



Internal Audit Department

Aquatic and Tennis Center Audit Report

**October 2016
Report Number FY 16-12**

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Northern Arizona University
Aquatic and Tennis Complex Construction Contract
Audit Report
October 27, 2016

Summary

Northern Arizona University contracted with Haydon Building Corp. (HBC) to construct an Aquatic and Tennis Complex to replace the Wall Aquatic Center. Our audit of this construction project is included in NAU's Fiscal Year 2016 Annual Internal Audit Plan, as approved by the Arizona Board of Regents Audit Committee. New construction is required to accommodate student enrollment growth and enhance students' learning experiences. The audit links to ABOR's strategic goal of promoting student learning and success.

Background: The project is being delivered through the Construction Manager at Risk (CMAR) method. Construction administration and project management are being provided by Facility Services.

The Aquatic and Tennis Complex is used by NAU student-athletes, other members of the NAU community, and Olympic-class athletes. The facility is home to the Lumberjacks swimming and diving team and tennis teams. NAU Athletics shares and operates the facility in conjunction with NAU Campus Recreation. The 123,341-square foot facility replaces the old 50,074-square foot aquatic center. The aquatic complex includes an Olympic-size pool, separate diving pool, elevated stadium seating, dry land training area, locker rooms, and program support space. The tennis complex has six indoor courts, which are equipped with umpire chairs, benches, separation nets and backdrop curtains; and features spectator seating, a large scoreboard, and training and support space and informal lockers. The indoor portion of the Aquatic and Tennis Complex was substantially complete and opened in February 2016. The outdoor portion of the Aquatic and Tennis Complex includes six outdoor tennis courts and an outdoor multipurpose athletic field that are currently under construction and are expected to be substantially completed in October 2016. The debt service is funded from Systems Revenue and Refunding Bonds Series 2014.

The pre-construction contract agreement with the CMAR was executed in June 2013. A notice to proceed for construction services was issued in April 2014. Design professional services were provided by Sink Combs Dethlefs for \$1,998,804. Haydon's pre-construction costs were \$303,941. The guaranteed maximum price for construction, excluding pre-construction and architectural costs, is currently at \$39.2 million.

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Audit Objectives: The primary objectives of this review were to determine if:

- contract terms are applied as written;
- charges are adequately supported by actual costs incurred by the CMAR;
- the subcontractor selection process is consistent with ABOR policies;
- proposed change orders are sufficiently documented; and
- fees are applied as specified by the construction contract.

Scope: The scope of this audit was the project construction phase from inception through February 29, 2016 (Pay Application 23). We relied on Facility Services' expertise for the construction technical aspects and to determine whether NAU received the contracted scope of work. Accordingly, the audit scope did not include any on-site inspections to assess construction methods, materials, or compliance with design specifications. Facility Services provided a tour of the aquatic and indoor tennis facility.

Methodology: The audit objectives were accomplished using the current Tri-University construction audit program (August 1, 2013 edition), which includes:

- Reconciling construction payments, as recorded in NAU's financial system, to applications for payments.
- Verifying that pay applications are supported by the contractor's internal financial records.
- Performing a detailed review of transactions charged to General Conditions and other reimbursable costs to ensure they are allowable and adequately supported.
- Verifying subcontractors were selected according to contract requirements and ABOR procurement policies.
- Confirming that overhead and fees on proposed change orders are calculated consistently and per the contract. Determining whether GMP adjustments are properly approved by NAU.
- Assessing whether proposed change orders provide sufficient information to validate price-reasonableness and, where appropriate, rates are consistent with the subcontractor contracts.
- Verifying that charges for bonds, insurance, and sales taxes are documented and per the contract.
- Ensuring that usage of contingency funds and allowances are properly approved.

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The audit was conducted in accordance with the *International Standards for the Professional Practice of Internal Auditing*.

Conclusion: Construction of the Aquatic and Tennis Complex was adequately controlled by Facility Services, but opportunities for improvement exist as described in the audit recommendations. When construction of the outdoor tennis courts and multipurpose field is complete, there are several outstanding items to complete before project close out:

- obtaining final lien waivers and notices that the CMAR released retainage funds to subcontractors
- verifying that all punch list items were resolved
- confirming that liability insurance, bonds, and taxes are charged to the project based on actual costs
- evaluating project results and the performance of the CMAR.

Observation: We noted that beginning with pay application #4 for services rendered through July 31, 2014, hourly rates as authorized per the CMAR contract for CMAR's supervision personnel did not agree to hourly rates charged under general conditions. Hourly rates charged were higher than authorized hourly rates for the project coordinator, mechanical coordinator, superintendent 3 and a general employee. A change order will be issued to properly authorize the increase in hourly rates from pay application #4 to current.

Opportunities for improvement are reflected in the remainder of the report. The areas we reviewed during this audit and the status of each are provided in the following table.

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General Control Standard (The bulleted Items are internal control objectives that apply to the general control standards, and will differ for each audit.)	Control Environment	Recommendation No.	Page No.
Reliability and Integrity of Financial and Operational Information			
<ul style="list-style-type: none"> Contractor billings and change orders are supported by the contractor's job cost ledger. 	Opportunity for Improvement	1	6
<ul style="list-style-type: none"> The contractor's job cost ledger is supported by sub-ledgers that facilitate analyses and reviews, such as equipment rental charges, payroll schedules, and subcontractor payment ledgers. 	Opportunity for Improvement	2	8
<ul style="list-style-type: none"> Adequate documentation is provided to support charges made to General Conditions with the pay applications and General Conditions are allowable per the contract. 	Reasonable to Strong Controls in Place		
<ul style="list-style-type: none"> Allowances and contingencies are accurately tracked and properly approved. 	Reasonable to Strong Controls in Place		
<ul style="list-style-type: none"> Charges for indirect costs such as fees, taxes, and insurance are supported or accurately calculated. 	Opportunity for Improvement	1	6
<ul style="list-style-type: none"> Subcontractor change order proposals are submitted with sufficient information to determine price reasonableness. 	Opportunity for Improvement	2	8
Effectiveness and Efficiency of Operations			
<ul style="list-style-type: none"> The overall contract is clear, effective, and efficient to administer. 	Reasonable to Strong Controls in Place	2	8
<ul style="list-style-type: none"> Allowable costs are sufficiently defined in the contract and are efficiently processed. 	Reasonable to Strong Controls in Place	2	8
Safeguarding of Assets			
Compliance with Laws and Regulations			
<ul style="list-style-type: none"> The contract and ABOR selection process for subcontracted work is followed and the subcontracts are supported by the bid awards. 	Reasonable to Strong Controls in Place		
<ul style="list-style-type: none"> Change orders are priced per the contract and are properly approved. 	Reasonable to Strong Controls in Place	2	8

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We appreciate the assistance of the staff of Haydon Building Corp. and Facility Services during the audit.

Management is supportive of our recommendations and has actively begun working to implement their identified action items.

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Audit Results, Recommendations, and Responses

1. The invoices for builder's risk insurance and the job cost detail ledger were not provided timely by the CMAR.

Condition: Amounts paid by the CMAR for Builder's Risk Insurance could not be verified as invoices were not provided by the CMAR until the Internal Audit department requested them as part of the audit. Builder's Risk Insurance is required of all general contractors to protect the interests of NAU and contractors from physical loss or damage to materials, fixtures and/or equipment being used in the construction of a building.

Charges included on the pay applications could not be verified timely as the job cost detail ledger was not provided by the CMAR until the Internal Audit department requested them as part of the audit.

Criteria: Section 2.1.14 of the CMAR contract states: "With respect to all Work performed by CMAR and its Subcontractors and Consultants, CMAR, its Subcontractors and Consultants, shall keep full and detailed accounts and exercise such cost controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and subject to review by Owner." The General Contractor's job cost ledger provides a detailed account as it captures all costs associated with the construction project. The job cost ledger supports the contractor billings and change orders.

All construction costs should be verifiable to ensure the billings paid by NAU are accurate and complete.

Cause: Builder's Risk Insurance is charged on a monthly basis per each pay application; however, the CMAR did not provide invoices or calculations to support the builder's risk charges until the project was substantially complete.

The CMAR's failure to provide a job cost ledger in a timely fashion was attributed to problems related to an accounting system conversion during the project

Effect: Consistent with their insurance policy the CMAR calculated builder's risk monthly premiums on the total cost of the project. Builder's risk premiums as calculated by the CMAR and verified by the auditor from inception through

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February 29, 2016 were \$36,522. Builder's risk totaled \$94,940 per pay application #23, from inception to February 29, 2016. The charges per the pay applications were more than the monthly premiums; resulting in NAU overpaying on builder's risk insurance in the amount of \$58,418 as of February 29, 2016. Per the insurance policy, the builder's risk coverage extends through May 1, 2016; however, per Section 6.3.5 of the CMAR contract, coverage should be provided and maintained "until written notice of Substantial Completion from the Owner", which was February 8, 2016 for the indoor facility portion of the project.

Because two accounting systems were used, the account detail to support direct costs, indirect costs and fees could not be timely generated.

Recommendation: Facility Services should obtain supporting documentation related to Builder's Risk insurance expenses and the Job Cost Detail Ledger as the project progresses with the option to escalate when the CMAR is not providing the requested information.

Facility Services should verify the insurance coverage period against the notice of Substantial Completion for the indoor facility portion of the project and verify overpayment once the project is complete for builder's risk, which will impact taxes.

Response:

Job Cost Ledger:

Per the recommendation, Facility Services will begin requesting a fully detailed job cost ledger with each monthly payment application. It should include detail of all general conditions, subcontractor costs, and indirect costs.

Builder's Risk:

NAU will issue Haydon a deductive change order for the difference between the total amount paid to Haydon for builder's risk and the amount of their actual costs, including the offset in applicable taxes.

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2. Facility Services should improve its authorization of rates to properly verify costs charged to construction projects.

Condition: The audit identified several situations where Facility Services can improve its verification of project costs:

- a) While testing change orders, we noted most subcontractor agreements did not state labor rates. Accordingly, subcontractor labor was not supported by documentation sufficient to verify the labor rates charged were appropriate and in accordance with approved rates agreed upon between the general contractor and subcontractor.
- b) NAU did not obtain a listing of equipment expected to be used on the project for each subcontractor. The listing should include the fair market value of each item at the time it was used and is contractually required to ensure that equipment rental charges are not excessive. Because no equipment rental listing was provided, equipment rental rates could not be verified to determine if appropriate and properly authorized.
- c) Per Diem (i.e. travel and hotel) was charged by several subcontractors, however subcontractor agreements did not state approved per diem rates. Instead the contract and subcontractor agreements outlined general conditions as 10% and the fee as 5%. To be consistent with CMAR General Condition's billings, subcontractor general conditions should include per diem, but were separately billed. General conditions and per diem charged separately appear to be a duplicate charge. Both charges are then considered in the 5% fee, which result in the fee being overstated. Of the change orders sampled, we noted total per diem charged in the amount of \$6,780 in addition to the general condition percentage of 10% and fee of 5%.

Criteria: Facility Services should ensure negotiated rates are approved by NAU management. This provides authorization for amount of costs to be charged to the project by the owner. These authorized rates are instrumental in the timely verification of the costs charged to the project.

Cause: Project costs related to subcontractor labor rates, equipment rental rates and subcontractor per diem rates were inadequately outlined per the contract. Instead, Facility Services relied on reasonableness tests to verify these project costs.

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Effect: Although the existing process allows for the CMAR to negotiate lower rates, there is no consistent approval of rates to be charged to the project via initial subcontractor contract and/or change orders.

Recommendation: Facility Services should ensure the contract is appropriately updated to verify the reasonableness of all costs and distinction between subcontractor general conditions and subcontractor per diem. Additionally, with each negotiation, rates for labor, equipment and per diem should be approved by NAU. These approved rates should then be used to verify the costs charged to the project.

Response:

- a) This contract version did not specify the CMAR to require labor rates for subcontractors within their subcontracts. The reason the CMAR gave for not requiring labor rates within all subcontracts was to enable them the ability to negotiate labor rates throughout the project. Facility Services and the Design Professional review all labor rates within proposed change orders for reasonableness noting that there is a wide range of what is considered an industry standard for a labor rate (i.e. craft level labor rates for a general “laborer” may be \$12/hour whereas a typical labor rate for an elevator technician may be as high as \$280/hour). We may improve our process by including language in the contract requiring the CMAR provide labor rates for all subcontracts.

We will discuss with the Tri-U construction group including language in the CMAR contract that would require the CMAR to provide labor rates for all subcontracts.

- b) As far as the equipment rates, this contract version did not specify the CMAR to require equipment rates for subcontractors within their subcontracts. At the time of GMP negotiation with Haydon, we were aware that Haydon was not going to charge any “in-house” equipment rental and that any equipment rentals would be procured either through the subcontractors as part of a competitive bidding process, or through a rental equipment company such as RCS or Sunstate, also through competitive bidding process, therefore we didn’t need to include a rental equipment pricing list in the GMP Amendment. When subcontractors included equipment rentals in their change order requests, we did compare these rates to equipment rates from rental equipment vendors; to RS Means rates

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and to equipment rates provided on other CMAR projects and found them to be market competitive and reasonable. RS Means is a division of Reed Business Information that provides cost information to the construction industry so contractors in the industry can provide accurate estimates and projections for their projected costs.

In the future, we will ask the CMARs to provide a list of the specific pieces of equipment their subcontractors are planning on using on their specific projects, and to provide the market value of such equipment so that we can better verify that the cost of renting equipment doesn't exceed their market value.

- a) Per diem was included in the CMAR contract at a rate of \$125/week/onsite employee for the CMAR. This contract did not specify the CMAR to require Per diem rates for subcontractors within their contracts, but the terms of the CMAR contract indicates that the only allowed line items for subcontractors C.O. are material, labor, equipment, GCs (capped at 10%), fees (capped at 5%) and taxes. This creates the situation that CMARs are allowed to include per diem in GCs, but subcontractors are not. The same contract language applies to ASU and UA, and their subcontractors typically don't have to deal with out of town travel. In our case, it seems that we do have added cost due to labor workers having to be out of town to complete the work.

We will discuss with the Tri-U construction group including language in the CMAR contract that would require the CMAR to provide per diem rates for all subcontracts.

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This report is intended for the information and use of the Arizona Board of Regents, NAU administration, the Arizona Office of the Auditor General, and federal awarding agencies and sub-recipients.

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