



CENTRALBIDDING
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SOQ 21-014 PROVIDE PROFESSIONAL SURVEYING SERVICES
Jefferson Parish Government

Project documents obtained from www.CentralBidding.com
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Technical Evaluation Committee (TEC) Questionnaire

Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire must be completely filled out. Complete ALL sections. Insert “N/A” or “None” if a section does not apply or if there is no information to provide.**
- Questionnaire must be dated and signed by an authorized representative of the Firm.
- All subcontractors must be listed in the appropriate section of the Questionnaire. All subcontractors must provide a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.
- Failure to properly complete this TEC Professional Services Questionnaire will result in the proposal being deemed not qualified pursuant with Section 2-928(a) of the Jefferson Parish Code of Ordinances, and the proposal will not be evaluated or scored.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

Provide Professional Surveying Services SOQ 21-014

B. Firm Name & Address where Project work will be performed:

**Odom Companies, LLC
Odom Geomatics, LLC a disregarded entity wholly owned by Odom Companies, LLC
301 North Main St. Suite 2200
Baton Rouge, LA 70825**

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

**Chris Odom, PE
50% Owner/Project Manager
301 North Main St., Suite 2200
Baton Rouge, LA 70825
225-442-3147
codom@odomcompanies.com**

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

**Lucien C. Schaffer, Jr., PLS
VP Survey & ROW
2012 Bennigan St.
League City, TX 77573
lschaffer@odomcompanies.com
713-806-1876 cell**

E. Please provide the number of employees whose primary function corresponds with each category:

<u>2</u> Administrative	<input type="checkbox"/> Estimators	<input type="checkbox"/> Specification Writers
<input type="checkbox"/> Architects (Licensed)	<input type="checkbox"/> Geologists	<input type="checkbox"/> Structural Engineers
<input type="checkbox"/> Chemical Engineers	<input type="checkbox"/> Geotechnical Engineers	<input type="checkbox"/> Graduate Engineers
<u>1</u> Civil Engineers	<input type="checkbox"/> Interior Designers	<u>1</u> Project Managers
<input type="checkbox"/> Construction Inspectors	<input type="checkbox"/> Landscape Architects	<input type="checkbox"/> Clerical
<input type="checkbox"/> Ecologists	<u>5</u> Land Surveyor	<input type="checkbox"/> Grant/Funding Specialist
<input type="checkbox"/> Electrical Engineers	<input type="checkbox"/> Mechanical Engineers	<input type="checkbox"/> Sanitary Engineers
<input type="checkbox"/> Engineer Intern	<input type="checkbox"/> Environmental Engineers	
<u>1</u> Professional Land Surveyors		<u>10</u> TOTAL

F. Is this submittal by a JOINT-VENTURE? Please check: YES ☐ NO X

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

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G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1. N/A

2.

**H. Has this JOINT-VENTURE previously worked together? Please check:
YES _____ NO n/a _____**

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

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K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Lucien C. Schaffer, Jr. PLS, LA # 4640
Vice President Survey & ROW

Project Assignment:

Professional Land Surveyor in charge of all survey activities for firm. Responsible for all estimating, proposals, project planning and execution, and all boundary analysis and final determinations.

Name of Firm with which associated:

Odom Companies, LLC Odom Geomatics, LLC

Years' experience with this Firm:

1.3

Education: Degree(s)/Year/Specialization:

BS Surveying & Mapping 1989, University of Houston, Magna Cum Laude

Active registration: Year first registered/discipline:

First Professional Land Surveyor license was Texas in 1989, followed by Mississippi (my home state) in 1990, with Louisiana test taken and license acquired in 1991.

Also registered in AL, GA, AR, MO, OK, NM, CO, and WY

Other experience and qualifications relevant to the proposed Project:

Mr. Schaffer has been surveying all across Louisiana for many years, both prior to and after obtaining professional licensure in Louisiana. Responsible for boundary analysis and final plats, legal descriptions and survey reports on many large and small boundary surveys. Responsible for boundary line determinations on hundreds of miles or route surveys for proposed pipelines across Louisiana while working for Gullett & Associates (1989-2017). Responsible for countless road and highway permits drawings where was the authority on highway Row and construction maps based on previous unregistered experience. 40 plus years of surveying experience and reputation as honest and reliable.

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KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Wesley Smith CAD Manager
Project Assignment:
CAD supervisor/designer in charge of all data input and drawings under the direction and supervision of PLS.
Name of Firm with which associated:
Odom Companies, LLC Odom Geomatics, LLC
Years' experience with this Firm:
1.3
Education: Degree(s)/Year/Specialization:
High School
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Mr Smith has over 30 years experience in CAD work in the land surveying field. Responsible for many boundary projects in multiple states. Responsible for all types of construction drawings, ROW alignment maps, permit drawings and ROW acquisition plats. Responsible for large projects with a team of drafters at times. Work has been and is exceptional in quality and attention to detail that is an asset to the team and the Professional land Surveyor in particular.

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KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title: Patrick Thompson Survey Manager/Supervisor
Project Assignment: Surveyor in the field directing the work and managing crews, as well as coordinating the data, notes, and other information between the field and office. Manage any landowner contacts if no ROW contact agent on site or available.
Name of Firm with which associated: Odom Companies, LLC Odom Geomatics, LLC
Years' experience with this Firm: 1.3
Education: Degree(s)/Year/Specialization: High School, Approved to take SIT exam
Active registration: Year first registered/discipline: N/A
Other experience and qualifications relevant to the proposed Project: Mr Thompson has been involved in boundary work since he entered the surveying field 10 years ago. Responsible for running a crew for several years before becoming survey supervisor and leading multiple crews on large scale route surveys for pipeline ROW determination, acquisition and construction. Has great knowledge of all instruments, including: Trimble GPS and data collection, as well as conventional total stations. Dependable, hard working and great attention to detail.

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KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Chris Odom Managing Partner
Project Assignment:
Project Engineer/Project Manager/QAQC
Name of Firm with which associated:
Odom Companies, LLC Odom Geomatics, LLC
Years' experience with this Firm:
1.3
Education: Degree(s)/Year/Specialization:
Louisiana State University B.S. Degree: Civil Engineering 1997
Active registration: Year first registered/discipline:
Registered Professional Engineer: Louisiana, No. 30521 Jan. 14, 2003
Other experience and qualifications relevant to the proposed Project:
Chris Odom brings 25 years of diverse experience to this project. Working in the oil and gas industry prior to Odom Companies, LLC as manager for an engineering group owned by a Fortune 500 company, experience on Corps of Engineers and Government surveying, engineering projects, started his career at his family's firm, Pyburn & Odom, Inc., working from the bottom up. First role with the company was in the hydrographic survey division where he processed survey data for the Mississippi River Navigation Book Map. As part of this work, he processed, organized, and delivered to the COE over 500 miles of Mississippi River hydrographic and over-bank survey data as well as wrote custom database software for managing thousands of land control points. His career moved into the oil and gas pipeline division where he worked on countless river crossing, boundaries and right of way surveys. As the nature of all my work has required over the years, he has become proficient in managing projects with large data sets. He will ensure that the quality assurance and document control procedures are followed and be involved with every aspect of this project assisting the team.

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KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:	
Name & Title:	
Project Assignment:	
Name of Firm with which associated:	
Years' experience with this Firm:	
Education: Degree(s)/Year/Specialization:	
Active registration: Year first registered/discipline:	
Other experience and qualifications relevant to the proposed Project:	

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L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.		
PROJECT NO. 1		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Blue Ridge Boundary/Well 3D Project Fort Bend County, Texas, Houston Ryan Vickers, Engineer United Salt Corp. 4800 San Felipe, Houston. Texas 77056 713-877-2728 rvickers@unitedbrine.com	This project was a boundary survey an assortment of United Salt parcels using old incomplete data to determine the boundaries of what was owned. Total area was approximately 350 acres and about a dozen parcels. Odom team provided research on all title documents. Survey discovered a tract that United Salt didn't know they owned, a few encroachments scattered around properties, problems with title along the state highway, and issues with record not matching found evidence on the ground. Survey included adding the salt well caverns in 3D using Navisworks and Bricscad along with Autocad. Surveyors' report was provided and client very pleased.	
Completion Date (Actual or estimated):	Estimated Cost:	
August 2020	Entire Project: \$54,000	Work for which Firm was Responsible: \$54,000

PROJECT NO. 2		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Mont Belvieu Boundary/Well 3D Project Chambers County, Texas, Ryan Vickers, Engineer Pure Salt Company 4800 San Felipe, Houston. Texas 77056 713-877-2728 rvickers@unitedbrine.com	This project was to survey Pure Salt 57 acre facility to determine all boundary and easement locations and bring their records and mapping up to date. Odom team provided research on all title, adjoiner, and easement documents. Survey and research enable us to place an old lease tract that was vitally important and was located incorrectly by United Brine mapping. Survey included adding the salt well caverns in 3D using Navisworks and Bricscad along with Autocad. Survey done within original budget.	
Completion Date (Actual or estimated):	Estimated Cost:	
March 2020	Entire Project: \$20,000	Work for which Firm was Responsible: \$20,000

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PROJECT NO. 3		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility	
Markham Boundary/Well 3D Project Matagorda County, Texas, Ryan Vickers, Engineer United Salt Corp. 4800 San Felipe, Houston. Texas 77056 713-877-2728 rvickers@unitedbrine.com	This project was a survey of all Underground Services Markham fee and lease tracts to determine boundary and easement locations and provide up to date mapping to meet their business needs and liability concerns. Total area was approximately 1200 acres in several parcels straddling a State Highway. Odom team provided research on all title documents. Survey discovered and put together in a set of 7 maps all pertinent information, including a tract owned their land department wasn't aware of and a few encroachment concerns. As with many surveys PLS had to deal with record bearings and distances not matching found evidence on the ground. Survey included adding the salt well caverns in 3D using Navisworks and Bricscad along with Autocad. Surveyors' report of all findings by tract and wells will be provided at completion.	
Completion Date (Actual or estimated)	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
May 2021 (estimated)	\$56,000	\$56,000

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
White Castle Boundary/Well 3D Project Iberville Parish, Louisiana Ryan Vickers, Engineer United Salt Corp. 4800 San Felipe, Houston. Texas 77056 713-877-2728 rvickers@unitedbrine.com	The project is a boundary survey of Texas Brine White Castle 710 acre lease tract and some sub lease tracts to determine boundary and easement locations to bring their records and mapping up to date. All boundary maps for Texas Brine companies have aerial background in layer that can be turned on or off. Area is proving challenging due to swamp conditions. Odom team is providing the research on all title documents. Survey will include adding the salt well caverns in 3D using Navisworks and Bricscad along with Autocad.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
May, 2021	\$28,000	\$28,000

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PROJECT NO. 5		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Tiger Pipeline Project Carthage, TX to Delhi, LA Energy Transfer Company Leon Banta, Project Manager 1300 Main St. Houston, TX 77002 713-989-2836 Leon.banta@energytransfer.com	Odom team of Lucien Schaffer, Wes Smith and Patrick Thompson were working on project while employed at Gullett & Associates. Project required surveying boundary lines for easement acquisition plats, permits and ROW alignment drawings all across North Louisiana. As PLS in responsible charge, Mr Schaffer was involved in final decisions on all boundary line locations and certified the acquisition plats. Project also included several large fee parcel tract boundaries for compressor stations.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
December, 2014	\$2,500,000,000 (\$2.5 billion)	(\$25,000,000)

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:

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PROJECT NO. 7		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:

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PROJECT NO. 9		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:

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M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	Defendant:	
1. N/A		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

Core Competencies:

- Alta Surveys
- Mapping and Drafting
- Right-of-Way- title research, permitting, acquisition.
- Boundary Surveys
- Topographic Surveys
- Design Surveys
- Route Surveys
- Construction/Buildings/Plants -As-Built Surveys
- Hydrographic Surveys
- Line Locating
- Laser Scanning
- Get as-built 3D CAD models of your plant, building, or ship.
- Get sections, elevations, floorplans, and maps.

Vendor Profile

Primary NAICS: 541370 - Surveying and Mapping (except Geophysical) Services

- SEBD CERTIFICATION No. 20790
- Louisiana Economic Development's Hudson Initiative Certification No. 20790

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- DUNNS 117423795
- CAGE 8LQUB
- Louisiana Licensed Surveying Company No. VF.00835
- Texas Licensed Surveying Company No. 10194571
- Mississippi Licensed Surveying Company N0. S-31864
- Arkansas Licensed Surveying Company N0. 3923
- Fully Insured

The following is an overview of Odom Companies' project execution process and quality control. After award, a full execution plan will be created specifically for each task order which will include the full scope and required deliverables.

1.0 Scoping/Project Planning

1.1 Project Scope

- 1.1.1 A project scope will be established and agreed upon during bidding or before start of project. Any changes to the scope, as the project moves forward, will be reviewed for impact on project hours and schedule. Ongoing client communication will be maintained with respect to changes in scope and potential change requests.
- 1.1.2 Basis for work: Odom companies requires projects to be executed in accordance with all government standards/codes. The specific standards and codes will be established by the client and adhered to for all work.
- 1.1.3 Drafting standards: Established before any work begins based on Odom Companies and client requirements.

- 1.2 Deliverables: Client provided or agreed upon deliverables list will be closely followed and used during project planning and integrated into the schedule.

2.0 Communications and Document Control Plan

- 2.1 Timely and accurate receipt of information between the project owner and project team is essential to facilitate the successful execution of the project. As a minimum, the following guidelines are a summary of the Communications and Document Control Plan and will be established for the project:

- 2.1.1 Correspondence: Correspondence should be defined as all documents, which flow between Odom Companies and the owner. All correspondence should be serially numbered and identify Odom Companies' project number, project title and specific subject covered. Odom Companies' project manager and owner's designated representative will be the addressees of all correspondence.
- 2.1.2 Transmittals: Documents and drawings between Odom Companies and project owner will be by sequentially numbered transmittals. Odom Companies will use a standard drawing transmittal and document transmittal.
- 2.1.3 Record of telephone conversations: All telephone conversations will be documented by the Odom Companies project manager to ensure agreements and resolve any miscommunications.
- 2.1.4 Project Meeting Notes: All discussions and decisions relative to project requirements, scope changes, resolution of issues, and/or any other contractual matters, should be recorded by sequentially numbered Project Meeting Notes (PMN). These records will be prepared by Odom Companies. The information contained within will include names of the participants and a brief, but

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concise, record of decisions and agreements.

- 2.1.5 Action Item List: An Action Item List will be maintained by the Project Manager. This list will address all project needs, action by, and need dates. The action item list should be reviewed and updated at each project meeting.

3.0 Quality Control

- 3.1 Odom Companies, LLC is committed to client service and long-term professional and business success by producing quality work that is in accordance with industry and client mandated standards, on schedule, and within budget. We view this commitment as the means of success of each project and the company.
- 3.2 Odom Companies, LLC approach to QA is based on the management of the *processes* rather than accepting or rejecting results at the end of the project. This assures a total quality approach thus saving time and money and meeting the expectations of our clients. To assure the accuracy and completeness of project deliverables and documents, specific quality assurance review and checking procedures have been established. These reviews and checking procedures may require modifications for specific projects and will require periodic updating, primarily by the project or survey manager.

3.3 5 Steps to Quality Assurance

Odom Companies, LLC has adopted five basic steps to ensure quality and outstanding client service in surveying and mapping:

- 3.3.1 Project Delivery Planning
- 3.3.2 Adherence to Established Standards
- 3.3.3 Clear Assignments of Tasks and Responsibilities
- 3.3.4 Tracking and Documentation
- 3.3.5 The Use of Qualified Staff

3.4 Project Delivery Planning

- 3.4.1 Quality assurance begins with the Project Delivery Planning. Technical standards and specifications, defining of deliverable items, and milestone schedules will be identified at the project planning stage. A written quality assurance plan is an element of all work plans. The following items are used as a general minimum checklist for the main elements of the project specific work plan:

- 3.4.1.1 Safety procedures for fieldwork
- 3.4.1.2 Detailed statement of work and scope of required services
- 3.4.1.3 Schedules, budgets, and milestone dates
- 3.4.1.4 Precise definition of required deliverables, contract standards, client-imposed standards, and/or industry standards to be used.
- 3.4.1.5 The use of advanced technology
- 3.4.1.6 Tasks and responsibilities
- 3.4.1.7 Plan for adherence to established client, industry, and professional standards.
- 3.4.1.8 Forms and reporting documents that will be required.
- 3.4.1.9 Compliance with client-mandated deliverable requirements

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3.4.2 The Project Delivery Planning includes a project specific Quality Control Plan. Each project includes time and budget allowances for reviews and checking. Odom Geomatics will include, at a minimum, the following items in the project Quality Control Plan:

- 3.4.2.1 Survey or mapping criteria
- 3.4.2.2 Definition of standards and/or agency or client manuals to be used.
- 3.4.2.3 Survey or mapping criteria review and checking forms.
- 3.4.2.4 Drafting and CAD standards and procedures to be used
- 3.4.2.5 Computer calculation review forms
- 3.4.2.6 Field survey forms required for the project.
- 3.4.2.7 Internal checking forms and checklists

3.5 Adherence to Standards

3.5.1 Four types of established standards will be considered for each project: government standards, industry standards, client-imposed standards, and internal standards. Industry and government standards will be considered the minimum level of standards for a given project. These are the common standards used throughout the industry or discipline and are generally based on liability and protection of the public. Client standards are those unique standards required by the client for the project. They may include CAD standards, drafting styles, and the level of confidence (sigma) required for the data. Odom Geomatics' standards were developed for our in-house operations. These standards focus on safety, client service, communication, reporting, documentation, equipment calibration and maintenance, and the use of advanced technology, such as GPS, LIDAR, Ground Penetrating Radar. When preparing the work plan personnel will consider all four types of standards with a focus on project and client requirements.

3.6 Tasks and Responsibilities

- 3.6.1 During the project planning and start-up phase, project personnel will work with the technical managers and office staff to select the checking program and review forms applicable to the project. Additional review forms and checking program items may be created that are unique to the project.
- 3.6.2 On a specific project, the project manager takes responsibility for the implementation of the QA Program for the entire project. This includes ensuring the project team has a clear understanding of the project scope of work and contract conditions and has the available staff and resources to perform quality work. The survey managers and project surveyors take responsibility for the detailed standards, checking, and reviews required.

3.7 Resource Management

A major part of the assignment of tasks and responsibilities will be the management of the various team members and subcontractors involved with the project. Management of these elements and ensuring their compliance with the work plan, standards, schedule, budget, and high-quality results will be the major task of the project manager. To ensure quality and adherence to the project standards the project manager should schedule site visits within the scope of the project and should:

- 3.7.1 Provide a complete project briefing prior to commencement of any work. The briefing should include all staff and subcontractors assigned tasks on the project.
- 3.7.2 Provide all team members or subcontractors with a written work plan including a description of tasks, schedule, budget, and specifications for the work involved.
- 3.7.3 Have the subcontractors transmit weekly situation reports to the project manager via e-mail.

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- 3.7.4 Manage all milestone events on an individual basis, i.e., the team members or subcontractors should not begin a new set of tasks until the milestone for the previous set of tasks has been met and accepted for quality and adherence to the stated project standards.

3.8 Controls and Documentation

Odom Companies, LLC has the philosophy that cost control and profitability are synonymous with safety, qualified staff, technical excellence, quality assurance and good project management. For this reason, the company does the following:

- 3.8.1 Hires qualified licensed professional surveyors who are in responsible charge of the work, and technical experts whose qualifications are specific to the task. All work should be carried out under the direct supervision of a locally licensed land surveyor.
- 3.8.2 Uses State-of-the-art survey equipment, survey software, desktop and notebook computers, communications equipment, and secure electronic transmittal of data and reports.
- 3.8.3 Implements quality control of work and documents at all phases of project work including the following: equipment maintenance, field surveying, mapping, imaging, GIS, modeling, photographic documentation, project management, document control, etc.
- 3.8.4 Uses time and cost reporting accounting systems. Costs are internally reported on a weekly basis. Smaller projects may be tracked daily.
- 3.8.5 Understands that coordination and communications are equally critical to quality and cost control. Communications within the team is conducted daily in person or via telephone, fax, and/or e-mail. Data files are transmitted daily to the project manager to be reviewed and archived. Client communications is conducted through the project manager. Clients are furnished with weekly status reports and information of any unique situations requiring client input.

3.9 Qualified Staff

Training is a critical element the Odom Companies, LLC QA program. Trained professional technical and administrative staff provides a basis for all technical excellence, development, innovation, and client service. Field crew members are internally certified for specific equipment and job tasks based on experience and/or internal competency evaluations. At a minimum, technical and management training is done on an annual basis. Examples of training includes the following

- 3.9.1 Safety
- 3.9.2 Basic project management
- 3.9.3 Advanced project management
- 3.9.4 Technical training classes
- 3.9.5 Surveying procedures training
- 3.9.6 Data collection integrity training
- 3.9.7 Specific equipment training
- 3.9.8 Remote sensing and imaging
- 3.9.9 Geodesy
- 3.9.10 Client services and communications
- 3.9.11 CAD and computer training
- 3.9.12 Basic office tools

3.10 General Quality Control Summary List

For any survey task you should develop a QC checklist as a part of your QA program. The following is a

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sample checklist for a typical GPS control survey. These QC measures may include, but not be limited to:

- 3.10.1 Preparation of a Project QC Plan prior to the commencement of any work.
- 3.10.2 Project personnel will be fully trained in all aspects of the GPS project.
- 3.10.3 All survey work is to be carried out under the supervision of a local licensed land surveyor trained and qualified in geodesy and in the use of the firm's GPS equipment and software.
- 3.10.4 Plot all existing geodetic stations and proposed locations considered for the project as an overlay on a topographic map for use in reconnaissance and GPS mission planning.
- 3.10.5 All receivers will be dual frequency, full-wavelength and have sufficient free memory to record project data. The necessary tracking data will be entered (i.e., tracking rate, minimum number of satellites, elevation mask, HI and 4-character ID).
- 3.10.6 All antennas will be of geodetic quality, have a suitable ground plane and have an antenna calibration approved by the National Geodetic Survey. Antennas will be oriented to north for all station occupations.
- 3.10.7 Data will not be deleted from the receiver until it has been verified in the field and office/headquarters.
- 3.10.8 Where applicable, data from selected CORS stations will be incorporated into the project. Contact will be made with CORS operators to ensure that the selected stations will be operational during the planned project observations.
- 3.10.9 Observers will be instructed to verify station descriptions and to provide a station mark rubbing at every station occupation.
- 3.10.10 Adherence to the Milestones as indicated on the project Schedule and Task Order Statement of Work.
- 3.10.11 Internal team meetings on a minimal weekly basis to monitor progress.
- 3.10.12 Daily QA reviews and progress meetings by the project manager.
- 3.10.13 Pencil rubbings will be taken at all stations occupied along with ample digital photographs including area views, station close-ups and witness posts. All digital photographs will be checked for quality (color, brightness, and contrast) prior to inclusion with the project files. Photos not meeting the quality standards will be retaken.
- 3.10.14 Daily back up of all digital data on a secure server site.
- 3.10.15 Final data and/or drawings will be checked against original data prior to finalizing.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: Calvin Schmidt Print Name: Calvin Schmidt

Title: Owner/ Managing Partner Date: 4/29/2021