

**AUTHORIZATION OF CHANGE IN SERVICES  
CITY OF SAN MARCOS, TEXAS**

**CONTRACT: Coers Drive Drainage Improvements Project (216-168)**

**CONSULTANT: Lockwood, Andrews, & Newman**

**AUTHORIZATION NO.: 02**

**ORIGINAL CONTRACT DATE: February 16, 2016**

**AUTHORIZATION DATE: \_\_\_\_\_**

**WORK TO BE ADDED TO OR DELETED FROM SCOPE OF SERVICES**

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In general, the additional scope will include:

- **Storm Sewer Design:** Provide technical memorandum summarizing new storm sewer design.
- **Rapid 2D Hydraulic Review:** Assess impacts of adjacent RR 12 project culvert improvements.
- **Downstream Hydraulic Impact and Erosion Evaluation:** Assess hydraulic impact of project on downstream properties and stream erosion.
- **Water Quality Feature:** Design of new water quality feature to treat runoff from within the project limits.
- **Utility Design/Relocations:** Design of water and wastewater relocations for new storm sewer design, and conflict assessment of other utilities.
- **Final Design Documents:** Provide 60/90/99/100% design documents to include updated storm sewer, full-depth road reconstruction, guard rail design and other miscellaneous items.
- **Additional Bid, Construction & Record Drawings Phase Services**
- **Field Survey:** Additional survey for the new storm sewer system design and utility adjustments, and finished floor elevations of structures.

See attachments for further details.

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Previous contract amount:	<u>\$ 195,088.00</u>
Net increase/decrease in contract amount:	<u>\$ 108,460.00</u>
Revised contract amount:	<u>\$ 303,548.00</u>

Requested by:

By: Travis Michel  
Travis Michel – Infrastructure Mgr.

Date: 11/10/16

Approved by:

City of San Marcos:

By: \_\_\_\_\_  
Jared Miller – City Manager

Date: \_\_\_\_\_



**Lockwood, Andrews  
& Newnam, Inc.**  
A LEO A DALY COMPANY

November 2, 2016

Shaun Condor, PE, PMP  
City of San Marcos  
Engineering/Capital Improvements  
630 East Hopkins  
San Marcos, Texas 78666

**Re: Coers Drive Drainage Improvements Project  
Proposal for Additional Professional Engineering Services (Change of Services #2)**

Dear Mr. Condor:

In accordance with our original contract for the Coers Drive Drainage Improvements project, I am providing this proposal for additional Professional Engineering Services (Change of Services #2). As requested at our 60% Design review meeting, and subsequent direction thereafter, this proposal includes additional Design, Bid & Construction Phase Engineering Services for a new stormwater collection system, water quality improvements, full-depth street reconstruction, and other miscellaneous improvements at the request of the City.

In general, the following scope of work shall be included in this Change of Services:

- 1. Storm Sewer Design:** Develop hydraulic model (StormCAD) and revise drainage area delineations accordingly for the design of an enclosed storm drain system to pipe runoff from RR12 to the upstream extent of Channel 3 (STA 11+00), as defined in the Preliminary Engineering Report (PER). The proposed enclosed system will replace Channel 1 and Channel 2 previously identified in the PER. The proposed storm sewer will be designed in accordance with the City of San Marcos Stormwater Technical Manual. Per City of San Marcos drainage design criteria, storm sewer systems are to be designed to convey the 25-year frequency storm and convey the 100-year frequency storm within the ROW. However, because this is a retrofit project it may not be feasible to keep the 100-year flow within the ROW. In that case, the system will be designed to ensure properties in the area will not be flooded in the 100-year event. The storm sewer system alignment is proposed to be located under the existing pavement section of Coers Drive. It is assumed that partial road closures will likely be required to accommodate the construction of the proposed enclosed storm sewer system.
- 2. Rapid 2D Review:** The culvert upgrade (by others) at the RR12 crossing will increase flows downstream of RR12, potentially contributing to flooding of the project area. The 2D model developed for the rapid 2D assessment in the PER phase will be used to evaluate the impact of the RR12 culvert upgrade. Following the design of the storm sewer solution, the 2D model will be updated to reflect the project improvements. This check will be performed to determine how the proposed improvements at RR12 (by others) and the Coers Drive project improvements will improve the drainage in the project area.
- 3. Downstream Hydraulic Impact Evaluation:** Following design of the storm sewer system, an evaluation will be performed to determine how improvements at RR12 (by others) and the proposed Coers Drive storm sewer system may impact the receiving stream. The goal of the project is to have no adverse impact; however, the improvement of conveyance provided by the project has the potential to increase flows downstream. Based on existing information provided by the City, it is understood that a hydraulic model is not available for the receiving stream downstream of the project outfall at Schulle Canyon Natural Area. The receiving stream is an unnamed tributary to Sink Creek that is unstudied and does not have a FEMA regulatory special flood hazard area. The evaluation of impacts will be focused on ensuring downstream structures do not have increased inundation and project flow increases are non-erosive. To quantify impacts to the unnamed tributary to Sink Creek, the project hydrologic model (HEC-HMS) will be extended to encompass the contributing areas for the unnamed tributary from the

project area and additional 1.2 miles downstream to the confluence with Sink Creek. City of San Marcos 2009 LiDAR contour data will be used to create a hydraulic model (HEC-RAS) of the 1.3 miles of the unnamed tributary to Sink Creek from the project outfall to the confluence with Sink Creek. The City will be responsible to provide as-built drawings of the roadway crossing structures at Schulle Drive and North LBJ Drive to include in the hydraulic model. The hydrologic and hydraulic models will include the design storm evaluations of the 25-year event and a 100-year check storm event.

- 4. Downstream Erosion Evaluation:** The City has reported that there is evidence of erosion along the unnamed tributary to Sink Creek from the proposed project outfall through the Schulle Canyon Natural Area. As part of this project scope, a field investigation will be performed of the unnamed tributary of Sink Creek within the Schulle Canyon Natural Area to evaluate current stability and provide recommendations for maintenance of the preserve following the construction of the project improvements to reduce the risk of erosion. Erosion control solutions will be evaluated to ensure discharge velocities from the project area are sufficiently dissipated as to not cause erosion downstream. Project transition into the natural area will be designed to ensure a smooth transition into the natural area to further reduce risk of erosion, and maintain existing trees and vegetation to the extent practical.
- 5. Water Quality Design:** It is understood that the City intends to purchase the empty private lot located at the southern corner of the intersection of Coers Drive and Owens Street for the installation of a water quality feature for treating a portion of the runoff from the project contributing drainage area. LAN will design a rain garden for this lot to treat a portion of the project area runoff. The rain garden will be designed per the City of Austin Environmental Criteria Manual.
- 6. Utility Adjustments/Conflict Assessment:** In order to accommodate a storm drain system under the road, City of San Marcos water and wastewater utility adjustments will be required. In addition, with multiple utility adjustments and full-depth street reconstruction, there is potential for additional conflicts with existing utilities (electric, gas, etc.). LAN will review potential conflicts with the proposed storm drain system, and design adjustments to the City's water and wastewater infrastructure within the project limits. A conflict summary will be provided to the City for City coordination of adjustments with other utility providers. Revised utility plan and profile sheets will be provided with a Revised 60% Design Submittal.
- 7. Road Cross-Sections:** The revised project scope will require full-depth street reconstruction. In order for a Contractor to rebuild the road, LAN will prepare existing road cross-sections to be included in the 60/90/99/100% design submittals.
- 8. Guard Rail Design:** At the request of the City, improvements will include an extension of the existing metal beam guard rail at Coers Drive/Owens Street.
- 9. 60% Technical Memorandum:** A technical memorandum will be prepared to document the 60% level design considerations and hydrologic and hydraulic analysis performed, as described in the above tasks.
- 10. 60/90/99/100% Design Documents:** It is anticipated a minimum ten (10) additional plan sheets will be added to the plan set to accommodate the revised design for the enclosed storm sewer plan and profile sheets, inlet details, water quality plan and details, metal beam guard rail details, and road cross-sections. A Revised 60% Design Submittal will be provided based on this revised scope of work, and maintained throughout the remaining submittals of 90/99/100%.
- 11. Quantity Take Off / Engineer's Opinion of Probable Cost:** A revised quantity take off and Opinion of Probable Construction Cost will be provided with the Revised 60% Design

Submittal reflecting this revised scope of work. Tasks have been expanded to reflect the additional scope and design complexity incorporated into the design as it relates to these items.

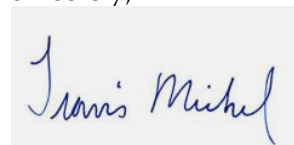
- 12. Technical Specifications and Sequence of Construction:** A revised list of technical specifications and construction sequence will be provided with the Revised 60% Design Submittal. Subsequent submittals at 90/99/100% design shall include additional standard specifications, special provisions, and special specifications to reflect this revised scope of work.
- 13. Bid Phase Services:** Bid Phase Services have been expanded to reflect the additional scope and design complexity incorporated into the design as it relates to project bidding.
- 14. Construction Phase Services:** Construction Phase Services have been expanded to reflect the additional scope of work and design complexity as it relates to project construction and an anticipated increase in construction duration.
- 15. Record Drawing Phase Services:** Record Drawing Phase Services have been expanded to reflect the additional scope and design complexity incorporated into the design to include the additional plan sheets to be updated in the record drawing set.
- 16. Additional Survey:** Additional survey is required to support the design of the storm sewer system, addition of water quality improvements, and additional utility adjustments improvements. Additional survey will include the following:
  1. Horizontal location and elevation of 3 additional wastewater manholes;
  2. Topographic survey of the Coers Circle cul-de-sac;
  3. Topographic survey of a 50-foot wide strip along the northeast side of Lots 12 and 13, Coers Addition;
  4. Topographic survey of the vacant lot to accommodate the water quality feature; and
  5. Finished floor elevations of six (6) residences.

Survey services will be provided by Byrn & Associates, Inc. Depending on the outcome of the hydraulic analysis, additional survey may be required downstream of the project outfall to ensure no adverse impacts to downstream structures.

An hourly fee breakdown of these additional services is included as Attachment 1. The hours estimated are in addition to the previously scoped tasks included in the original contract. The total additional budget requested for these additional services is \$108,460, to be invoiced on a time and materials basis.

We look forward to continuing to serve the City of San Marcos on this project, and currently anticipate these services to be completed within our original schedule. If you have any questions or need any further information, please contact me at [tmichel@lan-inc.com](mailto:tmichel@lan-inc.com) or 512-338-2722.

Sincerely,



Travis Michel, PE, CPESC  
Senior Project Manager

Attachments  
Attachment 1 – Fee Estimate

FEE ESTIMATE - MAN-HOUR BREAKDOWN COERS DRIVE DRAINAGE IMPROVEMENTS (Preliminary Engineering, Final Design, Bid & Construction Phase Services) November 2, 2016														
	TASK DESCRIPTION	Principal in Charge	Rate/ Hr. \$225.00	Project Manager	Rate/ Hr. \$180.00	Project Engineer	Rate/ Hr. \$150.00	Senior Designer	Rate/ Hr. \$100.00	Engineer-in- Training	Rate/ Hr. \$95.00	Admin.	Rate/ Hr. \$70.00	Total
		Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	Hrs.	Cost	
A.	PROJECT MANAGEMENT	0	\$0.00	16	\$2,880.00	8	\$1,200.00	0	\$0.00	8	\$760.00	4	\$280.00	\$5,120.00
1	Project Management/Invoicing	0	\$0.00	8	\$1,440.00	0	\$0.00	0	\$0.00	0	\$0.00	4	\$280.00	\$1,720.00
2	Coordination with City and Subconsultants	0	\$0.00	8	\$1,440.00	8	\$1,200.00	0	\$0.00	8	\$760.00	0	\$0.00	\$3,400.00
3	Coordination with Permitting Agencies/Utility Providers	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
B.	PRELIMINARY PHASE (30%)	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
C.	DESIGN PHASE (60/90/99/100%)	0	\$0.00	31	\$5,580.00	298	\$44,700.00	208	\$20,800.00	124	\$11,780.00	0	\$0.00	\$82,860.00
1	Project Meetings	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
2	Public Meetings	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
3	Utility Coordination Meetings	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
4	Storm Sewer Design (StormCAD)	0	\$0.00	2	\$360.00	40	\$6,000.00	0	\$0.00	4	\$380.00	0	\$0.00	\$6,740.00
5	Drainage - 2D Modeling	0	\$0.00	1	\$180.00	24	\$3,600.00	0	\$0.00	8	\$760.00	0	\$0.00	\$4,540.00
6.1	Downstream Impacts Evaluation - Hydrology (HEC-HMS)	0	\$0.00	0	\$0.00	30	\$4,500.00	8	\$800.00	4	\$380.00	0	\$0.00	\$5,680.00
6.2	Downstream Impacts Evaluation - Hydraulics (HEC-RAS)	0	\$0.00	1	\$180.00	40	\$6,000.00	8	\$800.00	32	\$3,040.00	0	\$0.00	\$10,020.00
7	Downstream Erosion Evaluation	0	\$0.00	1	\$180.00	16	\$2,400.00	8	\$800.00	8	\$760.00	0	\$0.00	\$4,140.00
8	Water Quality Design	0	\$0.00	1	\$180.00	20	\$3,000.00	0	\$0.00	8	\$760.00	0	\$0.00	\$3,940.00
9	Road Cross-Sections	0	\$0.00	1	\$180.00	4	\$600.00	12	\$1,200.00	0	\$0.00	0	\$0.00	\$1,980.00
10	Guard Rail Design	0	\$0.00	2	\$360.00	4	\$600.00	8	\$800.00	4	\$380.00	0	\$0.00	\$2,140.00
11	Utility Adjustments/Conflict Assessment	0	\$0.00	8	\$1,440.00	40	\$6,000.00	40	\$4,000.00	0	\$0.00	0	\$0.00	\$11,440.00
12	60% Technical Memorandum	0	\$0.00	4	\$720.00	24	\$3,600.00	8	\$800.00	8	\$760.00	0	\$0.00	\$5,880.00
13	Design Drawings - 60% Submittal	0	\$0.00	2	\$360.00	24	\$3,600.00	60	\$6,000.00	16	\$1,520.00	0	\$0.00	\$11,480.00
14	Design Drawings - 90% Submittal	0	\$0.00	0	\$0.00	8	\$1,200.00	16	\$1,600.00	8	\$760.00	0	\$0.00	\$3,560.00
15	Design Drawings - 99% Submittal	0	\$0.00	0	\$0.00	8	\$1,200.00	16	\$1,600.00	8	\$760.00	0	\$0.00	\$3,560.00
16	Design Drawings - 100% Submittal	0	\$0.00	0	\$0.00	4	\$600.00	16	\$1,600.00	8	\$760.00	0	\$0.00	\$2,960.00
17	Quantity Take Off	0	\$0.00	0	\$0.00	0	\$0.00	8	\$800.00	0	\$0.00	0	\$0.00	\$800.00
18	Technical Specifications	0	\$0.00	0	\$0.00	8	\$1,200.00	0	\$0.00	0	\$0.00	0	\$0.00	\$1,200.00
19	Engineer's Opinion of Probable Cost	0	\$0.00	0	\$0.00	4	\$600.00	0	\$0.00	8	\$760.00	0	\$0.00	\$1,360.00
20	Quality Assurance & Quality Control Reviews	0	\$0.00	8	\$1,440.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$1,440.00
21	Driveway Plan and Profile Drawings	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
22	Exhibits for Temporary License Agreements	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
D.	BID PHASE	0	\$0.00	5	\$900.00	14	\$2,100.00	8	\$800.00	2	\$190.00	0	\$0.00	\$3,990.00
1	Attend Prebid Meeting	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
2	Respond to Plan Holder Requests for Information	0	\$0.00	1	\$180.00	6	\$900.00	0	\$0.00	2	\$190.00	0	\$0.00	\$1,270.00
3	Prepare Addenda	0	\$0.00	4	\$720.00	8	\$1,200.00	8	\$800.00	0	\$0.00	0	\$0.00	\$2,720.00
4	Evaluate Bids & Bid Tabulation	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
E.	CONSTRUCTION PHASE	0	\$0.00	18	\$3,240.00	40	\$6,000.00	8	\$800.00	16	\$1,520.00	0	\$0.00	\$11,560.00
1	Project Meetings	0	\$0.00	8	\$1,440.00	8	\$1,200.00	0	\$0.00	0	\$0.00	0	\$0.00	\$2,640.00
2	Pre-Construction Conference	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
3	Submittals Review	0	\$0.00	2	\$360.00	4	\$600.00	0	\$0.00	10	\$950.00	0	\$0.00	\$1,910.00
4	Response to Request for Information/Modifications	0	\$0.00	2	\$360.00	4	\$600.00	0	\$0.00	6	\$570.00	0	\$0.00	\$1,530.00
5	Construction Observations	0	\$0.00	2	\$360.00	8	\$1,200.00	0	\$0.00	0	\$0.00	0	\$0.00	\$1,560.00
6	Pay Estimate Review	0	\$0.00	1	\$180.00	6	\$900.00	0	\$0.00	0	\$0.00	0	\$0.00	\$1,080.00
7	Review of Change Orders	0	\$0.00	1	\$180.00	6	\$900.00	8	\$800.00	0	\$0.00	0	\$0.00	\$1,880.00
8	TDLR Inspection (Altura Solutions)	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
9	Substantial Completion Walk-through	0	\$0.00	2	\$360.00	4	\$600.00	0	\$0.00	0	\$0.00	0	\$0.00	\$960.00
F.	RECORD DRAWINGS PHASE	0	\$0.00	1	\$180.00	2	\$300.00	8	\$800.00	0	\$0.00	0	\$0.00	\$1,280.00
1	Record Drawings	0	\$0.00	1	\$180.00	2	\$300.00	8	\$800.00	0	\$0.00	0	\$0.00	\$1,280.00
2	Deliverables	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
TOTAL HOURS		0	\$0	71	\$12,780	362	\$54,300	232	\$23,200	150	\$14,250	4	\$280	

The hours listed above are an estimate. The hours assigned to the Phase are not exclusive to the Phase which they are assigned. The total fee will not exceed the total contract amount as discussed in Article 2. The hourly rates of this contract shall apply to throughout the remainder of this contract and to all change in services.

Payment to the ENGINEER will be made as follows:

1. Basic Services - The amounts of these invoices will be based upon the extent of work completed by the Engineer on an hourly basis.
2. Supplemental Services - The Engineer will receive approval in writing before performing supplemental services. The amounts of these invoices will be based upon the extent of work completed by the Engineer on a lump sum basis.
3. Reimbursable expense - Reimbursable expenses including such things as expenses for plotting, reproduction of documents, auto travel mileage (current IRS approved mileage rate), delivery charges, long distance communications, freight, and state accessibility will be invoiced with appropriate backup documentation.

Invoice and Time of Payment

Invoices will be prepared in a format approved by the City prior to submission of the first monthly invoice. Invoices shall be submitted monthly and paid within 30 days.

	Additional Basic Design Services	\$87,980.00
	Bid & Construction Phase Services	\$16,830.00
	Environmental Services (aci Consulting)	\$0.00
	Additonal SUE Services (Cardno)	\$0.00
	Additional Survey (Byrn)	\$3,150.00
	Expenses (Reproduction, Mileage, Courier)	\$500.00
	Project Subtotal	\$108,460.00
	Project Total	\$108,460.00

NOTE: SUBCONSULTANT SERVICES INCLUDE A 5% MARKUP.