



Problem Statement for:

CONCRETE SOLUTIONS



SUNDT

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THE SCENARIO

The objective for this problem statement is to provide you with a real life experience that touches on different aspects of our business. We hope that it provokes critical thinking, displays your technical skills, presentation skills and ability to work as a team.

Sundt Construction, Inc. has been awarded the construction of a new 153,000 square foot multi-use arena for California Baptist University. The new arena is a mixture of structural concrete and structural steel. This renowned stadium will provide space for athletes, student activities and chapel programs. The project is being delivered as a Construction Manager at Risk and Sundt's Concrete Division is contracted to design-assist as part of an overall Guaranteed Maximum Price contract being undertaken by the Sundt Building Group. Selection was based on qualifications, schedule, insurance costs, fee (overhead and profit) and interview.

The problem statement will focus on the sequencing with other trades and the structural concrete for the multi-use arena. The structural concrete will be handled by Sundt's Concrete Division as a self-performing entity. Other entities are responsible for all other trades and all components to build the stadium.

There are several important constraints to the project:

- The project is located on an active college campus; tobacco and swearing are not allowed at any time. Violation of these rules will have consequences.
- Limits of construction are restricted to the area identified on the Jobsite Map.
- The university has students living on campus; all overnight work requires written permission.
- Weather throughout the duration of the project is predicted to be heavy rain.
- Given that the jobsite is located on an active campus; jobsite security is a high priority.
- All public areas are exposed concrete.

The judging panel is comprised of Sundt's Concrete Division and Building Group pre-construction and project team members.



PROBLEM DETAILS

Sundt has been successful in its pursuit of a Construction Manager at Risk project. Your team of Sundt employees has been assembled to assist the company in self-performing the concrete scope of work. The problem statement will be related to both preconstruction and construction responsibilities.

The competition teams will be expected to:

- Provide budget assistance
- Provide design assistance and constructability reviews
- Perform a quantitative takeoff
- Develop a detailed estimate
- Develop a construction/pour sequence schedule, demonstrating an understanding of concrete-related activities and sequence
- Recognize and address safety concerns and/or develop a detailed, site specific safety plan
- Develop a complete site logistic plan
- Recognize and be able to address project and ACI specification items
- Analyze forming systems and determine which system best fits the project scope items

Deliverables that are expected to be received from the teams are as follows:

- *Proposal* - At a minimum, you will be expected to provide completed Exhibits B, C and a written Safety, Quality Production Plan (Exhibit D). Include any clarifications or specific exclusions as required.
- *Schedule* - You will need to provide a schedule in Primavera P6, or other scheduling software, that details stages of construction and the sequences of concrete pours.
- *Logistics Plan* - You will be expected to develop a full site logistics plan based on the information contained within the jobsite map.
- *Presentation* - You will present your solution to the problem using Microsoft PowerPoint or a software program of your choice.

Suggested software:

- On Screen Take Off or other quantity take off software
- Bluebeam Revu
- Microsoft Office
- Revit Structure or other modeling software
- HCSS Heavy Bid or other estimating software
- Primavera P6 or other scheduling software

POINT OF CONTACT (DURING COMPETITION ONLY)

Concrete Solutions Judges

602.810.0087

asconcretesolutions@sundt.com

Other notable problem information:

- Competing teams will have access to internet at their own discretion and cost
- Points will be deducted for submitting deliverables past the stated deadlines - *1 point for every minute late.*
- A LCD projector and screen will be provided for presentations.
- Team rooms will be visited by the judges periodically on Thursday, February 7, 2019.
- Initial problem documents will be distributed via flash drive.
- Trophies and cash prizes will be awarded for first, second and third place finishing teams.
- The competition rules listed on asc67.org/rules will be strictly adhered to.
- Presentations will consist of 20 minutes with 15 minutes for Q&A. 2 points will be deducted for every minute past the 20 min allotted time.

SCORING CRITERIA

Scoring criteria will be broken down as follows

POINTS	CRITERIA
40 Points	Self-perform deliverables (Templates have been provided in electronic format.)
60 Points	Project Meeting/ Team Presentation
5 Points	Bonus – for Identifying the Concrete Solution(s)



SCHEDULE OF EVENTS

THURSDAY, FEBRUARY 7

Events as listed in ASC Schedule of Events. A meeting agenda and presentation schedule for Friday's presentations will be distributed between 1:00 and 5:00 pm.

- 7:00 - 8:00 am: Pre-bid meeting.
- 8:00 pm: Deliverables as outlined in the Problem Statement are due.

FRIDAY, FEBRUARY 8

- 6:30 am: Flash drive with presentations due.
- 7:00 am - 6:30 pm: Concrete Solutions Student Presentations
 - Presentation times will be assigned on Thursday during problem exercise.
 - Times will also be posted at meeting room.
- 6:15 - 6:55 pm: Problem Recap Meeting. *Conference room - Southern Pacific AGB*
- 7:00 - 9:00 pm: Social Event (food, drinks and prizes). *Conference room - Southern Pacific AGB*

SATURDAY, FEBRUARY 9

Events as listed in ASC Schedule of Events.

- 8:00 - 10:00 am: Student breakfast sponsored by Sundt in the Cascade Foyer.
- 8:00 am - 12:00 pm: Job Fair in the Nugget Ballroom.
- 12:15 - 1:00 pm: Awards Ceremony in Cascade.

In an effort to continuously improve the quality of this problem, a survey will be issued via email to each team member and coaches the week after the competition. Written feedback will be distributed to each team within 30 days of the competition.



SCHEDULING CONSIDERATIONS

1. The construction ground breaking is scheduled for September 18, 2019.
2. The University has demanded to occupy the stadium no later than May 1, 2021. Late turnover will result in liquidated damages.
3. The first concrete placement is scheduled for November 18, 2019.
4. Structural steel and precast concrete are both long lead items. The steel is scheduled to arrive on March 21, 2020 with the delivery of the precast concrete to follow on May 6, 2020.
5. Access to the 250 Ton crawler crane is required to set steel roof trusses after the precast stadia are installed. Failure to allow access will result in additional costs from the steel subcontractor.

Exhibit B

QUANTITY TAKE OFF

<i>Description</i>	<i>Neat Quantity</i>	<i>Waste Factor %</i>	<i>Total Cubic Yards</i>	<i>Unit of Measurement</i>
<i>Total Stadium Cubic Yards</i>				CY
<i>Grade Beams and Footings</i>				CY
<i>Slab on Grade</i>				CY
<i>Slab on Metal Deck</i>				CY
<i>Intermediate Stadia Steps</i>				SF
<i>Walls</i>				CY
<i>Columns</i>				CY
<i>Stairs</i>				CY
<i>Curbs</i>				CY
<i>Pads</i>				CY
<i>Foam for Camera/ ADA Platform</i>				CY
<i>Misc. Concrete</i>				CY

Exhibit C

BUDGET BREAKDOWN

<i>Total Budget</i>	<i>\$ Value</i>
<i>Breakdown</i>	
<i>Labor Cost without Fee and General Conditions</i>	\$
<i>Administrative Man Hours</i>	_____ MHS
<i>Craft Man Hours</i>	_____ MHS
<i>Material without Fee and GC's Costs</i>	\$
<i>Equipment without Fee and GC's Costs</i>	\$
<i>Subcontracts without Fee and GC's Costs</i>	\$
<i>General Conditions and Other Direct Cost (excluding the above)</i>	\$
<i>Taxes without Fee and GC's Costs</i>	\$
<i>Fee Dollar Amount</i>	\$
<i>Total Budget Costs for Project</i>	\$
<i>Key Indicators</i>	
<i>General Conditions/General Requirements % of Budget</i>	_____ %
<i>Fee %</i>	_____ %
<i>Supervisor Ratio - (craft to admin ratio)</i>	_____ MHS
<i>Craft Man Hours Per Cubic Yard</i>	_____ MHS
<i>Project Ratios</i>	
<i>Total Cost Per Square Foot (finish floor area, including roof)</i>	\$
<i>Total Cost Per Cubic Yard (total cubic yards for the project)</i>	\$

Exhibit D

S.Q.P.P.

Prior to the start of construction a formal plan needs to be produced that will cover three key topics:

- Safety
- Quality
- Production

The intent of this plan is to convey your expectations to your crew members. It should be presented in a way that is relatable to all levels, not just management.

Safety

This plan needs to be broken down into definable scopes of work for your project and list all of the tasks necessary to complete this scope of work. After the tasks have been established the hazards associated with these tasks and the steps to mitigate the hazards need to be identified as well. This will be reviewed and discussed with all team members.

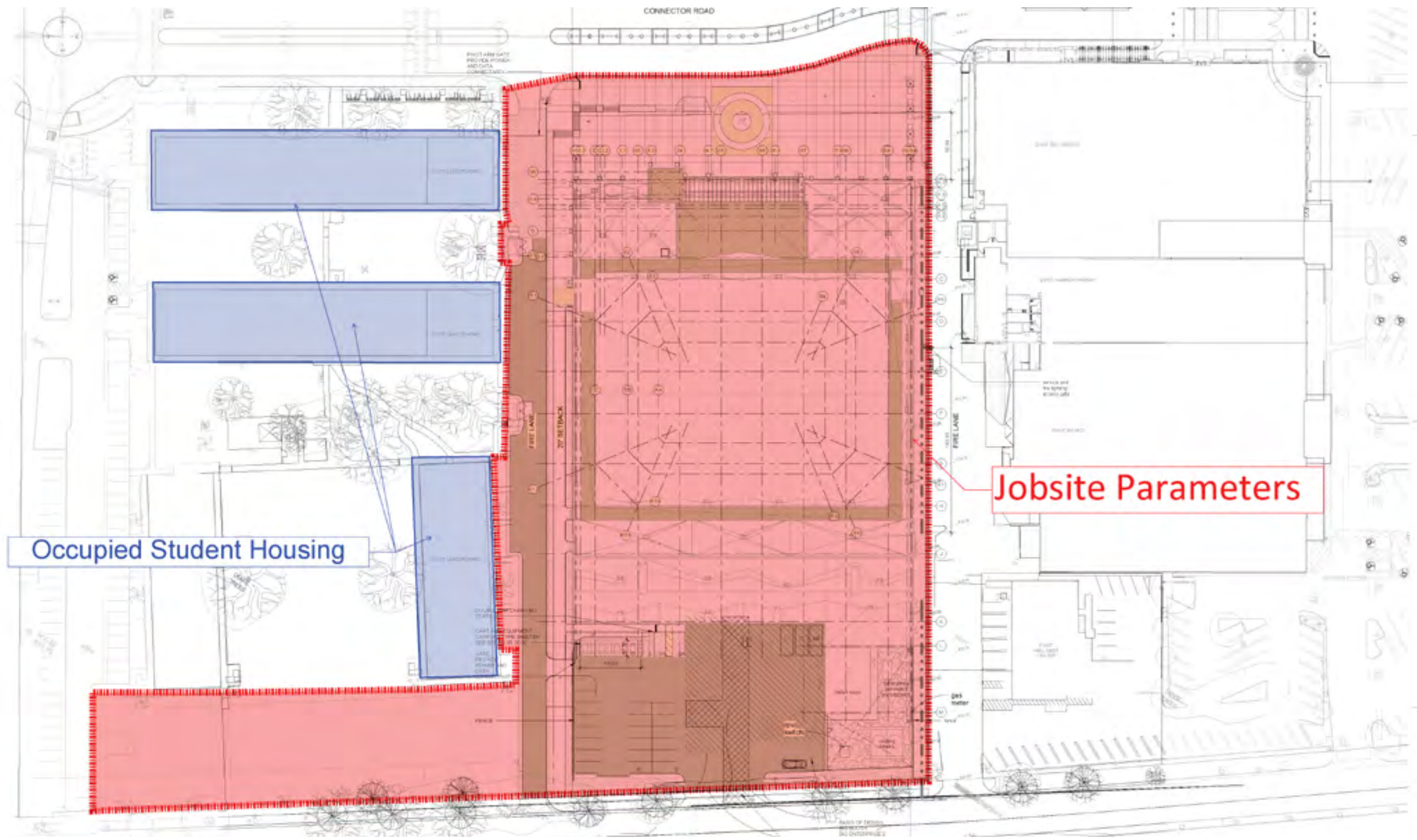
Quality

This plan should cover all key quality concerns for the project and steps to ensure nothing is overlooked. Any area with a notable potential for exposure to risk should also be identified and a plan put in place to mitigate the exposure.

Production

This plan also needs to be broken down into definable scopes of work and represent the amount of production necessary to make budget and also have set goals to increase margin.

JOBSITE MAP





EVENTS CENTER

TICKETING

LANCER STORE

LANCE UP



TER



EVENTS CENTER

LANCE UP

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