

City of Prescott
Contract Amendment No. One
Development of a Big Chino Sub-basin Groundwater Flow Model

Contractor: Golder Associates, Inc
Contract No: 2017-246
Account No(s): 7126010-8418
Date: November 13, 2019

Purpose of Amendment:

This amendment will increase the total contract value of City Contract 2017-246 with Golder Associates, Inc by \$277,460.00 to a new total not-to-exceed amount of \$1,426,760.00 and to extend the contract terms to December 31, 2020, for the Development of a Big Chino Sub-basin Groundwater Flow Model, per Council approval on November 12, 2019. This contract value increase is necessary to continue the modeling of the Big Chino Sub-basin.

The following changes shall be made to the Contract Documents:

Increase contract amount by \$277,460.00 and extend contract terms to December 31, 2020.

Description	Qty	Unit	Unit Price	Total
Modeling of Big Chino	1	LS	\$ 277,460.00	\$ 277,460.00
				\$ -
				\$ 277,460.00

Summary of Changes to Contract:

	Contract Amount
Original Contract	\$ 1,149,300.00
Net Change this Amendment	\$ 277,460.00
Amended Contract	\$ 1,426,760.00

Original Expiration Date	March 31, 2020
Amended Expiration Date	December 31, 2020

Accepted by: 
Golder Associates, Inc

12-2-19
Date

for Approved by: 
Craig Dotseth, Public Works Director


12-3-19
Date

Approved by: 
Greg L. Mengarelli, Mayor

12/4/19
Date

Attest: 
Maureen Scott, City Clerk

12-8-19
Date

for Approved as to Form: 
Matt Podracky, Deputy City Attorney

12/5/19
Date

Copy to: City Clerk (hard copy)
Finance (email)



October 28, 2019

Project No. 1662614

Mr. Benjamin Burns, Senior Infrastructure Analyst
 City of Prescott
 433 North Virginia Street
 Prescott, Arizona 86302

RE: CONTRACT AMENDMENT REQUEST NO. 1 – HYDROGEOLOGICAL MODELING SERVICES FOR BIG CHINO SUB-BASIN GROUNDWATER FLOW MODEL

Dear Mr. Burns,

Golder Associates Inc. (Golder) has prepared this contract amendment request, herein designated Contract Amendment Request (CAR) No. 1, for professional services in support of the Big Chino Sub-Basin Groundwater Flow Model (BCSM) Project (Project). Golder is performing this Project for the City of Prescott (City) and the Comprehensive Agreement No. 1 (CA1) Steering Committee under Professional Services Agreement Contract # 2017-246 (Contract) between the City and Golder dated February 28, 2017. The contract amendment request has been revised in response to comments received from the City and the Steering Committee on October 22, 2019, and supersedes previous versions dated October 11, 2019 and October 25, 2019.

1.0 SUMMARY OF PREVIOUS CHANGE ORDER REQUESTS

To date, three change order requests have been submitted to the City for review. The three change order requests are summarized below.

Change Order Request No. 1 (CO1) was for the reallocation of budget from the Allowance, Task 5.7.3, and Phase 7 to Tasks 2.2, 3.1, 3.2.3, and 3.5.1, which were either over budget or projected to run over budget. CO1 requested \$54,599 in additional funding from the Allowance and reallocation of \$23,300 from Task 5.7.3 and Phase 7 to provide the required budget, for a total of \$77,899. CO1 was submitted by Golder to the City on February 27, 2018 and was approved by the City as Contract Allowance Authorization (CAA) No. 1 on March 16, 2018. CAA No. 1 includes CO1 and is provided in Attachment 1.

Change Order Request No. 2 (CO2) was for the reallocation of budget from Tasks 3.5.3, 5.7.1, 5.7.2, 5.7.3, and 6.2 to Tasks 3.1, 3.2.1, 3.2.3, 3.3.1, and 3.3.3. This included \$71,530 for tasks that were either over budget or projected to run over budget, and \$19,000 for additional work requested by the CA1 Steering Committee, for a total of \$90,530. CO2 was submitted by Golder to the City on November 30, 2018 and was approved by the City as CAA No. 2 on December 13, 2018. CAA No. 2 includes CO2 and is provided in Attachment 2.

Change Order Request No. 3 (CO3), was sent to the Steering Committee for review on August 26, 2019 to provide additional funding for tasks with expended budgets and to restore budgets for other tasks that were

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reallocated under the previous contract allowance authorizations. The additional funding would have been provided by reallocating budget from future tasks, as was done for CAA No. 1 and CAA No. 2.

During our conference call with the Steering Committee on September 11, 2019, the City indicated that CO3 was not in accordance with the last Contract Allowance Authorization (CAA2) and that they would like to proceed to a Contract Amendment as described herein. This contract amendment request therefore supersedes CO3, which is hereby withdrawn. Golder understands that this contract amendment request (CAR No. 1) will require the approval of the Steering Committee and the Prescott City Council.

CAR No. 1 is for the cumulative effect of CAA No. 1, CAA No. 2, and CAR No. 1 to provide additional funding for tasks that are either over budget or projected to run over budget. Further explanation of the budget reallocation requested under this contract amendment request is provided below. The CAR No. 1 budget is presented in Attachment 3.

2.0 BACKGROUND

The BCSM Project was scoped to run from March 2017 to May 2020 with a budget of \$1,149,300, including a \$54,700 allowance. Due to data delivery dates, review schedules, and other factors, the estimated Project duration has increased by an additional ten months, resulting in additional costs for project controls, project management, and software license fees.

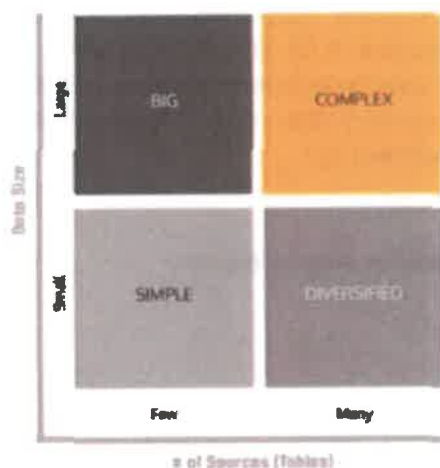
The assumptions in the proposal were made to define or reduce costs but were not sustainable given the dataset available. Selected proposal assumptions and actual conditions encountered are summarized below in Table 1.

As data become more voluminous and/or diversified the process becomes more complex (Figure 1), and the effort associated with the following tasks increases:

- Assembly
- Cleaning and standardization
- Analysis
- Understanding
- Synthesis into the conceptual and numerical models

Figure 1 below illustrates the relationship between the size of the dataset and the number of sources referenced.

Figure 1: Data Complexity Matrix



During assembly of the 50-year database of studies, models, and data available for the BCSM data collection area, related efforts increased not only in the data assembly task but in all the tasks that followed. As additional data sources are obtained, they agree to differing extents with previous data and usually point out additional data sources. Differing conclusions need to be weighed with respect to corroborating data, compared, and documented. Differing conclusions (or estimated data) that cannot be narrowed down to a single best explanation, and are potentially important to model conclusions, remain uncertain and are added to sensitivity tests to be used in the numerical model. It is not always clear in advance whether the additional data will significantly reduce uncertainty or fill data gaps, so analyses are undertaken if there is a good chance for increased clarity in the long run. For this project, additional analyses were limited to key model inputs that shape the model development and conclusions (geology, recharge, runoff, water use, and geochemistry).

3.0 REQUESTED BUDGET ADJUSTMENTS

Our requested budget adjustments under CAR No. 1 are described by task in this section. Most of the tasks have been initiated and are ongoing. All are either over budget or projected to run over budget due to the unexpected level of effort that we now recognize will be needed to finish the tasks that are nearing completion, and to continue work on the remaining tasks through the end of the Project. We have estimated the amount of budget required for each task based on the anticipated level of effort required to complete the work. The CAR No. 1 budget is presented in Attachment 3.

3.1 Project Management (Phase 1)

The additional budget requested for Phase 1 is \$60,020 and is detailed below by task.

3.1.1 Communications (Task 1.1)

Based on a change request from BAS Groundwater Consulting, Inc. (BAS) an additional 26 hours will be needed to support this task.

The additional budget requested for Task 1.1 is \$3,510 (Attachment 3).

3.1.2 Financial Management (Task 1.2)

Due to the increased duration of this Project and need for change order requests, this task has expended much of the original budget and currently has less than \$4,000 remaining as of September 13, 2019. Ongoing effort required for financial management is estimated to be about 5 hours per week for 66 remaining weeks, or 330 hours. These hours will be split between Jana Hesker and Dave Carr, plus some time added for administrative tasks. Golder estimates that this will require an additional \$53,000 (Attachment 3).

3.1.3 Technical Management (Task 1.3)

Based on a change request from BAS an additional 26 hours will be needed to support this task.

The additional budget requested for Task 1.3 is \$3,510 (Attachment 3).

3.2 Project Meetings (Phase 2)

3.2.1 Steering Committee Conference Calls (Task 2.3)

The budget for this task has been underutilized to date. Assuming 16 remaining monthly calls with five attendees, we propose to remove and reallocate \$13,000 from this budget.

Budget available for reallocation from Task 2.3 is \$13,000 (Attachment 3).

3.3 Data Compilation and Model Review (Phase 3)

The additional budget requested for Phase 3 is \$32,000 and is detailed below by task.

3.3.1 Data Management – ArcGIS (Task 3.2.2)

Task 3.2.2 is for developing and maintaining the ArcGIS database, which includes all of the spatial data for the Project and interfaces with the Access database. This task has been ongoing since the beginning of the Project. The overall level effort required for this task has been greater than expected due to the high volume of data that have been compiled. Golder estimates that we need an additional \$31,000 for this task.

This task included some effort that was eventually not used due to additional data being uncovered partway through a lengthy digitizing task. Therefore, Golder is willing to absorb and write off the cost of this non-productive effort, which amounted to \$7,000.

The additional budget requested for Task 3.2.2 minus the \$7,000 to be written off is \$24,000 (Attachment 3).

3.3.2 Data Analysis – Timeseries (Task 3.3.2)

Task 3.3.2 is for preparing numerous time series graphs with groundwater level, precipitation, spring flow, and geochemistry data to evaluate temporal changes in the data. This task has exceeded the amount that was originally budgeted due to the high volume of data encountered during the course of the Project. The level of effort has been particularly affected by the amount of groundwater level and precipitation data, which resulted in the development of over 190 water level hydrographs.

The additional budget requested for Task 3.3.2 is \$8,000 (Attachment 3).

3.4 Conceptual Model Development (Phase 4)

The additional budget requested for Phase 4 is \$95,380 and is detailed below by task.

3.4.1 Initial Water Budget (Task 4.3)

Task 4.3 is for developing an initial water budget for the conceptual models (CMs) and the numerical model. The initial water budget incorporates the data used to estimate groundwater inflow and outflow, and therefore the level of effort needed for this task has been greater than expected due to the large volume of data compiled and the technical complexity of the Project. Task 4.3 will be completed in Technical Memorandum No. 7 (TM7), but there is insufficient budget to complete the work. Golder estimates that we will require an additional \$57,000 to complete this task.

This task included out-of-scope work, discussed during the July 2019 multi-agency meeting, related to evaluating in-channel recharge in more detail. This evolved into gage-by-gage surface water balances to incorporate flowtopography data and surface water (HEC-HMS) modeling to help quantify time-varying water balance components. The modeling effort included some inefficiencies; therefore, Golder is willing to absorb and write off \$8,300 to compensate for the loss of productivity. Further details on this task are provided in Attachment 4.

The additional budget requested for Task 4.3 minus the \$8,300 to be written off is \$48,700 (Attachment 3).

3.4.2 Assess Multiple CMs (Task 4.4)

Task 4.4 is for assessing the four CMs provided by the Steering Committee for potential incorporation into the numerical model. The preliminary results of the assessment were presented in the partial draft of TM6 on July 23, 2019 and were further refined for the complete draft of TM6 provided on September 3, 2019. The overall level of effort required to complete this task has been greater than expected due to the large volume of data compiled and the technical complexity of the Project.

The additional budget requested for Task 4.4 is \$1,680 (Attachment 3).

3.4.3 Technical Memorandum for CMs (Task 4.5)

Task 4.5 is for preparing TM6, which presents an assessment of the four CMs provided by the Steering Committee and additional CMs developed by Golder under Task 4.2. A partial draft of TM6 was sent to the Steering Committee on July 23, 2019, and the complete draft of TM6 was sent on September 3, 2019. TM6 will be finalized after comments have been received from the Steering Committee and other entities, including the United States Geological Survey (USGS) and the Arizona Department of Water Resources (ADWR). The level of effort to prepare TM6 has been far greater than expected because we concluded that it was necessary to present a substantial amount of the technical data that have been compiled and evaluated over the past two years in TM6 to support the CM assessment. This includes data related to natural recharge, precipitation, groundwater pumping, evapotranspiration, groundwater elevations, and springs. Further details on this task are provided in Attachment 4.

The additional budget requested for Task 4.5 is \$45,000 (Attachment 3).

3.5 Numerical Model Development (Phase 5)

The additional budget requested for Phase 5 is \$22,900 and is detailed below by task.

3.5.1 Technical Memoranda for Numerical Model Development (1 of 2) (Task 5.3.1)

Task 5.3.1 is for preparing TM7, which will present our recommendations for the following model components:

- Model code
- Model domain
- Model layering
- Model grid
- Boundary conditions
- Initial hydraulic property distributions
- Initial water budget
- Representation of the sources and sinks in the model

Task 5.3.1 was initiated in September 2019. We have reviewed the budget for this task and concluded that additional budget will be required to complete the work, assuming TM7 will be finalized after comments are received from the Steering Committee and other entities, including the USGS and ADWR.

The additional budget requested for Task 5.3.1 is \$5,200 (Attachment 3).

3.5.2 Parameter Estimation (Calibration) (Task 5.4.2)

Betsy Semmens' effort was inadvertently left out of the cost estimate in Golder's proposal dated February 2, 2017. Therefore, an additional 120 hours of Betsy's effort was added when the budget was re-assessed for this contract amendment.

The additional budget requested for Task 5.4.2 is \$17,000 (Attachment 3).

3.5.3 Incorporate Various Conceptual Models (Task 5.4.3)

Joanna Moreno's effort was inadvertently left out of the cost estimate in Golder's proposal dated February 2, 2017. Therefore, an additional 80 hours of Joanna's effort was added when the budget was re-assessed for this contract amendment.

The additional budget requested for Task 5.4.3 is \$21,000 (Attachment 3).

3.5.4 Evaluation of Groundwater Flow Paths (Task 5.4.5)

This task is for evaluating groundwater flow paths in the numerical model using particle tracking and/or FlowSource analysis, as described in our original proposal. Due to the anticipated complexity of the model, which will be greater than we originally thought, we estimate that additional hours will be required to complete this task.

The additional budget requested for Task 5.4.5 is \$2,200 (Attachment 3).

3.5.5 Refinement of CMs and Adjustment of Calibration (Optional) (Task 5.5)

This is an optional task that Golder does not recommend funding at this time. However, if the City would like to proceed with this task, the estimated budget to be restored is \$29,500. Including this task in the scope of work will push out the final date by approximately 6 weeks.

Budget available for reallocation from Task 3.5.5 is \$29,500 (Attachment 3).

3.5.6 Technical Memorandum for Model Calibration (Task 5.6.2)

The effort estimated for Betsy Semmens (24 hours) and Joanna Moreno (10 hours) was judged to be insufficient for this important deliverable, and therefore effort was added when the budget was re-assessed for this contract amendment. The additional budget requested for Task 5.6.2 is \$7,000 (Attachment 3).

3.5.7 Groundwater Pumping (Optional) (Task 5.7.1)

This is an optional task that Golder does not recommend funding at this time. However, if the City would like to proceed with this task, the estimated budget to be restored is \$17,400. Including this task in the scope of work will push out the final date by approximately four weeks.

3.5.8 Precipitation Variability (Optional) (Task 5.7.2)

This is an optional task that Golder does not recommend funding at this time. However, if the City would like to proceed with this task, the estimated budget to be restored is \$28,700. Including this task in the scope of work will push out the final date by approximately four weeks.

3.5.9 Technical Memoranda for Stress Tests (Optional) (Task 5.7.3)

This is an optional task that Golder does not recommend funding at this time. However, if the City would like to proceed with this task, the estimated budget to be restored is \$15,700. Including this task in the scope of work will push out the final date by approximately nine weeks.

3.6 Groundwater Model Report (Phase 6)

3.6.1 Final Report (Task 6.2)

Task 6.2 was previously removed from the scope of work for CAA2 and will need to be restored in order to produce the final deliverable for the Project. The budget to be restored for Task 6.2 is \$25,460 (Attachment 3).

3.7 Training (Optional) (Phase 7)

This is an optional phase with seven tasks that Golder does not recommend funding at this time. However, if the City would like to proceed with this scope of work, the restoration budget for Phase 7 is \$13,300.

3.8 Allowance (Phase 8)

The original Allowance under Task 8.1 was reallocated in CAA No. 1. Golder requests that the Allowance be restored by \$54,700.

4.0 VALUE ADDED TO PROJECT

The additional effort expended on this Project has increased the overall cost, as described in the first two change order requests and in this contract amendment request. However, this additional effort has added value to the Project, as summarized below:

- Leapfrog™ model that incorporates more detail and layers of revisions than originally envisioned
- Three additional technical memoranda to provide details on data collection and analysis
- An extensive library with 530 entries (not including model files)
- Surface water analyses to incorporate flowtopography data into the water budget
- In-depth analysis of previous estimates of recharge over time
- Analysis and interpretation of geochemistry data affecting conclusions about recharge elevations and Upper Verde Springs (UVS) source waters
- Conceptual model technical memorandum of report length (230 pages).

These additional efforts are expected to pay dividends in the following ways:

- The Leapfrog™ model can be directly translated into the model framework, thereby reducing the labor effort relative to a standard model construction approach. This savings was already embedded in our cost estimate, but the stringent approach applied to the Leapfrog model development directly translates into similar rigor in the numerical model framework and allows for the possibility of future model framework changes to be rapidly incorporated.
- Flowtopography data cannot be directly used as model targets due to the differing timescales between the data collected and storm events observed versus the decades-long groundwater flow paths being modeled. However, these data provide insight into recharge along alluvial channels and along runoff flow paths. Surface water budget and surface water modeling analyses provide the basis for improving recharge distributions and refining the basin water balance.
- Geochemistry data have in the past been used to constrain recharge sources and provide conclusions about UVS source waters. Data collected since 2006 allow for updates of prior conclusions key to the UVS source analyses and also provide additional model calibration targets (flow paths, basin underflows, and groundwater travel times).
- Recharge data have varied significantly in previous estimates, resulting in widely varying water budgets for the Big Chino Sub-basin. Detailed comparison between multiple groundwater and basin characterization models as well as water balance summaries from multiple sources has allowed for uncertainties and imbalances to be identified for investigation in the numerical model.
- The report-length conceptual model technical memorandum (TM6), which contains data that will have been already reviewed by the Steering Committee and agency partners, will be incorporated into the Final Report.

5.0 COST SAVINGS

The following actions have been taken to reduce costs:

- Costs for software have been tracked and written off since the beginning of the project.
- Significant costs deemed not to be productive have been identified and will be written off.
- Betsy Semmens's billing rate as a subcontractor is less than her previous Golder billing rate.
- Costs for negotiating and administering Golder's subcontracting agreement with BAS have been absorbed by Golder and have not been charged to the Project
- Where practical, technical memoranda were combined or added to other deliverables

For future cost savings:

- Golder will minimize the number of staff involved on the Project, which will make it easier to manage costs
- Golder will minimize additional data added to database or as model inputs or targets
- Betsy Semmens's reduced billing rate as a subcontractor will remain unchanged for the duration of the Project
- Costs for administering Golder's subcontracting agreement with BAS will continue to be absorbed by Golder and written off
- Where practical, technical memoranda will be combined or added to other deliverables

6.0 PROJECT SCHEDULE

Two Project schedules have been prepared: a schedule excluding the optional tasks (Attachment 5) and a schedule including the optional tasks (Attachment 6). The schedule excluding the optional tasks shows the Project ending on October 26, 2020. The schedule including the optional tasks is estimated to be about 15 weeks longer and would have the final report completed by January 19, 2021, while the optional Training task would extend the schedule to January 26, 2021.

The schedules provided in Attachments 4 and 5 reflect cumulative delays due to several factors, including (1) the greater than expected volume of data compiled during Task 3, which required additional time for evaluation, (2) temporary cessation of work under Task 3 and Task 3.2.3, (3) the need for the Steering Committee's comments on the geologic cross sections before completing the Leapfrog model and TM5, (4) the submittal of TM5 on March 6, 2019 and the required time for Steering Committee review before finalizing the Leapfrog model and TM5, and (5) turnover of Golder Project team members earlier this year, which delayed the Project by approximately two months.

The schedules are based on the estimated time required to complete the Project and extend beyond the authorized Final Completion Date of March 31, 2020. We therefore request that the Final Completion Date be extended to either December 31, 2020 or March 31, 2021, depending on whether the City and the Steering Committee elect to fund the optional tasks. These Final Completion Dates include a two-month contingency beyond the estimated completion dates in the schedules to allow for any unforeseen delays. We understand that an amendment of the Final Completion Date will require City Council approval.

7.0 SUMMARY

7.1.1 Option 1 – Exclude Optional Tasks

Golder requests that the Contract amount be increased by \$277,460 for a total Contract amount of \$1,426,760, which excludes optional tasks.

The Project budget, based on the two approved contract allowance authorizations and pending contract amendment request, is summarized below:

- CAA No. 1 (March 16, 2018) = \$77,899
- CAA No. 2 (December 13, 2018) = \$90,530
- CAR No. 1 Excluding Optional Tasks = \$277,460
- Approved Reallocations (CAA No. 1 + CAA No. 2) = \$168,429
- CAR No. 1 Additional Task Budgets Excluding Optional Tasks = \$54,331 (includes \$24,300 in write-offs by Golder)
- CAR No. 1 Allowance Restoration = \$54,700
- CAR No. 1 Projected Schedule Completion = December 31, 2020 (Attachment 5)

7.1.2 Option 2 – Include Optional Tasks

If the City would like to include the optional tasks, then Golder requests that the Contract amount be increased by \$382,060 for a total Contract amount of \$1,531,360.

Optional tasks totaling \$104,600 as outlined in the proposal are:

- Task 5.5 – Refinement of CMs and Adjustment of Calibration (\$29,500)
- Task 5.7.1 – Groundwater Pumping (\$17,400)
- Task 5.7.2 – Precipitation Variability (\$28,700)
- Task 5.7.3 – Technical Memoranda for Stress Tests (\$15,700)
- Phase 7 (Tasks 7.1, 7.2, 7.3, 7.4, 7.5) – Training (\$13,300)

The Project budget, based on the two approved contract allowance authorizations and pending contract amendment request, including optional tasks, is summarized below:

- CAA No. 1 (March 16, 2018) = \$77,899
- CAA No. 2 (December 13, 2018) = \$90,530
- CAR No. 1 Including Optional Tasks = \$382,060
- Approved Reallocations (CAA No. 1 + CAA No. 2) = \$168,429

Mr. Benjamin Burns, Senior Infrastructure Analyst
City of Prescott

Project No. 1662614
October 28, 2019

- CAR No. 1 Additional Task Budgets Excluding Optional Tasks = \$54,331 (includes \$24,300 in write-offs by Golder)
- CAR No. 1 Allowance Restoration = \$54,700
- CAR No. 1 Optional Task Budgets (Tasks 5.5, 5.7.1, 5.7.2, 5.7.3, 7.1, 7.2, 7.3, 7.4, and 7.5) = \$104,600
- CAR No. 1 Projected Schedule Completion = January 26, 2021 (Attachment 6)

To date, the additional budgets for the tasks in need funding have been obtained by reallocating budget from future tasks that have not yet begun, without increasing the total Contract amount. To perform these tasks and complete the Project, the task budgets that have been removed will need to be restored.

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

Mr. Benjamin Burns, Senior Infrastructure Analyst
City of Prescott

Project No. 1662614
October 28, 2019

8.0 CLOSING

Project tasks have overrun planned budgets primarily due to Golder's emphasis on creating a quality product based on the 50-year database of studies, models, and data available for the data collection area. Additional effort was particularly applied for key model inputs that shape the model development and conclusions (geology, recharge, runoff, water use, and geochemistry).

Added value and future dividends include development of a robust geological model, incorporation of flowtopography data into the water budget, update of geochemistry-based conclusions on UVS source waters, and identification of uncertainties in the basin water balance.

Golder will write off effort that was not immediately or obviously of added value to the Project, although conducted with that aim at the outset.

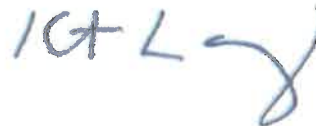
Golder recommends a series of cost and schedule control steps to successfully complete the Project on time and budget, if CAR No. 1 is approved.

If you have any questions regarding this request, please contact the undersigned.

Sincerely,
Golder Associates Inc.



David A. Carr, RG
Associate and Senior Consultant



Kent Lang, MSc
Practice Leader and Group Leader

DAC/KL/mb

CC: Jana Hesker, PMP
Joanna Moreno, PH(GW)
Betsy Semmens, RG

Attachments: Table 1: Selected Proposal Assumptions Overturned During Project Performance
1: Contract Allowance Authorization No. 1
2: Contract Allowance Authorization No. 2
3: Contract Amendment Request No. 1 Budget Summary
4: Analysis of Primary Tasks That Have Exceeded Planned Budget
5: Project Schedule through Sept 27, 2019 Excluding Optional Tasks
6: Project Schedule through Sept 27, 2019 Including Optional Tasks

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Tables

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

October 2019

Project No. 1662614

Table 1: Selected Proposal Assumptions Overturned During Project Performance

Assumption in Proposal	Actual Conditions	Proposal Reference
Data already available will be provided within the first two months of the Project.	Data have been provided over the course of the Project and are still being provided. Examples include: <ul style="list-style-type: none"> ■ Data from the new monitoring wells commissioned by the CA1 Steering Committee ■ Geophysical and geochemical data collected by the USGS ■ Domestic well pumping data compiled by CA1 Steering Committee members 	Page 6
The models to be reviewed include: <ul style="list-style-type: none"> ■ NARGFM ■ Prescott AMA/LIC models ■ Leonard Rice Big Chino model (limited to web material only) ■ SW Groundwater Big Chino model ■ SW Groundwater Flagstaff model (as pertains to use of BCM model) 	In addition to reviewing the models, the NARGFM, SW USA BCM, and LCRBCM model files were obtained and analyzed using FlowSource, ZoneBudget, and GIS analyses. The following model was also reviewed: <ul style="list-style-type: none"> ■ LCRBCM model 	Page 11
Assumptions Used in Cost Estimate		
16 hours per geologic cross section for a total of 6 sections	8 cross sections were ultimately prepared, including two additional cross sections approved by the Steering Committee. Substantially more time was required to prepare the cross sections than anticipated due to the volume of data and geologic complexity of the area.	n/a
Technical memoranda will be brief and casual in format	The conceptual model technical memorandum (TM6) ended up being very lengthy (230 pages) due to the need for client and agency input on assumptions and updated interpretations	n/a

ATTACHMENT 1

**Contract Allowance Authorization
No. 1**

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)



Public Works Department

433 N. Virginia Street
Prescott AZ 86301
928-777-1130

CONTRACT ALLOWANCE AUTHORIZATION No. 1

PROJECT NAME: Big Chino Sub-Basin Groundwater Flow Model
 CONTRACT NUMBER: 2017-246
 PROJECT NUMBER: CIP15-045
 DATE OF ISSUANCE: March 12, 2018
 CONTRACTOR: Golder Associates Inc.
 1430 W. Broadway Road, Suite 108
 Tempe, AZ 85282

You are directed to proceed promptly with the following change (s): Design services as out lined in Change Order Request No. 1, February 27, 2018 (attached). This is also in accordance with extra work requested by the CA1 Members.

Purpose of Amendment: It was understood that this flow model would be primarily created from compiling and reviewing data collected from existing sources. The amount of material produced for review by Golder was found to be much more in quantity than originally anticipated. This has caused over runs to the budgeted allotments for Task 2.2 – Site Reconnaissance, Task 3.1 – Data Compilation, Task 3.2.3 – Data Management, Leapfrog Modeling and Task 3.5.1 – Technical memorandum, Initial Data Compilation. Current forecasted trends reflect continuing overages for Task 3.1 and 3.2.3. Golder was asked to account for and project estimated over runs in Task 3.1 and Task 3.2.3 through July 1, 2018. Total Amount: \$35,599.00

In addition the CA1 Members agreed to increase the scope of Golder's original estimation for using grid lines in the model. Golder accounted for 6 grid lines however after review of the available data and existing cross sections; Golder recommended adding two additional grid lines (line 7 and 8), which is a 22% increase to the scope. This should help provide a better and more accurate water flow model. Total Amount: \$19,000.00

To insure no further delays are incurred a temporary Task Reallocation will be performed in which funds from Task 5.7.3 – Technical memoranda for Stress Test (\$10,000.00) and Task 7.0 – Training (\$13,300.00), will be used to augment the previously mentioned Tasks as needed until a Contract Amendment is taken to Council in the new Fiscal Year. Total Amount: \$23,300.00

CAA No. 1: \$54,599.00

Task Reallocation: \$23,300.00

Additional project days requested for delays and additional scope of work: 56

A Contract Amendment to Council is not needed at this time. All funds are contained within the current budget.

Attachments: Proposal from Golder Associates; Written Authorization from the CA 1 Members

Change Order costs will be based on the following method.

Contract Amendment No. 1; Page 1 of 3

☐ Time & Materials
☐ Unit Prices
☒ Cost Plus Fixed
☒ Additional Contract days (56 days)
☐ Extend completion date
☐ Other – Cost Proposal by Contractor

Estimated change to:

☒ Contract Allowance (\$54,599.00)

☐ Contract Price: \$0.00

All additional costs more than \$10,000.00 above the approved contract amount are subject to final approval by the City Council.

Account Distribution this Authorization:	Account No:	Amount
Water (CA1 Modeling)	7122230-8418	\$54,599.00
Sewer	N/A	\$xxxxxx
Transportation	N/A	\$xxxxxx

Contract Allowance and Time Accounting

		Original Contract Time 1123 Calendar Days
Original Contract Allowance:	\$54,700.00	
Contract Amendment No. 1 (current)	<u>(\$54,599.00)</u>	<u>56</u>
Total Contract Authorization:	<u>(\$54,599.00)</u>	56 Total calendar days added
Remaining Contract Allowance:	\$101.00	1179 New contract calendar days
Original Notice to Proceed Date:	February 28, 2017	
Original Final Completion Date	March 31, 2020	
Amended Final Completion Date	May 26, 2020	

Contract Allowance Authorization Recommended by:

[Signature] Date: 3/14/18
Capital Projects Manager

Contract Allowance Authorization Recommended by:

[Signature] Date: 3/14/2018
Construction Services Administrator

Contract Allowance Authorization Approved by:

[Signature] Date: 3/14/18
City Engineer or Utilities Manager

Contract Allowance Authorization Approved by:

[Signature] Date: 3-16-18
Public Works Director

Contract Amendment No. 1; Page 2 of 3

I/We, the undersigned contractor, gave careful consideration to the change proposal and hereby agree, and approved, that we will provide all labor, materials, tools, and equipment, except as may otherwise be noted above, and services necessary for the work above specified and full payment accepted therefore at the price(s) shown above, including any allowed time to the contract.

Contract Allowance Authorization Accepted Date 3-21-18

By:



Title:

Associate and Senior Consultant

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)



February 27, 2018

1662614

Benjamin Burns
Public Works Capital Projects Manager
City of Prescott
433 North Virginia Street
Prescott, Arizona 86302

**RE: CHANGE ORDER REQUEST NO. 1, REVISED, HYDROGEOLOGICAL MODELING SERVICES
BIG CHINO SUB-BASIN GROUNDWATER FLOW MODEL, ARIZONA**

Dear Mr. Burns:

Golder Associates Inc. (Golder) has prepared this change order request, designated Change Order Request No. 1, for professional services in support of the Big Chino Sub-basin Groundwater Flow Model (BCSM) Project (Project). The Project is being performed by Golder for the City of Prescott (City) and the Comprehensive Agreement No. 1 (CA1) Steering Committee in accordance with the scope of work in our February 2, 2017 proposal, and the terms and conditions of the February 28, 2017 Professional Services Agreement between the City and Golder.

Golder submitted a change order request on January 31, 2018, as requested by Benjamin Burns (City) in an email to Dave Carr (Golder) on December 18, 2017, and as clarified in a follow-up email on January 11, 2018. This revised change order incorporates the changes requested by the City on our phone conversation with Benjamin Burns on February 22, 2018, and requests increased budget to cover current and projected task-level overages, and additional scope, as discussed with the Steering Committee in a conference call on January 3, 2018.

The requested additional budget for current and projected overages and additional scope applies to the following tasks:

- Task 2.2 – Site Reconnaissance
- Task 3.1 – Data Compilation
- Task 3.2.3 – Data Management, Leapfrog™ Modeling
- Task 3.3.1 – Cross Sections
- Task 3.5.1 – Technical Memorandum – Initial Data Compilation
- Task 3.5.2 – Technical Memorandum – Leapfrog™

Additionally, this change order requests that Project budget be reallocated from the following tasks to cover the estimate to complete the overbudget tasks to extend the current contract budget through the 2017-2018 fiscal year:

- Task 5.7.3 – Technical Memoranda for Stress Test
- Task 7.1 – Training, Numerical Code
- Task 7.2 – Training, Leapfrog™
- Task 7.3 – Training, Flow Source
- Task 7.4 – Training, Model Orientation
- Task 7.5 – Training, Database

c:\projects\project\1662614\big_chino_sub_basin_golder\020717\11662614-01-003-001-20180227.docx

Golder Associates Inc.
1430 W. Broadway Road, Suite 108
Tempe, AZ 85282 USA
Tel: (480) 966-0153 Fax: (480) 966-0193 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

A summary of the change order request budget is provided in Table 1. In total, Golder is requesting \$54,599 to cover the cost of current overages, charges on hold, and additional scope discussed with the Steering Committee on January 3, 2018. The estimate to complete remaining scope in overbudget tasks is \$23,300 and would be covered by reallocating funds from Phase 7 and Task 5.7.3, which are not scheduled to start until after the new fiscal year.

1.0 TASK-LEVEL BUDGET OVERAGES

Current task-level budget overages include Task 2.2 – Site Reconnaissance (\$220), Task 3.1 – Data Compilation (\$7,556), Task 3.2.3 – Data Management, Leapfrog™ Modeling (\$4,038), and Task 3.5.1 – Technical Memorandum – Initial Data Compilation (\$443). The overall phase-level budgets and Project budget have not been exceeded; however, the Project forecast indicates that the overall Phase 3 budget would be exceeded at the end of the Project based on task-level overages. Therefore, the task-level overages have been addressed in this a change order request. At the City's request on January 11, 2018, Golder has held charges incurred on Task 3.1 Data Compilation and 3.2.3 Data Management after the October 2017 billing cycle.

Managing budget to the individual tasks as opposed to the phases will require additional management hours. However, at this time Golder's forecast trend indicates we will be underbudget in our financial management task (Task 1.2) at the end of the project. Based on the forecast trend, Golder does not request additional management hours under this change order. We will continue to monitor the forecast and if a change in the trend arises, we will notify the City promptly.

1.1 Task 2.2 – Site Reconnaissance

Project charges incurred on Task 2.2 were greater than the approved budget by \$220. Golder's cost overrun in this task are related to the extra hours required to develop an adequate health and safety plan for the site reconnaissance and time spent reviewing available information on the list of potential sites prior to the trip to ensure a productive visit. In total, Golder spent an additional 11 labor hours than originally budgeted; however, expense costs were \$1,442 less than originally budgeted. The balance amounts to \$220 over budget.

1.2 Task 3.1 – Data Compilation

The current approved budget for Task 3.1 (Data Compilation) was based on Golder's estimate of the number of hours needed early in the project to compile and catalog the anticipated volume of available data, plus a relatively small number of hours for ongoing data compilation throughout the duration of the project to account for new data collection efforts. The initial data compilation and library compilation was documented in Draft Technical Memorandum #1 and submitted to the Steering Committee for review. Written comments were received from the Steering Committee, as well as verbal comments during a conference call on July 26, 2017. The Steering Committee comments identified additional data sources, which led to another data compilation effort to retrieve and catalog these data sources. This additional data compilation effort was not included in Golder's original proposal. The volume of data compiled during these combined efforts was larger than Golder anticipated during scoping of the project's budget. We assume data compilation is 85 percent complete as of December 31, 2017. The remaining data compilation scope includes only data collected under existing field data collection contracts held between the Committee and various agency and consultant groups, as well as the usual updates to the Arizona Department of Water Resources (ADWR) Groundwater Site-Inventory (GWSI) database.

Golder requests additional budget to balance the budget for current task overages (\$7,556) and the charges on hold (\$11,115). Based on our assumed progress to date, the estimate to complete the remaining scope in Task 3.1 is \$9,942. We understand that the City cannot increase the overall contract budget until after the start of the new fiscal year on July 1, 2018. Therefore, Golder requests permission to reallocate \$10,000 from Task 5.7.3, Technical Memoranda for Stress Tests to Task 3.1 to cover the estimate to complete the remaining scope of work, which needs to be completed before July 1, 2018. Golder anticipates that the \$10,000 reallocated budget from Task 5.7.3 can be recouped in a subsequent change order in the new

fiscal year or we can issue a change order to remove the Technical Memoranda for Stress Tests from the approved Contract scope of work.

1.3 Task 3.2.3 – Data Management, Leapfrog™ Modeling

The budget for Task 3.2.3 – Data Management, Leapfrog™ Modeling was based on Golder's estimate of the number of hours needed to review and analyze geologic information including cross sections and geologic maps, and to build a three-dimensional (3D) geologic model of the subsurface, based on an anticipated volume of geologic data. The volume of geologic data compiled for the project is larger than anticipated, and therefore management, review, and analysis of the geologic data are larger efforts than anticipated. The complexity of the 3D Leapfrog™ model is greater than initially expected, particularly with the number of geologic units that will need to be explicitly included in the model, and there are more cross sections to calibrate with the geologic model than initially anticipated. The geology of the study area is of critical importance to the numerical model to ensure that the model is properly constructed to represent subsurface units and groundwater movement. We estimate that Task 3.2.3 is 40 percent complete as of December 31, 2017.

Task 3.2.3 is currently over budget by \$4,038. Golder has also held \$12,228 of labor charges incurred after the October billing cycle. Thus, we are requesting additional funds to balance the budget in Task 3.2.3. Based on our assumed progress to date, the estimate to complete the scope of work for Leapfrog™ is \$13,108. As with Data Compilation, Leapfrog™ modeling needs to be completed before the next fiscal year. Therefore, Golder requests permission to reallocate the Phase 7 Training budget (\$13,300) to Task 3.2.3 to cover the estimate to complete the remaining scope of work. Golder anticipates that the \$13,300 reallocated budget from Phase 7 can be recouped in a subsequent change order in the new fiscal year or we can issue a change order to remove Training from the approved Contract scope of work.

1.4 Task 3.5.1 – Technical Memorandum – Initial Data Compilation

Project charges incurred on Task 3.5.1 were greater than the approved budget by \$443. Golder spent an additional 3 labor hours more than originally budgeted to complete the scope of work for this task.

2.0 ADDED SCOPE PER JANUARY 3, 2018 STEERING COMMITTEE MEETING

The approved Project scope included the assumption that Golder would create six new geologic cross sections in the study area. Upon review of the available data and existing cross sections, Golder recommends constructing eight geologic cross sections to provide better geologic interpretation across the study area. The suggested locations and orientations for cross sections 7 and 8 were provided to the Steering Committee on a conference call on January 3, 2018. The combined length of cross sections 7 and 8 is about 372,000 feet, or approximately 22 percent of the combined length of the original six cross sections. Golder used this percentage of length to estimate the cost of additional cross sections 7 and 8, and applied this percentage to the Project tasks that would be impacted by additional cross sections as follows:

- Task 3.1 – Data Compilation (\$5,890)
- Task 3.3.1 – Cross Sections (\$4,820)
- Task 3.2.3 – Data Management, Leapfrog™ Modeling (\$4,810)
- Task 3.5.2 – Technical Memorandum, Leapfrog™ Modeling (\$3,480)

The total requested additional budget for the two additional cross sections is \$19,000, and includes funds to construct the cross sections, compile geologic data in their vicinity, calibrate the cross sections in Leapfrog™, and document their development and the extended Leapfrog™ model development in the technical memorandum.

Mr. Benjamin Burns
City of Prescott

4

February 27, 2018
1662614

3.0 PROJECT STATUS AND SCHEDULE

In an email dated January 11, 2018, the City requested that Golder remove the charges for Task 3.1 Data Compilation and 3.2.3 Data Management, Leapfrog™ Modeling from Progress Billing No. 9 (November 2017 charges) and hold such charges incurred after that billing cycle. We have removed the charges for tasks 3.1 and 3.2.3 from Progress Billing No. 9 and issued the invoice on February 1, 2018. We issued Progress Billing No. 10 (December 2017 charges) without charges for tasks 3.1 and 3.2.3 on February 5, 2018. Charges incurred on tasks 3.1 and 3.2.3 during January and February 2018 are also on hold, and we have stopped working on those tasks pending the approval of additional budget.

The Project schedule has, and will continue to be, impacted by the cessation of work on tasks 3.1 and 3.2.3. In addition, the completion of the Leapfrog™ model relies on finishing the additional two cross sections, and on completing the geologic modeling. The geologic modeling feeds into the development of the conceptual models for the Project, and those that will be developed as numerical models under Phase 5. We have pushed out Task 3.5.2 – Technical Memorandum, Leapfrog™ Modeling eight weeks to account for the time needed to approve this change order, which we assume will be by March 12, 2018. All subsequent dependent tasks have also been pushed out. We have compressed the duration of the numerical modeling (Phase 5) tasks as much as possible, but we estimate an overall Project delay of two months. Our projected Project end date is now May 26, 2020. The final report would be submitted to the City and CA1 Committee on April 15, 2020. The revised schedule as of February 16, 2018 is attached to this letter.

It should be noted that one potential way to recoup some of the schedule delay on this project is to reduce the length of time for Steering Committee review of each technical memorandum. Many of the modeling subtasks are scheduled to allow for comments by the Committee on the technical memoranda throughout this project. Currently, five weeks are scheduled for Committee review of each technical memorandum. If this was reduced for some or all of the technical memorandum reviews it would help to reduce the total project duration.

4.0 CLOSING

The amount of additional funds for the Project requested in this change order is \$54,599. Golder anticipates submitting a subsequent change order in the new fiscal year to increase the total Project budget by \$23,300 for the reallocated budgets from Task 5.7.3 and Phase 7 or to remove those tasks from the approved Contract scope of work.

If you have any questions regarding this request, please contact me at 480-966-0153.

GOLDER ASSOCIATES INC.



David A. Carr, RG
Associate and Senior Consultant/Hydrogeologist

cc: Mark Birch, RG
Betsy Semmens, RG

Attachment: Table 1 – Change Order Request No. 1 Budget Summary
Project Schedule Updated through February 16, 2018

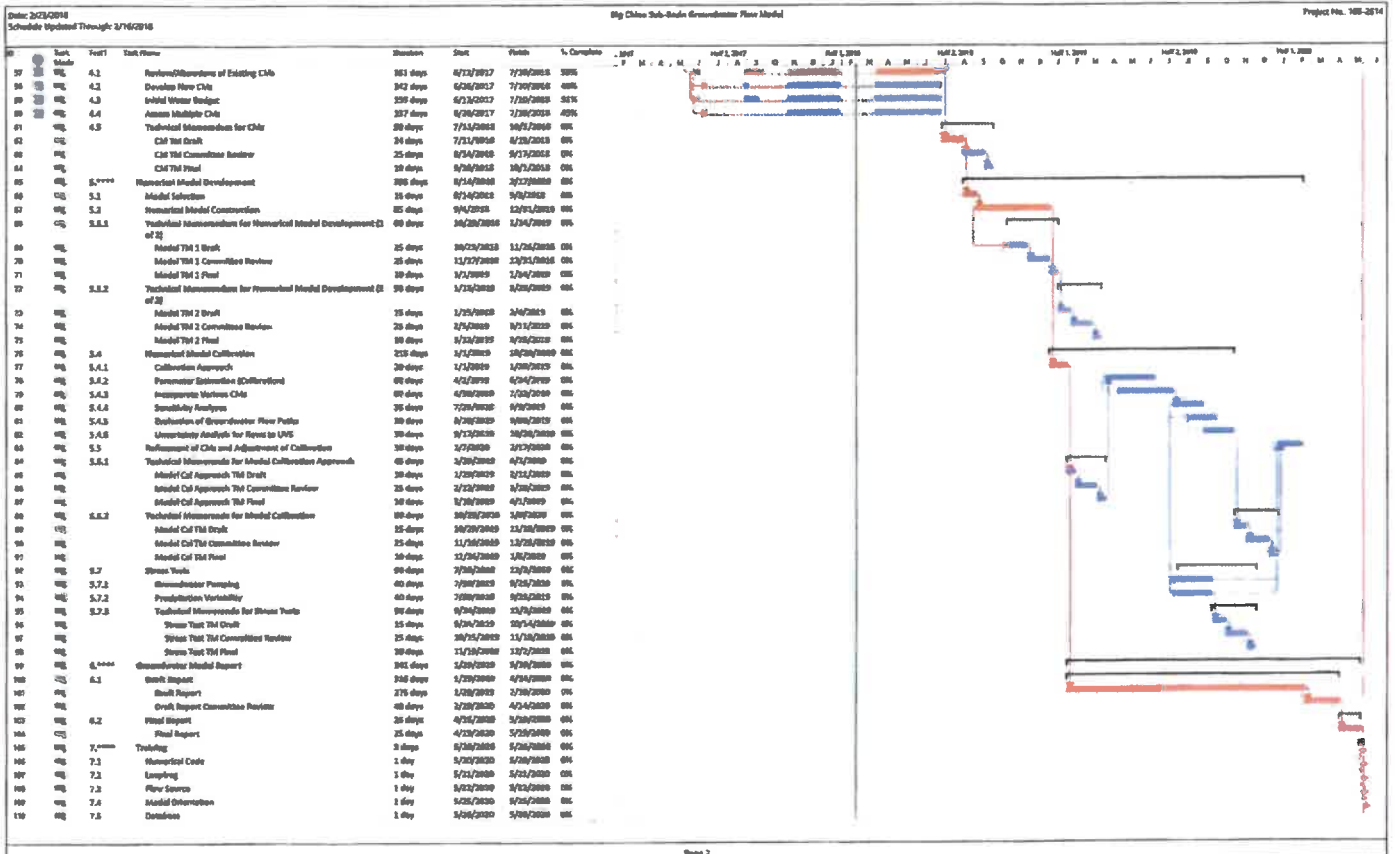
DAC/pb

TABLE 1 – CHANGE ORDER REQUEST NO. 1 BUDGET SUMMARY

Table 2: Change Order Request No. 1 - Budget Summary[illegible]

PROJECT SCHEDULE UPDATED THROUGH FEBRUARY 16, 2018

Page 1



Burns,Benjamin

From: Graser,Leslie
Sent: Thursday, March 01, 2018 4:58 PM
To: John Munderloh; Kornrump Gregory S (Greg); Burns,Benjamin
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

Good here, thanks

Leslie Graser
Water Resource Manager
 201 S. Cortez Street | Prescott, AZ 86303
 Ph: 928-777-1144 | Fax: 928-777-1255
leslie.graser@prescott-az.gov

From: John Munderloh [<mailto:JMunderloh@pvaz.net>]
Sent: Thursday, March 01, 2018 2:54 PM
To: Kornrump Gregory S (Greg); Burns,Benjamin
Cc: Graser,Leslie
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

Also OK here.

From: Kornrump Gregory S (Greg) [<mailto:Greg.Kornrump@srpnet.com>]
Sent: Thursday, March 01, 2018 2:29 PM
To: Burns,Benjamin
Cc: Graser,Leslie; John Munderloh
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

Thanks Ben. SRP Ok to proceed.

Greg Kornrump
 Manager-Water Rights
 Salt River Project
 602-236-3264
 602-236-2159 fax
greg.kornrump@srpnet.com

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From: Burns,Benjamin [<mailto:benjamin.burns@prescott-az.gov>]
Sent: Thursday, March 1, 2018 2:14 PM
To: Kornrump Gregory S (Greg) <Greg.Kornrump@srpnet.com>
Cc: Graser,Leslie <leslie.graser@prescott-az.gov>; jmunderloh@pvaz.net
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

Good afternoon everyone,

What Dave submitted is in essence what we discussed. I don't understand why the Contract Allowance is missing from the Budget Summary but will ask him to put it in. His proposal falls just under the \$54,700.00 we have in allowance. We

are also shifting funds from some tasks to keep them going for a longer period of time so we don't need to go back to Council so soon.

I think it would be prudent, when we go back to Council, to ask for additional fund for our Allowance beyond what Golder projects they will need to finish the contract.

With everyone else's approval I will instruct Golder to proceed with the Change Order.

Thanks,

Benjamin Burns
Public Works Capital Projects Manager



433 N. Virginia Street | Prescott, AZ 86302
Ph: 928-777-1130 | Fax: 928-771-5929
benjamin.burns@prescott-az.gov

From: Kornrumph Gregory S (Greg) [<mailto:Greg.Kornrumph@srpnet.com>]
Sent: Wednesday, February 28, 2018 3:11 PM
To: Burns,Benjamin
Cc: Graser,Leslie; jmunderloh@pvaz.net
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

Ben, is this consistent with your conversation with Dave? It looks OK to me. If so, we need to move this along. It sounds like they have halted their work until we approve the change order.

Greg Kornrumph
Manager-Water Rights
Salt River Project
602-236-3264
602-236-2159 fax
greg.kornrumph@srpnet.com

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From: Carr, Dave [mailto:Dave_Carr@golder.com]
Sent: Tuesday, February 27, 2018 10:24 AM
To: Benjamin Burns <benjamin.burns@prescott-az.gov>
Cc: leslie.graser@prescott-az.gov; Kornrumph Gregory S (Greg) <Greg.Kornrumph@srpnet.com>; jmunderloh@pvaz.net
Subject: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

***** SRP EXTERNAL WARNING: BEWARE OF PHISHING ATTEMPTS. THINK TWICE BEFORE OPENING EMAIL. *****

Good Morning, Ben:

At your request, we have revised the above-referenced change order request in response to comments from the Steering Committee we received on February 20, 2018, and our discussion on February 22, 2018. The revised change order request is attached, and supersedes the change order request we submitted on January 31, 2018.

Please contact me if you have questions or if anything needs to be modified.



GOLDER

Associate and Senior Consultant

Regards,

Dave

David A. Carr, R.G.

1430 West Broadway Road, Suite 108, Tempe, Arizona, USA 85282
T: +1 480 966-0153 | D: +1 480 966-0153 x56003 | C: +1 480 298-9074 | golder.com
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Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

Burns, Benjamin

From: Burns, Benjamin
Sent: Wednesday, March 07, 2018 2:52 PM
To: 'Carr, Dave'
Cc: Graser, Leslie; Greg.Kornrumph@srpnet.com; jmunderloh@pvaz.net
Subject: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18) COP



GOLDER

Dave,

The CA1 members are comfortable with moving ahead with Change Order Request No 1 as revised. I am writing the Contract Allowance Authorization now and will update you after it goes out for signatures. You may proceed with the work as defined in the request.

Thank you,

Benjamin Burns
Public Works Capital Projects Manager



433 N. Virginia Street | Prescott, AZ 86302
 Ph: 928-777-1130 | Fax: 928-771-5929
benjamin.burns@prescott-az.gov

From: Carr, Dave [mailto:Dave_Carr@golder.com]
Sent: Tuesday, February 27, 2018 10:24 AM
To: Burns, Benjamin
Cc: Graser, Leslie; Greg.Kornrumph@srpnet.com; jmunderloh@pvaz.net
Subject: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

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Please contact me if you have questions or if anything needs to be modified.

Regards,

Dave

David A. Carr, R.G.
Associate and Senior Consultant

1430 West Broadway Road, Suite 108, Tempe, Arizona, USA 85282
 T: +1 480 966-0153 | D: +1 480 966-0153 x56003 | C: +1 480 298-9074 | golder.com
 LinkedIn | Facebook | Twitter

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Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

Burns, Benjamin

From: John Munderloh [JMunderloh@pvaz.net]
Sent: Tuesday, March 06, 2018 2:23 PM
To: Burns, Benjamin; Kornrumpf Gregory S (Greg)
Cc: Graser, Leslie
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18) PV

Hi All,

I just spoke to Dave Carr about their preference for transmitting well logs from the drilling program. He stated that Golder has designed several of the cross-sections to include the new wells and that they would appreciate getting the raw geophysics, video and driller's logs and anything else as soon as SW Groundwater is willing to release them. This would help them get back on schedule significantly better than waiting for interpreted data. We can either wait for next Wednesday to discuss at our regular meeting or ask Dylan to start shipping information over to Golder?

On a more urgent note, Dave is still waiting for approval on the change order issue. I think we're all OK with it, but last week was so crazy it dropped off the radar. Ben, if you are satisfied, could you please give Dave the go-ahead?

Thanks,
 John

From: Burns, Benjamin [mailto:benjamin.burns@prescott-az.gov]
Sent: Thursday, March 01, 2018 2:14 PM
To: Kornrumpf Gregory S (Greg)
Cc: Graser, Leslie; John Munderloh
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

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Thanks,

Benjamin Burns
Public Works Capital Projects Manager



433 N. Virginia Street | Prescott, AZ 86302
 Ph: 928-777-1130 | Fax: 928-771-5929
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Sent: Wednesday, February 28, 2018 3:11 PM
To: Burns, Benjamin
Cc: Graser, Leslie; jmunderloh@pvaz.net
Subject: RE: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

Ben, is this consistent with your conversation with Dave? It looks OK to me. If so, we need to move this along. It sounds like they have halted their work until we approve the change order.

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 Manager-Water Rights
 Salt River Project
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Cc: leslie.graser@prescott-az.gov; Kornrumph Gregory S (Greg) <Greg.Kornrumph@srpnet.com>; jmunderloh@pvaz.net
Subject: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

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Regards,

Dave

David A. Carr, R.G.
 Associate and Senior Consultant

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 LinkedIn | Facebook | Twitter

Burns, Benjamin

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Subject: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)



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Sent: Tuesday, February 27, 2018 10:24 AM
To: Benjamin Burns <benjamin.burns@prescott-az.gov>
Cc: leslie.graser@prescott-az.gov; Kornrumph Gregory S (Greg) <Greg.Kornrumph@srpnet.com>; jmunderloh@pvaz.net
Subject: BCSM (Project 1662641) Change Order Request No. 1 - Revised (02/27/18)

***** SRP EXTERNAL WARNING: BEWARE OF PHISHING ATTEMPTS. THINK TWICE BEFORE OPENING EMAIL. *****

Good Morning, Ben:

At your request, we have revised the above-referenced change order request in response to comments from the Steering Committee we received on February 20, 2018, and our discussion on February 22, 2018. The revised change order request is attached, and supersedes the change order request we submitted on January 31, 2018.

Please contact me if you have questions or if anything needs to be modified.

Regards,

Dave

David A. Carr, R.G.
 Associate and Senior Consultant

1430 West Broadway Road, Suite 108, Tempe, Arizona, USA 85282
 T: +1 480 966-0153 | D: +1 480 966-0153 x56003 | C: +1 480 298-9074 | golder.com
 LinkedIn | Facebook | Twitter

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

ATTACHMENT 2

**Contract Allowance Authorization
No. 2**

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)



Public Works Department

433 N. Virginia Street
 Prescott AZ 86301
 928-777-1130

CONTRACT ALLOWANCE AUTHORIZATION No. 2

PROJECT NAME: Big Chino Sub-Basin Groundwater Flow Model
 CONTRACT NUMBER: 2017-246
 PROJECT NUMBER: CIP15-045
 DATE OF ISSUANCE: December 12, 2018
 CONTRACTOR: Golder Associates Inc.
 1430 W. Broadway Road, Suite 108
 Tempe, AZ 85282

You are directed to proceed promptly with the following change (s): Design services as out lined in Change Order Request No. 2, November 30, 2018 (attached). This is also in accordance with extra work requested by the CA1 Committee. This Contract Allowance will consist only of Task Reallocations as the Allowance has been depleted. Changes to the Contract will be revisited after May, 2019 in order to solidify a Contract Amendment which will be taken to Council in September, 2019.

Purpose of Amendment: It was understood that this flow model would be primarily created from compiling and reviewing data collected from existing sources. The amount of data has continued to outpace the revised estimation as presented in Contract Allowance Authorization No. 1. This has caused other Tasks to overrun budgeted funds while Golder also accommodated additional work requests from the CA1 Committee. Per the meeting direction given to Golder on November 8, 2018 by the CA1 Committee, funds will be moved from Tasks 3.5.3, 5.7.1, 5.7.2, 5.7.3 and 6.2 into Tasks 3.1, 3.2.1, 3.2.3, 3.3.1 and 3.3.3. A thorough break down of each Task is provided in the attached proposal from Golder. Total Amount for Task Reallocation: \$90,530.00

It is understood by the CA1 Committee that Golder will not be obligated to complete the Tasks affected by Change Order No. 1 (approved March 12, 2018) and Change Order No. 2 until the budgets have been restored by a Contract Amendment authorized by Council. It is also understood that as long as no new Tasks or work is requested by the CA1 Committee, Golder will complete the work according to Change Order No. 2 without over running the newly budgeted Tasks.

CAA No. 1: \$54,599.00 (Completed)

Task Reallocation CAA No. 1: \$23,300.00 (Completed)

Task Reallocation CAA No. 2: \$90,530.00 (This Request)

No Extra Days Have Been Requested

A Contract Amendment to Council is not needed at this time. All funds are contained within the current budget.

Attachments: Proposal from Golder Associates; Written Authorization from the CA 1 Members

Change Order costs will be based on the following method.

Contract Amendment No. 1; Page 1 of 3

☐ Time & Materials
☐ Unit Prices
☐ Cost Plus Fixed
☐ Additional Contract days
☐ Extend completion date
☒ Other – Cost Proposal by Contractor (Task Reallocation)

Estimated change to:

☐ Contract Allowance (\$0.00)

☐ Contract Price: \$0.00

All additional costs more than \$10,000.00 above the approved contract amount are subject to final approval by the City Council.

Account Distribution this Authorization:	Account No:	Amount
Water (CA1 Modeling)	7122230-8418	\$xxxxxx
Sewer	N/A	\$xxxxxx
Transportation	N/A	\$xxxxxx

Contract Allowance and Time Accounting

Original Contract Allowance:	\$54,700.00	Original Contract Time	1123 Calendar Days
Contract Amendment No. 1 (current)	<u>(\$54,599.00)</u>		<u>56</u>
Total Contract Authorization:	<u>(\$54,599.00)</u>	56	Total calendar days added
Remaining Contract Allowance:	\$101.00	1179	New contract calendar days
Original Notice to Proceed Date:	February 28, 2017		
Original Final Completion Date	March 31, 2020		
Amended Final Completion Date	May 26, 2020		

Contract Allowance Authorization Recommended by: [Signature] Date: 12/13/18
Capital Projects Manager

Contract Allowance Authorization Recommended by: [Signature] Date: 12/13/2018
Construction Services Administrator

Contract Allowance Authorization Approved by: [Signature] Date: 12/13/2018
City Engineer or Utilities Manager

Contract Amendment Authorization Approved by

King D. Smith 12/13/0

While, the undersigned contractor, gave careful consideration to the change proposed and hereby agree, as approved, that we will provide all labor, materials, tools, and equipment, except as may otherwise be noted above, and services necessary for the work above specified and full payment accepted hereinafter of the money herein above, including any allowed time to the contract.

Contract Allowance Authorization Accepted Date:

12/13/0

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)



November 30, 2018

Project No. 1662614

Mr. Benjamin Burns
Public Works Capital Projects Manager
City of Prescott
433 North Virginia Street
Prescott, Arizona 86302

RE: CHANGE ORDER REQUEST NO. 2 – REVISED HYDROGEOLOGICAL MODELING SERVICES BIG CHINO SUB-BASIN GROUNDWATER FLOW MODEL

Dear Mr. Burns:

Golder Associates Inc. (Golder) has prepared this change order request (Change Order Request No. 2) for professional services in support of the Big Chino Sub-Basin Groundwater Flow Model (BCSM) Project (Project). Golder is performing this Project for the City of Prescott (City) and the Comprehensive Agreement No. 1 (CA1) Steering Committee under Professional Services Agreement Contract # 2017-246 (Contract) between the City and Golder dated February 28, 2017. This change order request supersedes our previous change order request dated October 16, 2018 and was revised to remove and reallocate budget, as discussed in our conference call on November 8, 2018.

1.0 REQUESTED BUDGET ADJUSTMENTS

Our change order request has been organized as follows:

- Data Compilation and Model Review
- Numerical Modeling Technical Memoranda

The above-listed budget items are described in the following sections.

1.1 Data Compilation and Model Review

Golder has reviewed the budget for Phase 3, Data Compilation and Model Review in the context of scope changes requested by the CA1 Steering Committee and the current status of progress on the various tasks under Phase 3, and has identified several tasks that require additional budget to continue. The identified tasks are discussed below.

Golder Associates Inc.
1430 West Broadway Road, Suite 108, Tempe, Arizona, USA 85282

T: +1 480 966-0153 F: +1 480 966-0193

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golder.com

Mr. Benjamin Burns
Public Works Capital Projects Manager

Project No. 1662614
November 30, 2018

1.1.1 Data Analysis – Cross Sections (Task 3.3.1)

The CA1 Steering Committee submitted comments to Golder regarding Golder's geologic cross sections in their email dated June 26, 2018. The CA1 Steering Committee requested additional changes and revisions to the current set of geologic cross sections including:

- Differentiate between buried and mapped faults on the cross sections. Identify sources/references for the faults.
- Obtain and review the Fluid Solutions, 2002 report and revise cross section line 2, and possibly others, accordingly.
- Edit the thickness of the basalt on cross section line 5.
- Additional small editorial changes to the cross sections.

In addition, Golder held a conference call with Southwest Groundwater Consultants (SGC) and Leonard Rice Engineers (LRE) on October 2, 2018 to discuss SGC's and LRE's suggested edits to Golder's cross section line 2. On this call it was agreed that Golder would perform the following additional work:

- Add faults in the area of the Verde River.
- Modify the interpreted geology to be more consistent with SGC's and LRE's experience with drilling in the area of the Upper Verde Springs (UVS), as indicated in the provided edits to the cross section.
- Increase the thickness of the basin-fill materials in Williamson Valley.

Golder has estimated the cost for these changes to the cross sections to be \$20,000.

1.1.2 Data Management - Leapfrog (Task 3.2.3)

On a conference call with the CA1 Steering Committee on August 16, 2018, the Committee, Golder, SGC, and LRE discussed the upcoming review of Golder's cross sections in 3D in Leapfrog and the 3D Leapfrog geologic model. SGC indicated that they have identified wells for which there is greater confidence in the well logs, and that these should be used as control wells for the Leapfrog interpolation of data. This effort will consist of regrouping the reported well log lithology into the geologic units being modeled in Leapfrog, and the georeferencing and 3D modeling of the borehole geology in Leapfrog. As specified at the multi-agency meeting in October 2017, the original scope of work did not include using well logs to constrain the Leapfrog interpolation, except where included to define the geology along Golder's cross sections. However, Golder agrees that including well log data in the Leapfrog model, for those wells deemed important and reliable by SGC and LRE, is a valuable effort that will improve the overall geologic representation.

Golder has estimated the cost for adding the borehole geology to the Leapfrog model and has considered the remaining effort to complete the Leapfrog model relative to the remaining budget. Golder's estimate of additional funds needed to finish the Leapfrog model is \$33,000.

Golder anticipates that the Leapfrog 3D geologic model will be extensively reviewed by the CA1 Steering Committee, SGC, LRE, the U.S. Geological Survey (USGS), the Arizona Department of Water Resources (ADWR), and other parties included in the next multi-agency meeting. Based on the effort involved with the comments received for Golder's cross sections, we anticipate that revisions to the Leapfrog 3D geologic model

Mr. Benjamin Burns
Public Works Capital Projects Manager

Project No. 1662614
November 30, 2018

will likely be 30 percent of the effort to produce the 3D Leapfrog model or \$25,000. This cost estimate assumes that revisions to the 3D Leapfrog model will not be greater than 30 percent of the modified budget for producing the Leapfrog model.

The total change order requested for Task 3.2.3 is \$58,000 (Table 1).

1.1.3 Data Compilation (Task 3.1), Data Management – Database (Task 3.2.1), and Data Management – Spatial (Task 3.3.3)

Golder is expecting additional data from the USGS's geophysical data collection program, the USGS's geochemical data collection program, additional groundwater elevation data collection for monitor wells in Big Chino sub-basin from ADWR, and additional groundwater elevation and aquifer testing data for new wells from SGC. These data will need to be obtained and added to Golder's data library, added to the project GIS, added to the project database (as applicable), and evaluated spatially for consistency with the conceptual model developed for the project.

Golder has estimated the cost for these tasks with respect to the new data expected for the project. Our estimated cost above the remaining budget is shown in Table 1 and is estimated as: \$1,030 for Task 3.1 (Data Compilation), \$4,500 for Task 3.2.1 (Data Management – Database), and \$7,000 for Task 3.3.3 (Data Management – Spatial), for a total change order request for these three tasks of \$12,530.

1.2 Numerical Modeling Technical Memoranda

Golder initially scoped four numerical modeling technical memoranda to document the development of the numerical model: model construction approach, model construction execution, model calibration approach, and final model calibration (subtasks 5.3.1, 5.3.2, 5.6.1, and 5.6.2, respectively).

It is critical that Golder start model development in early 2019 to meet the current Project schedule; therefore, Golder requests permission to prepare and submit a combined Technical Memorandum to cover model construction execution (5.3.2) and model calibration approach (5.6.1). Golder requires CA1 Steering Committee comments on both topics prior to proceeding with model calibration. However, given the Project schedule delays to date and the required 5-week review period needed by the CA1 Steering Committee, the review period would push out model construction into Spring 2019. By combining these two individual memoranda into one combined memorandum, Golder will be able to start model construction in May 2019. This proposed scope change has a net neutral effect on the budget. If approved, Golder would move the \$13,200 funds and scope from Task 5.6.1 to Task 5.3.2, as shown on Table 1.

1.3 Budget Removal and Reallocation

The total additional budget requested for the Phase 3 tasks described above is \$90,530. To provide funding for these tasks without increasing the total project budget, Golder requests permission from the Steering Committee to remove budget from future project tasks and reallocate to cover the immediate budget needs for Phase 3, as outlined above. Golder suggests removing budget from the following tasks:

- Task 3.5.3 – Technical Memorandum for Data Compilation, 3 of 3. \$13,230
- Task 5.7.1 – Stress Test, Groundwater Pumping \$17,400
- Task 5.7.2 – Stress Test, Precipitation Variability \$28,700

Mr. Benjamin Burns
Public Works Capital Projects Manager

Project No. 1662614
November 30, 2018

- Task 5.7.3 – Technical Memorandum for Stress Test, \$5,700 (remaining budget)
- Task 6.2 – Final Modeling Report, \$25,500

The total budget removal and reallocation requested under this change order is \$90,530. Golder assumes that these removed budgets will be restored to their respective Contract amounts by increasing the total contract value by September 2019 so that the scope of work that applies to these budgets can be conducted.

2.0 CHANGE ORDER NO. 1 REALLOCATED BUDGETS

As part of Change Order No. 1 (February 27, 2018), the City and the CA1 Steering Committee approved reallocating six selected task budgets to cover our estimate to complete overbudget tasks under Phase 3 (Data Compilation and Model Review) in order to extend the current Contract budget through the 2017-2018 fiscal year. The City and the CA1 Steering Committee reallocated \$23,000 from the following six task budgets:

- Task 5.7.3 – Technical Memoranda for Stress Tests
- Task 7.1 – Training, Numerical Code
- Task 7.2 – Training, Leapfrog™
- Task 7.3 – Training, Flow Source
- Task 7.4 – Training, Model Orientation
- Task 7.5 – Training, Database

Golder indicated in Change Order No. 1 that we would submit a subsequent change order request in the new fiscal year to increase the total Contract budget by \$23,300 for the reallocated budgets. Under the direction of the City and the CA1 Steering Committee this change order will be submitted in the 2019-2020 fiscal year, as further described in Section 4.0.

3.0 SCHEDULE

The current Project schedule updated through November 23, 2018 is attached. According to this schedule, Golder's estimated completion of the Draft Report (Phase 6) is June 2020, and the Final Report has been removed from the scope and schedule (see Section 4.0). The Leapfrog and Conceptual Model technical memoranda were delayed due to overall project delays from the compilation of additional data, consideration of increasing the model domain, and reviewing the cross sections in advance of constructing the Leapfrog model, as discussed with the City and Steering Committee in an email dated June 1, 2018. This delay affects all dependent critical tasks. Golder has compressed the schedule to the extent practical by reducing task duration where possible and combining Task 5.6.1 to Task 5.3.1. However, the schedule is dependent on the City's and CA1 Steering Committee's approval of the scope change for the geologic cross sections and Leapfrog modeling requested in this change order. Thus, the Project schedule will continue to be impacted pending approval or denial of the additional cross section and Leapfrog work.

4.0 ASSUMPTIONS

Golder understands that the City and the CA1 Steering Committee would like to wait to request additional funds for the Contract until the new 2019-2020 fiscal year. Golder will prepare a change order request in July 2019 to

Mr. Benjamin Burns
Public Works Capital Projects Manager

Project No. 1662614
November 30, 2018

request that the City increase the approved Contract budget by \$23,300 to restore the task budgets removed under Change Order No. 1 and \$90,530 to restore the task budgets that are requested for removal and reallocation in Change Order No. 2. The corresponding scopes of work for the removed budgets under Change Order No. 1 and No. 2 have been removed from the Project and Golder understands that we are released from obligation to conduct the work until the budgets are restored, including the scope of producing a Final report (Phase 6.2).

5.0 CLOSING

If you have any questions regarding this request, please contact the undersigned.

Sincerely,

Golder Associates Inc.



David A. Carr, RG
Associate/Senior Consultant



Mark Birch, RG
Principal/Senior Consultant

DAC/MB/pb

CC: Jana Hesker, PMP
Betsy Semmens, RG

Attachments: Table 1 – Change Order Request No. 2 Budget Summary
Current Project Schedule through November 23, 2018

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**Table 1 – Change Order Request
No. 2 Budget Summary**

November 2018

Project No. 1662614

Table 1: Change Order Request No. 2 - Budget Summary

Phase	Task	Description	Original Budget ¹	Approved Change Order ²	Current Budget ³	Change Order Request ⁴	Revised Budget ⁵
1	****	Project Management	\$ 128,900	\$ -	\$ 128,900	\$ -	\$ 128,900
1	1	Communication	\$ 50,850	\$ -	\$ 50,850	\$ -	\$ 50,850
1	2	Financial Management	\$ 65,450	\$ -	\$ 65,450	\$ -	\$ 65,450
1	3	Technical Management	\$ 12,600	\$ -	\$ 12,600	\$ -	\$ 12,600
2	****	Project Meetings	\$ 145,300	\$ 220	\$ 145,520	\$ -	\$ 145,520
2	1	Kick-off Meeting	\$ 8,100	\$ -	\$ 8,100	\$ -	\$ 8,100
2	2	Site Reconnaissance	\$ 33,865	\$ 220	\$ 34,085	\$ -	\$ 34,085
2	3	Steering Committee Conference Calls	\$ 34,320	\$ -	\$ 34,320	\$ -	\$ 34,320
2	4	In-Person Meetings at SRP	\$ 58,410	\$ -	\$ 58,410	\$ -	\$ 58,410
2	5	End of Project Meeting	\$ 12,605	\$ -	\$ 12,605	\$ -	\$ 12,605
3	****	Data Compilation and Model Review	\$ 259,700	\$ 77,678	\$ 337,378	\$ 77,300	\$ 414,678
3	1	Data Compilation	\$ 26,400	\$ 34,561	\$ 60,961	\$ 1,030	\$ 61,991
3	2.1	Data Management - Database	\$ 31,200	\$ -	\$ 31,200	\$ 4,500	\$ 35,700
3	2.2	Data Management - ArcGIS	\$ 28,380	\$ -	\$ 28,380	\$ -	\$ 28,380
3	2.3	Data Management - Leapfrog	\$ 21,580	\$ 34,385	\$ 55,965	\$ 58,000	\$ 113,965
3	2.4	Data Management - Other	\$ 13,200	\$ -	\$ 13,200	\$ -	\$ 13,200
3	3.1	Data Analysis - Cross Sections	\$ 21,540	\$ 4,610	\$ 26,350	\$ 20,000	\$ 46,350
3	3.2	Data Analysis - Timeseries	\$ 17,310	\$ -	\$ 17,310	\$ -	\$ 17,310
3	3.3	Data Analysis - Spatial	\$ 17,070	\$ -	\$ 17,070	\$ 7,000	\$ 24,070
3	3.4	Data Analysis - Other	\$ 16,690	\$ -	\$ 16,690	\$ -	\$ 16,690
3	4	Existing Model Review	\$ 22,200	\$ -	\$ 22,200	\$ -	\$ 22,200
3	5.1	Tech Memo (1 of 3) - Initial Data Compilation	\$ 15,350	\$ 443	\$ 15,793	\$ -	\$ 15,793
3	5.2	Tech Memo (2 of 3) - Leapfrog	\$ 15,550	\$ 3,480	\$ 19,030	\$ -	\$ 19,030
3	5.3	Tech Memo (3 of 3) - Final Data Compilation	\$ 13,230	\$ -	\$ 13,230	\$ (13,230)	\$ -
4	****	Conceptual Model Development	\$ 91,500	\$ -	\$ 91,500	\$ -	\$ 91,500
4	1	Review/Alterations of Existing CMs	\$ 26,850	\$ -	\$ 26,850	\$ -	\$ 26,850
4	2	Develop New Conceptual Models	\$ 12,250	\$ -	\$ 12,250	\$ -	\$ 12,250
4	3	Initial Water Budget	\$ 26,450	\$ -	\$ 26,450	\$ -	\$ 26,450
4	4	Assess Multiple CMs	\$ 4,520	\$ -	\$ 4,520	\$ -	\$ 4,520
4	5	Technical Memorandum for CMs	\$ 21,430	\$ -	\$ 21,430	\$ -	\$ 21,430
5	****	Numerical Model Development	\$ 372,500	\$ (10,000)	\$ 362,500	\$ (51,800)	\$ 310,700
5	1	Model Selection	\$ 1,900	\$ -	\$ 1,900	\$ -	\$ 1,900
5	2	Numerical Model Construction	\$ 29,680	\$ -	\$ 29,680	\$ -	\$ 29,680
5	3.1	Technical Memoranda for Numerical Model Development (1 of 2)	\$ 7,680	\$ -	\$ 7,680	\$ -	\$ 7,680
5	3.2	Technical Memoranda for Numerical Model Development (2 of 2)	\$ 7,680	\$ -	\$ 7,680	\$ 13,200	\$ 20,880
5	4.1	Calibration Approach	\$ 22,860	\$ -	\$ 22,860	\$ -	\$ 22,860
5	4.2	Parameter Estimation (Calibration)	\$ 65,600	\$ -	\$ 65,600	\$ -	\$ 65,600
5	4.3	Incorporate Various Conceptual Models	\$ 64,000	\$ -	\$ 64,000	\$ -	\$ 64,000
5	4.4	Sensitivity Analyses	\$ 24,200	\$ -	\$ 24,200	\$ -	\$ 24,200
5	4.5	Evaluation of Groundwater Flow Paths	\$ 13,800	\$ -	\$ 13,800	\$ -	\$ 13,800
5	4.6	Uncertainty Analysis for flows to UVS	\$ 14,900	\$ -	\$ 14,900	\$ -	\$ 14,900
5	5	Refinement of CMs and Adjustment of Calibration	\$ 29,500	\$ -	\$ 29,500	\$ -	\$ 29,500
5	6.1	Technical Memoranda for Model Calibration Approach	\$ 13,200	\$ -	\$ 13,200	\$ (13,200)	\$ -
5	6.2	Technical Memoranda for Model Calibration	\$ 15,700	\$ -	\$ 15,700	\$ -	\$ 15,700
5	7.1	Groundwater Pumping	\$ 17,400	\$ -	\$ 17,400	\$ (17,400)	\$ -
5	7.2	Precipitation Variability	\$ 28,700	\$ -	\$ 28,700	\$ (28,700)	\$ -
5	7.3	Technical Memoranda for Stress Tests	\$ 15,700	\$ (10,000)	\$ 5,700	\$ (5,700)	\$ -
6	****	Groundwater Model Report	\$ 83,400	\$ -	\$ 83,400	\$ (25,500)	\$ 57,900
6	1	Draft Report	\$ 67,900	\$ -	\$ 67,900	\$ -	\$ 67,900
6	2	Final Report	\$ 25,500	\$ -	\$ 25,500	\$ (25,500)	\$ -
7	****	Training	\$ 13,300	\$ (13,300)	\$ -	\$ -	\$ -
7	1	Numerical Code	\$ 780	\$ (780)	\$ -	\$ -	\$ -
7	2	Leapfrog	\$ 1,180	\$ (1,180)	\$ -	\$ -	\$ -
7	3	Flow Source	\$ 700	\$ (700)	\$ -	\$ -	\$ -
7	4	Model Orientation	\$ 5,920	\$ (5,920)	\$ -	\$ -	\$ -
7	5	Database	\$ 4,720	\$ (4,720)	\$ -	\$ -	\$ -
8	****	Allowance	\$ 54,700	\$ (54,699)	\$ 101	\$ -	\$ 101
-	-	Total	\$ 1,149,300	\$ -	\$ 1,149,300	\$ -	\$ 1,149,300

Notes:

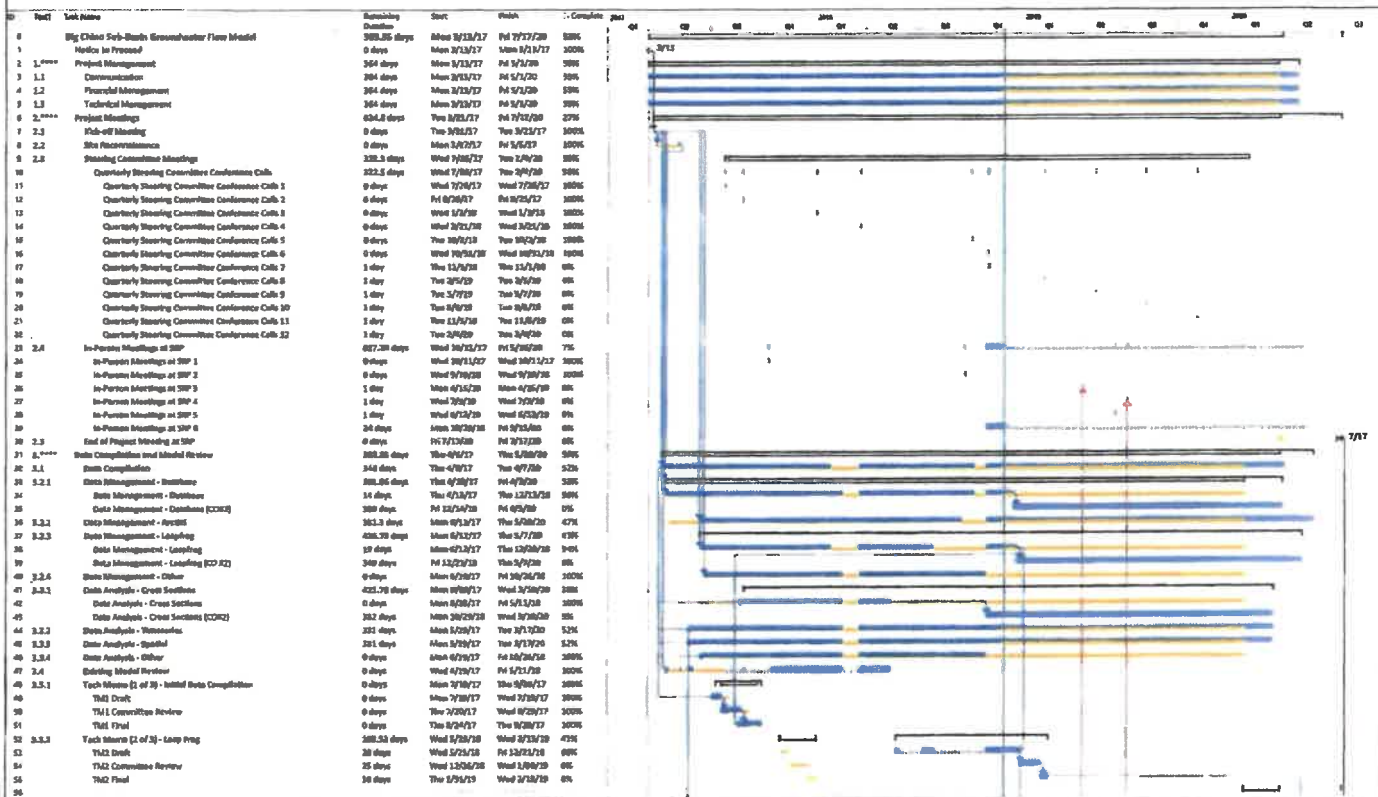
- 1 Original budget approved by the City of Prescott on March 23, 2017.
- 2 Change Order No. 1 approved by the City on March 16, 2018.
- 3 Current Approved Budget after Change Order No. 1.
- 4 Change Order No. 2 requested budget.
- 5 Projected revised budget, subject to approval by the City and the Steering Committee.

Current Project Schedule through
November 23, 2018

Date: Wed 11/28/18
Schedule Updated Through: Fri 11/02/18

Big Chico Sub-Basin Groundwater Flow Model

Project No.: 166-2514

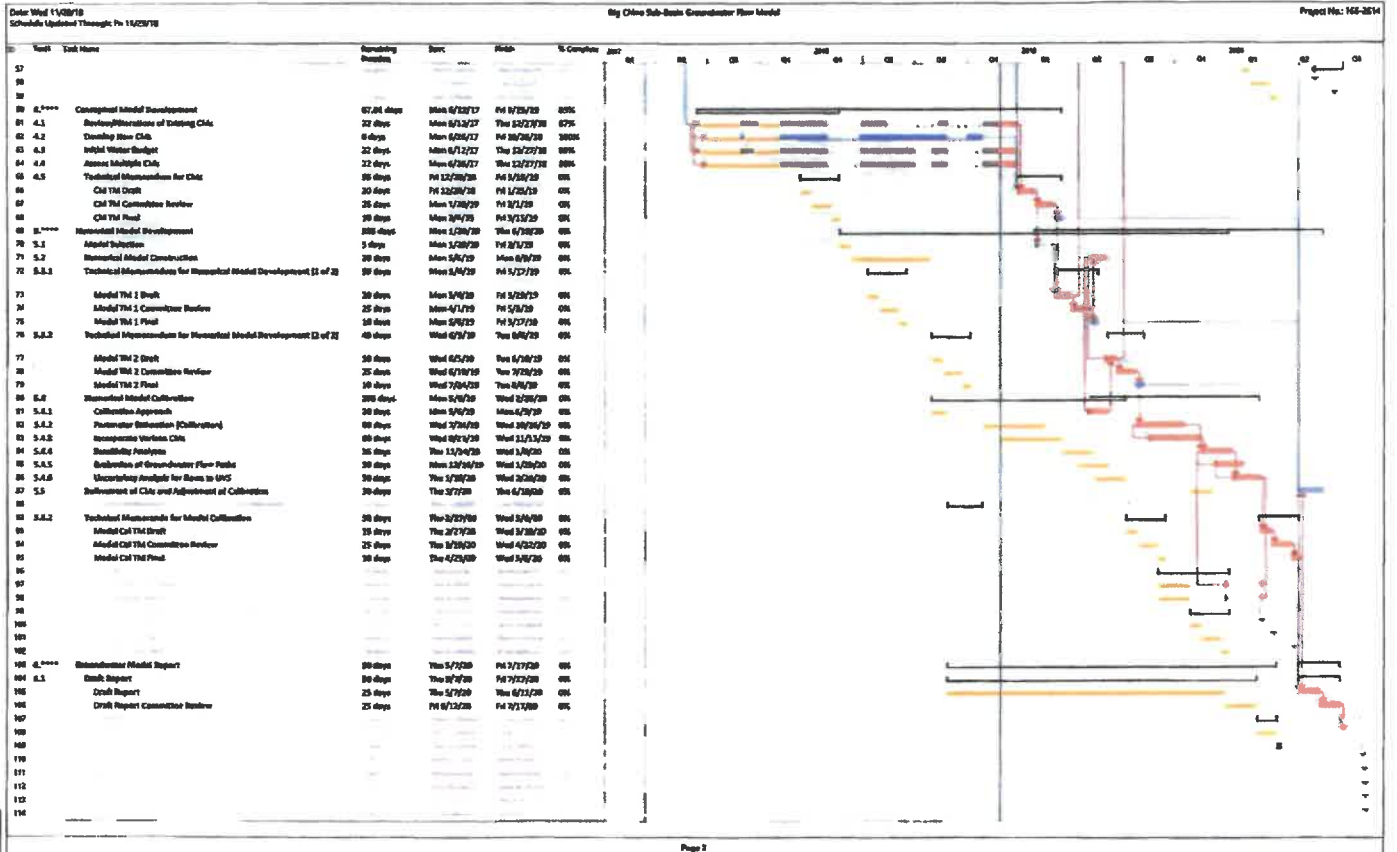


Page 1

Packet Pg. 223

8.1.1

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)



Burns, Benjamin

From: Graser, Leslie
Sent: Wednesday, December 12, 2018 12:57 PM
To: Burns, Benjamin
Cc: John Munderloh; Kornrump Gregory S (Greg)
Subject: Big Chino CAA 2 Authorization from CA1 12-12-18
Attachments: 20181212 CA1_Meeting Notes Modeling.docx

Follow Up Flag: Follow up
Flag Status: Completed

Good afternoon Ben,

As discussed in today's meeting of the CA1 Parties, regarding the Golder Change Order Request No. 2, dated November 30, 2018, the Parties are in agreement to move forward with the Change Order (City term, contract amendment) with the additional language you proposed for no new tasks. This has been documented in the attached 12/12/2018 meeting notes. Thank you for proceeding with this item.

Sincerely,

Leslie Graser
Water Resource Manager
 201 S. Cortez Street | Prescott, AZ 86303
 Ph: 928-777-1144 | Fax: 928-777-1255
leslie.graser@prescott-az.gov

From: John Munderloh [mailto:JMunderloh@pvaz.net]
Sent: Thursday, November 08, 2018 3:51 PM
To: Burns, Benjamin; Graser, Leslie; Kornrump Gregory S (Greg)
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Good summary Ben. Thanks!

From: Burns, Benjamin [mailto:benjamin.burns@prescott-az.gov]
Sent: Thursday, November 08, 2018 3:38 PM
To: John Munderloh; Graser, Leslie; Kornrump Gregory S (Greg)
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Good afternoon,

John and I just spoke to Golder on the phone and discussed two options:

- 1) We take funds from a future task in order to keep Golder working until summer time or...
- 2) We write a Contract Amendment (CA) now and take it to Council with some added allowance funds and hope that it covers the remainder of the project. The allowance would be a best guess as to what we would need for any other unknowns.

Golder believes that the CA certainty amount will not truly be known until sometime this summer. The safest thing to do is to write another Task Reallocation with wording that releases Golder from being liable to fulfill those future depleted tasks; if the CA1 Committee does not take a CA to Council in order to make the contract whole again Golder will be protected. Funds will be moved from the Final Report Task.

It was the general consensus to go with Option 1 in order to keep them moving, and help create more certainty that everything is covered under a single CA. Golder will send the CA1 members a proposal and I will write up the Task reallocation and distribute it for review before signing.

John, please help clarify if I missed something.

Have a great week end,

Benjamin Burns
Sr. Infrastructure Analyst



CITY OF PRESCOTT
ARIZONA
433 N. Virginia Street | Prescott, AZ 86302
Ph: 928-777-1130 | Fax: 928-771-5929
benjamin.burns@prescott-az.gov

From: John Munderloh [<mailto:JMunderloh@pvaz.net>]
Sent: Thursday, November 08, 2018 6:40 AM
To: Graser, Leslie; Kornrumph Gregory S (Greg); Burns, Benjamin
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Ben,
I'm happy to be on a call to Dave with you. I'm available this morning until 12:00, and from 3:00 to 5:30. I'm out of the office Friday through Tuesday, back on Wednesday.
Please let me know what works and I'll check on Dave's availability.
John

From: Graser, Leslie [<mailto:leslie.graser@prescott-az.gov>]
Sent: Wednesday, November 07, 2018 6:31 PM
To: Kornrumph Gregory S (Greg); John Munderloh; Burns, Benjamin
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Hi Ben,

I'm still out of the office. Let's move it forward, but please feel free to talk with Dave/Golder. I'll put a placeholder on an upcoming Council Agenda, and we can work out the memo details in the next week or so.

Thanks,
Leslie Graser
Water Resource Manager
201 S. Cortez Street | Prescott, AZ 86303
Ph: 928-777-1144 | Fax: 928-777-1255
leslie.graser@prescott-az.gov

From: Kornrumph Gregory S (Greg) [<mailto:Greg.Kornrumph@srpnet.com>]
Sent: Wednesday, November 07, 2018 12:22 PM
To: John Munderloh; Burns, Benjamin; Graser, Leslie
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

I don't think I need to be on this call. Whatever you all decide is fine.

Greg Kornrumpf
 Manager-Water Rights
 Salt River Project
 602-236-3264
 602-236-2159 fax
greg.kornrumpf@srpnet.com

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From: John Munderloh <JMunderloh@pvaz.net>
Sent: Wednesday, November 7, 2018 11:28 AM
To: 'Burns,Benjamin' <benjamin.burns@prescott-az.gov>; Graser,Leslie <leslie.graser@prescott-az.gov>; Kornrumpf Gregory S (Greg) <Greg.Kornrumpf@srpnet.com>
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

***** SRP EXTERNAL EMAIL WARNING: EXERCISE CAUTION WHEN HANDLING UNEXPECTED EMAILS. REPORT ANYTHING SUSPICIOUS. *****

I fine with a short call, whatever works for Leslie's schedule.
 Or, Leslie, if you want us to proceed without you.

From: Burns,Benjamin [<mailto:benjamin.burns@prescott-az.gov>]
Sent: Wednesday, November 07, 2018 10:53 AM
To: Graser,Leslie; Kornrumpf Gregory S (Greg); John Munderloh
Subject: FW: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Good morning everyone,

I just received this e-mail from Dave. It looks like they would prefer to move the Contract Amendment forward as soon as possible and are already working in a deficit.

Perhaps we should have a mini meeting with Dave and Betsy to discuss?

Let me know how you would like to proceed.

Thanks,

Benjamin Burns
Sr. Infrastructure Analyst



CITY OF PRESCOTT
ARIZONA
 433 N. Virginia Street | Prescott, AZ 86302
 Ph: 928-777-1130 | Fax: 928-771-5929
benjamin.burns@prescott-az.gov

From: Carr, Dave [mailto:Dave_Carr@golder.com]
Sent: Wednesday, November 07, 2018 10:27 AM
To: Burns,Benjamin
Cc: Semmens, Betsy
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Good Morning, Ben:

As of the end of the last billing cycle (10/26/18), we are now overbudget by about \$6,500 on two tasks (3.2.3 and 4.2). That means we will have to hold those charges, and we should stop work on those tasks since we are being managed to the task level. We're reluctant to do that because we don't want to the project to grind to a halt, but unfortunately if we proceed down that path and continue to accrue held charges our managers will notice and will step in a make us stop to mitigate our risk. So the answer is that we're at that point now.

As a short-term solution, we could continue to rob budget from other tasks (with written approval from the Steering Committee and the City), but this just creates problems later on because tasks that are due to start soon won't have budget to begin. We did that to a couple of the last project tasks for the first change order, but we don't have any tasks that can have the budgets reduced without formally removing scope from our project, and that ultimately will impact the quality of our work product.

Sorry I wasn't quite able to get back to you by 10:00am, but hopefully you will pick this up in time to discuss during your meeting.

Please contact me if you have questions.

Thanks,

Dave

Dave Carr, R.G.
 Associate and Senior Consultant



Golder Associates Inc.
 1430 West Broadway Road, Suite 108, Tempe, Arizona, USA 85282
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Please consider the environment before printing this email.

From: Burns,Benjamin [mailto:benjamin.burns@prescott-az.gov]
Sent: Wednesday, November 07, 2018 7:33 AM
To: Carr, Dave <Dave_Carr@golder.com>
Subject: RE: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Good morning Dave,

We have a CA1 meeting today. How soon do you need the Contract Amendment authorized before it starts to negatively impact your work because of lack of funds in Task Items? The CA1 members would like to delay taking the CA to Council for as long as possible.

If you could shoot back an answer before 10 AM I would appreciate it.

Thanks,

Benjamin Burns
Sr. Infrastructure Analyst



433 N. Virginia Street | Prescott, AZ 86302
Ph: 928-777-1130 | Fax: 928-771-5929
benjamin.burns@prescott-az.gov

From: Carr, Dave [mailto:Dave_Carr@golder.com]
Sent: Tuesday, November 06, 2018 5:40 PM
To: Burns,Benjamin
Cc: Birch, Mark; Semmens, Betsy; Hesker, Jana; Sequelra, Zeena
Subject: BCSM Progress Billing 19 (Project 1662614, Invoice 527117, 08/27/18 - 09/30/18)

Ben:

Attached is Progress Billing No. 19 for professional services in support of the Big Chino Sub-basin Groundwater Flow Model (BCSM) Project (Golder Project No. 1662614) from August 27, 2018 through September 30, 2018. The invoice package includes the following:

- Cover Letter with Financial Summary and Monthly Progress Report
- Golder Invoice No. 527117
- City of Prescott Invoice Form
- Golder Labor Hour and Cash Flow Curves
- Project Schedule Updated through September 30, 2018

I realize this progress billing is at least two weeks late -- I apologize for the delay. We are currently working on the October billing and expect to complete it by the week of November 19.

Please call me if you have questions or if you need additional information.

Thanks,

Dave

Dave Carr, R.G.
Associate and Senior Consultant



GOLDER

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LinkedIn | Facebook | Twitter

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

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Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

MEETING NOTES (draft)

JOINT MEETING OF THE BIG CHINO MONITORING AND MODELING COMMITTEES

Wednesday, December 12, 2018

10:15 am-11:20, Phone Conference

Attendees: Graser, Kornrumpf, Munderloh, Burns

MODELING

Agenda Item/Description	Notes
<p>1. Meeting notes approval October 10, 2018, November 1, 2018, and November 6, 2018 <i>Please be aware there are no Modeling Committee meeting notes from 11/7/18 as Chairperson Graser was absent/excused for the meeting.</i></p>	<p>Approved</p>
<p>2. Model updates a. Update of Technical Memos b. Scheduling of a Multi-Agency Meeting c. Change Order (see email dated 12/3/18)</p>	<p>Reviewed Meeting Notes with Betsy Semmens dated November 1, 2018. <i>Graser will call Semmens about the status of TM2 and TM3.</i></p> <p>Discussion of the Multi-Agency Meeting that was proposed for January 2019. <i>Graser will seek new dates and they will be dependent on the availability of TM2 and TM3.</i> January meeting CA1 Parties can outline how the agenda for the day(s) will be organized.</p> <p>Burns reviewed the call he had with Carr on 11/08/2018 and the associated "Change Order Request No. 2 – Revised Hydrogeological Modeling Services Big Chino Sub-basin Groundwater Flow Model dated 11/30/2018. See Table 1 of the Change order to review how funds are proposed to be reallocated from future to current tasks. Note that Golder stated by Summer 2019 they would know the effects of this reallocation to complete existing work and shortfalls, if any, are determined for the future tasks. If funds need to be increased for this contract, the CA1 Parties are aware that the overall budget (funding) for the CA1 project can be shifted between Monitoring and Modeling requirements. In May 2019, the CA1 Parties will return to this topic. Golder noted In the Change Order document, page 4, that if this removed and reallocation effort shows the need for additional funding to the contract, that funding would need to be available no later than September 2019. <i>The Parties agreed to move forward with the change order (City's term, contract amendment) and include the additional language Burns proposed (no new tasks). Graser will formalize this action in an email to Burns. Burns will proceed with Golder.</i></p>

<p>3. Cooperators data transfers to Golder</p> <ul style="list-style-type: none"> a. USGS geophysics data sharing with Golder b. USGS gravity data sharing with Golder 	<p>Post the 1/11/2018 call with Semmens, and the 11/6/2018 GoTo meeting among the Parties, USGS and Golder on the geophysics contract it was unclear if all information moved to meet Golder's needs. Graser will contact Semmens and provide an update by email and/or at the 1/9/2019 meeting.</p>
<p>4. Contract No. 2014-160, 160A1, 160A2, and 160A3 (USGS Geophysics)</p> <ul style="list-style-type: none"> a. Notes from 10/30/2018 conf call (see 12/12/2018 Monitoring agenda packet) b. Status of pending Aquifer Storage Change and Storage Properties, 2010-2017, in the Big Chino Subbasin, Yavapai County, Arizona SIR 2018-XXXX c. Next steps 	<p>Discussion of the work between LRE and SGC to provide comments back to USGS on the draft gravity manuscript. Kornrumph mentioned a recent call with Ford, and that he suspected we would be seeing the combined response later today or this week. The Parties agreed to review the document and if each Party was satisfied (with confirmation by email), then Munderloh would provide the response to USGS (Jeff Kennedy) by email.</p>
<p>5. On-call Contract No. 2019-079 (SGC assistance with CA1 contract management)</p> <ul style="list-style-type: none"> a. Contract Review (AIP and CA1) b. Committee Guidelines c. Quarterly Summaries of the project 	<p>Graser provided an update on the assistance the SGC is providing to the City. Three items were discussed, for purpose, status, and delivery. Kornrumph verified that the preparation of the quarterly summaries would not become the responsibility of the Committee Chair but a responsibility of the City. Graser confirmed. Munderloh asked about distribution of the quarterly summary and public requests. He suggested that City Legal Department be contacted. Graser proposed that the first set of these items could be available at the 1/8/19 meeting.</p>
<p>6. Review of information needs, issues to address, and assignments</p>	<p>None identified</p>
<p>7. Next Meeting: January 9, 2019 at 10AM (after monitoring agenda)</p>	<p>Kornrumph will not be able to attend this meeting, but Parties were in agreement that COP and PV keep this meeting date.</p>

ATTACHMENT 3

**Contract Amendment Request No.
1 Budget Summary**

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

October 2019

Project No. 1662614

Contract Amendment Request (CAR) No. 1 Budget Summary

Work Breakdown Structure			Original Budget	Reallocations Under Previous Contract Allowance Authorizations		Current Approved Budget ¹	Shared Cost/Golder Write-off ²	CAR No. 1 Requested Budget Adjustment		
Phase	Task	Phase/Task Description		CAA No. 1 (See Attachment 1)	CAA No. 2 (See Attachment 2)			CAR No. 1 Additional Budget Request ³	Total Budget Request (CAA No. 1 + CAR No. 2 + CAR No. 1) ⁴	CAR No. 1 Revised Budget ⁵
1	Task	Project Management	\$128,800.00	\$0.00	\$0.00	\$128,800.00	\$9,000.00	\$0.00	\$0.00	\$128,800.00
1	1	Communication	\$50,850.00	\$0.00	\$0.00	\$50,850.00	\$3,510.00	\$3,510.00	\$54,360.00	\$54,360.00
1	2	Financial Management	\$65,450.00	\$0.00	\$0.00	\$65,450.00	\$9,000.00	\$53,000.00	\$53,000.00	\$118,450.00
1	3	Technical Management	\$12,600.00	\$0.00	\$0.00	\$12,600.00	\$0.00	\$3,510.00	\$3,510.00	\$16,110.00
2	Task	Project Meetings	\$145,320.13	\$220.13	\$0.00	\$145,520.13	\$0.00	(\$11,900.00)	(\$11,900.00)	\$133,520.13
2	1	Kick-off Meeting	\$6,100.00	\$0.00	\$0.00	\$6,100.00	\$0.00	\$0.00	\$0.00	\$6,100.00
2	2	Site Reconnaissance	\$33,865.00	\$220.13	\$0.00	\$34,085.13	\$0.00	\$220.13	\$34,085.13	\$34,085.13
2	3	Steering Committee Conference Calls	\$34,320.00	\$0.00	\$0.00	\$34,320.00	\$0.00	(\$13,000.00)	(\$13,000.00)	\$21,320.00
2	4	In-Person Meetings at SRP	\$58,410.00	\$0.00	\$0.00	\$58,410.00	\$0.00	\$0.00	\$0.00	\$58,410.00
2	5	End of Project Meeting	\$12,605.00	\$0.00	\$0.00	\$12,605.00	\$0.00	\$0.00	\$0.00	\$12,605.00
3	Task	Data Compilation and Model Review	\$289,739.88	\$77,878.38	\$77,388.00	\$444,875.38	\$7,000.00	\$32,600.00	\$196,875.38	\$246,875.38
3	1	Data Completion	\$26,400.00	\$34,500.00	\$1,000.00	\$61,900.00	\$0.00	\$35,500.00	\$61,900.00	\$61,900.00
3	2.1	Data Management - Database	\$31,200.00	\$0.00	\$4,600.00	\$35,700.00	\$0.00	\$4,500.00	\$35,700.00	\$35,700.00
3	2.2	Data Management - ArcGIS	\$28,380.00	\$0.00	\$0.00	\$28,380.00	\$7,000.00	\$24,000.00	\$24,000.00	\$62,380.00
3	2.3	Data Management - Leapfrog	\$21,580.00	\$34,305.00	\$68,000.00	\$113,965.00	\$0.00	\$82,385.00	\$113,965.00	\$113,965.00
3	2.4	Data Management - Other	\$11,200.00	\$0.00	\$0.00	\$11,200.00	\$0.00	\$0.00	\$0.00	\$11,200.00
3	3.1	Data Analysis - Cross Sections	\$21,540.00	\$4,810.00	\$20,000.00	\$46,350.00	\$0.00	\$24,610.00	\$46,350.00	\$46,350.00
3	3.2	Data Analysis - Threesite	\$17,310.00	\$0.00	\$0.00	\$17,310.00	\$0.00	\$8,000.00	\$25,310.00	\$25,310.00
3	3.3	Data Analysis - Spatial	\$17,070.00	\$0.00	\$7,000.00	\$24,070.00	\$0.00	\$7,000.00	\$24,070.00	\$24,070.00
3	3.4	Data Analysis - Other	\$16,880.00	\$0.00	\$0.00	\$16,880.00	\$0.00	\$0.00	\$0.00	\$16,880.00
3	4	Existing Model Review	\$22,200.00	\$0.00	\$0.00	\$22,200.00	\$0.00	\$0.00	\$0.00	\$22,200.00
3	5.1	Tech Items (1 of 3) - Initial Data Completion	\$15,360.00	\$442.50	\$0.00	\$15,782.50	\$0.00	\$442.50	\$15,782.50	\$15,782.50
3	5.2	Tech Items (2 of 3) - Leapfrog	\$15,560.00	\$3,480.00	\$0.00	\$19,030.00	\$0.00	\$3,480.00	\$19,030.00	\$19,030.00
3	5.3	Tech Items (3 of 3) - Final Data Completion	\$48,200.00	\$0.00	(\$10,230.00)	\$37,970.00	\$0.00	(\$13,230.00)	\$0.00	\$0.00
4	Task	Conceptual Model Development	\$91,250.00	\$0.00	\$0.00	\$91,250.00	\$8,300.00	\$95,550.00	\$95,550.00	\$186,800.00
4	1	Review/Alterations of Existing CMEs	\$26,850.00	\$0.00	\$0.00	\$26,850.00	\$0.00	\$0.00	\$0.00	\$26,850.00
4	2	Develop New Conceptual Models	\$12,250.00	\$0.00	\$0.00	\$12,250.00	\$0.00	\$0.00	\$0.00	\$12,250.00
4	3	Initial Water Budget	\$26,450.00	\$0.00	\$0.00	\$26,450.00	\$8,300.00	\$48,700.00	\$48,700.00	\$75,150.00
4	4	Assess Multiple CMEs	\$4,520.00	\$0.00	\$0.00	\$4,520.00	\$0.00	\$1,680.00	\$1,680.00	\$6,200.00
4	5	Technical Memorandum for CMEs	\$21,430.00	\$0.00	\$0.00	\$21,430.00	\$0.00	\$45,000.00	\$45,000.00	\$66,430.00
5	Task	Numerical Model Development	\$372,590.00	(\$10,000.00)	(\$81,800.00)	\$310,790.00	\$0.00	\$22,900.00	(\$10,000.00)	\$333,690.00
5	1	Model Selection	\$1,900.00	\$0.00	\$0.00	\$1,900.00	\$0.00	\$0.00	\$0.00	\$1,900.00
5	2	Numerical Model Construction	\$29,680.00	\$0.00	\$0.00	\$29,680.00	\$0.00	\$0.00	\$0.00	\$29,680.00
5	3.1	Technical Memoranda for Numerical Model Development (1 of 2)	\$7,680.00	\$0.00	\$0.00	\$7,680.00	\$0.00	\$5,200.00	\$5,200.00	\$12,880.00
5	3.2	Technical Memoranda for Numerical Model Development (2 of 2)	\$7,680.00	\$0.00	\$13,200.00	\$20,880.00	\$0.00	\$13,200.00	\$13,200.00	\$20,880.00
5	4.1	Calibration Approach	\$22,860.00	\$0.00	\$0.00	\$22,860.00	\$0.00	\$0.00	\$0.00	\$22,860.00
5	4.2	Parameter Estimation (Calibration)	\$85,600.00	\$0.00	\$0.00	\$85,600.00	\$0.00	\$17,000.00	\$17,000.00	\$82,600.00
5	4.3	Incorporate Various Conceptual Models	\$64,000.00	\$0.00	\$0.00	\$64,000.00	\$0.00	\$21,000.00	\$21,000.00	\$85,000.00
5	4.4	Sensitivity Analyses	\$24,200.00	\$0.00	\$0.00	\$24,200.00	\$0.00	\$0.00	\$0.00	\$24,200.00
5	4.5	Evaluation of Groundwater Flow Paths	\$13,800.00	\$0.00	\$0.00	\$13,800.00	\$0.00	\$2,200.00	\$2,200.00	\$16,000.00
5	4.6	Uncertainty Analysis for flows to UVS	\$14,900.00	\$0.00	\$0.00	\$14,900.00	\$0.00	\$0.00	\$0.00	\$14,900.00

October 2019

Project No. 1662614

Work Breakdown Structure			Original Budget	Reallocations Under Previous Contract Allowance Authorizations		Current Approved Budget ¹	Shared Costs/ Golden Write-off ²	CAR No. 1 Requested Budget Adjustment		
Phase	Task	Phase/Task Description		CAA No. 1 (see Attachment 1)	CAA No. 2 (see Attachment 2)			CAA No. 1 Additional Budget Request ³	Total Budget Request (CAA No. 1 + CAA No. 2 + CAR No. 1) ⁴	CAR No. 1 Revised Budget ⁵
5	5	Refinement of Cbs and Adjustment of Calibration (Optional)	\$29,500.00			\$29,500.00		(\$29,500.00)	(\$29,500.00)	\$0.00
6	6.1	Technical Memoranda for Model Calibration Approach ⁶	\$19,200.00		(\$13,200.00)	\$0.00			(\$13,200.00)	\$0.00
5	6.2	Technical Memoranda for Model Calibration	\$15,700.00			\$15,700.00		\$7,000.00	\$7,000.00	\$22,700.00
5	7.1	Groundwater Pumping (Optional)	\$17,400.00		(\$17,400.00)	\$0.00			(\$17,400.00)	\$0.00
5	7.2	Precipitation Variability (Optional)	\$28,700.00		(\$28,700.00)	\$0.00			(\$28,700.00)	\$0.00
5	7.3	Technical Memoranda for Stress Tests (Optional)	\$15,700.00	(\$10,000.00)	(\$6,700.00)	\$0.00			(\$16,700.00)	\$0.00
6	Task	Groundwater Model Report	\$43,498.88	\$0.00	(\$29,598.88)	\$57,998.88	\$0.00	\$23,488.88	(\$48.88)	\$43,350.00
6	1	Draft Report	\$57,960.00		(\$40.00)	\$57,960.00			(\$40.00)	\$57,960.00
6	2	Final Report	\$25,500.00		(\$25,460.00)	\$40.00		\$25,460.00	\$0.00	\$25,500.00
7	Task	Training (Optional)	\$13,368.88	(\$13,368.88)	\$0.00	\$0.00	\$0.00	\$0.00	(\$13,368.88)	\$0.00
7	1	Numerical Code	\$780.00	(\$780.00)		\$0.00			(\$780.00)	\$0.00
7	2	Lamphog	\$1,180.00	(\$1,180.00)		\$0.00			(\$1,180.00)	\$0.00
7	3	Flow Source	\$700.00	(\$700.00)		\$0.00			(\$700.00)	\$0.00
7	4	Model Orientation	\$5,920.00	(\$5,920.00)		\$0.00			(\$5,920.00)	\$0.00
7	5	Database	\$4,720.00	(\$4,720.00)		\$0.00			(\$4,720.00)	\$0.00
8	Task	Allowance	\$54,788.00	(\$54,888.51)	\$0.00	\$101.49	\$0.00	\$54,788.00	\$101.49	\$54,889.49
8	1	Allowance	\$54,700.00	(\$54,598.51)		\$101.49		\$54,700.00	\$101.49	\$54,801.49
Total			\$1,148,388.88	\$0.00	\$0.00	\$1,148,388.88	\$34,388.88	\$277,468.88	\$277,468.88	\$1,425,788.88
Approved CAA No. 1/CAA No. 2 Reallocations				\$77,888.88	\$88,538.88					

1 Current Approved Budget after CAA No. 1 and No. 2

2 Golden offers to absorb 50 percent of this effort as a write-off to the project

3 CAR No. 1 Additional budget requested budget minus the shared costs

4 Cumulative additional budget request for CAA No. 1, CAA No. 2, and CAR No. 1

5 Projected revised budget after CAR No. 1 excluding optional tasks, subject to approval by the City and the Steering Committee

6 Task 5.8.1 was combined with 5.3.2 in CAA No. 2 and has been permanently removed

7 Optional Tasks (5.5, 5.7.1, 5.7.2, 5.7.3, 7.1, 7.2, 7.3, 7.4, 7.5)

Summary	Amount	Requested Contract Amount
CAA No. 1 (see Attachment 1)	\$77,888.88	
CAA No. 2 (see Attachment 2)	\$88,538.88	
CAR No. 1 Requested Budget Adjustment	\$54,331.00	
CAR No. 1 Allowance Request	\$54,700.00	
Optional Tasks ⁷	\$104,600.00	
Option 1: CAR No. 1 Budget excluding Optional Tasks	\$277,468.88	\$1,426,788
Option 2: CAR No. 1 Budget including Optional Tasks	\$382,068.88	\$1,531,388

ATTACHMENT 4

**Analysis of Primary Tasks That
Have Exceeded Planned Budget**

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)



DATE October 2019

Project No. 1662614

ANALYSIS OF PRIMARY TASKS THAT HAVE EXCEEDED PLANNED BUDGET

The following summary discusses three of the primary tasks that have exceeded the planned budget and experienced significant overruns: Task 3.2.2, Task 4.3, and Task 4.5. For these three tasks, daily costs and descriptions by each member of the Project Team were evaluated and ranked according to base effort, value added, possibly not useful in the end, and extra effort due to volume of data analyzed. These data are summarized in the table below and in the descriptions that follow.

Summary of Task Effort

		Calculation	a	b	c = b-a	d	e	f = c-d-e	g	h = e+f+g+ 50% of d
Phase	Task	Task Name	Original Budget (hours)	Effort to Date (hours)	Variance (hours)	Effort that Did Not Result in Added Value and is Offered to be Partially Absorbed by Golder (hours)	Effort that Added Value i.e. Out of Scope Work (hours)	Additional Effort Due to Complexity & Volume of Data (hours)	Estimate to Complete (hours)	Total Hours Requested
3	2.2	Data Management - ArcGIS	220	392	172	97	6	70	6	124
4	3	Initial Water Budget	154	485	331	126	120	36	150	388
4	5	Technical Memorandum for Conceptual Models	128	277	149	0	38	120	80	229
		TOTAL	502	1155	653	223	155	225	236	722

Task 3.2.2 Data Management - ArcGIS

The ArcGIS task included some effort that eventually was not used due to additional data being uncovered partway through a lengthy digitizing task. The unused effort will be written off.

Task 4.3 Initial Water Balance

The initial water balance task showed the greatest cost overruns, due to the following:

- Out-of-scope work, discussed during the July 2019 multi-agency meeting, related to evaluating in-channel recharge in more detail. This evolved into gage-by-gage surface water balances to incorporate flowtopography data and surface water (HEC-HMS) modeling to help quantify time-varying water balance components. The modeling effort included inefficiencies, and those inefficiencies will not be charged to the project.
- Recharge analyses combined with water use analyses to underpin the model flow budgets.

Effort that has been judged to be inefficient or of little use will be written off.

Task 4.5 Technical Memorandum for Conceptual Models

The level of effort to prepare TM6 has been far greater than expected because we concluded that it was necessary to present a substantial amount of the technical data that have been compiled and evaluated over the past two years in TM6 to support the CM assessment. This includes data related to natural recharge, precipitation, groundwater pumping, evapotranspiration, groundwater elevations, and springs. This effort included recharge estimation and in-depth review of additional models and model data files beyond those proposed (e.g. LCRBCM model that was not available at the time the proposal was developed).

ATTACHMENT 5

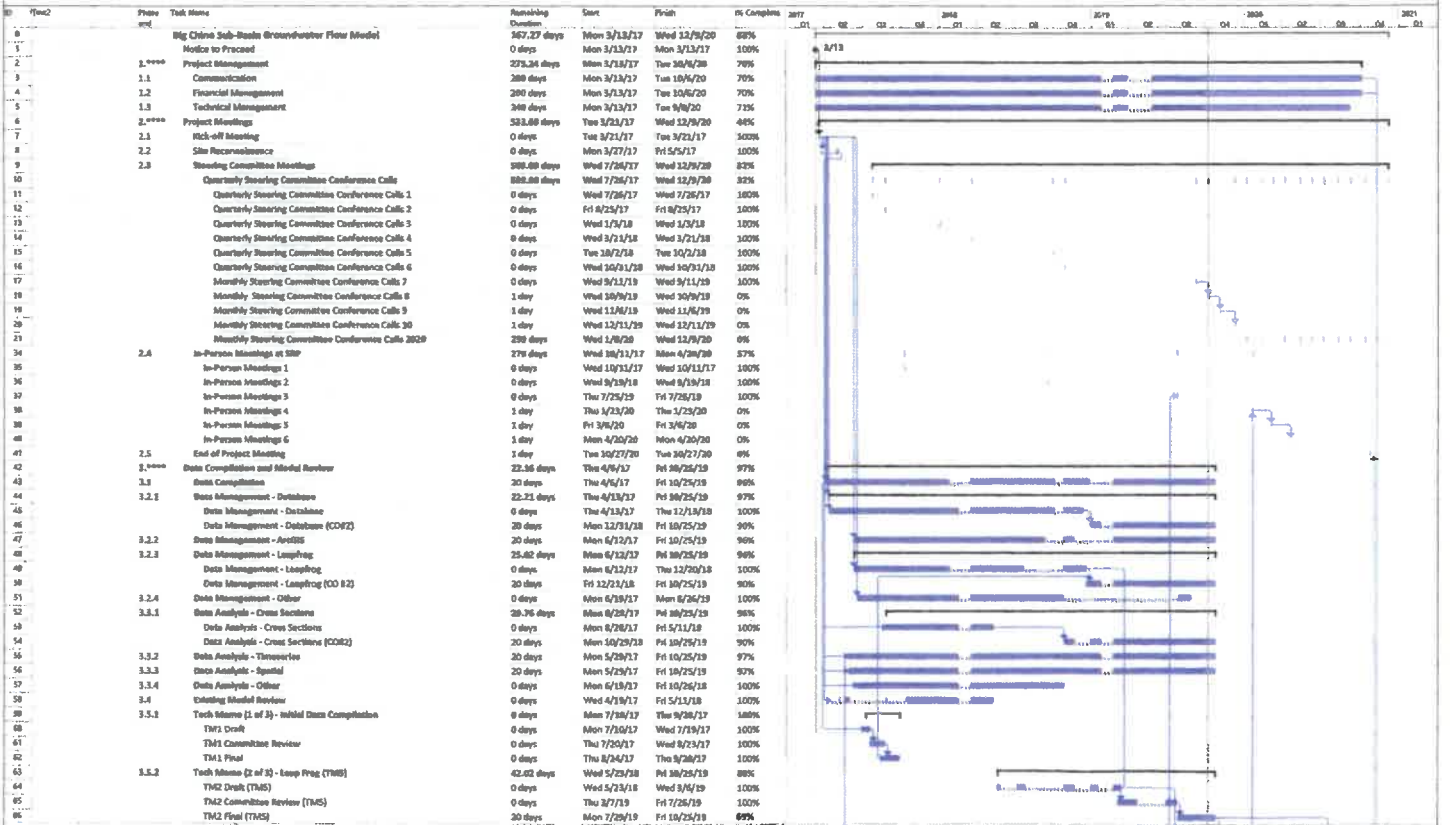
**Project Schedule through Sept 27,
2019 Excluding Optional Tasks**

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

Date: Tue 10/6/19
Schedule Updated Through: Fri 9/27/19

Big China Sub-Basin Groundwater Flow Model
(Optional Tasks excluded)

Project No: 100-2614



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ATTACHMENT 6

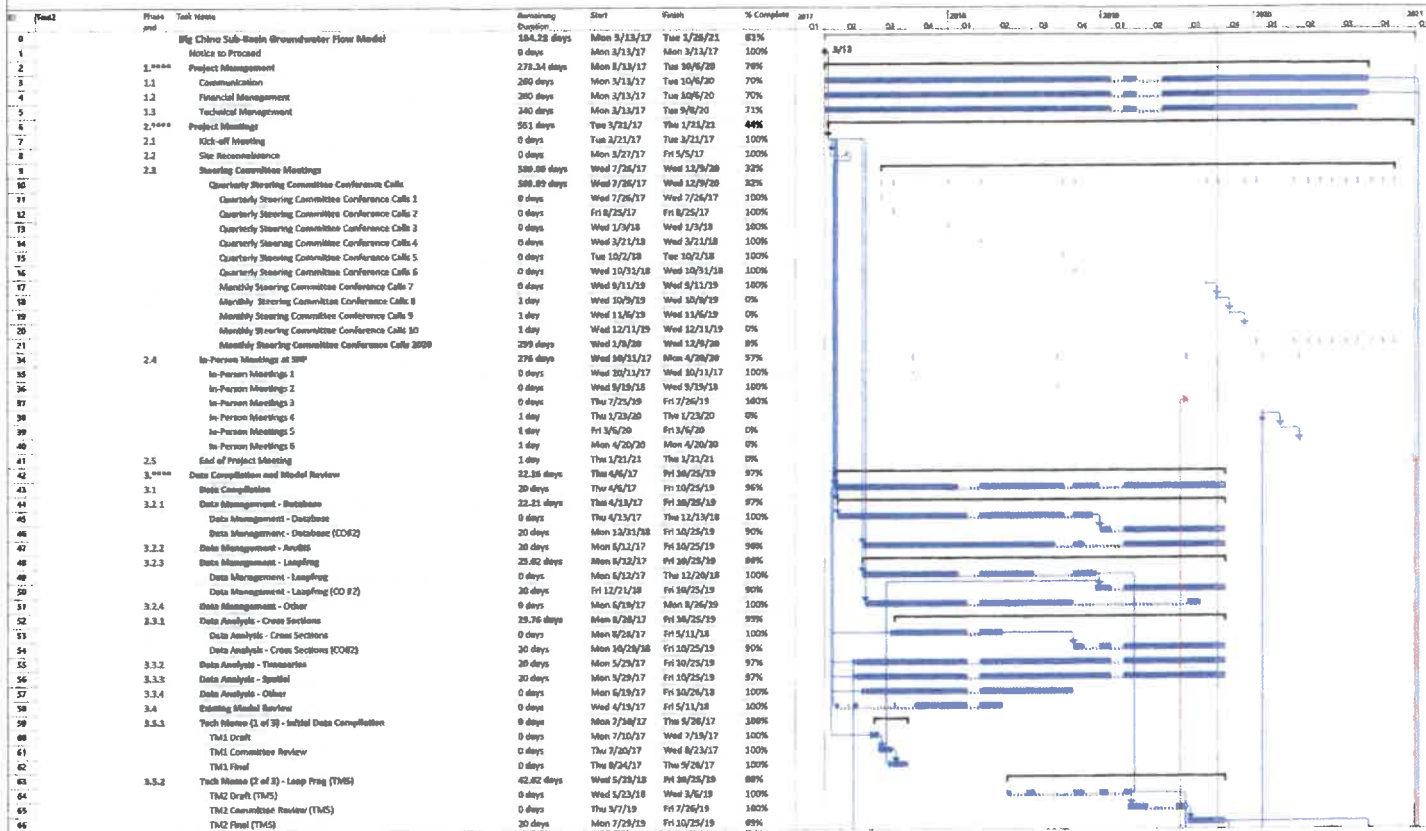
**Project Schedule through Sept 27,
2019 Including Optional Tasks**

Attachment: Request for Amendment No. 1 - Golder Associates, Inc. (2690 : Golder Contract Amendment 1)

Date: Tue 10/6/19
Schedule Updated Through: Fri 9/27/19

Big Chico Sub-Basin Groundwater Flow Model
(Optional tasks included)

Project No.: 166-2614



Date: Tue 10/6/19
Schedule Updated Through: Fri 9/27/19

Big Chico Sub-Basin Groundwater Flow Model
(Optional Tests included)

Project No: 199-2614

