

**CITY OF CHARLOTTE  
OFFICE OF INTERNAL AUDIT**

***MEMORANDUM***

To: City Manager's Office and Water  
From: Tina Adams, City Auditor  
Re: RSM Charlotte Water Design-Build Cost Analysis

August 10, 2022

Please see the attached report from RSM LLP US (RSM) - Cost Analysis of Design Build Projects.

**Conclusion**

RSM has made observations and recommendations to improve Charlotte Water's construction cost control environment, and to help more closely align the department's administration of its design-build (DB) agreements with industry leaders.

**Background**

Over the last few years, City departments have increasingly chosen alternative project delivery methods such as DB and Construction Manager at Risk (CMAR). Management has identified benefits to using these delivery methods such as decreased time to completion, increased cooperation and quality, and increased transparency. RSM noted that Charlotte Water started using this project delivery method to increase capacity to serve new development projects in dense and rapidly growing areas of the community.

This analysis is a follow-up to a report issued in May 2021, in which RSM recommended that the City utilize the cost-plus-fee billing method for Design Build (DB) projects. The report noted that current DB contracts in use by Charlotte Water contained conflicting language allowing for the use of either cost-plus or lump-sum pricing options. Charlotte Water administered the contracts on a lump-sum basis and allowed the design builders to use unit price billing.

**Results Summary**

RSM compared billed to actual costs to help identify process improvement opportunities and noted the following:

- In total, billed costs exceeded incurred costs on both projects by 12% (8% and 14%, respectively). The results could not be extrapolated to the universe of Charlotte Water design build projects but were useful in demonstrating the benefits of using the cost-plus fee billing method.
- Unit price billing does not provide the level of transparency necessary to identify the costs incurred by the DB, as this method does not show individual components for labor, materials, equipment, or subcontractor costs.

- Change order and payment application administration errors were noted on one of the projects reviewed.
- While some initial steps have been taken to implement the recommendations from the May 2021 report, RSM listed all prior recommendations as “open.” Progress towards implementation of the recommendations will continue to be evaluated as new projects are initiated.

### **RSM Recommendations and City’s Response**

RSM recommended that Charlotte Water implement the cost-plus fee billing method on DB projects. Detailed findings, recommendations, and management responses are addressed on pages 9-18 of RSM’s attached report. Management has taken or planned actions to address the recommendations.

### **Actions Planned**

Internal Audit will follow-up the RSM recommendations and management responses to determine that planned actions are completed. While this review was conducted for projects at Charlotte Water, the consultant’s recommendations should be implemented for construction projects citywide. Internal Audit will continue to focus construction audit efforts on the transparency and accountability for DB and CMAR agreements. These efforts will include verifying that:

1. Contract administration is consistent with DB and CMAR agreement language
2. DB and CMAR contracts include appropriate “right to audit” clauses
3. Contract language allows for complete transparency in reporting costs, including the separate composition of proposed and actual fringe benefit, insurance and overhead rates
4. Negotiated “fixed” rates (for equipment, insurance, etc.) remain subject to audit
5. Departments provide oversight and review of subcontractor bids as applicable



# DESIGN BUILD ASSESSMENT

Cost Analysis of Design Build Projects



March 2022

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# Transmittal Letter

March 25, 2022

Tina Adams, City Auditor  
City of Charlotte, North Carolina  
600 East 4<sup>th</sup> Street  
Charlotte, NC 28202

Pursuant to our Statement of Work – Design Build Cost Analysis dated May 3, 2021, we hereby submit the following report related to the cost analysis of two design build projects. Our report is organized in the following sections:

Executive Summary	This provides an overview of our procedures, the results of our analysis, and a background of the design build process.
Observations and Recommendations	This section details the observations identified during our work and recommendations to management.
Objectives and Approach	The objectives of our procedures and our approach to the execution of those procedures are expanded upon in this section.

We would like to thank the staff and all those involved in assisting us in connection with this review.

Respectfully Submitted,

**RSM US LLP**

# Executive Summary

## Design Build Cost Analysis

### Objective

RSM was engaged to analyze project cost records and assess price differentials between incurred costs and billed costs for two design build projects (Project A & Project B).

### Scope

Phase 1 – We held entrance meetings with the City’s Water department and the design builders ("DBs") to obtain a preliminary understanding of how the DBs accounted for their incurred project costs.

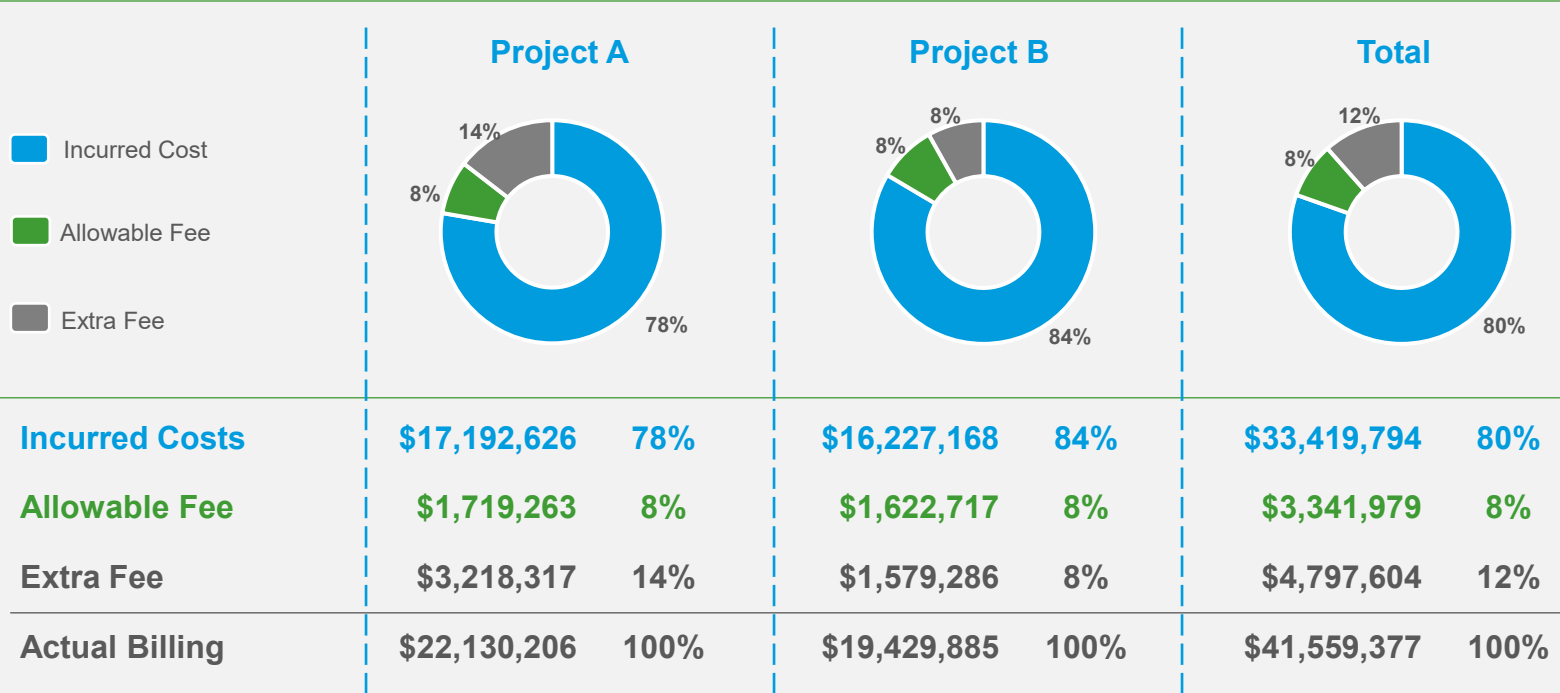
Phase 2 – We analyzed the DBs’ accounting records and billings for each project.

Phase 3 – We reconciled the DBs’ project accounting record to the costs billed to each project

Phase 4 – We worked with Internal Audit to develop a deliverable to communicate observations identified during our analysis. We also performed follow up procedures to our January 2021 report. The observations and recommendations are detailed on the pages that follow.

### Total Billings by Project

The graphics below represent total billing by project delineated by cost incurred by the DB, fee applied to incurred cost, and the extra fee included in actual billings in excess of the cost-plus fee billing method.



# Executive Summary

## Detailed Reconciliation of Costs to Billing

The following accounting data were obtained from the Design Builders of Projects A and B:

Cost Category	Project A		Project B		Total	
	Amount	% of Billings	Amount	% of Billings	Amount	% of Billings
Subcontractor	\$ 4,750,761		\$ 14,476,585		\$ 19,227,347	
Material	2,832,831		793,295		3,626,126	
Equipment	851,238		226,325		1,077,563	
Labor & Labor Burden	1,225,994		629,449		1,855,443	
Other Costs	587,620		-		587,620	
Insurance	-		101,514		101,514	
Indirect Overhead	202,905		-		202,905	
Estimated Equipment & Fuel <sup>1</sup>	6,741,277		-		6,741,277	
Total Incurred Cost	17,192,626	78%	16,227,168	84%	33,419,794	80%
Add: Allowable Fee <sup>2</sup>	1,719,263	8%	1,622,717	8%	3,341,979	8%
Total Cost-Plus Fee Billing	18,911,889		17,849,885		36,761,733	
Less: Actual Billings <sup>3</sup>	(22,130,206)	100%	(19,429,171)	100%	(41,559,377)	100%
Extra Fee	\$ (3,218,317)	14%	\$ (1,579,286)	8%	\$ (4,797,604)	12%

[1] Project A estimated equipment & fuel costs; actual costs were not recorded in DB accounting system (Obs. 1)

[2] Allowable fee applied at 10% of the incurred costs, resulting in 8% of total project billings

[3] As of most recent pay application at the time request

# Background

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## Design Build Contracting

Charlotte Water, a department of the City of Charlotte, (“Charlotte Water”) began using the design build construction delivery method in 2018 for the purpose of increasing capacity to serve new development projects in dense and rapidly growing areas of the community. The DB contract method combines design and construction services with one vendor. Design-Build contracts are procured through a Request for Qualifications (“RFQ”) and can streamline design and construction activities, and reduce the total project timeline. DB contracts are awarded pursuant to state law based on contractor qualifications and not price, increasing the risk of excessive, unreasonable or non-competitive costs.

Traditionally, Charlotte Water projects have been procured through the design-bid-build process. Using this method, design and construction services are procured separately and sequentially. The project design is complete before construction bids are solicited. Unit price construction contracts are common with this procurement method. This process requires a longer timeline, but provides the most cost competitive results at the time of bid. The traditional process is also contingent on a real estate acquisition process being completed before the time of bidding, which if not achieved will also extend the time-frame of the project.

## Projects A & B

Through RFQ FY19-DB-01, issued July 2018, 13 Water projects were awarded to seven Design Builders. The design build agreements were executed using a Design Build Institute of America (“DBIA”) form 545 “Progressive Design Build Agreement for Water and Wastewater Projects” contract template. As a follow up to our initial internal audit of the project management controls over Design Build projects (Appendix B), we selected two design build projects to perform an analysis of actual costs incurred by the DBs and assess price differentials between incurred costs and costs billed to Charlotte Water.



# Observation Matrix – Analysis

The observations and recommendations identified in this report are for the purposes of improving Charlotte Water’s construction cost control environment, and to help more closely align the department’s administration of its design build agreements with industry leaders.

## Observation #1 – Analysis Results and Utilization of Cost-Plus Fee Pricing

Projects A and B were billed on a unit price basis, while the design build agreement permits a cost-plus fee billing basis. We analyzed the DBs’ incurred costs and identified that the DBs’ billings were greater than the incurred cost (cost-plus fee billing method). The resulting difference is extra fee to the DBs. Additionally, we noted Project A DB’s equipment and fuel costs were not recorded in the project accounting record, as required by the agreement. Because the project was billed on a unit price basis, Charlotte Water could not substantiate the accuracy of the DB’s estimate for equipment use or cost.

## Observation #2 – Change Orders Not Executed

Through our conversations with Charlotte Water and the DB, we noted the DB for Project A made changes to the construction plan with proposed savings to a specific cost component. Charlotte Water approved this change; however, instead of executing a change order, the DB was instructed to only bill a portion of the line related to the change. Without an executed change to the agreement, the contract amount has not been reduced to reflect the DB’s proposed savings. The DB has the opportunity to continue to bill for this cost component.

## Observation #3 – Pay Application Review Controls

Through our review of Project A documentation, we noted pay applications were not carried forward accurately, caused by multiple errors. Each pay application should reflect the cumulative status of the project as of that billing date. We identified additional errors in Project A DB’s pay applications, such as the summary sheet did not agree to the supporting schedule of values, pay applications submitted out of sequence, and gaps in the project documents.

# Observation Matrix – Prior Report Follow Up

Our initial report (Appendix B) identified three observations in relation to Charlotte Water’s use of Design-Build contracting. We performed follow up procedures to evaluate the implementation of Charlotte Water’s action plan for each.

Observation #1 – Cost-Plus Contract Language	Status
The process by which Charlotte Water project management is administering the contract does not align with certain articles of the DBIA agreement and GMP amendment. Through discussions with Charlotte Water project management and review of documentation, we noted that the contract is being administered in a manner commensurate with a unit price arrangement.	Open
Observation #2 – Evaluation of Preconstruction Rates	Status
We noted there was no evidence that an assessment of the reasonableness of labor rates, subconsultant fees, or the total cost agreed upon for Design services was performed.	Open
Observation #3 – Evaluation of GMP Amendment Pricing	Status
We noted there was no evidence that an assessment of the GMP amendment was performed to evaluate the reasonableness or accuracy of the pricing and quantities included therein.	Open

# Observation 1 – Analysis Results & Utilization of Cost-Plus Fee Pricing

## Observation

Projects A and B were billed on a unit price basis, while the design build agreement outlines a cost-plus fee billing basis. We analyzed the accounting record to identify the DBs' actual incurred project costs and reconciled to the billings submitted to Charlotte Water. We identified that actual billings were greater than the cost-plus fee billing method. The resulting difference is extra fee to the DBs.

The charts below summarize the results of our analysis:

Description	Project A	Project B	Total	% of Billings
Total Incurred Costs	\$ 17,192,626	\$ 16,227,169	\$ 33,419,794	80%
Allowable Fee <sup>1</sup>	1,719,263	1,622,717	3,341,979	8%
Total Cost-Plus Fee Billing	18,911,889	17,849,885	36,761,773	88%
Less: Actual Billings <sup>2</sup>	(22,130,206)	(19,429,171)	(41,559,377)	100%
Extra Fee	\$ (3,218,317)	\$ (1,579,286)	\$ (4,797,604)	12%

[1] Allowable Fee applied at 10% of the incurred costs, resulting in 8% of total project billings

[2] As of most recent pay application at the time request

[3] Contract value as of August 23, 2021

Our analysis of the sampled projects made up 11% of the contract value and 8% of the total design build projects.

Description	Amount	Number of Projects
Contract Value of all Water Design Build Projects <sup>3</sup>	\$ 527,331,864	26
Projects A & B Contract Value	\$ 59,299,230	2
Percent of Total	11%	8%

# Observation 1 – Analysis Results & Utilization of Cost-Plus Fee Pricing

## Observation

During our analysis of Project A, we noted the DB's equipment and fuel costs were not recorded in the project accounting record. Instead, the DB provided various cost estimates for equipment based on rental rates. Most of the equipment utilized on the project were owned by the DB; typically, owned equipment is billed to a project at a lower rate than commercially rented equipment.

The project was billed on a unit price basis, which does not provide visibility of individual cost components such as equipment. As such, Charlotte Water could not substantiate the accuracy of the DB's estimate for equipment use or cost. RSM analyzed the DB's estimate and identified instances where the duration of equipment use was overestimated as compared to the billing record, and calculated capital equipment rates based on current industry practices. The resulting values of our analysis were utilized in this report.

The design build agreement requires the DB to maintain detailed accounts relative to the incurred cost of work. Unit price billing, coupled with a lack of record keeping for incurred costs, creates a risk for Charlotte Water that project billings are not transparent or reflective of incurred costs by the DB.

# Observation 1 – Analysis Results & Utilization of Cost-Plus Fee Pricing

## Recommendation

We recommend Charlotte Water implement the cost-plus fee billing method on design build projects, as allowed by the design build agreements. The unit price billing method increases the risk that extra fees are included in the DBs' billing.

Unit price billing does not provide the level of transparency necessary to identify the costs incurred by the DB, as this method does not show individual components for labor, materials, equipment, or subcontractor costs. Additionally, any savings or additional profit gained in a unit price agreement is not visible to the owner and is held by the DB. Cost-plus agreements typically require the DB to provide supporting cost records with each pay application. This transparency provides the owner with the opportunity to evaluate the costs billed for accuracy and allowability. Savings and additional profit are visible to the owner and, based on the terms of the agreement, are returned to the owner at the completion of the project.

Should Charlotte Water decide to continue use of unit price billing basis for design build projects, we recommend the agreement include language which requires a reconciliation of incurred costs to billings at the completion of the project. Where the results show billings in excess of incurred costs plus fee, the difference should be credited to Charlotte Water.

# Observation 1 – Analysis Results & Utilization of Cost-Plus Fee Pricing

## Management Response

CLTWater acknowledges this observation and agrees with portions thereof. The audit report indicates Projects A and B are billed on a unit price basis, but the agreement references a cost-plus fee basis. Although this comment seems to be consistent with observations shared by RSM during the prior audit report, it is important to note that these projects were well underway prior to the previous audit report and it was determined that changing methods midstream would be problematic. As indicated in relation to the previous report, CLTWater acknowledges this observation and is working with the City's Legal staff to create a cost-plus fee model to use with a future DB projects.

# Observation 2 – Change Order Management

## Observation

Through our conversations with Charlotte Water and the DB, we noted the DB for Project A made changes to the construction plan with proposed savings to a specific cost component. Charlotte Water approved this change; however, instead of executing a change order, the DB was instructed to only bill a portion of the line related to the change.

Without an executed change to the agreement, the contract amount has not been reduced to reflect the DB's proposed savings. The DB has the opportunity to continue to bill for this cost component.

## Recommendation

We recommend at the close of the project, Charlotte Water initiate a change order to decrease the contract value for the savings that resulted from the construction plan change. Charlotte Water should also recoup any additional savings resulting from other cost components which were not fully billed at project completion, including unused contingency or allowances.

In the future, we recommend Charlotte Water execute change orders for any changes made to the project cost or schedule as the change occurs. Change orders serve as the owner's formal approval to such changes. Additionally, change orders should be submitted by the DB accompanied by supporting documentation, such as subcontractor support and detailed price breakdowns, to evidence the actual value of the proposed cost change or savings.

# Observation 2 – Change Order Management

## Management Response

CLTWater acknowledges and agrees with this observation. The costs associated with this change should be included in a final adjusting change order at the completion of the project. According to conversations with the contractor, this change resulted in approximately \$500,000 savings to the project which will be accounted for at project completion.



# Observation 3 – Pay Application Review Controls

## Observation

Through our review of Project A documentation, we noted pay applications were not carried forward accurately, caused by multiple errors.

The summary sheet did not carry forward period over period. Each pay application summary sheet should reflect the cumulative status of the project as of that billing date. The carry forward errors resulted in an inaccurate representation of the project cost status of multiple reporting lines: completed work to date, previous payments, and balance remaining to bill. While we did not identify evidence of overpayment to the DB, these errors create issues with transparency for Charlotte Water project management to understand the accurate project status.

The graphic below shows an example of carry forward calculation errors related to the reporting of completed work to date:

Project A Pay Applications - Submitted by DB	Pay App 14 Design	Pay App 15 Design	Pay App 16 Construction	Pay App 17 Construction	Pay App 18 Design
A. Previous completed work	\$ 1,307,479	\$ 1,350,053	\$ 1,350,053	\$ 1,729,841	\$ 1,729,841
B. New work this period	\$ 42,574	\$ 74,031	\$ 355,124	\$ 446,202	\$ 58,723
C. Completed work to date	\$ 1,350,053	\$ 1,424,084	\$ 1,705,177	\$ 2,222,369	\$ 1,837,931

Project A Pay Applications - Recalculated	Pay App 14 Design	Pay App 15 Design	Pay App 16 Construction	Pay App 17 Construction	Pay App 18 Design
A. Previous completed	\$ 1,307,479	\$ 1,350,053	\$ 1,424,084	\$ 1,779,208	\$ 2,225,410
B. New work this period	\$ 42,574	\$ 74,031	\$ 355,124	\$ 446,202	\$ 58,723
C. Current completed	\$ 1,350,053	\$ 1,424,084	\$ 1,779,208	\$ 2,225,410	\$ 2,284,133

# Observation 3 – Pay Application Review Controls

## Observation

Additionally, we noted the following issues in Project A DB's pay application records:

- For 22 of 39 (56%) pay applications, the summary sheet did not agree to the supporting schedule of values, resulting in inaccurate representation of the project cost status. The summary sheet and schedule of values should report the same cost values.
- One (1) of 39 (3%) pay applications was not in the project record. All submitted and paid pay applications should be retained in the project records.
- One (1) of 39 (3%) pay applications was not signed by the DB. The DB should sign all final pay application submissions to indicate the pay application is accurate and in final form.
- In the sequence of pay applications, the DB skipped the use of one pay application number. This creates a reporting issue when capturing the complete project records.

Verifying the accuracy of pay applications and maintaining complete project records are key controls for management to monitor and report on the project. When records are inaccurate or incomplete, management does not have the correct information to make decisions over the project.

# Observation 3 – Pay Application Review Controls

## Recommendation

We recommend Charlotte Water perform the following controls when reviewing DB pay applications:

- Verify the DB has signed the pay application to indicate the pay application is accurate and in final form
- Verify each pay application is sequentially submitted, and that payment application numbers are not skipped
- Recalculate the carry forward of values reported by the DB to validate the accuracy of the current pay application
- Recalculate cost components billed at a rate, such as fee, insurance, or general conditions
- Verify all required supporting documentation is provided with the pay application, such as lien waivers, vendor invoices, subcontractor pay applications, and any other record required by the agreement

For any errors or missing supporting documents identified in Charlotte Water's review, Charlotte Water should require the DB to revise and resubmit the pay application to reflect accurate and required information before approving payment to the DB.

# Observation 3 – Pay Application Rollforward Controls

## Management Response

CLTWater acknowledges and agrees with this observation. CLTWater will provide additional training to ensure proper pay application rollforward (carry forward) controls are adhered to.

## Observation & Recommendation

The process by which Charlotte Water project management was administering the contract did not align with certain articles of the DBIA agreement and GMP amendment. Through discussions with Charlotte Water project management and review of documentation, we noted that the contract reviewed was being administered in a manner commensurate with a unit price arrangement. Monthly invoices were validated through an independent inspection, absent supporting documentation that evidences actual cost of work incurred.

For example, the DBIA Phase 1 Design agreement for the project provided for two pricing options: lump sum or cost-plus (DBIA 2.3.1.1). Further, we noted the DBIA Phase 1 Design agreement included redlines removing reference to the lump sum option (DBIA 7.2) for the Phase 2 Construction indicating the use of cost-plus methodology (DBIA 7.5).

By administering the contract using a unit price approach, management is unable to enforce the cost-plus terms and conditions referenced above. Cost-plus contracting provides the Owner with transparency into the actual costs of construction, the subcontractors, materials, and suppliers utilized by the DB and mitigates the risk of unjust enrichment of the DB.

Management, in consultation with legal counsel, should evaluate the opportunity to exercise the right to audit clause, and enforce the cost-plus provisions noted in the observation above. Should management pursue this option, Charlotte Water or a representative of the City should obtain the DB's detailed report of the actual cost of the project and reconcile to the project billings.

For future projects utilizing the standard DBIA agreement, we recommend Charlotte Water consider removal of all reference to the contracting approach not being utilized (lump sum or cost-plus). The construction phase price amendment language should align with the DBIA agreement and only the allowable pricing method referenced in the DBIA agreement.

Further, we recommend the application of cost-plus-fee methodology on future projects. This approach will allow project management more insight into the actual costs of construction, provide for more transparency into subcontracts and suppliers utilized by the DB, and create the opportunity for Charlotte Water to identify credits and savings that are not available under a lump sum approach.

# Follow Up to Observation 1

Open

## Management Response

### January 2021 Response:

The City Attorney's Office has engaged an outside construction attorney to review and provide edits to our DBIA templates with a mid-March deadline for completion.

Charlotte Water is always open to process improvements and proposes an audit of the Irwin Creek project to determine the potential cost differences. Our plan is to use the results to continue or process improvement efforts.

Although all previous proposers/vendors have been aware of Charlotte Water's cost approach through the lump sum amount and have yet to object to any contractual language regarding this cost approach, the City Attorney's Office will remove all references to one of the two cost approaches going forward.

Implementation expected to be complete by the end of 2021.

### January 2022 Response:

The City Attorney's Office hired Parker Poe at the beginning of 2021 to review and provide recommended edits to the contract. They took their suggested edits and created a lump sum version in November 2021. CLT Water met with the City Attorney's Office to discuss and are further refining portions of the contract, and once complete, the revised contract will be ready for use. The City Attorney's Office is also developing a cost-plus template that could be used if desired or warranted. CLT Water has been advised to continue using our existing template until the contracts are completed.

## Follow Up Results

Charlotte Water provided a newly revised DBIA Document No. 545, Progressive Design-Build Agreement for Water and Wastewater Projects template intended for a lump sum contract option. We noted the contract language in the template remains ambiguous as to whether the contract is lump sum or cost-plus fee in articles 2.3, 2.3.1.1, and 7.1.2. In the examples below, the agreement still provides the option of lump-sum or cost-plus fee. The conflicting language is bolded for emphasis.

- *2.3 Proposal. Upon completion of the Phase 1 Services and any other Basis of Design Documents upon which the parties may agree, Design-Builder shall submit a proposal to Owner (the "Proposal") for the completion of the design and construction for the Project for the Contract Price, which may be based on **Lump Sum or Design-Builder's Fee and Cost of the Work with an option for a Guaranteed Maximum Price (GMP).***
- *7.1.2 For Phase 2 Services, Owner shall pay Design-Builder in accordance with Article 7 6 of the General Conditions of Contract a contract price ("Contract Price") equal to **the Lump Sum amount set forth in ~~Section 7.2 hereof~~ or in the Contract Price Amendment, or equal to the Design-Builder's Fee (as defined in Section 7.4 hereof) plus the Cost of the Work (as defined in Section 7.5 hereof), subject to any GMP established in Section 7.6 hereof or as set forth in the Contract Price Amendment and any adjustments made in accordance with the General Conditions of Contract.***

Additionally, the agreement template redlined (omitted) the lump sum fee option in article 7.2 and instead references articles 7.4 through 7.6 which serve as the GMP placeholder for the cost-plus contract option. A GMP option is employed when utilizing a cost-plus fee pricing structure, not for lump sum price or unit price contracts.

For projects utilizing the DBIA agreement template, we recommend Charlotte Water remove all reference to the contracting approach not being utilized (lump sum or cost-plus). The construction phase price amendment language should align with the DBIA agreement and only the allowable pricing method referenced in the DBIA agreement. Specifically for the lump sum template, references to cost-plus fee and GMP amendments should be removed. Similarly, the cost-plus fee agreement template should omit any reference to lump sum, fixed price, or unit price methods.

# Follow Up to Observation 2

Open

## Observations and Recommendations

We noted there was no evidence that an assessment of the reasonableness of labor rates, subconsultant fees, or the total cost agreed upon for Phase 1 Design services was performed. Due to the fact that design-build projects are not procured through a competitive pricing process but based on a competitive qualifications process, an assessment of cost is the primary control measure available to evaluate the reasonableness of the DB's cost proposal.

For design-build projects currently in progress and for future contracts, we recommend Charlotte Water perform and document a review of DB design and preconstruction labor rates, labor multipliers, level of effort to complete the design phase scope, and subconsultant quotes and/or contracts.



# Follow Up to Observation 2

Open

## Management Response

### January 2021 Response

Charlotte Water agrees that documenting the process used to evaluate the design phase services as mentioned is necessary and will develop that documentation.

To better document cost verification, as a pilot, Charlotte Water will work in conjunction with Storm, Water, and General Services to use independent cost estimating services under a recently procured contract.

Implementation expected to be complete by the end of 2021.

### January 2022 Response

CLT Water, in conjunction with Strom Water, issued an RFQ for Collaborative Delivery Services Support in August 2021, however the two respondents did not clearly address goals outlined in the RFQ. Therefore, it was issued again in October 2021. Only one response was submitted, and it met the requirements of the RFQ. Please note there was considerable interest in this RFQ from several contractors and engineering firms, however, many of them did not want to be possibly secluded from future collaborative delivery projects should they be selected.

The final selection was made on December 17, 2021 and CLT Water is currently scheduling scope and fee meetings with the awarded firm, Freese and Nichols. The contract is planned to appear on the City Council agenda in the first quarter of 2022.

# Follow Up to Observation 2

Open

## Management Response

### January 2022 Response (continued)

Some of the major scope items in the RFQ include:

- Serve as independent cost estimators for CLT Water collaborative delivery projects.
- Assist CLT Water in developing a reasonable level of in-house for cost estimating.
- Develop a template for the Contractor to use to present GMP, broken down to provide both summarized and detail level information related to costs
- Develop an internal review business process for GMPs
- Ongoing progressive design-build (“PDB”) Standardized Contract Documents (including the Agreement, General Conditions, and Supplementary Conditions) review, including facilitating discussions with necessary parties to update

## Observations and Recommendations

We noted there was no evidence that an assessment of the GMP amendment was performed to evaluate the reasonableness or accuracy of the following: material and equipment quantities; labor rates and multipliers; and lump sum elements of the work. Due to the fact that design-build projects are not procured through a competitive pricing process but based on a competitive qualifications process, an assessment of cost is the primary control measure available to evaluate the reasonableness of the DB's cost proposal.

Should Charlotte Water project management utilize the DBIA cost-plus fee contract language on future projects, design-builders should be required to propose their GMP price amendments in a manner which bifurcates actual costs of work and fee. Regardless of contracting approach, we recommend Charlotte Water management (or its representative) perform and document an evaluation of the GMP amendment which should include, at a minimum:

- Review of subcontractor bids
- Schedules of general conditions and requirements costs
- Verification of quantities in conformance with the project plans for high-value line items
- Assessment of reasonableness of unit prices

For active DB projects, we recommend Charlotte Water's project management identify significant line items within the GMP, and document a verification of budgeted quantities in conformance with the project plans, and document an assessment of reasonableness for unit prices. If unreasonable prices, or inflated quantities are identified, they should be evaluated with the DB, and credited to the Owner's contingency fund. Should management exercise their right to audit the agreements as noted in Observation 1, this process would not apply to the active project.

# Follow Up to Observation 3

Open

## Management Response

### January 2021 Response

Charlotte Water agrees that documenting our process to evaluate the construction phase GMP amendment is needed. Project staff and engineering management is experienced in pipeline construction and has cost trending to utilize for comparisons that were and are made as GMP amendments are received. Charlotte Water does agree that the cost-plus methodology allows for more detailed information up front which would provide for audit-level analysis.

In addition, as noted in recommendation 2, Charlotte Water will work with an independent cost estimating service to help document verification of project-related costs, which may include scrutiny of bids and reasonableness of unit prices.

Implementation expected to be complete by the end of 2021.

### January 2022 Response

CLT Water has used Independent Cost Analysis (“ICA”) and Independent Cost Estimating (“ICE”) methods to verify costs associated with different projects. This includes use of the City’s contracts with Michael Baker International (MBI) and MB Kahn (MBK) as well as another stand-alone vendor. The practice going forward is to require all Guaranteed Maximum Price submittals go through an ICA at minimum, as ICEs are not necessarily feasible in all cases. Thus far, CLT Water has completed four (4) ICAs and two (2) ICEs, and has procured two (2) additional ICEs which remain ongoing.

## Follow Up Results

Through our analysis procedures performed for Projects A and B (see page 9), we identified that Charlotte Water is at risk of paying extra fees to DBs by utilizing the unit price billing method. The projects analyzed predated Charlotte Water's plan to utilize an Independent Cost Analysis ("ICA") or Independent Cost Estimating ("ICE").

For cost-plus fee agreements, we recommend the GMP cost proposal be reviewed prior to acceptance. Design-builders should be required to propose their GMP cost proposals in a manner which bifurcates actual costs of work and fee. We recommend Charlotte Water management (or its representative) perform and document an evaluation of the GMP amendment which should include, at a minimum:

- Review of subcontractor bids
- Schedules of general conditions and requirements costs
- Verification of quantities in conformance with the project plans for high-value line items
- Assessment of reasonableness of unit prices

We recommend Charlotte Water to continue use of ICEs or ICAs when utilizing a lump-sum contract or when using pricing methodology where the billings are derived from fully loaded unit prices. In addition to the ICE or ICA, we recommend Charlotte Water leverage the right to audit clause in the agreement and require the DB to provide a detailed breakdown of all costs and applicable overhead and profit mark-ups included in the rates.

We also noted Charlotte Water's January 2022 response to Observation 3 referenced review of contractor GMPs. As noted on page 21, a GMP option is employed when utilizing a cost-plus fee pricing structure, not for lump sum price or unit price contracts. Lump sum cost proposals should contain a detailed schedule of values, broken down by individual cost components.

# Objective and Approach

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## Objectives & Scope

The objective of this project was to analyze the project cost record and assess price differentials between actual costs and billed costs. The scope of our work included two projects. (Project A & Project B)

## Approach

Our approach consisted of the following phases:

### Phase 1 - Obtain Source Documents

During this phase, we held entrance conferences with the City's Water department, and the Design-Builders ("DBs") to explain our approach to the work, and to obtain a preliminary understanding of how the DBs accounted for the actual cost of the project within its own records and systems. We engaged directly with the DBs to obtain source documents, including, but not limited to, DB project accounting records, cost reports, invoices and other supporting documentation.

### Phase 2 - Analysis of Project Costs

We analyzed the DBs' job cost records, and unit prices billed to each project. We also evaluated a sample of recent projects at the City's Water department, identifying comparable, high-value scopes for comparison to the selected projects.

### Phase 3 - Billing Reconciliation

We reconciled the DBs' project accounting record to the costs billed to each project, analyzed during Phase 2, to identify areas of where billings exceeded costs, and vice versa.

### Phase 4 - Reporting

RSM worked with Internal Audit to develop an appropriate deliverable format to communicate any findings, recommendations or improvement opportunities identified during our procedures. This includes recommendations for modified contracting approaches, quantification of scope elements where the City paid more or less than actual cost, and other opportunities for improvement.

# Appendix A: Glossary of Terms

**Accounting Record** – The contractor’s record of all cost incurred associated with the project. May also be referred to as a job cost or cost ledger.

**Billings** – The amounts billed to the owner by the contractor through pay applications.

**Change Order (“CO”)** – A written and signed document between the owner and contractor authorizing a change in the work or an adjustment to the contract amount or the contract time.

**Contractor** – A properly licensed company which furnishes labor, materials, equipment, and associated services to perform the work as specified for a specified price.

**Cost of Work** – The sum of all direct costs necessarily incurred and paid by the contractor in the proper performance of the work required by the plans and specifications for a specific project. This may include for labor, material, equipment, and services; contractors overhead and profit; and other direct construction costs.

**Cost Plus Fee Agreement (“Cost-Plus”)** – An agreement where the owner reimburses the contractor for its direct and indirect costs, in addition to a fee.

**Design-Bid-Build** – A procurement method used to select design and construction contractors separately and sequentially. Typically lump sum or unit price construction agreements are utilized.

**Design Build Agreement (“Design Build”)** – An agreement where the prime or main contractor provides design and construction services for the entire project. The payment terms may be tailored on an agreement-by-agreement basis. The DBIA template includes lump sum and cost-plus options.

**Design Build Institute of America (“DBIA”)** – A membership organization which advocates for single-source project delivery within the design and construction community. Among its services, it produces contract templates for owners to utilize when entering into a Design Build Agreement.

**Design Builder (“DB”)** – The prime or main contractor the owner enters into a Design Build agreement with. See *Contractor*.

**Extra Fee** – Additional profit or fee earned by the contractor

**Fee** – Contractor’s overhead and profit for performing the work. The fee basis varies based on the type of agreement utilized.

**Guaranteed Maximum Price (“GMP”)** – Maximum limit of contracted cost for a project; usually attached to a Cost-Plus agreement.

**Incurred Costs** – See *Accounting Record*.

**Independent Cost Analysis (“ICA”)** – The evaluation of the separate elements (e.g., labor, materials, etc.) that make up a contractor’s total cost proposal or price to determine if they are allowable, directed related to the requirement and ultimately, reasonable.

**Independent Cost Estimate (“ICE”)** – The process of engaging the services of professionals who are in no way affiliated to an organization or project to conduct a detailed estimate as to the cost of a proposed project

**Lump Sum Agreement (“Lump Sum”)** – An agreement where the owner agrees to pay the contractor a specified sum of money for completing the work. The specified sum includes labor, materials, equipment, or services and a fee. May also be referred to as a Fixed Price Agreement.

**Owner (“City” or “Charlotte Water”)** – The entity who initiates, and who will eventually take possession of, a construction project.

**Pay Application** – Contractor’s written request for payment (invoice) for completed portions of the work. Typically includes a summary sheet and detailed schedule of values.

**Request for Qualifications (“RFQ”)** – A procurement method used to select contractors based on experience and qualifications; price is not considered in the selection or award of work.

**Risk** – The level of possibility that an action or activity will lead to a loss.

**Schedule of Values (“SOV”)** – A statement or cost schedule provided by the Contractor reflecting portions of the contract sum allotted for various parts of work and is the basis for reviewing the contractor’s pay application.

**Subcontractor** – A person or entity retained by the contractor to perform a portion of the work.

**Unit Price Agreement (“Unit Price”)** – An agreement where the owner agrees to pay the contractor a specified amount of money for each unit of work successfully completed as set forth in the agreement. The designated unit price includes all labor, materials, equipment, or services associated with the measurement or quantity established.

# Appendix B: Design Build Contract Analysis Report – January 2021

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# DESIGN-BUILD PROJECT ASSESSMENT

Irwin Creek Tributaries to Dewitt Lane and Yeoman Road Sanitary Sewer Replacement

January 2021

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# Transmittal Letter

January 26, 2021

Greg McDowell, City Auditor  
City of Charlotte, North Carolina  
600 East 4<sup>th</sup> Street  
Charlotte, NC 28202

Pursuant to our Statement of Work – Design-Build Project Assessment(s) dated September 4, 2020, we hereby submit the following report related to the Irwin Creek Tributaries to Dewitt Lane and Yeoman Road Sanitary Sewer Replacement (“Irwin Creek”) project. Our report is organized in the following sections:

Background	This provides an overview of the design-build process and Irwin Creek project contract award.
Objectives and Approach	The objectives of our procedures and our approach to the execution of those procedures are expanded upon in this section.
Observations and Recommendations	This section details the observations identified during our work and recommendations to management.

We would like to thank the staff and all those involved in assisting us in connection with this review.

Respectfully Submitted,

**RSM US LLP**



# Background

## Design-Build Contracting

Charlotte Water, a department of the City of Charlotte, (“Charlotte Water”) recently began using the design-build (“DB”) construction delivery method, for the purpose of increasing capacity to serve new development projects in dense and rapidly growing areas of the community. The DB contract method combines design and construction services with one vendor. Design-build contracts are procured through a Request for Qualifications (“RFQ”) and has the ability to streamline design and construction activities, and reduce the total project timeline. DB contracts are awarded pursuant to state law based on contractor qualifications and not price, increasing the risk of excessive, unreasonable or non-competitive costs.

Traditionally, Charlotte Water projects have been procured through the design-bid-build process. Using this method, design and construction services are procured separately and sequentially. The project design is complete before construction bids are solicited. Unit price construction contracts are common with this procurement method. This process requires a longer timeline, but provides the most cost competitive results at the time of bid. The traditional process is also contingent on a real estate acquisition process being completed before the time of bidding, which if not achieved will also extend the time-frame of the project.

## Irwin Creek Tributaries Sanitary Sewer Replacement

Through RFQ FY19-DB-01, issued July 2018, Irwin Creek and 12 other Water projects were awarded to seven Design-Builders. The primary scope of the Irwin Creek Project is to increase sewer capacity to the Irwin Creek Interceptor. The agreement with the DB was executed using a Design Build Institute of America (“DBIA”) form 545 “Progressive Design-Build Agreement for Water and Wastewater Projects” contract template, a new process for Charlotte Water. The project was divided into design and construction phases. A guaranteed maximum price (“GMP”) amendment was issued for the construction phase work. Initially, the DB scope included the South area of work only; the construction price amendment ultimately included Main, North, and South areas of work. Contract value highlights are as follows:

Project Phase	Amount
Phase 1: Design	\$ 2,760,100
Phase 2: Construction GMP	\$ 29,349,846
<b>Contract Total</b>	<b>\$ 32,109,946</b>

# Internal Audit Objective & Approach

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## Objective

The objective of our work was to assess whether the system of internal controls over the administration of design-build construction contracts was adequate and appropriate for promoting and encouraging the achievement of management's objectives for effective contract monitoring and administration. The scope of our work included the following as it relates to design-build contracts:

- Procurement
- Contracting
- Cost proposal preparation and evaluation
- Invoicing

## Approach

Our approach consisted of the following phases:

Discovery: We conducted interviews with Charlotte Water, legal counsel, procurement, and project management to gain an understanding of the current processes and controls for procuring and administering design-build contracts. We reviewed the design-build solicitation, contract, cost proposals, invoices, and other information relevant to our scope of work.

# Internal Audit Objective & Approach

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## Approach – continued

Project Evaluation: Our procedures for this phase included:

- Review of procurement documents for evidence for improvement, articles which include vague, missing, or inadequate controls;
- Review of the agreement and amendment to identify opportunities for improvement, articles which include vague or unclear language, omissions of key provisions, etc.;
- Evaluate the composition of preconstruction and construction phase cost proposals, labor rate sheets, and other cost elements;
- Evaluate the adequacy of the control environment as it relates to the review and approval of billings;
- Evaluate supporting documentation for adequacy and compliance with contract terms.

Reporting: We worked with Internal Audit to develop an appropriate reporting method to communicate any control deficiencies and improvement opportunities identified during our review.

# Observation Summary

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In our Design-Build Project Assessment, we did not identify any instances of fraud or non-compliance with North Carolina General Statutes. Design-Build contracting is a beneficial tool for expediting project schedules and providing transparency into the actual cost of the work, the latter of which was not fully achieved based upon our assessment. The observations and recommendations identified in this report are for the purposes of improving Charlotte Water's construction cost control environment, and to help more closely align the department's administration of its Design-Build contracts with industry leaders.

## Observation #1 – Cost-Plus Contract Language

The process by which Charlotte Water project management is administering the contract does not align with certain articles of the DBIA agreement and GMP amendment.

## Observation #2 – Evaluation of Preconstruction Rates

We noted there was no evidence that an assessment of the reasonableness of labor rates, subconsultant fees, or the total cost agreed upon for Phase 1 Design services was performed.

## Observation #3 – Evaluation of GMP Amendment Pricing

We noted there was no evidence that an assessment of the GMP amendment was performed to evaluate the reasonableness or accuracy of the pricing and quantities included therein.

# Observation 1: Cost-Plus Contract Language

## Observation

The process by which Charlotte Water project management is administering the contract does not align with certain articles of the DBIA agreement and GMP amendment. Through discussions with Charlotte Water project management and review of documentation, we noted that the contract is being administered in a manner commensurate with a unit price arrangement. Monthly invoices are validated through an independent inspection process, absent supporting documentation that evidences actual cost of work incurred.

For example, the DBIA Phase 1 Design agreement for the Irwin Creek project provides for two pricing options: lump sum or cost-plus (DBIA 2.3.1.1). Further, we noted the DBIA Phase 1 Design agreement includes redlines removing reference to the lump sum option (DBIA 7.2) for the Phase 2 Construction indicating the use of cost-plus methodology (DBIA 7.5). As shown in Appendix A, the following articles further support cost-plus methodology:

- DB fee and cost of the work (DBIA 2.3, 7.1.2)
- Actual cost of wages and salaries and other incurred costs (GMP 7.5.1)
- Shared savings (GMP 7.6.3)
- Actual cost of allowance line items (GMP 7.7)
- Right to audit cost of work (DBIA 8.6)

By administering the contract using a unit price approach, management is unable to enforce the cost-plus terms and conditions referenced above. Cost-plus contracting provides the Owner with transparency into the actual costs of construction, the subcontractors, materials, and suppliers utilized by the DB and mitigates the risk of unjust enrichment of the DB.



# Observation 1: Cost-Plus Contract Language

## Recommendation

Management, in consultation with legal counsel, should evaluate the opportunity to exercise the right to audit clause, and enforce the cost-plus provisions noted in the observation above. Should management pursue this option, Charlotte Water or a representative of the City should obtain the DB's detailed report of the actual cost of the project and reconcile to the project billings.

For future projects utilizing the standard DBIA agreement, we recommend Charlotte Water consider removal of all reference to the contracting approach not being utilized (lump sum or cost-plus). The construction phase price amendment language should align with the DBIA agreement and only the allowable pricing method referenced in the DBIA agreement.

Further, we recommend the application of cost-plus-fee methodology on future projects. This approach will allow project management more insight into the actual costs of construction, provide for more transparency into subcontracts and suppliers utilized by the DB, and create the opportunity for Charlotte Water to identify credits and savings that are not available under a lump sum approach.

# Observation 1: Cost-Plus Contract Language

## Management Response

- The City Attorney's Office has engaged an outside construction attorney to review and provide edits to our DBIA templates with a mid-March deadline for completion.
- Charlotte Water is always open to process improvements and proposes an audit of the Irwin Creek project to determine the potential cost differences. Our plan is to use the results to continue or process improvement efforts.
- Although all previous proposers/vendors have been aware of Charlotte Water's cost approach through the lump sum amount and have yet to object to any contractual language regarding this cost approach, the City Attorney's Office will remove all references to one of the two cost approaches going forward.
- Implementation expected to be complete by the end of 2021.

# Observation 2: Evaluation of Preconstruction Rates

## Observation

We noted there was no evidence that an assessment of the reasonableness of labor rates, subconsultant fees, or the total cost agreed upon for Phase 1 Design services was performed.

For example, the Phase 1 Design fee for Irwin Creek was \$2,760,100, including a contingency of \$131,434. The fee summary was provided in Exhibit F to the DBIA agreement and included DB personnel hourly rates, estimated hours, and subconsultant fees. The labor rates were inclusive of overhead and burden and range from \$88 for administrative personnel to \$250 for project management. The DB estimated 8,200 hours to perform the stages of design and planning. Subconsultant costs made up half of the Phase 1 Design fee and included services for surveying and monitoring, easement and real estate activity management, and other planning coordination.

Due to the fact that design-build projects are not procured through a competitive pricing process but based on a competitive qualifications process, an assessment of cost is the primary control measure available to evaluate the reasonableness of the DB's cost proposal.

# Observation 2: Evaluation of Preconstruction Rates

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## Recommendation

For design-build projects currently in progress and for future contracts, we recommend Charlotte Water perform and document a review of DB design and preconstruction labor rates, labor multipliers, level of effort to complete the design phase scope, and subconsultant quotes and/or contracts.

## Observation 2: Evaluation of Preconstruction Rates

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### Management Response

- Charlotte Water agrees that documenting the process used to evaluate the design phase services as mentioned is necessary and will develop that documentation.
- To better document cost verification, as a pilot, Charlotte Water will work in conjunction with Storm Water and General Services to use independent cost estimating services under a recently procured contract.
- Implementation expected to be complete by the end of 2021.

# Observation 3: Evaluation of GMP Amendment

## Observation

We noted there was no evidence that an assessment of the GMP amendment was performed to evaluate the reasonableness or accuracy of the following:

- Material and equipment quantities
- Labor rates and multipliers
- Lump sum elements of the work

For example, on the Irwin Creek project, we understand upon receipt of the GMP, a Charlotte Water project engineer reviewed the plans and performed an undocumented assessment of line items included therein. The following are example line items in the Irwin Creek GMP:

Description	Qty	Units	Unit Price (Average)	Project Total	% Total
60" Steel Casing Installed via MicroTunnel	1580	LF	\$ 5,547	\$ 8,318,985	30%
General Conditions (Project management & Mobilization)	1	LS	\$ -	\$ 2,388,589	9%
Tunnel Launch Shafts	6	EA	\$ 302,000	\$ 1,917,000	7%
Environmental Remediation	1	LS	\$ -	\$ 2,000,000	7%

Due to the fact that design-build projects are not procured through a competitive pricing process but based on a competitive qualifications process, an assessment of cost is the primary control measure available to evaluate the reasonableness of the DB's cost proposal.

# Observation 3: Evaluation of GMP Amendment

## Recommendation

Should Charlotte Water project management utilize the DBIA cost-plus fee contract language on future projects, design-builders should be required to propose their GMP price amendments in a manner which bifurcates actual costs of work and fee. Regardless of contracting approach, we recommend Charlotte Water management (or its representative) perform and document an evaluation of the GMP amendment which should include, at a minimum:

- Review of subcontractor bids
- Schedules of general conditions and requirements costs
- Verification of quantities in conformance with the project plans for high-value line items
- Assessment of reasonableness of unit prices

For active DB projects, we recommend Charlotte Water's project management identify significant line items within the GMP, and document a verification of budgeted quantities in conformance with the project plans, and document an assessment of reasonableness for unit prices. If unreasonable prices, or inflated quantities are identified, they should be evaluated with the DB, and credited to the Owner's contingency fund. Should management exercise their right to audit the agreements as noted in Observation 1, this process would not apply to the active project.

# Observation 3: Evaluation of GMP Amendment

## Management Response

- Charlotte Water agrees that documenting our process to evaluate the construction phase GMP amendment is needed. Project staff and engineering management is experienced in pipeline construction and has cost trending to utilize for comparisons that were and are made as GMP amendments are received. Charlotte Water does agree that the cost-plus methodology allows for more detailed information up front which would provide for audit-level analysis.
- In addition, as noted in recommendation 2, Charlotte Water will work with an independent cost estimating service to help document verification of project-related costs, which may include scrutiny of bids and reasonableness of unit prices.
- Implementation expected to be complete by the end of 2021.



# Appendix A: Contract Language References

**DBIA 2.2.1 Phase 1 Services.** Design-Builder shall perform such services to the level of completion required for Design-Builder and Owner to establish the Contract Price for Phase 2, as set forth in Section 2.3 below. The Contract Price for Phase 2 shall be developed during Phase 1 on an "open-book" basis.

**DBIA 2.3 Proposal.** Upon completion of the Phase 1 Services and any other Basis of Design Documents upon which the parties may agree, Design-Builder shall submit a proposal to Owner (the "Proposal") for the completion of the design and construction for the Project for the Contract Price, which may be based on Lump Sum or Design-Builder's Fee and Cost of the Work with an option for a Guaranteed Maximum Price (GMP).

**2.3.1** The Proposal shall include the following unless the parties mutually agree otherwise:

**2.3.1.1** The Contract Price that may be based on a Lump Sum or Design-Builder's Fee and Cost of the Work, with an option for a GMP, which shall be the sum of:

- i. Design-Builder's Fee as defined in Section 7.4.1 hereof;
- ii. The estimated Cost of the Work as defined in Section 7.5 hereof, inclusive of any Design-Builder's Contingency as defined in Section 7.6.2 hereof;

**DBIA 7.1.2 Contract Price.** For Phase 2 Services, Owner shall pay Design-Builder in accordance with Article 7 of the General Conditions of Contract a contract price ("Contract Price") equal to the Lump Sum amount set forth in the Contract Price Amendment, or equal to the Design-Builder's Fee (as defined in Section 7.4 hereof) plus the Cost of the Work (as defined in Section 7.5 hereof), subject to any GMP established in Section 7.6 hereof or as set forth in the Contract Price Amendment and any adjustments made in accordance with the General Conditions of Contract.

**DBIA 7.4.1 Reserved.** This article to be completed as part of the GMP.

**GMP 7.4.1 Design-Builder's Fee.** Design-Builder's Fee shall be: The contract is set as a unit price contract, therefore the Design-Builder's fee is built in. See attached unit price schedule of values. Design-Builder will be paid by units installed.

# Appendix A: Contract Language References

**DBIA 7.5** Reserved. This article to be completed as part of the GMP.

**GMP 7.5.1 Cost of Work.** The term Cost of the Work shall mean costs reasonably incurred by Design-Builder in the proper performance of the Work.

**7.5.1.1** Wages of direct employees of Design-Builder performing the Work at the Site or, with Owner's agreement, at locations off the Site, provided, however, that the costs for those employees of Design-Builder performing design services shall be calculated on the basis of prevailing market rates for design professionals performing such services or, if applicable, those rates set forth in an exhibit to this Agreement.

**7.5.1.2** Wages or salaries of Design-Builder's supervisory and administrative personnel engaged in the performance of the Work and who are located at the Site or working off-Site to assist in the production or transportation of material and equipment necessary for the Work.

**7.5.1.3** Wages or salaries of Design-Builder's personnel stationed at Design-Builder's principal or branch offices, but only to the extent said personnel are identified in Exhibit E and performing the function set forth in said Exhibit. The reimbursable costs of personnel stationed at Design-Builder's principal or branch offices shall include a ten percent (10%) markup to compensate Design-Builder for the Project-related overhead associated with such personnel.

**7.5.1.4** A multiplier of thirty-eight percent (38%) shall be applied to the wages and salaries of the employees of Design-Builder covered under Sections 7.5.1.1 through 7.5.3.3 hereof.

**7.5.1.5** The reasonable portion of the cost of travel, accommodations and meals for Design-Builder's personnel necessarily and directly incurred in connection with the performance of the Work.

**7.5.1.9** Costs less salvage value of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by the workers that are not fully consumed in the performance of the Work and which remain the property of Design-Builder, including the costs of transporting, inspecting, testing, handling, installing, maintaining, dismantling, and removing such items.

**7.5.1.11** The reasonable costs and expenses incurred in establishing, operating and demobilizing the Site office, including the cost of facsimile transmissions, long-distance telephone calls, postage and express delivery charges, telephone service, photocopying, and reasonable petty cash expenses.

**7.5.1.12** Rental charges and the costs of transportation, installation, minor repairs and replacements, dismantling and removal of temporary facilities, machinery, equipment and hand tools not customarily owned by the workers, which are provided by Design-Builder at the Site, whether rented from Design-Builder or others, and incurred in the performance of the Work.

**7.5.1.13** Premiums for insurance and bonds required by this Agreement or the performance of the Work.

# Appendix A: Contract Language References

**DBIA 7.6** Reserved. This article to be completed as part of the GMP.

## **GMP 7.6 The Guaranteed Maximum Price.**

**7.6.1** Design-Builder guarantees that it shall not exceed the GMP of twenty-nine million, three hundred forty-nine thousand, eight hundred forty-six dollars and fifty-three cents (\$29,349,846.53). Design-Builder does not guarantee any specific line item provided as part of the GMP, provided, however, that it does guarantee the line item for its general project management and general conditions costs, in the amount of eight hundred, ninety-nine thousand, eight hundred seventy-four dollars (\$899,874), and as set forth in the Contract Price Amendment ("General Conditions Cap"). Design-Builder agrees that it will be responsible for paying the applicable general conditions costs in excess of the General Conditions Cap, as well as be responsible for all costs of completing the Work which exceed the GMP, as said general conditions line item and the GMP may be adjusted in accordance with the Contract Documents, including but not limited to the markups for Change Orders.

*Report note: The General Condition cap of \$899,874 does not include the South work, an additional \$499,000 of General Conditions (\$1,398,874 total).*

**7.6.2** The GMP includes a Contingency in the amount of one million dollars (\$1,000,000) which is available for Design-Builder's exclusive use for unanticipated costs it has incurred that are not the basis for a Change Order under the Contract Documents. ... The GMP includes an Owner Contingency in the amount of one million dollars (\$1,000,000) which is available for the Owner's exclusive use. Funds not expended from the Owner Contingency and the Design-Builder's Contingency will return to the Owner and the end of the job and shall not be considered in Savings.

## **7.6.3 Savings.**

**7.6.3.1** If the sum of the actual Cost of the Work and Design-Builder's Fee (and, if applicable, any prices established under Section 7.1.3 hereof) is less than the GMP, as such GMP may have been adjusted over the course of the Project, the difference ("Savings") shall be shared as follows:

fifty percent (50%) to Design-Builder and fifty percent (50%) to Owner.

**7.6.3.2** Savings shall be calculated and paid as part of Final Payment under Section 8.4 hereof, with the understanding that to the extent Design-Builder incurs costs after Final Completion which would have been payable to Design-Builder as a Cost of the Work, the parties shall recalculate the Savings in light of the costs so incurred, and Design-Builder shall be paid by Owner accordingly.

# Appendix A: Contract Language References

## **GMP 7.7 Allowance Items and Allowance Values.**

**7.7.2** Design-Builder and Owner have worked together to review the Allowance Items and Allowance Values based on design information then available to determine that the Allowance Values constitute reasonable estimates for the Allowance Items. Design-Builder and Owner will continue working closely together during the preparation of the design to develop Construction Documents consistent with the Allowance Values. Nothing herein is intended in any way to constitute a guarantee by Design-Builder that the Allowance Item in question can be performed for the Allowance Value.

**7.7.4** The Allowance Value includes the direct cost of labor, materials, equipment, transportation, taxes, and insurance associated with the applicable Allowance Item. All other costs, including design fees, Design-Builder's overall project management and general conditions costs, overhead and Fee, are deemed to be included in the original Contract Price, and are not subject to adjustment notwithstanding the actual amount of the Allowance Item.

**7.7.5** Whenever the actual costs for an Allowance Item is less than the stated Allowance Value, the difference shall be credited to the Owner's Contingency. Whenever the actual costs for an Allowance Item is more than the stated Allowance Value the overage shall be paid out of the Owner's Contingency or the Contract Price shall be adjusted accordingly by Change Order, at the Owner's election, subject to Section 7.7.4. The amount of the Change Order or funds distributed from the Owner's Contingency shall reflect the difference between actual costs incurred by Design-Builder for the particular Allowance Item and the Allowance Value.

**DBIA 8.6 Record Keeping and Finance Controls.** Design-Builder acknowledges that this Agreement is to be administered on an "open book" arrangement relative to Costs of the Work. Design-Builder shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after Final Payment, Owner and Owner's accountants shall be afforded access to, and the right to audit from time to time, upon reasonable notice, Design-Builder's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda, and other data relating to the Work, all of which Design Builder shall preserve for a period of three (3) years after Final Payment. Such inspection shall take place at Design-Builder's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by the Owner and Design Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, but the composition of such multiplier or markup is not subject to audit. Any lump sum agreed to by the Owner and Design Builder as part of this Agreement is not subject to audit.

## RSM US LLP

4725 Piedmont Row Drive, Suite 300

Charlotte, NC 28210

+1 252 672 7722

[rsmus.com](http://rsmus.com)

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