CROSSVILLE MEMORIAL AIRPORT – WHITSON FIELD
RUNWAY 8-26 TREE OBSTRUCTION REMOVAL - CONSTRUCTION PHASE SERVICES

Work Authorization Number 09-22

Date: November 29, 2022

Atkins No. 1000xxxx
(Project Identification No.)

It is agreed to undertake the following work pursuant to the terms and condition of the Agreement For Professional Airport Services between the City of Crossville (OWNER) and Atkins (ENGINEER) dated the 13th day of June 2019, and which is incorporated herein by reference and whose terms and conditions shall govern and control this Contract unless stated herein.

Scope of Services:

The ENGINEER shall provide professional services for the ***Runway 8-26 Tree Obstruction Removal Project – Construction Phase Services*** at the Crossville Memorial Airport – Whitson Field (the Project). Services of the ENGINEER are more particularly described in Attachment A, "Engineer's Scope of Services".

Time of Performance:

The services of the ENGINEER under this Work Authorization No. 09-22 shall commence when the OWNER has executed this Work Authorization and all services and work required shall be rendered and completed by the ENGINEER in a timely manner as follows:

1. Construction phase services are expected to begin in September 2022 with issuance of the conformed set of construction contract documents, review of the construction contractor's material and equipment submittals, and issuance of the grant from TDOT-Aeronautics Division.

2. Based on the 90-calendar day construction period, the project is anticipated to be complete in December 2022 (not counting the Obstruction Aerial Survey). Project closeout is anticipated to immediately follow the completion of construction.

The OWNER may grant extensions of time to the ENGINEER for the performance and completion of services and work under this Work Authorization if there are delays due to circumstances reasonably beyond the control of the ENGINEER.

Compensation:

The OWNER shall compensate the ENGINEER under the herein described Scope of Services a lump sum amount of **Seventy-Seven Thousand Two Hundred Eighteen dollars ($77,218.00)** for Special Services and Special Services-Subconsultants as estimated by the ENGINEER and set forth in Attachment B, "Engineer's Estimate of Compensation Basic Services". Progress payments to the ENGINEER for Basic Services shall be by an estimate of percent complete.

Agreed as to Scope of Services, Time of Performance and Compensation:

OWNER: **City of Crossville** ENGINEER: **Atkins**

_____ _____

Date: _____ Date:_____

ATTACHMENT A

ATTACHMENT A

ENGINEER'S SCOPE OF SERVICES

WORK AUTHORIZATION No. 09-22

RUNWAY 26 TREE OBSTRUCTION REMOVAL– CONSTRUCTION PHASE SERVICES

TAD Project No. 18-555-0161-23

at the

CROSSVILLE MEMORIAL AIRPORT – WHITSON FIELD

PROJECT DESCRIPTION AND GENERAL SCOPE OF SERVICES

The project is the continuation of Work Authorization 08-22 which involved the design and bid phase services to develop bid plans and specs for the Runway 8-26 Tree Obstruction Removal project. The Services provided with Work Authorization 09-22 are intended to address the construction phase services as outlined below. Given the duration, coordination, and effort involved with this project, Resident Project Representation (RPR) and LIDAR Survey subconsultant services are included as part of this Scope of Work (SOW).

I. SPECIAL SERVICES – COSTRUCTION ADMINISTRATION PHASE

A. Prepare conformed documents incorporating addendum(s), if any issued during the bidding phase, and final contract documents to be issued for construction.

B. Consult with and advise OWNER and act as their representative as provided in the Contract Documents.

C. Review and approve (or take other appropriate action in respect of) Shop Drawings, as that term is defined in the Contract Documents and submittals, the result of tests and inspections and other data which each Contractor is required to submit, but only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents (Such review

and approval or other action shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions and programs incident thereto); determine the acceptability of substitute materials and equipment proposed by Contractor(s); and receive and review (for general content as required by the Specifications) maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection which are to be assembled by Contractor(s) in accordance with the Contract Documents. It is agreed herein that the ENGINEER will not be required to review more than two submittals from the Contractor for each item requiring a submittal without additional compensation.

D. Issue necessary interpretations and clarifications of the Contract Documents and in connection therewith prepare change orders as required; notify OWNER of the need for any special inspection or testing of the work and advise OWNER of the cost thereof and; upon approval, to require special inspection or testing of the work; act as initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder and make recommendations on all claims of Contractor(s) relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work. ENGINEER shall not be liable for the results of any such interpretations or recommendations rendered by him in good faith.

E. Based on ENGINEER's on-site observations as an experienced and qualified design professional, and from information provided by the RPR and/or survey data, determine the amounts owing to Contractor(s) and recommend in writing payments to Contractor(s) in such amounts. Such recommendations of payment will constitute a representation to OWNER, based on such observations and review, that the work has progressed to the point indicated, and that, to the best of ENGINEER's knowledge, information and belief, the quality of such work is in accordance with the Contract Documents (subject to a final evaluation upon

completion, to the results of any subsequent tests called for in the Contract Documents, and to any qualifications stated in his/her recommendation), and that payment of the amount recommended is due Contractor(s).

F. Conduct an inspection to determine if the Project is substantially complete and a final inspection to determine if the work has been completed in accordance with the Contract Documents and if each Contractor has fulfilled all of his/her obligations thereunder so that ENGINEER may recommend, in writing, final payment to the Contractor(s) and may give written notice to OWNER and the Contractor(s) that the work is acceptable (subject to any conditions therein expressed), but any such recommendation and notice shall be subject to the limitations expressed in paragraph E above.

G. ENGINEER shall not be responsible for the acts or omissions of any Contractor, or subcontractor, or any of the Contractor(s)' or subcontractors' agents or employees or any other persons (except ENGINEER's own employees and agents) at the site or for otherwise performing any of the Contractor(s)' work; however, nothing contained in the above paragraphs A through G, inclusive, shall be construed to release ENGINEER from liability for failure to properly perform duties undertaken by him/her in the Contract Documents.

H. The ENGINEER will utilize drawings and information provided by the Contractor to prepare for the OWNER a set of record drawings showing as-constructed conditions of Project. Deliverables to consist of one 11”x17” hardcopy set of prints along with electronic copies in Adobe (pdf) format and AutoCAD sources files.

II. SPECIAL SERVICES – SUBCONSULTANTS

A. Resident Project Representation (RPR) Services

1. The ENGINEER shall hire the services of Tare Inc. to perform the RPR services required for this project. RPR services shall include, but not be limited to:

a. Coordination with landowner prior to contractor arriving on the landowner's property to top of remove tree obstructions.
b. Validate with the contractor for the removal or topping of tree obstructions as identified on the plans and keep track of which trees have been topped or removed.
c. Keep up to date with the Bid items to validate percentage of work complete for the Lump Sum (LS) items and number of units for the remaining Bid Items.
d. Coordinate with the contractor if the landowner requests a particular tree, which is identified in the plans to be topped, to be removed completely.
e. Coordinate with the city officials for the temporary suspension of work, as required for the Cumberland County Playhouse, and coordinate with the contractor so his/her work forces may divert their labor to other areas of the project.
f. Coordinate with the Owner and the Engineer for daily progress for days that the RPR will be on site.
g. Provide daily reports, for days that the RPR was on site evaluating the progress of the work.
h. Review Pay-App to validate the quantities requested by the Contractor.

B. Post Construction Aerial Survey

1. The ENGINEER shall hire the services of NV5 Geospatial to provide an obstruction survey for the approaches to Runway 8 and Runway 26 to identify that the obstructions, identified in the Issued for Construction plans, have been eradicated. Aerial Survey services shall include: (please refer to attached NV5 Geospatial proposal).

III. OWNER'S RESPONSIBILITIES

OWNER shall:

A. Provide all criteria and full information as to OWNER's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expendability, and any budgetary limitations; and furnish copies of all design and construction standards which OWNER will require to be included in the drawings and specifications.

B. Assist ENGINEER by placing at his/her disposal all available information pertinent to the Project including previous reports and any other data relative to design or construction of the Project.

C. Furnish to ENGINEER upon his/her request, as required for performance of ENGINEER's Scope of Services, any existing available data in the OWNER's possession prepared by the OWNER or by others, including without limitation core borings, probes and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment; appropriate professional interpretations of all of the foregoing; environmental assessment and impact statements; property, boundary, easement, right-of-way, topographic and utility surveys; property description; zoning, deed and other land use restriction; and other special data or consultations, all of which ENGINEER may rely upon in performing his/her services.

D. Arrange for access to and make all provisions for ENGINEER to enter upon public and private property as required for ENGINEER to perform his/her services.

E. Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by ENGINEER, obtain advice as OWNER deems appropriate and render in writing decisions pertaining thereto within a reasonable time so as not to delay the services of ENGINEER.

F. Furnish approvals and permits from all governmental authorities having jurisdiction over the Project and such approvals and consents from others as may be necessary for completion of the Project with the assistance of the ENGINEER and pay any permit fees.

G. Provide such accounting, independent cost estimating, and insurance counseling services as may be required for the Project, such legal services as OWNER may require pertaining to the Project.

H. Give prompt written notice to ENGINEER whenever OWNER observes or otherwise becomes aware of any development that affects the scope or timing of ENGINEER's services, or any defect in the work of Contractor(s).

ATTACHMENT A

I. Bear all costs incident to compliance with the requirements of this Section.

END OF ATTACHMENT A

ATTACHMENT B

CROSSVILLE MEMORIAL AIRPORT - WHITSON FIELD
RUNWAY 26 TREE OBSTRUCTION CLEARING - CA PHASE
TAD PROJECT No. TBD

CONSULTANT'S ESTIMATE OF COMPENSATION
July 18, 2022

PROJECT PHASE / TASK	ATKINS LABOR TOTAL	EXPENSES	SUBCONSULT. FEE	TOTAL FEE ($)	NOTES
SPECIAL SERVICES					
CONSTRUCTION ADMINISTRATION					
ATKINS	$ 26,560.00	$ 1,070.00		$ 27,630.00	
Non-DBE Firms:					
None				$ -	
DBE Firms:					
None				$ -	
Subtotal Construction Administration Phase:	**$ 26,560.00**	**$ 1,070.00**	**$ -**	**$ 27,630.00**	
SPECIAL SERVICES TOTALS:	**$ 26,560.00**	**$ 1,070.00**	**$ -**	**$ 27,630.00**	
SPECIAL SERVICES - SUBCONSULTANTS					
Special Services:					
RPR Services (Tare Inc. of Crossville, TN-Verbal Phone Call)			$ 16,000.00	$ 17,600.00	Incl. 10% mark-up on
Post-Construction Aerial Survey (LIDAR from NV5-See Proposal)			$ 29,080.00	$ 31,988.00	subs
Subtotal:	$ -		$ 45,080.00	$ 49,588.00	
SPECIAL SERVICES-SUBCONSULTANTS TOTALS:	**$ -**	**$ -**	**$ 45,080.00**	**$ 49,588.00**	
TOTAL COMBINED					
SPECIAL SERVICES (CA)+ SPECIAL SERVICES (SUBS) TOTAI	**$ 26,560.00**	**$ 1,070.00**	**$ 45,080.00**	**$ 77,218.00**	
			Round to:	**$ 77,218.00**	

LABOR DETAIL

CROSSVILLE MEMORIAL AIRPORT - WHITSON FIELD
RUNWAY 26 TREE OBSTRUCTION CLEARING - CA PHASE
TAD PROJECT No. TBD

CONSULTANT'S ESTIMATE OF COMPENSATION

ITEM NO.	TASK	PROJECT MANAGER (PM)	SENIOR ENGINEER I (SE)	ENGINEER INTERN (EI)	CADD DESIGNER (CD)	ADMIN. ASSISTANT (AA)
CONSTRUCTION ADMINISTRATION						
1	Preconstruction Meeting, preparation, agenda, meeting minutes	6				2
2	Submittal Reviews		10	6		
3	Requests for Information and Change Orders		8	12		
4	General Project Monitoring (2 hrs / week x 12 weeks)	8	16			
5	Pay Quantity Validation and Invoice Processing		4	8		
6	Periodic Site Visits (assume 4) Incl. Meeting Minutes	24				8
7	Schedule Updates		8			
8	Punchlist / Final Inspection Site Visits / Reports	8				4
9	Construcdtion Closeout Documents, As-Builts		8	6	20	
10	TDOT-Aero Grant Closeout Documentation	4	6	6		
11	General Project Administration		8	8		4
	TOTAL HOURS:	**50**	**68**	**46**	**20**	**18**
	LABOR RATE	$200.00	$130.00	$90.00	$125.00	$60.00
	EXTENDED TOTAL:	**$10,000.00**	**$8,840.00**	**$4,140.00**	**$2,500.00**	**$1,080.00**

Grand Totals - All Phases	**$10,000.00**	**$8,840.00**	**$4,140.00**	**$2,500.00**	**$1,080.00**
ATKINS LABOR SUBTOTAL:					**$26,560.00**

ATTACHMENT B

CROSSVILLE MEMORIAL AIRPORT - WHITSON FIELD
RUNWAY 26 TREE OBSTRUCTION CLEARING - CA PHASE

CONSULTANT'S ESTIMATE OF COMPENSATION
EXPENSE DETAIL

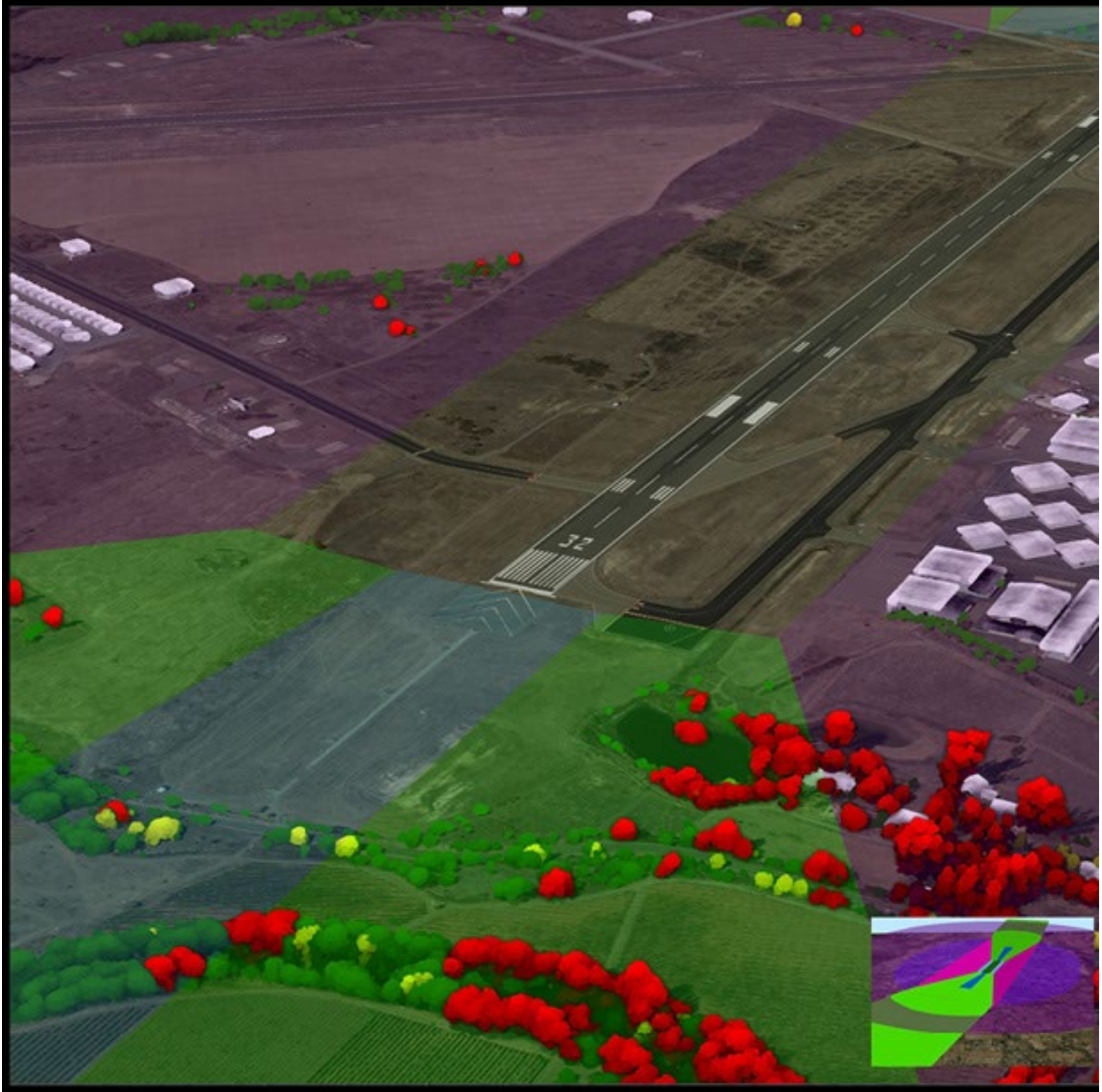
		Construction Phase				
Reference Task No.	**Trip Purpose**	**No. of out of town Personnel**	**No. of Rental Car Days**	**No. Of Company Truck Trips**	**No. of Airfare Trips (RDU/BNA)**	**No. of Overnight Stays**
	Kick-off Design Meeting	1		1		
	Periodic Site Visits	4		4		
	Punchlist Final Inspection	1		1		
	Total Trips:	**6**	**0**	**6**	**0**	**0**

					Construction Phase	
Item No.	**Item**	**Unit**	**Est. Unit Cost**	**Miles/Trip Sheets/Set, etc.**	**No. of Trips/ Sets/Units**	**Total Est. Cost**
1	Airfare for Airfield Electrical Specialist	Each	$ 500.00		0	$ -
2	Hotel (GSA Rate + Local Hotel Taxes)	Each	$ 170.00		0	$ -
3	Meals & Incidentals (GSA Rate)	Day	$ 59.00		6	$ 354.00
4	Rental Car / Company Truck	Day	$ 120.00		6	$ 720.00
5	Plan Set Printing	Sheet	$ 0.48		0	$ -
6	Color Plan Sheet Printing	Sheet	$ 3.42		0	$ -
7	Contract Book Printing	Sheet	$ 0.08		0	$ -
8	Contract Book Binding (per 100 pages thickness)	Each	$ 1.00		0	$ -
	Subtotal:					$ 1,074.00
	TOTAL TRAVEL EXPENSES (Rounded):					**$ 1,070.00**

NV5 GEOSPATIAL SCOPE OF WORK

AIRPORT OBSTRUCTION EVALUATION

NV5 GEOSPATIAL
powered by QUANTUM SPATIAL



www.quantumspatial.com

July 18, 2022

Mr. David Schilling, PE
Atkins
404 BNA Drive, Suite 600
Nashville, TN 37217

Project: 040915 | Airport Obstruction Evaluation – Crossville Memorial Airport-Whitson Field (CSV)

Dear Mr. Schilling,

This summary of work describes our understanding of the scope of work and services required to provide obstruction information for obstruction evaluation purposes at Crossville Memorial Airport-Whitson Field (CSV) located in Crossville, TN.

Summary of Work

For this project, we will acquire high resolution (12 ppsm or greater) Lidar data for the defined area. The aerial survey and vegetation analysis will cover all of the defined airspace surfaces as discussed between NV5 Geospatial and Atkins. See the attached exhibit for area of coverage.

From the 12 pulse per square meter (ppsm) lidar data, we will produce the following:

- Custom Vegetation Obstruction Data Reports including location, height, distance above each obstructed surface, and land parcel data.
- Google Earth .KML file with attributed obstruction data for easy access and navigation
- Esri shapefiles with obstruction data for GIS application including point and polygon obstruction features

Quality Standards

All LiDAR derived classified point clouds meet or exceed Lidar Base Specifications Version 1.0 (USGS, 2012), Guidelines for Digital Elevation Data (NDEP, 2004), and LAS Specification v1.2 (ASPRS, 2009). In addition, NV5 Geospatial's commitment to provide industry-leading data quality is supported by a rigorous internal QA/QC program put in place at project initiation and applied from project planning, through data collection, to final delivery.

Project Area

The project area encompasses Runway 8/26 of the Crossville Memorial Airport-Whitson Field (CSV) inclusive of the obstruction surfaces that will be defined during discussions between NV5 Geospatial and Atkins. Total distance off each runway end is 13,000 FT with a distance of 3,750 FT off each side of the runways (see attachment).

Ground Survey

NV5 Geospatial will use existing ground control survey from our previous project at the airport.

LiDAR Processing

The overall goal of LiDAR point processing is to rapidly create highly accurate data. Processing tasks include: GPS, kinematic corrections, calculation of laser point position, relative accuracy testing and calibrations, classification of ground and non-ground points, assessments of statistical absolute accuracy, and creation of ground and highest hit surface models. Absolute accuracy will be assessed by comparing laser points to ground level survey data (i.e., RTK).

NV5 Geospatial shall use proprietary software to compare the appropriate obstruction identification surfaces for each runway to LiDAR point cloud data to accurately identify each penetrating obstruction. NV5 Geospatial will analyze key details for each obstructions including: location, height, obstruction surface penetrated, amount penetrated, and land parcel data. The final data will be delivered in a format to work with ESRI shape files and Google Earth KML files. Feature attributes will be built into a spreadsheet (with key object identifiers). Delivery formats can be discussed and adjusted between you and NV5 Geospatial as the project continues to develop.

Production Schedule

NV5 Geospatial will deliver the completed data within 60 days after collection of lidar data, ground survey, and the appropriate aviation surfaces have been received.

Deliverables

NV5 Geospatial will create the following deliverables for all data collected. Formats listed below:

- Overall Obstruction Report in Adobe PDF Format - Listing obstructions found to all aviation surfaces being analyzed. Analysis broken down by parcel, with a summary table and appendix.
- Individual Surface Obstruction Reports in Adobe PDF format - Listing obstructions found to each aviation surface being analyzed. Analysis broken down by parcel, with a summary table and appendix. This reporting follows the same reporting style as the main report.
- Individual Surface Obstruction Spreadsheets in Microsoft Excel XLSX format - Listing obstructions found to each aviation surface being analyzed, but delivered in a Spreadsheet format.
- Individual Surface Obstruction Polygons/Polylines in ESRI Shapefile format - Obstructions being provided in polygon/polyline format, with attribution for each obstruction found.
- Individual Surface Obstructions in Google Earth KML format - Obstruction shown as point data, containing attributed information for each obstruction, each parcel, and general location of the aviation airspace surface being analyzed.
- EB91 Data and Reporting Support Services – NV5 Geospatial will support the EB91 submission process to update the FAA OAS database for CSV. Atkins will provide the locations and unique identifiers of the obstructions mitigated.

All digital files will be delivered via FTP, email, or external hard drive.

Cost and Payment Terms

Compensation for the above services will be provided as a lump sum cost of U.S. $29,088.00.

Client Responsibilities

The successful and timely completion of this project is dependent upon a number of elements and work tasks, some of which involve participation by your office. You will be responsible for designating a representative for the project who will have the authority to transmit instructions, receive information, and make timely decisions with respect to the services provided by NV5 Geospatial.

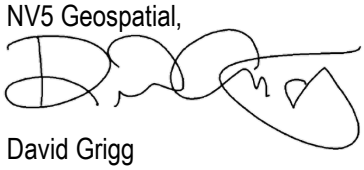
NV5 Geospatial Representative

We are excited to announce that we have rebranded to become NV5 Geospatial powered by Quantum Spatial. This is a natural progression for our brand as we continue to integrate our solutions into the NV5 family. Quantum Spatial, Inc dba NV5 Geospatial is a wholly-owned subsidiary of NV5 Global, Inc.

Paul Bishop, Technical Manager will represent us during the performance of the services to be provided under this agreement. He has the authority to transmit and receive instructions and make decisions with respect to the services. He is authorized to commit the necessary resources towards completing the services described herein.

We look forward to working with you and your staff to complete this project in a timely and cost effective manner. Should you have any questions, please call me at 803-351-3136 or email me at the address shown below.

Sincerely,
NV5 Geospatial,



David Grigg
Aviation Program Director
David.Grigg@NV5.com

Exhibit 1 – Project Area