolved, he would reassign his crew to another project. Confused by the call, John went back to the project files and noticed several inspections still open. He approached Julie and she explained that there had been some delays with the electrical subcontractor, but she was working on getting everything completed for re-inspection.

As John went on with his day, he overheard a conversation between Tony, the electrical foreman, and Julie. Julie explained to Tony how critical it was for him to increase his manpower to finish his overhead work. During this conversation, John could hear Julie's frustration and Tony's lack of responsiveness as he blatantly ignored her requests and argued that these critical dates were news to him. Tony also mentioned that it would be easier if Julie approached him earlier in the day instead of bringing this up at 10 AM when his crews have already been directed to work. John later learned, from another Field Engineer, that Tony had been ignoring Julie's requests for the past two months as he did not appreciate that a younger engineer would direct him to do his work. Tony's attitude towards Julie was frustrating and undermining her confidence. In an effort to thwart the problem with Tony, she started relying on emails for the items that needed to be addressed, instead of talking to him directly and having the opportunity to establish rapport with Tony.

PART A: Julie – Field Engineer

In less than 300 words elaborate on three things Julie, as a field engineer, could do to ensure she is able to clearly communicate her expectations to Tony on the work that needs to get accomplished within the set schedule. Include steps Julie could follow to establish a working relationship with Tony. Please consider that Tony's dismissal of Julie may have to do with external reasons such as financial issues, crew downsizing, etc.

PART B: Kent – Tile All Foreman

John requests Julie sorts up the situation with Kent to ensure he stays on site while she finishes closing the inspections.

In less than 150 words describe how Julie could approach Kent's concerns by bringing up three items he could start working on that do not involve covering the ceiling with tile.

Use the Tile All Contract, found in Section X.8.1, to understand what their scope of work includes and use it to develop your answer.

Personnel Issues PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of the narrative.

Personnel Issues PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of the narrative.

ANSWER: The underlined items are examples of the key points that should be addressed. Note that the answers below are guidelines and answers that are equivalent or superior will be evaluated for full points.

PART A:

Julie needs to ensure she has established a working relationship with the people she has to interact with on site. She can do so by introducing herself and finding common ground. There are plenty of opportunities Julie can utilize, including safety walks, quality inspections, progress walks, etc. Building rapport allows Julie to bring up issues without them being the only type of interaction between her and others.

It is critical that Julie is on site first thing in the morning, ideally before the crew. She can then set expectations with the foreman regarding the priorities for the day. Supporting documents (i.e. schedules) can aid in her requests. Julie should be assertive and guide the crew toward an approach that will lead both sides to success.

Julie should work on ensuring most of her interactions with the foremen are in person rather than e-mail. E-mails are a great work resource, but foremen on site may have minimum access and Julie should not depend on the foreman's office to transmit this information. She has a huge advantage by being on site and having the ability to communicate her needs directly.

Julie can also gather information on Tony's production, delays, etc. to understand what the issues are that may be causing him to delay to the work. She can then aid Tony in resolving these issues.

Another approach is to have Tony suggest a solution. Julie should understand that her best resources are the people in the field that simply have more experience. She could ask Tony how he foresees finishing his work and what his plan is to meet the schedule. This may include reviewing manpower and productivity while discussing limitations and roadblocks. This is a way to indirectly guide Tony to focus on the critical items and to keep Tony accountable.

PART B:

After reading over Tile All's subcontract and getting familiar with their scope of work Julie should have a conversation with Kent, preferably in person. If Kent is offsite, she should give him a phone call and leave e-mail as her last resource. She should assure him that she is diligently working on completing the inspections for him to start closing up ceilings. She can then work with Kent to develop a solution that works for both, doing so by giving Kent examples of all the areas he can begin working on, such as:

- ***Dropping flags for electrical***
- ***Survey and layout for the grid suspension system***
- ***Installation of the grid suspension system***
- ***Installation of all ceiling hanger and splay wires***
- ***Installation of all lateral and seismic supports***

All these activities are done prior to installation of ceiling tile and can be done concurrently with other trades.

9. SAFETY

Written by Royce Pasalo

(TIME WARP TO INSTALLATION OF MASONRY. CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS)

Respirable Crystalline Silica Construction Standard

Hensel Phelps strives to be an industry leader for safety in construction. By providing training for our craft and salary personnel, our project teams are more knowledgeable and capable to perform work and manage scopes efficiently. With the enforcement of the Occupational Safety and Health Administration's (OSHA) New Silica Standard in full swing, Hensel Phelps is determined to ensure that all our projects stay up to date with the new safety requirements. However, some trade partners are not as prepared for the more stringent regulations that are now being enforced.

You are the Area Superintendent responsible for the Masonry scope and a new subcontractor has been signed up for the project. As the job prepares for their mobilization, you were tasked to review their Masonry Silica Exposure Plan. As masonry involves many tasks, equipment, and material that exposes workers to respirable silica, you have concerns that their exposure plan does not provide the proper planning and assessment of their day to day operations in order for their team to be successful.

Review the Masonry Silica Exposure Plan (Section X.9.1) for compliance with the new Silica Standard and provide comments and feedback to discuss with their superintendent. The comments should be specific to each section and marked up on the plan to indicate what information and tasks are missing or required to be included. You may reference OSHA's Silica Standard 29 CFR 1926.1153 for more information.

Safety Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of the reviewed Silica Exposure Plan. Please have your comments and feedback marked in red on the deliverable.

ANSWER: See Silica Exposure Plan in Section X.9.1.a

10. SITE UTILIZATION

Written by Dave Canada

Site utilization plans play an integral role in construction by enabling the pictorial representation of both permanent and temporary facilities on site. Effective plans clearly communicate the flow of vehicles, equipment, and personnel, while allocating adequate space for both material laydown and assembly areas. Conversely, a poorly assembled site utilization plan will yield severe downsides to the schedule and budget due to double handling of materials and crew inefficiencies.

PART A: Create a Site Utilization Plan

The project has just started installation of deep underground utilities (reference Sheets C400 and C401). Once this work is complete, the project site will be filled with 2 feet of engineered fill under all hardscape areas in preparation for subsequent slab on grade activities and structural steel erection.

Demonstrate your ability to manage and plan a well-coordinated site by providing a site utilization plan to the Owner for the deep underground utility phase. Make sure you locate trailers, material laydown, and other temporary facilities in a manner that provides your project team the ability to adapt to the work as the project progresses. Having to relocate material because it is in the way of trades trying to install of work is neither cost nor schedule effective. An accurate and flexible site utilization plan is key to the success of the project.

Section X.10.1 for a preliminary site utilization plan depicting the following:

1. Property line
2. Future chain link fence
3. Site fencing and gates
4. Extent of hardscape areas

Use Section X.10.1 as a template to illustrate the site utilization plan.

SITE UTILIZATION ADDENDUM 1

PART B: Analyze Site Impacts of Design Change

In response to your RFI regarding the sewer slope issue, the design team has issued a design bulletin illustrating a new plan for sanitary sewer routing (Reference Addendum1 Change Management section 7 above). The new design adds a sewer lift station that pumps sewage out of a new 20’ deep collection well. The installation of the new lift station increases the Can You Dig It (CUDI) schedule onsite by 2 months.

As stated in the original Site Utilization section, the planned sequence of work install was to complete deep underground utilities, fill the site with 2 feet of engineered fill, proceed with slab on grade activities and lastly start structural steel erection.

This sudden turn of events has a drastic impact on the project schedule and the sequence in which your team decides to install the building steel and deep underground utilities. You must choose one of the three options below in response to this news.

Option 1: Prioritize Below Grade Utilities and SOG Placement for Steel Erection

In this scenario, your project team has decided to finish the utilities under the building footprint then roll into spot footings with anchor bolts in preparation for slab on grade (SOG) concrete at each building. Once SOG concrete is placed, your team will commence erection of the structural steel.

This will result in a short-term delay of 2 weeks as your team brings in the 2 feet of structural fill for just the building pads to start below grade utilities and excavation for footings. While the overall impact to the critical path is relatively small with this option, it will be extremely difficult for your team to recover time and cost for the days lost when transitioning from deep underground utilities around the site to below grade utilities under the SOG.

Option 2: Prioritize Deep Underground Utilities

In this scenario, your team has decided to focus all efforts on the installation of the deep underground utilities. No other work will commence until this work has been completed, however once completed, work onsite will continue as originally sequenced.

This will result in an immediate delay to the project schedule as your team works with the Owner, Design Team, and IOR to redesign the sewage system so that it is code compliant. It will be difficult for your team to recover the time and money associated this two-month delay. However, if you can successfully argue your case with the Owner and the schedule flow remains unchanged, your team will not have to frantically scramble to try to coordinate the install of the steel or the mobilization of other trades.

Option 3: Proceed with Both at the Same Time

In this scenario, your team has decided to install the deep underground site utilities concurrently with the utilities under the building footprint, spot footings, and SOG. In this option, the timing of the 2 feet of structural fill needs to be analyzed. Do you bring in all the fill for the project site and sort material for deep underground trenching activities or do you just bring in fill for the building pads? The time impact of going with this option will be less than option 2, but there will be increased subcontractor inefficiencies due to open trenches and trades working on top of one another. Because there will be lots of big equipment, deep excavations, and open trenches around the site, this option is the least safe for all parties.

Review each of the options above and email your project manager outlining which option you feel would be best for the overall project considering safety, schedule and budget. Include in your email a markup of your site utilization plan and how the option you choose will affect access, deliveries, barricading, etc. around the site.

Prior to making your decision, please note the important milestones regarding structural steel installation (the critical path of the project):

1. Structural steel is currently under fabrication and will be delivered to the Project site mid-October.

2. There is not enough room onsite to store the steel, so delaying steel installation past this date will result in cost implications and/or double handling of material if the steel is to be temporarily stored at an offsite location prior to coming onsite.

3. The steel subcontractor has budgeted to use a large 24k gradall to set the steel for each building. In lieu of the forklift, you can decide to pay the steel contractor to setup a crane onsite., Location of the crane set-up is critical. If you decide to set it up on site, you will be impacting the sanitary sewer install. If you try to negotiate a set-up on the adjacent Stanton facilities parking lot, you will need to consider your impact to the operations of an active detention facility. You will receive quicker production from the crane, however cannot use the crane if you also decide to choose option 3 above.

Site Utilization PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of your site utilization plan for the earthwork phase of the project. Include a narrative explaining your utilization plan and how you were able to determine sizes and quantities of facilities. **Please note that this deliverable must be submitted at the 10AM meeting.**

Site Utilization PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies of your email and illustration outlining what option listed above you choose and why.

ANSWER: See Section X.10.a.

11. QUALITY CONTROL

Written by Alexa Watanabe

(TIME WARP TO AWARD OF PROJECT, PRIOR TO CONSTRUCTION START. CONSIDER THIS SECTION INDEPENDENT OF OTHER SECTIONS)

One crucial aspect of being a successful builder is to ensure all systems and scopes of the project are working cohesively and being coordinated with one another. Hensel Phelps prides ourselves on being able to identify and neutralize potential project risks. One of the ways this is achieved is through submittal review to ensure design and constructability issues are flushed out prior to start of work to minimize the cost impacts of rework and schedule delays.

PART A: Shop Drawing Review

One of the Best-Value Enhancements that was chosen by Hensel Phelps to incorporate into the project scope were the mezzanines located between the vocational training bays. The mezzanines are composed of metal decks with wood sheathing supported by structural steel. As the office engineer overseeing structural steel on the project, you have just received the mezzanine shop drawings and are responsible for reviewing them to ensure that what is fabricated is properly coordinated with the surrounding design of the building. It is important to perform a thorough review of the shop drawings and mark up any revisions onto the submittal that must be implemented, so that these revisions can be picked up within the final fabrication of the mezzanines.

Your Project Engineer mentions to you to be sure to review ADA accessibility requirements are being maintained at the areas where the mezzanine stairs align with the classroom and facility entrances down below. For the purposes of this section, review the mezzanine shop drawing submittal provided within Section X.11.2 in conjunction with the architectural drawings provided in Section X.11.1 only for adherence to the ADA accessibility requirements outlined in the California Accessibility Quick Card provided in Section X.11.3. Focus your review only to the mezzanine which is located between gridlines 10 and 11.1. Provide any comments regarding items not currently meeting ADA accessibility requirements directly onto the submittal.

PART B: Propose Solutions Via RFI

Once you have identified the area(s) at the mezzanines that do not currently meet requirements for ADA accessibility, draft a Request for Information (RFI) to address these item(s) to the architect to clarify any necessary design revisions that must be implemented. In your RFI, be sure to include the location of item that is being described, what the conflict is, and a proposed alternative that not only provides a code-compliant solution but also minimizes cost and schedule impacts. It may be helpful to include sketches or snapshots of the areas discussed in order to create a clear picture of the items in question and their proposed solutions. Utilize the RFI Template provided in Section X to write the RFI.

Quality Control PART A Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of PART A: Shop Drawing Review.

Quality Control PART B Deliverable:

1. Submit one (1) hard copy and two (2) electronic copies (PDF) of PART B: Propose Solutions Via RFI.

ANSWER:

PART A: See Shop Drawing Submittal Review in Section X.11.2.a

PART B: See Proposed Solutions via RFI in Section X.11.4.a

12. TEAM MEMBERS RESUMES

Provide each team members personal resume (not a resume tailored to this problem). Include mailing address, telephone and email contact information. Photos are encouraged but not required.

VII. COMPETITION SCORING SYSTEM

Item	Description	POINTS
0.1	Early Deliverable - Biographies	0 (note 1)
0.2	Quality of Submitted Proposal	2
0.3	Timeliness of Proposal	0 (note 2)
1.	General Summary Report	8
2.	Estimate	16
3.	General Conditions	10
4.	Proposal Summary	14
5.	Schedule	20
6.	Coordination of Work	8
7.	Change Management	10
8.	Personnel Issues	6
9.	Safety	6
10.	Site Utilization	14
11.	Quality Control	6
Subtotal		120
Oral Presentation		80
GRAND TOTAL		200 POINTS

Note 1: No points shall be issued in the competition for content of this previously due item; however points may be deducted from the team's score for having failed to comply with this item in a timely and professional manner.

Note 2: **½ point** will be deducted from the total score for **every minute** past the deadline time. Judges reserve the right to "cap" the penalty amount at their discretion; however, no team with a penalty cap will be allowed to place in the competition awards.

As the team placement results often are separated by mere fractions of a point, it is recommended that your team take each point seriously. No points scoring information will be provided to the teams at the conclusion of the competition, but feedback will be provided for each component in an "above-average / average / below-average" format.

VIII. LIST OF JUDGES

Oral Presentation Judges:

Sean Carolan, Operations Manager
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David Canada, Area Superintendent
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Nadine Rivera, Field Engineer
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Alternates:

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Lissette Flores, Field Engineer
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Northern California District
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Administrator / Executive Judge:

Ryan Piper, Operations Manager
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rcpiper@henselphelps.com
Pacific Northwest Area Office
15375 SE 30th Place, Ste 110
Bellevue, WA 98007

IX. THE RULES

The rules for the competition are designed to provide each team with an equal opportunity to apply their knowledge in developing their respective solutions and an equal opportunity to present their solutions to the panel of judges. The following rules apply to the Commercial Division and serve to supplement the ASC Competition Rules.

Rule No. 1 One (1) hard copy and two (2) electronic copies of the proposal must be turned into the judges. Two (2) thumb drives will be provided at the start of the competition for your use. Your final submission must be submitted on the provided thumb drives. No proposals will be formally returned. If you desire a copy for yourself or need one for your oral presentation preparation, please make copies prior to the submission of the proposal. Some proposals may be available for students to re-claim at the conclusion of the competition but may have marks from the grading effort in certain sections.

Rule No. 2 The equipment usage for each team is to be as outlined in the Competition Rules as published by the ASC. Use of the Internet is allowable and may be necessary for certain components of the problem; Hensel Phelps will pay for each team to have one (1) internet connection through the hotel for Thursday only. Wireless access coupons will be distributed at the opening conference. Any additional equipment required for a presentation is the responsibility of the team. If your presentation requires specific software you must provide your own computer or inquire as to its availability on the provided computer.

Rule No. 3 The problems that are used for the competition are drawn from actual construction projects. In the past, there have been situations where student team members have worked on, or have specific knowledge of, the project that is the subject of the problem. This can be perceived as giving the team an unfair advantage in developing a solution. If, upon receiving the problem, any student recognizes the project that is the subject of the problem statement, the student shall notify the problem sponsor to discuss the extent of the student's project or problem knowledge. Alternates may be considered should there be an identified conflict. The judges will have the final decision. Failure to notify the problem sponsor makes the team subject to disqualification.

Rule No. 4 While the judges will endeavor to administer the problem with all fairness and appreciation for the team's perspectives, the decisions of the judges shall be final when deciding conflicts and scoring.

Rule No. 5 A one-half (½) point deduction will be taken for each minute the proposal is turned in past the time it is due. Written proposals are due Friday at 12:00AM (Midnight Thursday night). Location of proposal delivery will be announced at opening conference. Other deliverable items, if applicable, will be due as specified elsewhere herein.

Rule No. 6 Oral interviews will begin at 7:00 AM on Friday, February 9th. Presentation materials for all teams are to be turned in to the Judges by 6:45 AM. No other presentation material will be allowed into the presentation that is not turned into the judges by this time - NO EXCEPTIONS WILL BE ALLOWED. Teams are encouraged to bring electronic presentation materials on a CD or thumb drive for use on the Hensel Phelps provided presentation computer; this will save on set-up time. Hensel Phelps' computer will utilize Microsoft Office 2013 software; if specialized software is necessary then the team must provide a computer to run their presentation and this computer must be delivered prior to the 6:45 AM deadline.

Rule No. 7 No phone calls or emails may be made to the Owner, Construction Manager, Architect, Civil, or Structural Engineer, or any other design consultants listed on the Drawings. Similarly, no components of the problem may be sent to others outside the team for assistance in completing the problem. Any violations of the above are subject to point penalties or team disqualification, at the Judge's discretion.

Rule No. 8 Due to the sensitive nature of disclosing project information that the Owner and / or design professionals may not wish to be publicly distributed, Hensel Phelps reserves the right to require Confidentially Agreements be signed by each team member prior to distribution of the Problem Statement. This may further require that all or some Contract Documents or other material provided to the team, both electronically and hard copy, be returned to Hensel Phelps at the conclusion of the competition.

Rule No. 9 The premise of the proposal and oral interview is that you are presenting to the upper management of your own company. It is preferred that your team take the identity of Hensel Phelps but other team / company names are acceptable. You are therefore asked to refrain from including extra peripheral information about your company such as safety plans, company profiles or other marketing materials. Our intent is to test you on your knowledge of construction concepts, means and methods, not your ability to make up or compile marketing materials and canned programs. Please limit your responses generally to the information requested, although innovation and enhancement is encouraged.

Any team observed violating these rules may be asked to withdraw from the competition or be assessed point penalties. These Rules are subject to change; and, the final version will be included in the Problem Statement distributed at the opening conference.

X. SUPPLEMENTAL INFORMATION

Note: Documents are provided in electronic format only on thumb drive:

X.0.1 – Drawings
X.0.2 – Specifications
X.0.3 – Request for Information Form
X.0.4 – Evaluation Form
X.1.1 – Enhancement Summary
X.1.2 – General Summary
X.2.1 – Estimate Template
X.2.2 – Ready Mix Concrete
X.2.3 – Cost Data Sheet
X.2.4 – Production Rates
X.2.5 – Epoxy Data Sheet
X.2.6 – Slab Edge & Grade Beam Details RFI
X.3.1 – GC Estimate
X.3.2 – Staffing Matrix
X.3.3 – Letter Template
X.4.1 – Proposal Summary Template
X.4.2 – Subcontractor Proposals
X.5.1 – TIA Template
X.6.1 – Lift Drawing Template
X.6.2 – Coordination Of Work Structural Drawings
X.6.3 – Approved Shop Drawings for Mezz
X.8.1 – Tile All Contract
X.9.1 – Masonry Silica Exposure Plan
X.10.1 – Site Utilization Plan Template
X.11.1 – QC Arch Drawings
X.11.2 – Mezzanine Shop Drawings
X.11.3 – ADA Quick Card – Accessibility Details