GOAA DATE: 05/15/2024

AGREEMENT
FOR
PROFESSIONAL SERVICES

Agreement for
Continuing On-Call Architecture and Engineering Consulting Services
Orlando International and Executive Airports

by and between

GREATER ORLANDO AVIATION AUTHORITY

and

RS&H, Inc.

AGREEMENT
FOR
CONTINUING PROFESSIONAL SERVICES

FOR STUDIES/PROJECTS WITHIN CCNA THRESHOLDS

THIS AGREEMENT is effective this day of July 15, 2024, by and between the **Greater Orlando Aviation Authority,** ("Owner"), a public and governmental body existing under and by virtue of the laws of Florida, with a business address at **Orlando International Airport, One Jeff Fuqua Boulevard, Orlando, FL 32827-4399**, and **RS&H, Inc.,** ("Consultant"), a Florida corporation licensed to do business in Florida, with a business address at **301 E. Pine St. Suite 350, Orlando FL 32801.**

W I T N E S S E T H:

WHEREAS, the Owner desires to employ the Consultant to provide On-Call Architectural and Engineering Services as described herein, and

WHEREAS, the Consultant is licensed, qualified, willing and able to perform the professional services required on the terms and conditions hereinafter set forth; and

WHEREAS, the Owner has given public notice of the professional services to be rendered pursuant to this Agreement, a copy of which is attached hereto as **Exhibit B** and incorporated herein by reference; and

WHEREAS, the selection of the Consultant has been made in accordance with the provisions of 49 CFR Part 18, FAA Advisory Circular No. 150/5100-14, as amended, and the Consultant's Competitive Negotiation Act, Section 287.055, Florida Statutes ("CCNA").

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the Owner and the Consultant do hereby agree as follows:

ARTICLE 1 - GENERAL PROVISIONS

1.1 Basic Definitions

Wherever used in this Agreement, the following terms have the meanings indicated, which are applicable to both the singular and plural thereof:

1.1.1 Agreement

This Agreement for Professional Services between the Consultant and Owner, including all Exhibits listed in Article 20 of this Agreement, including all amendments and addenda hereto.

1.1.2 Services

The Services to be performed by the Consultant for the Owner are generally described in **Exhibit A and B** of this Agreement with the specific Services to be described in Project Addenda.

1.1.3 Government Entities

The following abbreviations will be used throughout this Agreement:

.1 FAA – Federal Aviation Administration

.2 FDOT – Florida Department of Transportation

.3 TSA – Transportation Security Administration

.4 DOT – U.S. Department of Transportation

.5 City – City of Orlando

1.1.4 Consultant's Compensation

Consultant's Compensation means the fees and expenses incurred directly in connection with the performance or furnishing of Services for which the Owner shall pay the Consultant as indicated in **Exhibit A**.

1.1.5 Services

Services means Services performed by the Consultant for the Owner under this Agreement.

ARTICLE 2 –SERVICES TO BE PROVIDED BY THE CONSULTANT

2.1 Services

2.1.1 The Consultant hereby agrees to provide professional services required Services as generally defined in **Exhibit A**.

2.1.2 The Consultant agrees to perform Services in accordance with the terms and conditions of this Agreement and with applicable federal, state and local laws, regulations, rules and ordinances then in effect or as amended as determined by the Owner on an as-needed basis, although the Owner is not obligated to obtain such Services from Consultant. Projects may be negotiated and assigned to Consultant by an Addendum ("Work Order") which will defines the specific services to be performed and Consultant's compensation.

It is expressly understood that the Owner is not obligated to utilize the services of the Consultant for any particular project at the Orlando International Airport, the Orlando Executive Airport, or any other facility operated by the Owner

2.2 Personnel

The Consultant agrees to retain the necessary qualified personnel to perform all Basic and Additional Services for the Owner pursuant to this Agreement and any Addenda hereto. Consultant shall ensure that all such personnel, while performing Services hereunder, shall conduct themselves in a professional manner. The Consultant further agrees to remove promptly any personnel from performing Services as the Owner shall request in writing, which request may be made by the Owner with or without cause, and to replace promptly such personnel with another of the Consultant's qualified personnel who shall be approved in writing by the Owner.

2.3 Subconsultants

2.3.1 The Consultant shall have the right, with the Owner's prior written consent, which shall not be withheld unreasonably, to employ other firms or individuals to serve as subconsultants ("Subconsultants") to the Consultant in connection with the Consultant's performance of any Services under this Agreement.

2.3.2 The Consultant agrees, at the Owner's written request, which may be made by the Owner with or without cause, to terminate promptly the services of any Subconsultant and to replace promptly each such terminated

Subconsultant with a qualified firm or individual approved by the Owner in writing. The Consultant further agrees to cause the Subconsultants to remove promptly any employees providing Services under this Agreement as the Owner shall request in writing, which may be made by the Owner with or without cause, and to replace promptly each such employee with another qualified employee acceptable to the Owner.

2.3.3 The Owner shall have no liability or obligation to the Subconsultants hereunder.

2.3.4 The Owner shall have the right, but not the obligation, based upon sworn statements of accounts from the Subconsultants, and in accordance with the Consultant's written request, to pay a specific amount directly to a Subconsultant. In such event, the Consultant agrees any such payments shall be treated as a direct payment to the Consultant's account.

2.3.5 Subconsultant fees shall be billed to the Owner at cost with no additional markup applied by the Consultant. Additionally, previously negotiated Subconsultant hourly rates shall be utilized in Work Orders.

2.3.6 All Services performed by Subconsultants under this Agreement shall be pursuant to an appropriate written agreement between the Consultant and each Subconsultant. The Consultant shall require each Subconsultant to be bound to the Consultant by all the terms of this Agreement, and to be responsible to the Consultant for all the obligations and responsibilities for which the Consultant, pursuant to this Agreement, is responsible to the Owner, except as provided in Paragraph 15.5.12. The Consultant shall make available to each proposed Subconsultant, prior to execution of the Subconsultant's agreement, a copy of this Agreement. When requested by the Owner, the Consultant shall submit copies of the written agreements between the Consultant and the Subconsultants.

2.4 Consultant's Standards of Performance

The Consultant shall use professional standards of care and performance to perform all Services in such quality and sequence, and in accordance with such reasonable time requirements and reasonable written instructions, as may be requested or provided by the Owner and as required by the project. The Services must be provided in a manner that is consistent with the level of reasonable care, skill, judgment and ability provided by professionals providing a similar type of Services in the same geographic area and within the same general timeframe.

2.5 Consultant's Liability

The Consultant shall be and remain liable in accordance with applicable law for all damages to the Owner and the Owner's property caused by the improper acts, errors or omissions of the Consultant or by any Subconsultants in performing any Services. The term "improper acts, errors or omissions" shall include, but not be limited to, negligent, reckless, wanton, intentional, or willful failure to perform the Services in accordance with the professional standard of care and performance for the Services set forth in this Agreement and in Work Orders.

2.6 Consultant's Obligation to Correct Errors or Omissions

The Consultant shall be responsible for the professional quality, technical adequacy and accuracy, timely completion, and coordination of all data, designs, specifications, calculations, estimates, plans, drawings, photographs, reports, memoranda, other documents and instruments, and other services furnished by the Consultant. If any design work or submittal prepared by the Consultant contains an error, omission, deficiency or mistake, Owner shall promptly notify Consultant of the error, omission, deficiency or mistake.

Upon written notice from Owner the Consultant shall, without additional compensation, correct or revise any errors, omissions, mistakes or other deficiencies in such data, studies, surveys, designs, specifications, calculations, estimates, plans, drawings, construction documents, work, and materials resulting from the negligent act, errors or omissions, or intentional misconduct of the Consultant or any Subconsultants.

Owner shall notify Consultant of and reserves the right to backcharge reasonable costs incurred in identifying, documenting, and remedying any such error, omission, deficiency or mistake. Such backcharge amounts may be deducted from any payment(s) due the Consultant. If the payments due the Consultant are not sufficient to cover such amount(s), the Consultant shall be responsible for paying the difference to Owner

2.7 Consultant's Obligation to Repair Damaged Property

The Consultant shall promptly repair, at its sole cost and expense and in a manner acceptable to the Owner, any damage caused by the improper act, error or omission of the Consultant to facilities operated or controlled by the Owner or any third party to which the Owner is accountable, or any improvements or property located thereon. If any damage is caused partially by improper acts or omissions of the Owner or a third party for whom the Consultant is not responsible, all parties shall bear their proportional share of the repair costs based upon the parties' relative degree of fault.

2.8 Owner's Approval Shall Not Relieve Consultant of Responsibility

Review or approval by the Owner of data, designs, specifications, calculations, estimates, plans, drawings, photographs, reports, memoranda, other documents and instruments, and incidental work or materials furnished hereunder shall in no way relieve the Consultant of responsibility for the technical adequacy and accuracy of Services performed by the Consultant. Neither the Owner's review, approval, acceptance of, nor payment for, any of the Services under this Agreement shall constitute a waiver of any of the Owner's rights under this Agreement or of any cause of action it may have arising out of the this Agreement.

2.9 Non-Exclusive Rights

The rights granted to the Consultant hereunder are nonexclusive, and the Owner reserves the right to enter into agreements with other consultants to perform professional services, including without limitation, any of the Services provided for herein.

2.10 Consultant's Compliance with Laws and Regulations

2.10.1 The Consultant and its employees and Subconsultants shall promptly observe and comply with all applicable federal, state and local laws, regulations, rules and ordinances then in effect or as amended (“laws”), including, but not limited to, the laws governing the wages paid by the Consultant to its employees.

2.10.2 The Consultant shall procure and keep in force during the term of this Agreement all necessary licenses, registrations, certificates, permits and other authorizations as are required by law in order for the Consultant to render its Services hereunder.

2.10.3 Effective January 1, 2021, the Consultant shall register with and utilize the U.S. Department of Homeland Security's Employment Eligibility Verification System (E-Verify), in accordance with the terms governing the use of the system, to verify the work authorization status of all newly hired employees, performing work in the United States. The Consultant shall include an express provision in all Subcontracts requiring the Subconsultants and Subcontractors to do the same and require all Subconsultants and Subcontractors to provide the Consultant with an affidavit stating that the Subconsultant/Subcontractor does not employ, contract with, or subcontract with an unauthorized alien. The Consultant must retain all such affidavits for the duration of the Contract. In accordance with Florida Statutes §448.095, the Owner shall terminate this Contract if Owner has a good faith belief that the Consultant knowingly employs an unauthorized alien or has otherwise violated Florida Statute §448.09(1). The Owner shall require the Consultant to terminate the contract of a Subconsultant/Subcontractor if Owner has a good faith belief that the Subconsultant/Subcontractor has knowingly violated Florida Statute §448.09(1). The Consultant may challenge any such termination in accordance with Florida Statutes §448.095. Consequences for a violation of this subsection also include liability for the Owner’s

costs as a result of the termination and debarment for at least one (1) year in accordance with Florida Statutes §448.095.

2.11 Consultant Is Not Owner's Agent

The Consultant is not authorized to act as the Owner's agent hereunder and shall have no authority, expressed or implied, to act for or bind the Owner hereunder, unless set forth in a Work Order.

2.12 Reduced Scope of Services

The Owner shall have the right, by written notice to the Consultant, to reduce the scope of Services to be rendered hereunder. In the event the scope of Services are reduced by the Owner, the Consultant shall promptly notify the Owner in writing after receipt of such notice of the amount by which the total compensation for that particular scope or service should be reduced. The reduction in compensation shall be calculated on the basis of the Consultant's labor estimates and labor-hour costs for such Services and the related reimbursable expenses. The Consultant's notice to the Owner shall show this calculation in reasonable detail. The Owner shall, with reasonable promptness after receipt of the Consultant's calculation of compensation reduction, notify the Consultant in writing of its acceptance or objection to the amount of compensation reduction, together with the Owner's determination of the proper amount of compensation reduction, which determination shall be conclusive.

2.13 Suspension

If the Owner suspends the Project, or any portion thereof, the Consultant shall be compensated for services performed prior to notice of such suspension. When the Project is resumed, fees and expenses for the remaining services and the time schedules may be equitably adjusted. The fees for the remaining services and the time schedules shall be equitably adjusted. If the Owner suspends the Project or a portion thereof for more than 90 cumulative days for reasons other than the fault of the Consultant, the Consultant may terminate this Agreement by giving not less than seven (7) days' written notice.

2.14 Consultant's Representative

The Consultant shall designate a person to act as the Consultant's Representative as identified in **Exhibit A**. The Consultant's Representative shall have complete authority on behalf of the Consultant to transmit or receive information, to propose or proceed with action requested by the Owner and to execute Addenda on behalf of the Consultant.

ARTICLE 3 - OWNER'S RESPONSIBILITIES

3.1 Furnishing Information and Instructions; Examination of Documents

3.1.1 Upon request by the Consultant, the Owner will make available for the Consultant's investigation and use the Owner's library of record documents for the Owner's existing facilities, and other information pertinent to the Services which may be available, including any survey and geotechnical information. However, it will be the Consultant's responsibility to research these existing documents to determine which, if any, are applicable to the Services. It will also be the Consultant's responsibility to verify all applicable information shown on the Owner's record documents or any other information provided by the Owner prior to relying upon such information for execution of the Services.

3.2 Review of Consultant's Submittals

Subject to the provisions of this Agreement, the Owner may examine all data, designs, specifications, calculations, estimates, plans, drawings, photographs, reports, memoranda and other documents and instruments prepared by the

Consultant and delivered to the Owner pursuant to this Agreement, within a reasonable time so as not to unreasonably delay the Consultant in the rendering of its Services. The Owner will promptly notify the Consultant of any observed deviations from the Scope of Services as defined herein, in the attached **Exhibit A** and the Work Order, errors or other defects in such data, designs, specifications, calculations, estimates, plans, drawings, photographs, reports, memoranda and other documents and instruments.

3.3 Reasonable Access

The Owner will allow the Consultant reasonable access to facilities controlled by the Owner to enable the Consultant to perform the Services. The Consultant agrees that such rights of access shall not be exercised in a manner or to such extent as to impede or interfere with the operation of the Owner's facilities, or with the operations of the Owner's lessees, licensees, or permittees of the Owner or the applicable owners of such facilities. The Consultant further agrees to abide by all applicable regulations regarding access to the Owner's facilities, including access to Airfield Operating Areas (AOA). The Consultant will obtain all necessary badges and clearances required for such access by the Consultant's personnel at no additional cost to the Owner.

3.4 Owner's Representative

The Owner's Representative, as identified in **Exhibit A**, acts as the Owner's Representative with respect to Services to be provided by the Consultant under this Agreement.

ARTICLE 4 – TIME

4.1 The Consultant's Services and compensation under this Agreement have been agreed to in anticipation of the orderly and continuous progress of the Services through completion.

4.2 The date for commencement of the Services by the Consultant is the effective date of the Work Order.

4.3 A schedule for the Services shall be included in each Work Order by executing Work Order. By accepting a Work Order, the Consultant acknowledges that the schedule set forth in such Work Order is both realistic and achievable, and that the Services will be completed within the time frame set forth in the schedule.

4.4 If, at any time prior to completion of the Services, the Consultant determines that the Services are not progressing according to the schedule as set forth in the Work Order, the Consultant shall immediately notify the Owner in writing and shall provide a description of the cause of the delay, the effect on the schedule and the recommended action to meet the schedule.

4.5 Should Services be delayed at any time during the period of this Agreement due to changes ordered in the Services by Owner, by labor disputes, fire, unavoidable casualties or any causes beyond the Consultant's control, then an extension for performance of this Agreement shall be granted to Consultant by Owner through written mutual agreement.

ARTICLE 5 – PAYMENTS TO CONSULTANT FOR SERVICES AND REIMBURSABLE EXPENSES

5.1 Compensation for Services

For Services rendered by the Consultant, the Owner shall pay the Consultant in accordance with the payment terms defined in **Exhibit A and Exhibit C**. To obtain payment in the most expeditious manner, the Consultant may enroll in the Viewpost payment software program which includes an option for electronic funds transfer. The Owner will provide instructions on the enrollment process.

5.2 Reimbursable Expenses

5.2.1 The Owner shall pay the Consultant for Reimbursable Expenses incurred by the Consultant as defined in **Exhibit A and Exhibit C, Paragraph 4**.

5.2.2 Reimbursement for travel, for Services, shall be made in accordance with the Owner's travel policy attached as **Exhibit D**.

5.3 Invoices

5.3.1 The Consultant shall submit invoices to the Owner, in the form attached as **Exhibit C**, no more frequently than monthly, for all Services rendered hereunder since the last monthly invoice. Invoices shall be in a form and with detail satisfactory to the Owner and shall include the nature and amount of each expense, separated and identified as reasonably requested by the Owner. The Consultant shall submit one (1) original of the invoice to the Owner, by uploading the invoice in accordance with the Owner's instructions.

5.3.2 Monthly invoices shall also contain the following information:

.1 Lump sum amount invoices shall include a percentage of such lump sum fee equal to the percentage of Services completed since the last monthly invoice.

.2 Per Diem or hourly rates invoices shall be based upon the number of days or hours of service actually rendered by the Consultant and its Subconsultants since the last monthly invoice, broken down by appropriate billing classifications.

.3 Monthly invoices for Reimbursable Expenses incurred since the last monthly invoice shall include the nature and amount of each expense, the date on which it was incurred, and the task to which each expense relates, submitted in a form and with detail satisfactory to the Owner.

.4 Certification from a Principal or Officer that amounts previously paid by the Owner to the Consultant for work, expenses, supplies, etc. of Subconsultants have been disbursed.

.5 Consultant Disbursement Form included in Exhibit C.

.6 Invoices shall generally describe the services rendered by each individual, identify the work area and location, if applicable, and the date rendered.

5.3.4 The Consultant represents and warrants that all billable hours and rates furnished by the Consultant to the Owner shall be accurate, complete and current as of the date of this Agreement or Addenda hereto. Current rates are defined as the most recently negotiated rates with Consultant and Subconsultants. Consultant shall also verify that Subconsultant rates are accurate, complete and current prior to submission of invoices. The Consultant further covenants and agrees that all billing rates, estimates of the percent of Services which have been completed, and other factual unit costs furnished by the Consultant to the Owner to support any lump sum amount, or per diem or hourly rates, which the Owner agrees to pay for any Services shall be accurate, complete and current as of the date of this Agreement or any Addenda authorizing the Consultant to perform Services. The making of any willfully false statement by the Consultant in a monthly invoice shall be grounds for the immediate termination by the Owner of this Agreement.

5.3.5 The Owner shall notify the Consultant in writing of any objection to the amount of such invoice, together with the Owner's determination of the proper amount of such invoice. Such notice shall be accompanied by the Owner's payment of any undisputed portion of such monthly invoice. Any dispute over the proper amount of such monthly invoice shall be resolved by mutual agreement of the parties, and after final resolution of such dispute, the Owner shall promptly pay the Consultant the amount so determined, less any amounts previously paid by the Owner with respect to such monthly invoice. In the event it is determined that the Owner has overpaid such monthly invoice,

the Consultant shall promptly refund the amount of such overpayment to the Owner, together with interest thereon at the rate of 6% per annum from the date such amounts were paid by the Owner.

5.3.6 Consultant shall, upon written request from the Owner, provide such records to verify payment to Sub-consultants. Records may include, but not be limited to, cancelled checks, invoices and other financial information.

5.3.7 Upon completion of the performance of Services covered by any Work Order, or as agreed to by the parties, Consultant shall submit a final invoice and denote “Final Invoice” on same.

5.4 Adjustment to Fees

In addition to any other rights or remedies available to the Owner, the Owner shall have the right to adjust the fee payable to the Consultant for any Services in order to prevent payment by the Owner of any sum which the Owner determines was increased due to inaccurate, incomplete, non-current billing rates, hours or estimate of completion status, and other factual unit costs, provided that such adjustment is made by the Owner within one year from the date of payment by the Owner of the Consultant's final invoice for the Services to which the adjustment relates.

5.5 Annual Rate Adjustment

The per diem or hourly rates set forth in **Exhibit A** may be reviewed annually on or before the anniversary date of this Agreement. In the event Consultant has more than one Agreement with the Owner, the anniversary date will be the latter Agreement’s anniversary date. Any adjustments to per diem or hourly rates shall be negotiated, approved in writing by the Owner and shall be effective no earlier than the anniversary date of the Agreement, or other date specifically authorized by the Owner. Adjusted billing rates cannot be utilized for billable hours performed prior to the approval date. Subconsultant billing rates may or may not be affected by the annual rate adjustment, i.e. Subconsultant with rates negotiated under another agreement and within one year of those negotiated rates.

ARTICLE 6 - RECORDS

6.1 Maintenance of Records

The Consultant shall maintain complete and accurate records relating to all Services rendered by Consultant and any Sub-consultants pursuant to this Agreement. Records shall be kept in a form reasonably acceptable to the Owner. Records and invoices for Services shall include all of the information required in order to determine the Consultant's monthly hours for each employee rendering Services hereunder,and shall identify the Services rendered by each employee in a manner acceptable to the Owner. Records for Reimbursable Expenses shall identify the nature and amount of each expense the date on which it was incurred, and the task to which the expense relates.

6.2 Records Availability and Audit

The Consultant shall maintain an acceptable cost accounting system. All of the Consultant's books, documents, papers and records directly relating to Services shall, upon reasonable notice by the Owner, be made available to the Owner, the FAA, the TSA, the FDOT and the Comptroller General of the United States of America, all of whom shall have the right from time to time, through their respective duly authorized representatives, at all reasonable times, to review, inspect, audit or copy the Consultant's records. Production of such records by the Consultant shall not constitute promulgation and shall retain in the Consultant all rights and privileges of workmanship, confidentiality and any other vested interests. If, as a result of an audit, it is established that the Consultant has overstated its hours of service, Reimbursable Expenses, per diem or hourly rates for any month, or percentage of lump sum amount earned in any month, the amount of any overcharge paid by Owner as a result of an overstatement shall forthwith be refunded by the Consultant to the Owner with interest thereon, if any, at a rate of six percent (6%) per annum on the

overstated amount accrued from forty-five (45) days after the Owner's notice to the Consultant of the overstatement. If the amount of an overstatement in any month exceeds five percent (5%) of the amount of the Consultant's statement for that month, the entire reasonable expense of the audit shall be borne by the Consultant. The Consultant shall retain all records, books, and reports required under this Agreement and shall make same available to the requesting party for a period of five (5) years from the date of payment by the Owner of the final invoice for the Services to which the records relate and all pending matters are closed. The Consultant shall insert this provision into all lower tier contracts.

6.3 Public Records

When the Consultant receives any request to inspect or copy any records that relate to this Agreement, it shall promptly provide the Owner with a copy of the request. The Owner will respond to each such request on behalf of itself and the Consultant and the Consultant agrees to fully cooperate with the Owner with regard to all records requests and comply with all decisions made by the Owner regarding the production/disclosure. The Consultant shall:

.1 Keep and maintain public records that ordinarily and necessarily would be required by the Owner in order to perform the services being performed by the Consultant.

.2 Provide the public with access to public records on the same terms and conditions that the Owner would provide the records and at a cost that does not exceed the cost provided in chapter 119, Florida Statutes, as amended, or as otherwise provided by law.

.3 Except as authorized by law, ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed for the duration of this Agreement, as well as following completion or termination of this Agreement if the Consultant does not transfer the records to the Owner.

.4 Meet all requirements for retaining public records and upon completion or termination of the Agreement, transfer, at no cost, to the Owner all public records in possession of the Consultant or keep and maintain the public records required by the Owner and the law to perform the Services. If the Consultant transfers all public records to the Owner upon completion or termination of the Agreement, the Consultant shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the Owner in a format that is compatible with the information technology systems of the Owner. If the Consultant keeps and maintains public records upon completion or termination of the Agreement, the Consultant shall meet all applicable requirements for retaining public records.

.5 Failure to grant such public access or otherwise comply with the Owner’s request for records will be grounds for immediate termination of this Agreement by the Owner.

.6 Failure to provide the public records to the Owner within a reasonable time may also subject the Consultant to penalties under section 119.10, Florida Statutes.

.7 If a civil action is filed against Consultant to compel production of public records relating to this Agreement, Consultant will be solely responsible and liable for its attorney’s fees and any resulting damages.

IF THE CONSULTANT HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONSULTANT’S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, THE CONSULTANT MUST CONTACT THE OWNER’S CUSTODIAN OF PUBLIC RECORDS, WHO CAN BE REACHED AT: (407) 825-7105; www.orlandoairports.net/publicrecords; OR “GREATER ORLANDO AVIATION

AUTHORITY, PUBLIC RECORDS" ONE JEFF FUQUA BOULEVARD, ORLANDO, FLORIDA 32827.

ARTICLE 7 –TERM OF AGREEMENT AND TERMINATION

7.1 Term of Agreement

The term of this Agreement shall be for a period of five (5) years from the effective date shown on Page 1. The Consultant shall perform all services authorized during any renewal period in accordance with the terms and conditions set forth herein.

7.2 Agreement Termination – Default

This Agreement may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under this Agreement, or under any Work Order hereto, through no fault of the terminating party; provided, however, that no such termination may be effected unless the other party is given (1) not less than thirty (30) calendar days written notice of intent to terminate; and (2) an opportunity for consultation with the terminating party prior to termination. The Consultant's obligations to the Owner arising from the Consultant's improper acts or omissions shall survive the termination of this Agreement. In the event the termination is due to Consultant's failure to fulfill the Consultant's obligations, the Owner may take over the work and prosecute the same to completion by contract or otherwise pursuant to the provisions herein. In such case, the Consultant shall be liable to the Owner for any additional cost occasioned to the Owner thereby. If, after notice of termination for failure to fulfill contract obligations, it is determined that the Consultant had not so failed, the termination shall be deemed to have been effected for the convenience of the Owner. In such event, adjustment in the contract price shall be made as provided herein.

7.3 Agreement Termination – Convenience

This Agreement may be terminated in whole or in part in writing by the Owner for its convenience and an equitable adjustment in the contract price shall be made; provided, however, that the Consultant shall be given (1) not less than thirty (30) calendar days written notice of intent to terminate; and (2) an opportunity for consultation with the Owner (in the manner determined by the Owner in its sole discretion) prior to termination.

7.4 Agreement Termination – False Certification/Scrutinized Company

Owner may terminate this Agreement for cause and without the opportunity to cure if the Consultant is found to have submitted a false certification or has been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel.

In the event this agreement is for One Million Dollars ($1,000,000.00) or more, Owner may terminate this Agreement for cause and without the opportunity to cure if the Consultant is found to have submitted a false certification or has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or is engaged in business operations in Cuba or Syria.

7.5 Work Order Termination

Owner may terminate any Work Order without cause by verbal or written notification to Consultant. Upon notification, Consultant will immediately discontinue all Services specified in the Work Order and submit a final invoice to the Owner within thirty (30) days of Owner's notice of termination to Consultant.

7.6 Termination - Price Adjustment

In connection with any termination of the Agreement or any Work Order, the Consultant shall have no entitlement to recover anticipated profit for Services or other work not performed.

7.7 Notice of Intent to Terminate

Upon the Owner's giving of notification of termination of the Consultant, or upon the Consultant's giving of notice of intent to terminate as provided herein, the Consultant shall: (1) promptly discontinue all Services affected (unless the Owner directs otherwise); and (2) upon request, deliver or otherwise make available to the Owner all data, designs, specifications, calculations, estimates, plans, drawings, photographs, reports, memoranda, other documents and instruments, and such other information and materials as may have been prepared or accumulated by the Consultant or by the Subconsultants in performing Services under this Agreement, whether completed or in process. The rights and remedies of the Owner provided in this Article 7 are in addition to any other rights and remedies provided by law or under this Agreement.

7.8 Owner's Right to Complete Terminated Services

Upon termination pursuant to this Agreement, the Owner may take over the Services and perform the Services to completion by agreement with another party or otherwise. In doing so, the Owner shall not waive its right to pursue any remedy that it may have against the Consultant arising out of the Consultant's performance hereunder.

ARTICLE 8 – DOCUMENTS AND DRAWINGS

8.1 Furnishing Copies

8.1.1 Except as otherwise provided in this Agreement or in any Work Order, the Consultant shall furnish the Owner one (1) editable electronic media copy in original software format, one (1) in PDF format and one (1) hard copy of all data, designs, specifications, calculations, estimates, plans, drawings, photographs, reports, memoranda, and all other documents and instruments of any type or nature (except working papers), which have been prepared by the Consultant or by the Subconsultants in rendering Services. The Consultant further agrees that at the Owner's request, the Consultant shall cause one or more of its qualified employees to review promptly personally with the Owner's designated representatives any and all such drawings and documents. Copies of drawings and documents shall be furnished to the Owner by the Consultant at the Owner's request, and except as otherwise provided in any Work Order, the Consultant shall receive a reasonable amount for reimbursement of its cost for such additional copies.

8.1.2 Except as otherwise provided in any Work Order, the Consultant shall immediately upon the termination of this Agreement for any reason, furnish to the Owner at no additional cost or expense one reproducible copy, in media acceptable to the Owner and one complete set on electronic media, of all drawings and documents which have been prepared or accumulated by the Consultant or by any Subconsultant in rendering Services but which have not been furnished previously to the Owner by the Consultant pursuant to this Agreement.

8.2 Ownership

All documents prepared or accumulated by the Consultant in rendering Services shall be the sole property of the Owner and the Owner shall be vested with all rights therein of whatever kind and however created; provided, however, that the Consultant shall have no liability to the Owner for the Owner's use of the Consultant's work product unless used in connection with this Agreement or any Amendments or Work Order, or for the Owner's use of work product of the Consultant which is delivered to the Owner in incomplete form, accompanied by written notice to the Owner that such work is incomplete describing in sufficient detail why the documents are incomplete. No reports,

maps, drawings, specifications or other documents produced in whole or in part under this Agreement shall be the subject of any application for copyright by or on behalf of the Consultant or any of its Subconsultants.

8.3 Identification of Documents

All drawings, specifications, reports, maps and other documents completed as part of this Agreement, other than documents provided exclusively for internal use by the Owner, shall contain the month and year the document was prepared, the words, “Orlando International Airport” or “Orlando Executive Airport,” as the case may be, or such other notations as the Owner may direct in writing.

8.4 Confidentiality

The Consultant shall not, during the term of this Agreement and forever thereafter, knowingly divulge, furnish or make available to any third person, firm or organization, without the Owner's prior written consent, or unless incident to the proper performance of the Consultant's obligations hereunder, or in the course of judicial or legislative proceedings where such information has been properly subpoenaed, any information generated by the Consultant or received from the Owner, concerning the Services rendered by the Consultant or any Subconsultant pursuant to this Agreement. The Owner’s intent is to protect security and proprietary information. The Owner does not intend to restrict the Consultant from normal publication, marketing or awards activities and will not unreasonably withhold its consent.

8.5 Sensitive Security Information

The Consultant shall not, during the term of this Agreement and forever thereafter, knowingly divulge, furnish or make available any sensitive security information to any third person, firm or organization, without the Owner's knowledge and prior written consent, including requests for said information made in the course of judicial or legislative proceedings where such information has been properly subpoenaed, Consultant is further prohibited from releasing and reproducing security sensitive information within Consultant’s firm and distribution among Consultant’s Subconsultants without the Owner’s knowledge and prior written consent,

8.5.1 SSI: Sensitive Security Information – also noted as (SSI) – is information that, if publicly released, would be detrimental to transportation security, as defined by Federal regulation 49 C.F.R. part 1520. Although SSI is not classified information, there are specific procedures for recognizing, marking, protecting, safely sharing, and destroying SSI. Persons receiving SSI are considered “covered persons” under the SSI regulation in order to carry out responsibilities related to transportation security and are obligated to protect this information from unauthorized disclosure.

8.5.2 .

A. The following information indicates requirements for access to, control of, and/or distribution of Project Documents Marked as Sensitive Security Information or SSI.

1. You Must – Lock All SSI: Store SSI in a secure container such as a locked file cabinet or drawer (as defined by Federal regulation 49 C.F.R. part 1520.9 (a)(1)).
2. You Must – When No Longer Needed, Destroy SSI: Destruction of SSI must be complete to preclude recognition or reconstruction of the information (as defined by Federal regulation 49 C.F.R. part 1520.19).
3. You Must – Mark SSI: The regulation requires that even when only a small portion of a paper document contains SSI, every page of the document must be marked with the SSI header and footer shown at left (as defined by Federal regulation 49 C.F.R. part 1520.13). Alteration of the footer is not authorized.

B. Reasonable steps must be taken to safeguard SSI. While the regulation does not define reasonable steps, the TSA SSI Branch offers the following best practices as examples of

reasonable steps:

1. Use an SSI cover sheet on all SSI materials.
2. Electronic presentations (e.g., PowerPoint) should be marked with the SSI header on all pages and the SSI footer on the first and last pages of the presentation.
3. Spreadsheets should be marked with the SSI header on every page and the SSI footer on every page or at the end of the document.
4. Video and audio should be marked with the SSI header and footer on the protective cover when able and the header and footer should be shown and/or read at the beginning and end of the program.
5. CDs/DVDs should be encrypted or password-protected and the header and footer should be affixed to the CD/DVD.
6. Portable drives including “flash” or “thumb” drives should not themselves be marked, but the drive itself should be encrypted or all SSI documents stored on it should be password protected.
7. When leaving your computer or desk you must lock all SSI and you should lock or turn off your computer.
8. Taking SSI home is not recommended. If necessary, get permission from a supervisor and lock all SSI at home.
9. Do not handle SSI on computers that have peer-to-peer software installed on them or on your home computer.
10. Transmit SSI via email only in a password protected attachment, not in the body of the email. Send the password without identifying information in a separate email or by phone.
11. Passwords for SSI documents should contain at least eight characters, have at least one uppercase and one lowercase letter, contain at least one number, one special character and not be a word in the dictionary.
12. Faxing of SSI should be done by first verifying the fax number and that the intended recipient will be available promptly to retrieve the SSI.
13. SSI should be mailed by U.S. First Class mail or other traceable delivery service using an opaque envelope or wrapping. The outside wrapping (i.e. box or envelope) should not be marked as SSI.
14. Interoffice mail should be sent using an unmarked, opaque, sealed envelope so that the SSI cannot be read through the envelope.
15. SSI stored in network folders should either require a password to open or the network should limit access to the folder to only those with a need to know.
16. Properly destroy SSI using a cross-cut shredder or by cutting manually into less than ½ inch squares.
17. Properly destroy electronic records using any method that will preclude recognition or reconstruction.
18. Maintain an up-to-date record of all SSI Documents and list of persons with access to SSI Documents.

C. When transmitting SSI, the SSI marking must be applied to the transmittal document (letter, memorandum, or fax). The transmittal document must contain, if applicable, a disclaimer noting that it is no longer SSI when it is detached from the SSI it is transmitting (transmittal e-mails do not need to contain this disclaimer), and a warning that if received by an unintended or different recipient, the sender must be notified immediately.

D. When discussing or transmitting SSI to another individual(s), DHS Covered Persons must ensure that the individual with whom the discussion is to be held or the information is to be transferred has a valid Need-to-know. In addition, DHS Covered Persons must ensure that precautions are

taken to prevent unauthorized individuals from overhearing the conversation, observing the materials, or otherwise accessing the information.

E. SSI shall be mailed in a manner that offers reasonable protection of the sent materials and sealed in such a manner as to prevent inadvertent opening and show evidence of tampering.

F. SSI may be mailed by U.S. Postal Service First Class Mail or an authorized commercial delivery service such as DHL or Federal Express.

G. SSI may be entered into an inter-office mail system provided it is afforded sufficient protection to prevent unauthorized access, e.g., sealed envelope.

8.5.3 ACKNOWLEDGEMENT OF SENSITIVE SECUITY INFORMATION

A. The Owner has deemed there may be components of this project to be of critical concern due to said component scope. Executing this document is acknowledging the Security Sensitive Information (SSI) requirements and the proper Safeguarding of Sensitive but Unclassified Information.

B. Below is the SSI language from 49 CFR Part 15.13 that will be incorporated into the all construction drawing sheets and on the project manual components that are SSI:

WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520 or that may be otherwise exempt from public disclosure pursuant to Florida Statutes sections 331.22, 119.071, and/or 281.301. No part of this record may be disclosed to persons without a "need to know", as defined in 49 CFR parts 15 and 1520, except with the written permission of both the Greater Orlando Aviation Authority and either the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action.

1. I have the express authority to sign this agreement and hereby consent to all conditions stated herein, in consideration of my being granted conditional access to certain information, specified in paragraph (1) above, that, is owned by, produced by, or in the possession of the Greater Orlando Aviation Authority.
2. Sensitive Security Information. I attest that I am familiar with, and I will comply with the standards for access, dissemination, handling, and safeguarding of SSI information as cited in this Agreement and in accordance with 49 CFR Part 1520, “Protection of Sensitive Security Information,” “Policies and Procedures for Safeguarding and Control of SSI,” as amended, and any supplementary guidance issued by an authorized official of the Department of Homeland Security.
3. By being granted conditional access to the information in paragraph (1), indicated above, I am obligated to protect this information from unauthorized disclosure. I will not disclose or release any information provided to me pursuant to this Agreement without proper authority or authorization. Only those persons who have a need to know may handle this information, and I will ensure that they will comply with all maintenance, safeguarding, dissemination, and handling requirements provided in 49 CFR Part 1520.
4. Neither the execution of this agreement nor the release of the records indicated in paragraph (1) above operates as a waiver of the confidential and exempt status of the records.
5. Violation of this nondisclosure agreement or of the attached federal regulations is grounds for a civil penalty and other enforcement or corrective action by DOT and DHS and, if

awarded the contract, will be cause for termination.

C. The following documents are by reference:

- 49 CFR Part 15
- 49 CFR Part 1520
- Sensitive Security Information – Best Practices Guide for Non-DHS Employees and Contractors.
- Sensitive Security Information – SSI Quick Reference Guide for DHS Employees and Contractors
- DHS Form 11000-6 (08-04) – Department of Homeland Security Non- Disclosure Agreement.

ARTICLE 9 - NOTICES

9.1 Consultant

All notices required to be given to the Consultant hereunder shall be in writing and shall be given by manual or courier delivery providing proof of delivery, or by certified United States mail, addressed to the Consultant's Representative as defined in **Exhibit "A."** Electronic mail, instant messaging and text messages shall not be considered notice as required hereunder.

9.2 Owner

All notices required to be given to the Owner hereunder shall be in writing and shall be given either by manual or courier delivery proving proof of delivery, or by certified United States mail, l addressed to the Owner's Representative as defined in **Exhibit "A."** Electronic mail, instant messaging and text messages shall not be considered notice as required hereunder.

9.3 Change of Address

Any party may change its address for purposes of this Article by written notice to the other party given in accordance with the requirements of this Article.

ARTICLE 10 - REMEDIES; ATTORNEYS' FEES AND COSTS

10.1 All remedies provided in this Agreement shall be deemed cumulative and additional and not in lieu of or exclusive of each other or of any other remedy available to any party at law or in equity. In the event one party shall prevail in any action (including appellate proceedings), at law or in equity arising hereunder, the losing party will pay all costs, expenses, reasonable attorneys' fees and all other actual and reasonable expenses incurred in the defense and/or prosecution of any legal proceeding, including, but not limited to, those for paralegal, investigative and legal support services and actual fees charged by expert witnesses for testimony and analysis, incurred by the prevailing party referable thereto.

10.2 Any claim, dispute or other matter in question arising out of or relating to this Agreement or the breach thereof shall, as an express condition precedent to suit, first be subject to mandatory mediation to be set at a mutually agreeable time, but in no event greater than thirty (30) days after the claim or dispute arises. Action on any unresolved claim or dispute shall be brought only in the Circuit Court of the Ninth Judicial District in and for Orange County, Florida or in the sole discretion of the Owner, non-binding arbitration under the auspices of the American Arbitration Association. The parties hereby consent to the jurisdiction the Circuit Court of the Ninth Judicial District in and for Orange County, Florida.

10.3 Governing Law

The Agreement shall be governed by the laws of Florida.

10.4 Successors and Assigns

The Consultant binds itself, its successors, assigns and legal representatives to the Owner and the Owner's successors, assigns and legal representatives in respect to covenants, agreements and obligations contained in the Agreement and any Work Order. The Consultant shall not assign the Agreement or any Work Order in whole or in part without written consent of the Owner.

ARTICLE 11 - WARRANTIES OF CONSULTANT

11.1 Prohibition Against Contingent Fees

The Consultant represents and warrants to the Owner that it has not employed or retained any company or person, other than a bona fide employee working solely for the Consultant, to solicit or secure this Agreement, that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for the Consultant, any fee, commission, percentage, gift, or any other consideration contingent upon or resulting from the award or making of this Agreement, and that it has not agreed, as an express or implied condition for obtaining this Agreement, to employ or retain the services of any firm or person in connection with carrying out this Agreement.

ARTICLE 12 - TRANSFERS AND ASSIGNMENTS

The Consultant shall not transfer or assign any of its rights hereunder (except for transfers that result from the merger or consolidation of the Consultant with a third party) or (except as otherwise authorized in this Agreement or in a Work Order) subcontract any of its obligations hereunder to third parties without the prior written approval of the Owner. The Owner shall be entitled to withhold such approval for any reason or for no reason. Except as limited by the provisions of this paragraph, this Agreement shall inure to the benefit of and be binding upon the Owner and the Consultant, and their respective successors and assigns.

ARTICLE 13 - WAIVER OF CLAIMS

The Consultant and the Owner hereby mutually waive any claims against each other, their members, officers, agents and employees for damages (including damages for loss of anticipated profits) caused by any suit or proceedings brought by any third party directly or indirectly attacking the validity of this Agreement or any part thereof, or any Work Order, or arising out of any judgment or award in any suit or proceeding declaring this Agreement or any Work Order null, void, or voidable or delaying the same, or any part thereof, from being carried out; provided, however, that this waiver shall not prevent the Consultant from seeking to recover the reasonable value of the Services rendered by the Consultant prior to the entry of such judgment or award.

ARTICLE 14 - MEMBER PROTECTION

No recourse under or upon any obligation, covenant or agreement contained in this Agreement, or any other agreements or documents pertaining to the Services of the Consultant or any Subconsultant hereunder, as such may from time to time be altered or amended in accordance with the provisions hereof, or under any judgment obtained against the Owner or by the enforcement of any assessment or by any legal or equitable proceeding by virtue of any statute or otherwise, under or independent of this Agreement, shall be had against any member, officer, employee or agent, as such, past, present or future, of Owner either directly or through Owner or otherwise, for any claim arising out of this Agreement or the Services rendered pursuant to it, or for any sum that may be due and unpaid by the

Owner. Any and all personal liability of every nature, whether at common law or in equity, or by statute or by constitution or otherwise, of any Owner member, officer, employee or agent as such, to respond by reason of any act or omission on his or her part or otherwise for any claim arising out of this Agreement for the Services rendered pursuant to it, or for the payment for or to the Owner, or any receiver therefor or otherwise, of any sum that may remain due and unpaid by the Owner, is hereby expressly waived and released as a condition of and as consideration for the execution of this Agreement.

ARTICLE 15 - INDEMNIFICATION AND INSURANCE

15.1 Consultant's Obligations for Indemnification

15.1.1 To the fullest extent permitted by Florida law, the Consultant shall indemnify and hold harmless the Owner, and its officers and employees, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Consultant and other persons employed or utilized by the Consultant in the performance of the Agreement.

15.1.2 This indemnification shall survive the expiration or termination of this Agreement.

15.1.3 In the event that any portion of the scope or terms of the indemnity obligation in Section 15.1.1 is in derogation of Article 725.06 or 725.08 of the Florida Statutes, all other terms of the indemnity shall remain in full force and effect. Further, any term which offends Article 725.06 or 725.08 of the Florida Statutes will be modified to comply with said statutes.

15.2 Notice of Claims

Each party agrees to give the other party reasonable notice of any suit or claim for which indemnification will be sought hereunder, to allow the other party or its insurer to compromise and defend the same to the extent of its interests, and to reasonably cooperate with the defense of any such suit or claim. Furthermore, Consultant shall notify the Owner and document in detail any matter resulting from the performance of Services that may give rise to a claim by a third party against Owner, Consultant and/or Subconsultant. Consultant shall cooperate with Owner and its agents or representative, in the investigation and resolution of any incident that may give rise to a claim or actual claim made against Owner, Consultant or Subconsultant of any tier arising directly or indirectly from this Agreement. Any action taken by Consultant, Subconsultant, or its insurer to resolve, settle or release itself from a claim shall be coordinated with Owner. No release shall be executed without final approval from Owner, which shall not be unreasonably withheld.

15.3 Survival of Indemnity Provisions

The indemnification provisions of this Article 15 shall survive the expiration or termination of this Agreement with respect to any acts or omissions occurring during the term of this Agreement and shall not be affected or reduced by any information with which the Owner has been provided or may otherwise obtain in the future.

15.4 Employee Benefit Acts

In any and all claims against either party, or any of their partners, officers, directors, stockholders, members, agents, servants or employees, by any employee of the other party, any subconsultant of such party, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligations under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefit payable by or for the employing or responsible party under Workers' Compensation Acts, disability benefit acts or other employee benefit acts.

15.5 Consultant's Insurance Requirements

At its sole expense, Consultant shall maintain the following insurance throughout the term of this Agreement, including any extensions or renewals, and such insurance requirements shall provide coverage for the Consultant, its subconsultants, representatives, and anyone directly or indirectly employed by any of them, or by anyone whose acts any of them may be liable.

15.5.1 COMMERCIAL GENERAL LIABILITY insurance covering property damage and bodily injury (including death), contract liability with limits of liability no less than the amount set forth in **Exhibit E**, which shall include, but not be limited to, premises, products and completed operations, and contractual liability coverage for the Consultant's covenants to and indemnification of the Owner and the City under this Agreement.

15.5.2 AUTOMOBILE LIABILITY insurance covering motor vehicles, including, but not limited to owned, non-owned, and hired vehicles, used in conjunction with the Services with limits of liability no less than the amount set forth in **Exhibit E**, for death or bodily injury and for damage to property, each occurrence.

15.5.3 WORKERS COMPENSATION in statutory limits in accordance with the laws of Florida and EMPLOYER'S LIABILITY insurance covering Consultant and its employees or persons acting at the direction of Consultant in the performance of Services in the amount as set forth in **Exhibit E**.

15.5.4 PROFESSIONAL LIABILITY insurance covering Consultant for claims, losses and expenses resulting from wrongful acts, errors or omissions committed in the performance of, or failure to perform, all Services under this Agreement with limits of liability in the amount as set forth in **Exhibit E**.

15.5.5 OTHER INSURANCE REQUIREMENTS: Consultant agrees to the following as it relates to all insurance requirements:

15.5.5.1 The Consultant shall include the following as additional insured under the Commercial General Liability and Auto Liability coverages, including any excess policies: Greater Orlando Aviation Authority and the City or Orlando, and their respective members (including, without limitation, members of the Owner's Board and the City's Council and members of citizens advisory committees of each), officers, agents and employees of each.
15.5.5.2 Self-Insured Retention and Deductibles. Consultant's insurance policies shall not be subject to a self-insured retention or deductible exceeding $10,000, if the value of this Agreement is less than $1,000,000, and not be subject to a self-insured retention or deductible exceeding $100,000, if this Agreement is $1,000,000 or more, unless approved by the Owner's Chief Executive Officer. The above deductible limits may be exceeded if the Consultant's insurer is required to pay claims from the first dollar at 100% of the claim value without any requirement that Consultant pay the deductible prior to its insurer's payment of the claim.
15.5.5.3 Insurance policies shall be primary insurance and not contributory to any other valid insurance Owner may possess, and that any other insurance Owner does possess shall be considered excess insurance only.
15.5.5.4 Insurance shall be carried with an insurance company or companies with a financial stability rating by A.M. Best of B+ VI or better and said policies shall be in a form acceptable to Owner.
15.5.5.5 Any liability insurance maintained by Consultant written on a claims-made form basis will maintain coverage for two (2) years to cover claims made after the Consultant has concluded its services to Owner.
15.5.5.6 All insurance required for this Contract shall contain a waiver of subrogation clause, as allowed by law, in favor of Owner and the City of Orlando.
15.5.5.7 A properly completed and executed Certificate of Insurance on a form provided or approved by Owner (such as a current ACORD form) evidencing the insurance coverages required by this Section shall be furnished to the Owner prior to the effective date of this Agreement or prior to any start of services, whichever comes first, and each renewal thereafter during the term of this Agreement and its renewal/extension. Consultant acknowledges that any acceptance of Certificate of Insurance by Owner does not waive any obligations herein this Agreement.

15.5.5.8 The Owner is currently contracted with a third party for the management of all insurance certificates related to Owner Contracts. Consultants will be contacted directly by the third party vendor for insurance certificates and related matters such as expired certificates. An introductory letter will be sent instructing each Consultant of the proper procedures for processing updated insurance certificates as well as any other insurance related matter that may arise over the term of this Agreement. Consultants will respond as directed in the introductory letter as well as any further instructions they may receive.

15.5.5.9 The Consultant shall provide the Owner immediate written notice of any adverse material change to the Consultant's required insurance coverage. For purposes of this Insurance Article, an "adverse material change" shall mean any reduction in the limits of the insurer's liability, any reduction of any insurance coverage, or any increase in the Consultant's self-insured retention and any non-renewal or cancellation of required insurance.

15.5.5.10 If any insurance coverage is canceled or reduced, Consultant shall, within forty-eight (48) hours remit to Owner a Certificate of Insurance showing that the required insurance has been reinstated or replaced by another insurance company or companies acceptable to Owner. If Consultant fails to obtain or have such insurance reinstated, Owner may, if it so elects, and without waiving any other remedy it may have against Consultant, immediately terminate this Agreement upon written notice to Consultant.

15.5.5.11 The Owner's Chief Executive Officer shall have the right to alter the monetary limits or coverages herein specified from time to time during the term of this Agreement, and Consultant shall comply with all reasonable requests of the Chief Executive Officer with respect thereto.

15.5.5.12 The Consultant is ultimately liable to the Owner for those actions of its Subconsultants providing Services on assigned work. It is the Consultant's responsibility to ensure that its Subconsultants are also covered under the required insurance limits. The Consultant may either require its Subconsultants to purchase insurance coverage set forth herein individually or include the Subconsultant under the Consultant's insurance program.

ARTICLE 16 - APPROVAL BY FEDERAL AND STATE AGENCIES

The Owner agrees to use its best efforts to obtain approval of this Agreement and any Work Order from Federal and State agencies to the extent required by law or regulation. If the Owner determines that modifications to this Agreement or any Work Order are required to qualify for State or Federal funding for the Consultant's Services, and if the Consultant shall fail to consent to such modifications, or if the Consultant is unable to comply within a reasonable time with applicable Federal or State laws and regulations governing the grant of such funds for Services, the Owner shall have the right to terminate this Agreement or any Work Order.

ARTICLE 17 – COVENANTS AGAINST DISCRIMINATION

17.1 Applicable Regulations

In all its activities within the scope of its airport program, the Consultant agrees to comply with pertinent statutes, Executive orders and such rules as identified in the Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin, (including limited English proficiency), creed, sex, (including sexual orientation and gender identity) age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision is in addition to Title VI of the Civil Rights Act of 1964. This provision binds the Consultant and subconsultants from the bid solicitation period through the completion of the contract.

17.2 Reporting Requirements

The Consultant will provide all information and reports required by said Regulations, or by directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Owner, the FDOT or the FAA to be pertinent to ascertain whether there has been compliance with said Regulations and directives. Where any information required of the Consultant is in the exclusive possession of another who fails or refuses to furnish this information, the Consultant shall so certify to the Owner, the FDOT or the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information. The Consultant shall

remain obligated under this paragraph until the expiration of five (5) years after the expiration or termination of this Agreement. In the event of breach of any of the above nondiscrimination covenants, the Owner shall have the right to impose such contract sanctions as it or the FDOT, the FAA or other applicable government entity may determine to be appropriate, including withholding payments to the Consultant under this Agreement or canceling, terminating, or suspending this Agreement, in whole or in part. The rights granted to the Owner by the foregoing sentence shall not be effective until the procedures of Title 49, Code of Federal Regulations, Part 21 are followed and completed, including exercise or expiration of appeal rights.

17.3 Affirmative Action

Further, the Consultant shall undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to insure that no person shall on the grounds of race, religion, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CFR Part 152, Subpart E. Such activities shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Consultant assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this subpart. The Consultant assures that it shall not discriminate on the grounds of race, color, religion, sex or national origin in the selection or retention of Subconsultants. The Consultant assures that it will require that its Subconsultants provide assurances to the Consultant that they similarly will undertake affirmative action programs and that they will require assurances from their Subconsultants, as required by 14 CFR Part 152, Subpart E, to the same effect.

17.4 Compliance with Nondiscrimination Requirements

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts And Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor’s obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts And Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor’s noncompliance with the Nondiscrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the contractor under the contract until the contractor complies;
and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, Required Contact Provisions Issued on January 29, 2016 Page 19 AIP Grants and Obligated Sponsors Airports (ARP) unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

17.5 Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the consultant/contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

a) Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq*., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
b) 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
c) The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
d) Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq*.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
e) The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq*.), (prohibits discrimination on the basis of age);
f) Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
g) The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);
h) Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
i) The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
j) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
k) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
l) Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

The Owner may from time to time adopt additional or amended nondiscrimination provisions concerning the furnishing of Services to the Owner, and the Consultant agrees that it will adopt and be bound by any such requirements as a part of this Agreement.

ARTICLE 18 – DBE/MWBE AND LDB/VBE POLICY AND PROCEDURE

18.1 It is the policy of the Owner, FDOT, and the FAA on all federally funded, FDOT funded and state funded contracts for Services, as defined in the Owner's Disadvantaged Business Enterprises ("DBE") Policy for professional services and in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of professional services contracts awarded by the Owner, including, but not limited to, contracts financed in whole or in part with federal funds under this Agreement. Consequently, the requirements of the Owner's DBE Policy apply to this Agreement. The Consultant and all Subconsultants shall take all necessary and reasonable steps in accordance with the Owner's DBE Policy to ensure that DBE firms have the maximum opportunity to compete for and perform work under this contract. In its proposal for a specific Work Order, the Consultant shall provide the following information:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the Work Order;
2) A description of the services/work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement of the Consultant’s commitment to use the DBE firm(s) listed under (1) to meet the Owner’s goal for the Work Order;
5) Written confirmation from each listed DBE firm that it is participating in the Work Order in the kind and amount of services/work provided in the Consultant’s proposal; and
6) If the Consultant cannot meet the established DBE goal for the Work Order, evidence of good faith efforts undertaken by the Consultant as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the Consultant when a non-DBE firm was selected over a DBE firm.

18.2 It is the policy of the Owner on all non-federal, and non-state funded contracts for Services that Minority and Women Business Enterprises (“MWBE”) shall have the opportunity to participate in the performance of professional services contracts awarded by the Owner. Consequently, the requirements of the Owner’s MWBE Policy apply to this Agreement. The Consultant and all Subconsultants shall take all necessary and reasonable steps in accordance with the Owner’s MWBE policy to ensure that MWBE firms have the maximum opportunity to compete for and perform on contracts. Prior to being awarded a scope of work, the Consultant shall provide to the Owner either: 1) the items listed in Article 18.1, or 2) evidence satisfactory to the Owner that the Consultant has made good faith efforts to reach the Owner’s MWBE goal for the Work Order.

18.3 It is the policy of the Owner on all non-federally funded and non-state funded contracts for Services that Local Developing Businesses and Veteran Business Enterprise (“LDB/VBE”) shall have the opportunity to participate in the performance of professional services contracts awarded by the Owner. The LDB/VBE goal is separate and distinct from the MWBE goal set forth in paragraph 18.2 above. Consequently, the requirements of the Owner’s LDB/VBE Policy apply to this Agreement. The Consultant and all Subconsultants shall take all necessary and reasonable steps in accordance with the Owner’s LDB/VBE policy to ensure that LDB/VBE firms have the maximum opportunity to compete for and perform contracts. Prior to being awarded a Work Order, the Consultant shall provide to the Owner either: 1) the items listed in Article 18.1, or 2) evidence, satisfactory to the Owner, that the Consultant made good faith efforts to reach the Owner’s LDB/VBE goal for the Work Order.

18.4 The Consultant or any Subconsultant shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Agreement. The Consultant shall carry out applicable requirements of 49 CFR Part

26 in the award and administration of DOT assisted contracts. Failure by the Consultant to carry out these requirements is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as set forth in Article 17.4.

18.5 The Consultant agrees to pay each Subconsultant under this Agreement for satisfactory performance of its contract no later than ten (10) business days from the receipt of each payment the Consultant receives from the Owner. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE Subconsultants. Upon Owner's request, the Consultant shall submit proof of payment to each DBE, MWBE, LDB/VBE firm.

18.6 The Consultant shall not breach any of its obligations with the DBEs, MWBEs or LDB/VBEs. In the event the Consultant desires to terminate or replace a DBE, MWBE or LDB/VBE firm for services that are included in its proposal, the Consultant shall promptly notify the Subconsultant in writing, with a copy to the Owner of its intent to request to terminate and/or substitute the Subconsultant, and the reason for the request and obtain the Owner's consent prior to proceeding with the termination. The Consultant's notice must give the Subconsultant five (5) days to respond to the notice and advise of the reasons, if any, why it objects to the proposed termination and/or substitution and reasons why the Owner should not approve the request. If required in a particular instance as a matter of public necessity (e.g., safety), the response period may be shorter than five days.

The Owner may only provide written consent if it agrees, for reasons stating in its concurrence document, that the Consultant has good cause to terminate the listed firm or any portion of its work. Good cause does not exist if the Consultant seeks to terminate a listed firm or any portion of its work that it relied upon to obtain the Work Order so that the Consultant can self-perform the work for which the subconsultant was engaged, or so that the Consultant can substitute another DBE or non-DBE subconsultant after contract award.

The Owner may find good cause in the following circumstances:

[1] The firm is failing or refusing to execute a written contract;
[2] The firm fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards (unless resulting from Consultant's bad faith or discriminatory actions);
[3] The firm fails or refuses to meet the Consultant's reasonable, nondiscriminatory insurance requirements;
[4] The firm becomes bankrupt, insolvent, or exhibits credit unworthiness;
[5] The firm is ineligible to work on public works projects because of suspension and debarment proceedings or applicable State law;
[6] The Owner has determined that the firm is not a responsible contractor;
[7] The firm voluntarily withdraws and provides the Owner written notice of its withdrawal;
[8] The firm is ineligible to receive DBE/MWBE/LDB/VBE credit (as applicable) for the type of work required;
[9] A firm's owner dies or becomes disabled with the result that the listed firm is unable to complete its work on the contract; and
[10] Other documented good cause that the Owner determines compels the termination or replacement of the firm.

Following the termination or replacement, the Consultant shall endeavor to substitute the DBE, MWBE or LDB/VBE with another certified DBE, MWBE or LDB/VBE firm. If the Consultant is unable to utilize another DBE, MWBE or LDB/VBE for the performance of that portion of the agreement, the Consultant shall provide the Owner with documentation of its good faith efforts to substitute the firm, in a form satisfactory to the Owner. For the purpose of this Article, the phrase termination includes any reduction or underrun in services included in the proposal that is not caused by a material change by the Owner and includes instances when:

[1] the Consultant attempts to perform the work itself,
[2] the Consultant attempts to perform the work with a non-DBE firm,
[3] the Consultant attempts to perform the work with another DBE firm.

The failure to obtain the Owner's consent in accordance with this Article may result in the Owner declaration of breach of contract and withholding payment for those services that were performed without the Owner's consent.

ARTICLE 19 - MISCELLANEOUS PROVISIONS

19.1 Government Agencies which are not Parties

Neither the FAA, the TSA nor the FDOT has nor will they incur any obligations to the Consultant under this Agreement.

19.2 Conflict of Interest

Except with the Owner's knowledge and consent, the Consultant and Subconsultants shall not undertake Services which would reasonably appear that such Services could compromise the Consultant's professional judgment or prevent the Consultant from serving the best interests of the Owner.

19.3 Owner Member, Officer or Employee

No member, officer, or employee of the Owner during his tenure shall have any interest, direct or indirect, in this Agreement or the proceeds thereof. Additionally, no member, officer or employee of the Owner shall have any interest, direct or indirect, in any portion of this Agreement or the proceeds thereof in which the FDOT is participating pursuant to a Joint Participation Agreement for a period of one (1) year after the termination of his or her employment or affiliation with the Owner.

19.4 Consultant Assurances

Consultant covenants that it will insert the above provisions 19.2 and 19.3 in each of its subcontracts relating to the Services.

19.5 Headings

The headings of the sections of this Agreement are for the purpose of convenience only and shall not be deemed to expand or limit the provisions contained in such sections.

19.6 Entire Agreement

This Agreement, including the exhibits hereto, constitutes the entire agreement between the parties and shall supersede and replace all prior agreements or understandings, written or oral, relating to the matters set forth herein.

19.7 Amendment

This Agreement and said exhibits shall not be amended, supplemented or modified other than in writing signed by the parties hereto. Neither electronic mail nor instant messaging shall be considered a "writing" for purposes of amending, supplementing or modifying this Agreement. No Services shall be performed until such Services are provided for in a Work Order and executed by both parties.

19.8 Validity

The validity, interpretation, construction and effect of this Agreement shall be in accordance with and be governed by the laws of Florida. In the event any provision hereof shall be finally determined to be unenforceable, or invalid, such

unenforceability or invalidity shall not affect the remaining provisions of this Agreement which shall remain in full force and effect.

19.9 Public Entity Crimes and Owner's Debarment List

Pursuant to Section 287.133(2) (a), Florida Statutes, a Consultant who has been placed on the Convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide services for a public entity, may not be awarded a Consultant contract and may not transact business with a public entity for services, the value of which exceeds the threshold amount provided in Section 287.017 for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted vendor list. The Consultant hereby represents that it does not fall within the class of persons identified in the previous sentence such that Consultant would be precluded from entering into this Agreement.

Further, any entity or individual placed on the Owner's Debarment List pursuant to Owner Policy, Section 130.04, may not submit a response to any letter of intent, letter of interest, statement of qualifications, quote, proposal, or bid as a contractor, supplier, subcontractor, consultant or individual, of any tier, for any goods or services or contracts and may not provide any goods or services to the Owner, on behalf of the Owner, or on Owner property, regardless of whether there is a contractual relationship with the Owner. The Owner will disqualify any submission, bid or proposal that includes a person or entity on the Owner's Debarment List. You may request a copy of the Owner's Debarment List for your review at the following email:debarmentlist@goaa.org.

19.10 No Third-Party Beneficiaries

No person shall be deemed to possess any third-party beneficiary rights pursuant to this Agreement. It is the intent of the parties hereto that no direct benefit to any third party is intended or implied by the execution of this Agreement.

19.11 Consultant Contractual Authorization

Consultant represents and warrants that the execution and delivery of this Agreement and the performance of the acts and obligations to be performed have been duly authorized by all necessary corporate (or if appropriate, partnership) resolutions or actions and this Agreement does not conflict with or violate any agreements to which Consultant is bound, or any judgment, decree or order of any court.

19.12 Whistle Blower Reporting Line

The Owner is committed to the highest level of integrity in its operations and is fully committed to protecting the organization, its operations, and its assets against fraud, waste and abuse. The Owner has established a Whistle-Blower Reporting Line with a third-party service provider as a means to report suspected fraud, waste or abuse of Owner resources in connection with Owner operations. Should Consultant suspect any fraud, waste or abuse in connection with any Work under this Contract, including any work of its subcontractors or laborers, it shall promptly report such activity by calling 1-877-370-6354, through email to GOAA@integritycounts.ca or through the online reporting form at www.integritycounts.ca/org/GOAA. The Consultant shall include this reporting requirement in all subcontracts and vendor agreements. The Consultant is further encouraged to report any suspected fraud, waste or abuse it suspects in connection with any other airport operation or project.

ARTICLE 20 – SPECIAL PROVISIONS, EXHIBITS AND DOCUMENTS

20.1 Federal Fair Labor Standards Act

All contracts and subcontracts that result from this Agreement incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The Consultant has full responsibility to monitor compliance to the referenced statute or regulation. The Consultant must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

20.2 Occupational Safety and Health Act of 1970

All contracts and subcontracts that result from this Agreement incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Consultant must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Consultant retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Consultant must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

20.3 Additional Exhibits

The following Exhibits are attached to and made a part of this Agreement:

Exhibit A, Related Documents
Exhibit B, Notice of Professional Services (Advertisement)
Exhibit C, Invoice Instructions and Forms
Exhibit D, Owner's Travel Policy
Exhibit E, Insurance Limits

PURSUANT TO FLORIDA STATUTES SECTION 558.0035 (2013), AN INDIVIDUAL EMPLOYEE OR AGENT MAY NOT BE HELD INDIVIDUALLY LIABLE FOR ECONOMIC DAMAGES RESULTING FROM NEGLIGENCE OCCURRING WITHIN THE COURSE AND SCOPE OF THIS AGREEMENT.

SCRUTINIZED COMPANY CERTIFICATIONS

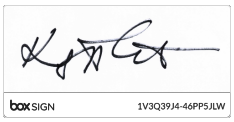
A. (applicable to all agreements, regardless of value) – Consultant hereby certifies that it is not on the Scrutinized Companies that Boycott Israel List and is not engaged in a boycott of Israel, as defined in Florida Statutes § 287.135, as amended;

AND

B. (applicable to agreements that may be $1,000,000 or more) - Consultant hereby certifies that it is: (1) not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List as defined in Florida Statutes § 287.135; and (2) not engaged in business operations in Cuba or Syria, as defined in Florida Statutes § 287.135, as amended.

IN WITNESS WHEREOF, the parties hereto, by their duly authorized representatives, have executed this Agreement and affixed their corporate seals, effective as of the date set forth above.

GREATER ORLANDO AVIATION AUTHORITY

By: 

Kevin J. Thibault, P.E.
Chief Executive Officer

Approved as to Form and Legality (for the benefit of GOAA only) on Jul 12, 2024

By: 

NELSON MULLINS BROAD AND CASSEL
Legal Counsel
Greater Orlando Aviation Authority

RS&H, INC.

By: 

Signature (Duly Authorized Rep.)

Lisa M Robert
Printed Name

Chief Operating Officer
Title

EXHIBIT A – RELATED DOCUMENTS

Owner's Representative
Mr. Max E. Marble, PE, CM, LEED AP
Sr. Vice President, Capital Programs
Greater Orlando Aviation Authority
One Jeff Fuqua Blvd.
Orlando FL 32827

Consultant's Representative
Craig Sucich
RS&H, Inc.
301 E. Pine St.
Suite 350
Orlando FL 32801

This **Exhibit A** includes the following documents:

- ❑ Board Meeting Minutes
- ❑ Consultant's Hourly Rates
- ❑ Designer's General Scope of Services, EDC-09. All documents referenced in EDC-09 are hereby incorporated by reference.
- ❑ Owner's Computer-Aided Design (CADD) and Building Information Modeling (BIM) Standards, EDC-02.
- ❑ Consultant's W-9

Basic Services

No compensation is due to the Consultant until a Work Order is properly authorized and executed by both parties.

An Addendum to this Agreement will generally include, but not be limited to, the following:

- ❑ **Exhibit A,** Construction Committee Memorandum
- ❑ Consultant's Proposal Cover Letter
- ❑ Scope of Services
- ❑ Consultant's Compensation Proposal and Tables
- ❑ Schedule
- ❑ DBE, MWBE and LDB/VBE Certifications
- ❑ DBE, MWBE and LDB/VBE Approval Memorandum

All Services performed by the Consultant under this Agreement shall comply with the requirements defined in the latest edition of federal and state regulatory requirements and Greater Orlando Aviation Authority's Design Guidelines.

GREATER ORLANDO AVIATION AUTHORITY
Innovation Connecting the World

MEMORANDUM

TO: Members of the Aviation Authority

FROM: Marquez A. Griffin, Vice Chair, Procurement Committee

DATE: May 15, 2024

ITEM DESCRIPTION

Recommendation of the Procurement Committee to Rank Firms Shortlisted for Continuing On-Call Architecture and Engineering Consulting Services at the Orlando International Airport (MCO) and Orlando Executive Airport (ORL)

BACKGROUND

On November 19 and 22, 2023, a notice was publicly advertised requesting Statements of Qualifications (SOQs) for Continuing On-Call Architecture and Engineering Consulting Services at MCO and ORL.

This procurement is to provided continuing on-call architecture and engineering services and related professional services, including but not limited to, the following disciplines:

- Airport engineering
- Navigational Aids (NAVAIDS) planning and design
- Civil engineering
- Cost estimating/ scheduling
- Airport planning
- Aviation and automotive fueling systems design
- Architecture planning and design
- Landscape architecture
- Interior design
- Marine engineering
- Land management and engineering development
- Pavement and facility inspections
- Structural engineering
- Land surveying
- Electrical engineering
- Aerial photography
- Geotechnical engineering
- Materials testing
- Subsurface utility engineering
- Land use zoning and airspace
- Transportation and traffic engineering
- Sustainability and resilience
- Environmental Engineering
- CAD/GIS/BIM services
- Fire protection systems engineering
- Building envelope and evaluation
- Electric systems design

- Bridge inspection
- Mechanical and plumbing engineering
- Communications/IT systems design
- Other related services

ISSUES

By January 16, 2024, seventeen firms responded to the Aviation Authority's advertisement for the above-referenced services as follows, in alphabetical order:

- AECOM Technical Services, Inc.
- AtkinsRéalis USA Inc.
- Avcon, Inc.
- Baker Barrios Architects, Inc.
- Bermello Ajamil & Partners, Inc.
- C&S Engineers, LLC
- EXP U.S. Services Inc.
- Garver Engineers, LLC
- Justin Architects PA
- Kimley-Horn and Associates, Inc.
- LEO A. DALY Company
- The Lunz Group, LLC
- Mead and Hunt, Inc.
- Michael Baker International, Inc.
- MLM-Martin Architects, Inc.
- RS&H, Inc.
- Zyscovich, LLC

On March 12, 2024, the Procurement Committee met to consider the responses. Based on the SOQs, staff's evaluations, and past performances on Aviation Authority or related projects, the Procurement Committee shortlisted the following firms (in alphabetical order) for further consideration:

- AECOM Technical Services, Inc.
- AtkinsRéalis USA Inc.
- Avcon, Inc.
- C&S Engineers, Inc.
- Garver Engineers, LLC
- Kimley-Horn and Associates, Inc.
- Mead and Hunt, Inc.
- Michael Baker International, Inc.
- RS&H, Inc.

On April 10 and 11, 2024, the Procurement Committee met to consider the shortlisted firms. Each firm was provided 25 minutes for the interview process, up to 10 minutes for a presentation of its proposed team, qualifications, and approach to managing the on-call contract, followed by a 15-minute question and answer session conducted by the Procurement Committee. Each of the shortlisted firms was interviewed and evaluated by the Procurement Committee based on the following criteria:

- Qualifications of Proposed Individuals and Proposed Approach (Maximum Score: 50)
- Qualifying Programs/Projects of Proposer (Maximum Score: 30)
- Approach to Small Business Compliance (Maximum Score: 10)
- Other Consultants' Competitive Negotiation Act (CCNA) Factors (Maximum Score: 10)

At the conclusion of the interviews, the Procurement Committee evaluated each Proposer, comparatively against each other, considering the SOQs, any additional documentation, the presentations and interviews, and selected, in order of ranking, the most highly qualified five top-ranked Proposers.

The weighted scores per category and Proposer are as follows:

CRITERIA	Scoring Range	AECOM Technical Services, Inc.	AtkinsRealis USA Inc.	Avcon, Inc.	C&S Engineers, Inc.	Garver Engineers, Inc.	Kimley-Horn and Associates, Inc.	Mead and Hunt, Inc.	Michael Baker International, Inc.	RS&H, Inc.
QUALIFICATIONS OF PROPOSED INDIVIDUALS AND PROPOSED APPROACH · Ability of the proposed individuals to furnish the required services · Experience and qualifications of the proposed individuals · Proposed approach (in the Executive Brief section) · **Preferred:** Three similar projects within the last five years	1-50	40	40	41	**45**	**49**	**42**	45	**47**	**45**
QUALIFYING PROGRAMS/PROJECTS OF PROPOSER · Past performance, including the similarity of the qualifying programs/projects · Breadth and depth of experience on the qualifying programs/projects · Past performance with the Aviation Authority (if applicable) · Past performance with other entities, references · Preferred: Three similar projects within the last five years	1-30	26	25	25	**27**	**28**	**27**	25	**27**	**27**
APPROACH TO SMALL BUSINESS COMPLIANCE · Demonstrated understanding of the Aviation Authority's DBE Program and other minority and small business programs · Proposed approach for this contract	1-10	8	7	8	**8**	**8**	**10**	7	**10**	**9**
OTHER CCNA FACTORS · Willingness to meet time and budget requirements (availability to start) · Recent, current, and projected workload of the firm (commitment to completion) · Volume of work previously awarded to each firm (without violating the principle of selection of the most qualified)	1-10	7	7	8	**8**	**9**	**8**	8	**9**	**9**
TOTAL	100	81	79	82	**88**	**94**	**87**	85	**93**	**90**
RANKING		8	9	7	**4**	**1**	**5**	6	**2**	**3**

It was the consensus of the Procurement Committee to recommend to the Aviation Authority Board the ranking of the shortlisted Proposers and award of no-cost agreements for the above-advertised services with each of the five top-ranked firms, as follows:

FIRST: Garver Engineers, LLC
SECOND: Michael Baker International, Inc.
THIRD: RS&H, Inc.
FOURTH: C&S Engineers, Inc.
FIFTH: Kimley-Horn and Associates, Inc.
SIXTH: Mead and Hunt, Inc.
SEVENTH: Avcon, Inc.
EIGHTH: AECOM Technical Services, Inc.
NINTH: AtkinsRéalis USA Inc.

SMALL BUSINESS

Proposers were required to (1) prepare a written action plan that demonstrates the Proposer's understanding of the Aviation Authority's Small Business Participation Program, and how the Proposer will achieve the participation goals for these types of services; and (2) submit proposed small business participation schedules showing where proposed participation could be achieved. All nine proposers submitted thorough written actions plans and proposed participation schedules detailing where participation could be achieved. The Aviation Authority will establish small business participation goals for each negotiated project or scope.

ALTERNATIVES

The Aviation Authority Board may send the matter back to committee for further consideration or reject all submittals.

FISCAL IMPACT

There is no fiscal impact for the base agreement. Future addenda will be based on specific tasks of work as assigned.

RECOMMENDED ACTION

It is respectfully requested that the Aviation Authority Board resolve to accept the recommendation of the Procurement Committee to: (1) approve the ranking of the shortlisted firms for Continuing On-Call Architecture and Engineering Consulting Services at MCO and ORL; (2) authorize hourly rate negotiations with the five top-ranked firms in accordance with the Aviation Authority's policy; and, (3) subject to successful negotiations with the five top-ranked firms: (a) approve a no cost Continuing On-Call Architecture and Engineering Consulting Services at MCO and ORL Agreement, for its negotiated hourly rates; and, (b) authorize an Aviation Authority Officer or the Chief Executive Officer to execute the necessary contract documents following satisfactory review by legal counsel, as follows:

FIRST:	**Garver Engineers, LLC**
SECOND:	**Michael Baker International, Inc.**
THIRD:	**RS&H, Inc.**
FOURTH:	**C&S Engineers, Inc.**
FIFTH:	**Kimley-Horn and Associates, Inc.**
SIXTH:	Mead and Hunt, Inc.
SEVENTH:	Avcon, Inc.
EIGHTH:	AECOM Technical Services, Inc.
NINTH:	AtkinsRéalis USA Inc.

Hourly Rates Report By Vendor

RS&H, Inc.

Office	Position	Hourly Rate	Effective	Renog. Date	Comments
HOME	Architect I	$118.00	06/12/24	06/12/25	
HOME	Architect II	$197.00	06/12/24	06/12/25	
HOME	Architect III	$259.00	06/12/24	06/12/25	
HOME	BIM Technician	$127.00	06/12/24	06/12/25	
HOME	Engineer I	$157.00	06/12/24	06/12/25	
HOME	Engineer II	$205.00	06/12/24	06/12/25	
HOME	Engineer III	$272.00	06/12/24	06/12/25	
HOME	Engineering Associate	$114.00	06/12/24	06/12/25	
HOME	Environmental Analyst	$110.00	06/12/24	06/12/25	
HOME	Interior Designer	$151.00	06/12/24	06/12/25	
HOME	Planner	$217.00	06/12/24	06/12/25	
HOME	Principal	$400.00	06/12/24	06/12/25	
HOME	Project Controls Specialist	$123.00	06/12/24	06/12/25	
HOME	Project Manager	$300.00	06/12/24	06/12/25	
HOME	Senior Architect	$335.00	06/12/24	06/12/25	
HOME	Senior BIM Technician	$214.00	06/12/24	06/12/25	
HOME	Senior Engineer	$345.00	06/12/24	06/12/25	
HOME	Senior Environmental Analyst	$310.00	06/12/24	06/12/25	
HOME	Senior Planner	$283.00	06/12/24	06/12/25	
HOME	Senior Project Manager	$340.00	06/12/24	06/12/25	
HOME	Visualization Specialist	$194.00	06/12/24	06/12/25	

Document No: **GOAA-EDC - 09**

Title: DESIGNER'S GENERAL SCOPE OF SERVICES

SECTION 1 – GENERAL

1.0 Purpose

This EDC-09 further defines the scope of services required from the Designer for both Basic Services and Additional Services under a Professional Services Agreement ("Agreement") with the Greater Orlando Aviation Authority ("Owner"), and any addenda or amendments thereto with an architectural or engineering firm.

1.1 Basic Definitions

The following terms have the meanings indicated, which are applicable to both the singular and plural thereof, wherever used in the Agreement and the Exhibits, documents and drawings referenced therein:

1.1.1 Design Services

Design Services shall refer to and include all services set forth in a Professional Services Agreement with an architectural or engineering firm.

1.1.1 Designer

The term "Designer" as used throughout the Agreement, Exhibits, EDCs, and the drawings and documents referenced therein, shall have the same meaning as the term "Consultant," as defined in the Agreement.

1.1.2 Construction Cost

"Construction Cost" means the total cost to the Owner of those portions of the entire Project designed or specified by the Designer. Construction Cost does not include the Designer's compensation and expenses, the cost of land, rights-of-way, or for damages to properties, or the Owner's legal, accounting, insurance counseling or auditing services, or interest and financing charges incurred in connection with the Project or the cost of other services to be provided by others to the Owner.

1.1.3 General Provisions

The term "General Conditions" means the Owner's Division 0 specifications for the non-federal construction Contract and both the Division 0 specifications and the GP-10 through GP-130, inclusive, specifications for the federal construction Contract, on projects for which Design services are

required. All scope required of the Designer in the General Provisions are incorporated by this reference.

1.1.4 Owner

The "Owner" is the person or entity identified as such in the Agreement and is referred to throughout the Exhibits, EDCs, the drawings and documents of the Owner's Master Design Guidelines as if singular in number.

1.1.5 Owners Authorized Representative (OAR)

The OAR is either the Owner's staff, non-staff person or entity identified to provide administration of the Agreement and shall be selected by the Owner. The specific person or entity which will perform the OAR's responsibilities shall be identified at the beginning of these Sections. The OAR is referred to throughout the Exhibits, EDCs, the drawings and documents of the Owner's Master Design Guidelines. The OAR will utilize EDC-27 GOAA Engineering Procedures for Senior Project Manager design management and EDC-35 Owner's Authorized Representative General Scope of Services for Construction.

1.1.6 Terms Defined in Other Documents

Except as otherwise defined herein, the capitalized terms in this Agreement which are defined in the General Provisions or the Agreement for Professional Services will have the same meaning throughout the Agreement.

1.2 Coordination with Other Documents

1.2.1 The Owner's General Provisions will be used as the general provisions for construction of the Project and this EDC. The Designer's scope of services shall include all the services described in the General Conditions as by Designer. The Designer shall not specify or modify documents in conflict with these General Provisions. The Owner's and OAR's scope of services are described and defined in the General Provisions. This EDC-09 is attached to the Professional Services Agreement for Design Services.

SECTION 2 - BASIC SERVICES TO BE PROVIDED BY THE DESIGNER

2.1 Design Services Checklist and Deliverables

2.1.1 The Design Services Checklist, EDC-08, is incorporated into the Agreement by reference. EDC-08 defines specific Services required from the Designer under the Agreement, but is not intended to limit the services to provided by the Designer, and is not considered to be all inclusive of the services required to complete the Work. The Designer is solely responsible for providing a complete and thorough design of the Project.

2.1.2 The "Project Deliverables" set forth in EDC-06 is also incorporated into the Agreement by reference. EDC-06 defines the minimum requirements for drawings and documents prepared by the Designer for the Owner. Complex systems may require greater detail or large scales to adequately define the scope of work.

2.2 Data Collection/Preliminary Design Phase

2.2.1 The Designer shall attend the Design Kick-Off Meeting. The purpose of the meeting will be to discuss the Project requirements and to introduce the Designer's and Owner's representatives for the Project.

2.2.2 After the Design Kick-Off Meeting, the Designer shall review the Owner's library of Record Drawings and Documents and select the drawings and documents, if any, which may be applicable to the Project. The Designer shall also field verify both the applicable Record Drawings and Documents, and existing site conditions, as required by the Project Deliverables, EDC-06.

2.2.3.1 The Designer is responsible to have knowledge of the project's geographical location and the environmental conditions for the construction and operation of the facility. The Design shall identify and analyze requirements of governmental authorities having jurisdiction to approve the portions of the Project designed by the Designer with whom consultation is to be undertaken in connection with the Project.

2.2.3.1.1 The Designer shall thoroughly familiarize itself with all existing conditions and available as-built documentation that relate in any way to the Project or Services requested.
2.2.3.1.2 The Designer is responsible to identify all the permitting requirements for the construction and operation of the facility and provide the listing to the Authority at the 30% design submittal. The Permit Listing shall include a schedule of when the permits will be required for the Project.

2.2.3.1.3 For phased Work the Permit Listing shall also include any required multiple permits needed to obtain a Certificate of Occupancy.

2.2.3.2 The Designer shall not contact the permitting authorities directly on the Owner's behalf without the Owner's consent.

2.2.3.3 For projects funded by the Federal Aviation Administration (FAA) and project funded by the Florida Department of Transportation (FDOT), the Design and Engineer's Report shall comply with all FAA and FDOT requirements as promulgated by the FAA's Orlando Airport District Office and by the FDOT.

2.2.4 The Designer shall evaluate alternate solutions available and, after consultation with the Owner, recommend to the Owner those solutions which, in the Designer's judgment, best meet the Owner's requirements for the Project.

2.2.5 The Designer shall prepare a Preliminary Engineering Report which will contain the statement of the Owner's requirements for the Project, and, as appropriate, will contain schematic layouts, sketches and conceptual design criteria with appropriate exhibits to indicate the considerations involved and those alternate solutions available to the Owner which the Designer recommends. This Report shall be accompanied by the Designer's updated opinion of Construction Cost for each solution which is recommended for the Project.

2.2.6 The Designer shall submit this Preliminary Engineering Report to the Owner, and revise it as required to resolve the Owner's comments.

2.3 Schematic Design (30%)

2.3.1 Based on the approved Preliminary Engineering Report, the recommended solutions selected by the Owner and the specific modifications or changes in the scope, extent, character or design requirements of the Project agreed upon by the Owner and Designer in writing, the Designer shall prepare the preliminary design documents consisting of final design criteria, preliminary drawings, outline specifications and written descriptions of the Project. The requirements for the 30% Submittal are further defined in EDC-06.

2.3.2 The Designer shall prepare and submit a revised opinion of probable Construction Cost based upon the 30% Submittal. When required by the owner the Designer shall reconcile this estimate with an independent estimate prepared by others.

2.3.3 The Designer shall participate in a Technical Review meeting with the Owner to review and address Owner's comments on the 30% submittal. The Designer shall also prepare and submit to the Owner, no later than two (2) weeks after the Technical Review Meeting, or prior to the next submittal, whichever occurs first, a written reply to each of Owner's comments which explains how each comment is being resolved, and where the resolution will be in the plans, specifications or contract documents.

2.4 Design Development (60%)

2.4.1 On the basis of the Schematic Design documents, including the Owner's comments after review of the 30% Submittal, the modifications or changes in the scope, extent, character or design requirements of the Project agreed upon by the Owner and Designer and the revised reconciled opinion of probable Construction Cost, the Designer shall prepare for incorporation in the Contract Documents intermediate Specifications and Drawings showing the scope, extent and character of the Work to be performed and furnished by the Designer, and as further defined in EDC-06.

2.4.2 The Designer shall provide technical criteria, written descriptions, design data and completed permit application forms for the Owner's use in filing applications for permits with or obtaining approvals of such governmental authorities as have jurisdiction to review or approve the final design of the Project, and shall assist the Owner in consultations with appropriate authorities. The Designer shall not, however, directly contact such permitting authorities on the Owner's behalf without the prior consent of the Owner.

2.4.3 The Designer shall prepare and submit a revised opinion of probable Construction Cost, and define any adjustments to the estimate since completion of the 30% estimate. When required by the owner the Designer shall reconcile the 60% estimate with an independent estimate prepared by others.

2.4.4 The Designer shall prepare, as part of its 60% submittal, for review and approval by the Owner, its legal counsel and other advisors, preliminary contract agreement forms, general conditions and other conditions, and bid forms, invitations to bid and instructions to bidders, all of which will be consistent in form and substance with the standard forms and pertinent guide sheets provided by the Owner.

2.4.3 The Designer shall participate in a Technical Review meeting with the Owner to review and address Owner's comments on the 60% submittal. The Designer shall also prepare and submit to the Owner, no later than two (2) weeks after the Technical Review Meeting, or prior to the next submittal, whichever occurs first, a written reply to each of Owner's comments which explains how each comment is being resolved, and where the resolution will be in the plans, specifications or contract documents.

2.5 Construction Documents (95%)

2.5.1 On the basis of the Design Development Design documents, including the Owner's comments after review of the 60% Submittal, the modifications or changes in the scope, extent, character or design requirements of the Project agreed upon by the Owner and Designer and the revised reconciled opinion of probable Construction Cost, the Designer shall prepare for incorporation in the Contract Documents final Specifications and Drawings showing the scope, extent and character of the Work to be performed and furnished by the Designer, and as further defined in EDC-06.

2.5.2 The Designer shall prepare, and include in the 95% submittal, for review and approval by the Owner, its legal counsel and other advisors, final contract agreement forms, General Provisions and supplementary conditions, and bid forms, invitations to bid and instructions to bidders.

2.5.3 The Designer shall participate in a Technical Review meeting with the Owner to review and address the Owner's comments on the 95% submittal. The Designer shall also prepare and submit to the Owner, no later than two (2) weeks after the Technical Review Meeting, or prior to the next submittal, whichever occurs first, a written reply to each of the Owner's comments which explains how each comment is being resolved, and where the resolution will be in the plans, specifications or contract documents.

2.6 Bid Documents

2.6.1 The Designer shall participate in a Technical Review meeting with the Owner to review and address Owner's comments on the 100% submittal. The Designer shall also prepare and submit to the Owner, no later than one (1) week after the Technical Review Meeting, or prior to the next submittal, whichever occurs first, a written reply to each of Owner's comments which explains how each comment is being resolved, and where the resolution will be in the plans, specifications or contract documents. The Designer shall resolve all of the comments from the Owner's review of the 95% Submittal, and modify the Specifications, Drawings and Bid Documents accordingly to produce the 100% complete Bid Documents.

2.6.2 The Designer shall prepare and submit an updated opinion of probable Construction Cost and define any adjustments to the estimate since completion of the 95% estimate. The Designer shall reconcile the 100% estimate with an independent estimate prepared by others.

2.7 Bidding and Award

2.7.1 The Designer shall assist the Owner in advertising for and obtaining bids or proposals for the contract for construction, materials, equipment and services; maintain a record of prospective bidders to whom Bid Documents have been issued; attend Pre-Bid Conferences; reproduce and distribute Bid Documents and Addenda to the Owner, plan rooms and prospective Bidders; and receive and process payments, if any, for Bid Documents.

2.7.2 The Designer shall prepare and issue Bid Addenda, as required, to clarify, correct or change the Bid Documents.

2.7.3 The Designer shall attend the Bid Opening, prepare bid tabulation sheets and assist the Owner in evaluating bids or proposals and in assembling and awarding contracts for construction, materials, equipment and services. The Designer will review bids and proposals and any relevant market conditions related to such bids, and provide a written evaluation thereof, including a detailed analysis of bids potentially subject to award which may appear to be unreasonably higher or lower than the reconciled estimate (when applicable), and provide a recommendation to award. The Designer shall note in the evaluation any irregularities, deviations, qualifications or conditions set forth in such bids or proposals.

2.8 Construction Phase

2.8.1 The Designer shall attend the Pre-NTP and Pre-Construction Conference meetings conducted by the Owner prior to the start of construction activities.

2.8.2 The Designer shall prepare, reproduce and distribute Contract Documents and Specifications, and Conformed Contract Documents and Specifications to the Owner, Contractor and the Owner's Authorized Representative (OAR).

2.8.3 The Designer's role during the Construction Phase is to assist the Owner and OAR in the administration of the construction contract. Specific duties of the Designer are further defined in the General Provisions, which are included by reference in the Agreement during the Construction Phase of the Project.

2.8.4 The Designer shall attend the Owner's Job Coordination Meeting (JCM) meetings during the term of the construction contract. These meetings will be typically held every two weeks or as otherwise directed by the Owner.

2.8.5 The Designer shall make visits to the site at intervals appropriate to the various stages of construction in order to observe, as an experienced and qualified design professional, the progress and quality of the various aspects of the Contractor's Work. Such visits and observations by the Designer are not intended to be exhaustive or to extend to every aspect of the Work in progress, or to involve detailed inspections of the Work beyond the responsibilities specifically assigned to the Designer in this Agreement and the Contract Documents, but rather, entail a general observation of the Work based upon the Designer's exercise of professional judgment in accordance with the governing standard of care. During each site visit, the Designer shall check that the Contractor is maintaining accurate and up-to-date As-Built Drawings on site. Based upon information obtained during such visits and such observations, the Designer shall endeavor to determine if such Work is proceeding in accordance with the Contract Documents, and the Designer shall submit written reports to the Owner after each site visit to keep the Owner informed of the progress and observed quality of the Work. Such reports shall specifically identify, following such general observation, any deviations from plans, specifications, or codes, any defects, and any unsafe conditions, identified by the Designer.

2.8.6 The Designer shall not, during such visits to the site, or as a result of such observations of the Contractor's Work in progress, supervise, direct or have control over the Contractor's Work nor shall the Designer have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by the Contractor, for safety precautions and programs incident to the Work of the Contractor or for any failure of the Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to the Contractor's furnishing and performing the Work. Accordingly, the Designer neither guarantees the performance of any Contractor nor assumes

responsibility for any Contractor's failure to furnish and perform its Work in accordance with the Contract Documents.

2.8.7 During such visits and on the basis of such observations, the Designer shall submit a written recommendation to the OAR, with a copy to the Owner, recommending disapproval of or rejection of the Contractor's Work while it is in progress or after completion if the Designer believes that such Work will not produce a completed Project that conforms generally to the Contract Documents or that it will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents.

2.8.8 The Designer shall issue necessary clarifications and interpretations of the Contract Documents as appropriate, and when requested by the OAR, to allow the orderly completion of the Work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents.

2.8.9 The Designer shall receive from the OAR all Contractor requests for Contract Modifications in the Work, including adjustments to the Contract Sum. Within five (5) working days after receipt, the Designer will respond to the Owner and OAR with a written recommendation of approval, adjustment or rejection for entitlement to such request. If the Designer determines that anything less than full entitlement exists, the response shall include an explanation with specific references to the applicable sections of the Contract Documents and Drawings which support the finding of partial or no entitlement. The OAR, at the Owners request, shall prepare the Change Orders, Construction Change Directives and Minor Change in the Work and will make available to the Designer. When specifically requested by the Owner the Designer shall prepare, reproduce and distribute drawings and specifications to describe the changes in the Work, and shall assist with the permitting of same. The Designer shall review and sign the Owner's executed Contract Modifications within five (5) working days unless specifically extended by the OAR.

2.8.10 The Designer shall review and take other appropriate action in respect of Shop Drawings and Samples and other data which the Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept for the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews and other action will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto.

2.8.11 The Designer shall evaluate and determine the acceptability of substitute materials and equipment proposed by the Contractor, but subject to the provisions of the Contract Documents, and submit a written recommendation to the OAR.

2.8.12 The Designer may require special inspections or tests of the Work, and shall receive and review all certificates of inspections, tests and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents. The Designer's review of such certificates will be for the purpose of determining that the results certified include compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests or approvals comply with the requirements of the Contract Documents. The Designer shall be entitled to rely on the results of such tests.

2.8.13 The Designer shall render the initial decisions on all claims of the Owner and Contractor relating to the acceptability of the Work or the interpretations of the requirements of the Contract

Documents pertaining to the execution and progress of the Work. In rendering such decisions, the Designer shall be fair and not show partiality to the Owner or Contractor and shall not be liable in connection with any decision rendered in good faith in such capacity.

2.8.14 Based upon the Designer's on site observations as an experienced and qualified design professional and on review of Applications for Payment and the accompanying data and schedules, the Designer shall review the OAR's recommended amounts for payments to the Contractor. Such review of the recommendations of payment and timely signature will constitute the Designer's representation to the Owner and OAR, based upon such observations and review, that, to the best of the Designer's knowledge, information and belief, the Work has progressed to the point indicated, the quality of such Work is generally in accordance with the Contract Documents (subject to an evaluation of such Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation), and the conditions precedent to the Contractor's being entitled to such payment appear to have been fulfilled insofar as it is the Designer's responsibility to observe the Work. In the case of unit price Work, the Designer's recommendations of payment will include review of the OAR's determinations of quantities and classifications of such Work (subject to any subsequent adjustments allowed by the Contract Documents).

2.8.14.1 Assist the OAR with the review, and negotiate as necessary, the Contractor's Schedule of Values to reach a mutually acceptable form prior to the First Application for Payment.

2.8.15 Following notice from the OAR that the Contractor considers the entire Work ready for its intended use, the Designer, Owner and OAR, accompanied by the Contractor, shall conduct an inspection to determine if the Work is substantially complete. If, after considering any objections of the Owner, Contractor and OAR, the Designer considers the Work substantially complete, the Designer shall recommend the issuance of a Certificate of Substantial Completion to the Owner by the OAR.

2.8.16 The Owner, OAR and Designer shall conduct a final inspection to determine if the completed Work of the Contractor is acceptable so that the Designer may recommend, in writing, final payment to the Contractor.

2.9 Project Close-Out

2.9.1 The Designer will prepare the Record Documents based upon the As-Built Drawings and Documents received from the OAR. The OAR will have reviewed and accepted the Contractor's As-Built Drawings and Documents when in their opinion they meet the intent of the Contract Documents and field observations. The Designer will prepare a complete set of Record Drawings representing, to the best of their knowledge, the as-built conditions of the Work, as further detailed in EDC-06.

2.9.2 The Designer will review all Close-out Documents and Manuals for conformance with the Contract Documents.

2.10 Project Budget and Designer's Opinions of Probable Cost

2.10.1 The Designer's opinions of probable Construction Cost provided for herein are to be made on the basis of the Designer's experience and qualifications, and represent the Designer's best judgment as an experienced and qualified design professional generally familiar with the construction industry.

2.10.2 If, at any time during the design of the Project, the Designer determines that the probable Construction Cost of the Work exceeds the budget established by the Owner, the Designer shall immediately advise the Owner in writing with an explanation of the cause of the anticipated cost overrun and recommendations on how to reduce the probable Construction Cost to within budget.

2.10.3 In the event that the lowest bona fide bid or proposal for construction of the Work exceeds the Designer's Opinion of Probable Construction Cost by 10% or greater, the Owner may, at the Owner's sole discretion, require the Designer, without additional compensation, to modify the Bid Documents and Drawings as required to reduce the Construction Cost to within the Owner's budget for the Work, and to provide all the Services associated with readvertising for construction bids, including reproduction and distribution of documents, and advertising costs. The modifications necessary to accomplish this reduction in Construction Cost shall be subject to the Owner's approval, and shall not change the basic intent or function of the Project.

2.11 Verification of Existing Conditions at Site

2.11.1 The Designer shall verify all existing conditions at site which may impact the design and construction of the Project and shall clearly indicate all such existing conditions on the Drawings in accordance with the requirements defined in EDC-06. All major systems, such as electrical, mechanical and plumbing, shall be field verified regardless of whether the system is impacted by the Project.

2.12 Design Phase Services

2.12.1 The Consultant agrees that the milestone dates shown on this Schedule for performance of the Services, including submittal and 100% completion of design dates, are reasonable, and the Consultant will complete all Services accordingly.

2.13 Owner's Representative

2.13.1 The Owner's Representative will have complete authority to transmit instructions, receive information and interpret and define the Owner's policies and decisions with respect to the Designer's Services for the Project, provided that such direction does not impact the scope, budget or schedule for the Services. The Owner's direction that impacts the scope, budget or schedule of the Services must be documented and must be signed by the Owner's Deputy Executive Director of Facilities.

2.14 Coordination

2.14.1 The Services to be performed by the Designer require the Designer, the OAR and the Contractor to work together harmoniously. The Designer, the OAR and the Contractor shall respond fully and promptly to each other's requests for information and advice, and each shall give due consideration to the advice and suggestions of the other. The Designer, OAR and Contractor shall cooperate with one

another in all matters. If the Designer, OAR or Contractor disagree on any matter, they shall promptly refer the matter to the Owner for resolution.

2.14.2 The Designer is required to coordinate with the other Designers, Contractors and OARs working on adjacent and/or concurrent projects to resolve issues related to the Work. The Designer is also required to coordinate among the various departments of the Owner, the Owner's tenants, the airlines and all other organizations which may be affected by the Work. The Designer is responsible for anticipating when this coordination is required and the parties that are affected, and for notification of the Owner that the coordination is required. When requested by the Owner, the Designer shall proceed with initiating the coordination, including all follow-up necessary to ensure successful resolution of the issues.

PART 3 – CODES, STANDARDS AND OTHER DOCUMENTS

3.1 Owner's Documents

The following Owner's documents define specific requirements for Services provided by the Designer and are incorporated by reference into the Agreement:

Owner's Document No.	**Title**
EDC-02	CADD Standards
EDC-06	Project Deliverables
EDC-08	Design Service Checklist
Division 0	General Provisions of the Contract for Construction
Division 1	General Requirement Specifications
Division 2-14	Guidelines and Specifications
Division 15	Mechanical Specifications
Division 16	Electrical Specifications

The Designer shall not specify any matter which conflicts with the Owner's provided guidelines or other provisions unless authorized in writing by the Owner.

3.2 Codes, Standards and Other Documents

The following codes, standards and other documents define specific requirements for Services provided by the Designer and are made a part of this Agreement by reference:

- Owner's Design Guidelines, Standards and Specifications
- City of Orlando adopted Building Codes and applicable ordinances
- Florida Department of Transportation (FDOT) requirements
- Federal Aviation Administration (FAA) Advisory Circulars
- Transportation Safety Administration (TSA)
- Florida Building Code (Current Edition)
    - Building
    - Plumbing
    - Mechanical
    - Fuel Gas

    - NFPA 70 Electric Code
- National Electrical Code (NEC)
- Florida Fire Prevention Code
- National Fire Protection Association (NFPA) Codes & Standards)
- Florida Accessibility Code for Building Construction
- Americans with Disabilities ACT Accessibility Guidelines
- Other applicable Federal, State and local codes
- Other Codes, Standards and Requirements as may be defined by the Owner

3.3 FDOT Funded Projects

FDOT funded projects will require the Consultant to certify to the following:

I hereby certify that the plans, specifications, and contract documents produced by the Engineer for the above referenced project have been developed in compliance with federal, state and professional standards and applicable Federal Aviation Administration advisory circulars. In addition, I hereby certify that the project complies with all applicable building codes and other statutory requirements.

END OF EDC – 09, DESIGNER'S GENERAL SCOPE OF SERVICES

GREATER ORLANDO AVIATION AUTHORITY
Innovation Connecting the World

Document No: **GOAA-EDC - 02**

Title: **CAD STANDARDS**

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SECTION 1 – INTRODUCTION

1.1 Foreword

The Greater Orlando Airport Authority ("GOAA" or "Authority") developed this Computer Aided Design (CAD) Standard for professionals working on CAD projects for the GOAA. The goal of this CAD Standard is to assure consistency in processes and CAD development, produced at and for the Authority, from GOAA's various service providers across multiple types of projects.

This document will be updated regularly and all professionals working on CAD projects for GOAA shall verify they are using the latest version of this document.

1.2 Purpose of this Document

Computer Aided Design (CAD) data created for the GOAA must be developed and submitted according to the specifications documented in this Standard.

This includes data prepared both internally by GOAA staff and by outside organizations for work performed on behalf of Airport tenants and consultants to GOAA. The objective is to standardize deliverables so that data is consistent and could be readily transposed between CAD & GIS systems when necessary.

Each submitted CAD drawing file will become part of the permanent archive. The data used to produce the CAD drawing will serve as a critical source for updating information within GOAA's CAD data storage system.

This CAD Standard document defines the requirements for all CAD work produced at and for the Authority. It specifies CAD data requirements, such as coordinate systems and symbology; the Authority's layer naming convention; file organization; and delivery requirements. These standards apply to CAD deliverables, GIS and/or BIM project requirements should be used with those corresponding guidelines and/or standards.

These requirements assume that readers have a basic understanding of CAD concepts and terminology. Readers who are new to the Authority's CAD requirements may wish to review the document in its entirety. Those who are familiar with the requirements may wish to use the document as a reminder of the specifics to which they must adhere.

The content of this manual supersedes all previously published Authority Site/Civil CAD Standard versions and is subject to change without notice. The Authority shall not be liable for errors and omissions in this Standard.

1.3 Referenced Standards & Documents

The Authority's CAD Standard is part of GOAA's overall guidelines and standards with which consultants and Authority staff must comply. Additional documents, which may be beneficial, can be provided by the GOAA Project Manager (PM) and include:

- CAD Support Package – CAD Template, Layouts & Linetypes
- The Authority's BIM Standards
- The Authority's GIS Standards

- Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-18B “General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards”, which can be found at https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-18B-chg1-consolidated.pdf

This CAD Standard is based heavily on the United States National CAD Standard (NCS) – V6, which can be found at https://www.nationalcadstandard.org/ncs6/.

It is the responsibility of the Consultant to obtain the latest set of Standards referenced in this document. The Consultant is encouraged to contact the GOAA Project Manager (PM) to facilitate obtaining these documents. The Consultant is also encouraged to obtain the CAD Support Package which contains the electronic drawing template in AutoCAD that matches this CAD Standard and any existing “As-built” electronic data which may be applicable.

For each project, the CAD/BIM Manager shall notify the consultant of what data model (CAD or BIM) will be maintained in the future and a conformed model should be provided upon project completion.

1.4 Software Requirements

Airport DWGs shall be compatible with the three most recent releases of AutoCAD, AutoCAD MAP 3D® or AutoCAD Civil 3D®. In cases where the AutoCAD version used by the Consultant natively saves to a newer format than the third most recent release, the file should be saved in the third most recent release format (for example: if the version used by the Consultant natively saves to 2018 but the third most recent release natively saves to 2013, the file should be saved to the 2013 version). Consultants who do not use this software shall ensure that all requirements defined in this document are met in DWGs they create and convert from other software, without any loss of quality or accuracy when they are opened in Autodesk software.

SECTION 2 – OBJECTS IN CAD DRAWINGS

2.1 Object Types

Objects that depict real-world features shall be of the following geometry types:

- Point features shall be symbolized by the appropriate AutoCAD block when applicable. Examples include airfield lights, signs and poles.
- Linear features shall only be represented by AutoCAD polylines and/or 3D polylines. Subsurface features shall be represented by 3D polylines. Examples include utility pipes, conduits and duct banks.
- Polygonal features shall be represented by AutoCAD closed polylines and/or 3D polylines. Hatch patterns may be used within polygonal features. Examples include property boundaries and building outlines.

Airport Data and Information Portal (ADIP) projects must consist of only 3D polylines. Objects grouped in block references are not accepted.

Objects in drawings that are used to convey graphical references or alphanumeric information, such as annotations, text, dimensions and leader lines may use other AutoCAD object types, including construction lines, revision clouds and wipeouts. All text used, whether it is annotations associated with features, values within title blocks or other text, shall be multiline text (MTEXT).

2.2 Object Graphics

A template file (GOAACIVIL.dwt) has been developed for use by consultants and Authority staff. This template file includes the appropriate layers, linetypes and symbols/blocks for use with these standards. All objects in the CAD drawings shall use graphics that meet the requirements detailed in the following sections.

2.2.1 Blocks

Point features are represented by blocks. The insertion point of the blocks is already defined in the GOAACIVIL.dwt. The Authority uses standard engineering symbols as blocks which are provided as part of the GOAACIVIL.dwt template file. If the Authority does not have a particular block, the Consultant may use its symbol as the “block.” However, the Consultant must provide all symbols used to create the drawings to the Authority in AutoCAD format. An index, in electronic and hard copy format, shall also be provided, listing the block names and contents. Blocks shall be created on layer 0 (zero) and no block may be nested. All block properties shall be By Layer.

2.2.2 Linetypes

The Authority accepts both AutoCAD default and custom linetypes. GOAACIVIL.lin contains custom linetypes and is available for download (see *1.3 Referenced Standards and Documents*).

The use of AutoCAD default linetypes shall be in accordance with industry standards. These generally include center, continuous, dashed, hidden and phantom linetypes.

2.2.3 Lineweights, Linework & Plot Styles

Lineweights shall be controlled via the layer manager and dimension style manager only. Polylines shall only be used to control lineweights in the Airport-provided title block sheets. Printers and plotters are controlled by files called pen tables (or feature tables). These files (tables) convert thicknesses and/or color in an electronic file to line thicknesses on a paper drawing.

By employing the standard GOAA pen table, the Data Provider can ensure that consistent drawings are produced from an electronic file regardless of the type of printer or plotter used. Required standard pen tables are provided below in *TABLE 1 – STANDARD PEN TABLES*.

TABLE 1 – STANDARD PEN TABLES

Color	Pen Size		% Screen	Alternate Colors
	mm	in.		
1	0.1778	0.007	100	11,21,31,41…241
2	0.2540	0.010	100	12,22,32,42…242
3	0.3556	0.0140	100	13,23,33,43…243
4	0.5080	0.0200	100	14,24,34,44…244
5	0.6096	0.0240	100	15,25,35,45…245
6	0.7112	0.0280	100	16,26,36,46…246
7	0.7874	0.0310	100	17,27,37,47…247
8	0.0400	1.0160	100	18,28,38,48…248
9	1.4000	0.0551	100	19,29,39,49…249
10	0.1270	0.0050	100	20,30,40,50…250
250	0.4000	0.0157	100	
251	0.4000 mm | 0.0157 in		100	
252	0.4000 mm | 0.0157 in		100	
253	0.04000 mm | 0.0157 in		100	
254	0.04000 mm | 0.0157 in		100	
255	0.1778 mm | 0.0070 in		0	

Note: *These colors are best viewed on a monitor with a black background.*

2.2.4 Text Styles

GOAA has selected Verdana as the default annotation font as this font is typically installed on most computers as a default Windows True Type font and Arial for the default Border Sheet font for contrast.

Verdana was designed to be readable at small sizes. Additionally, the lack of serifs, large x-height, wide proportions, loose letter-spacing and emphasized distinctions between similarly shaped characters are chosen to increase legibility.

Contrasting text styles are used within a drawing to delineate types of information.

In GOAA deliverable CAD drawings, only the Verdana font shall be used. However, the Verdana font may be modified in size, color or style (bold, italics, underline, outline, etc.) as needed by the data provider for additional emphasis or deemphasize. Only Verdana True Type Font available through a standard MS Windows program is permitted. No special Verdana font downloads are permitted as they will not be “universal” on every PC.

Final text height should be plotted at no less than 0.125 inches on full-size prints.

2.2.5 Dimensions/Multileaders

The dimension style has lineweights defined for dimension lines and extension lines at 0.006 inches. Extend beyond dim lines and offset from origin lines are set at 0.0625 inches. Arrowheads are closed and filled at 0.125 inches in size. The text height is 0.125 inches with text alignment set to aligned with dimension line and text vertical placement set to above. In the Primary Units tab, in “Suffix:” add foot mark. The format, structure and content of the multileader style is similar to that of the dimension style. The dimension style and multileader style are provided in the GOAA DWTs.

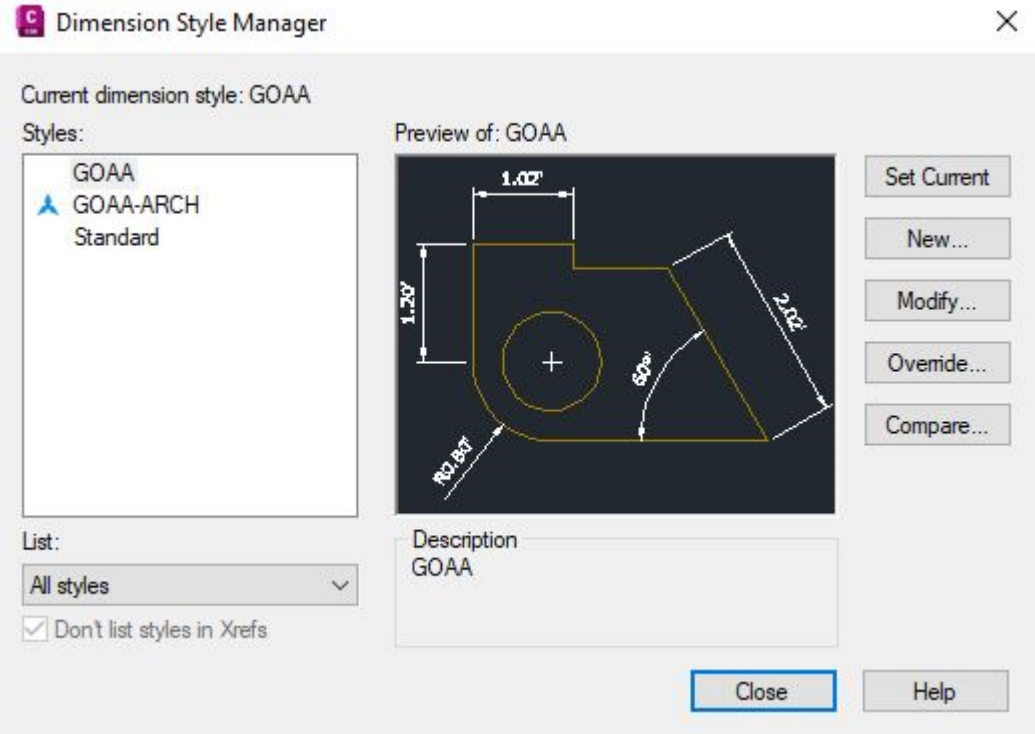


Figure 1. Dimensions Example

2.3 Object Data

Object data is attribute data that is attached to objects in the CAD drawing and stored in tables in the drawing. Object data tables shall be connected to objects where attribute data and metadata are required.

In addition to the object data requirements defined in this document, Airport Data and Information Portal (ADIP) projects must comply with the object data requirements of FAA AC 150/5300-18. Please refer to this document for additional information.

2.3.1 Object Data Schema Source

The GOAACIVIL.dwt template file has predefined Object Data tables included. The name of the Object Data table is the same as the name of the GIS Feature Class. For example, the Feature Class “AirfieldLight” is also the name of the Object Data table. The Object Data table fields are derived directly from the GIS Feature Class attribute fields. The Object Data tables should be used on objects in a drawing to facilitate an ETL process which requires attribution from objects in a CAD file to be carried over to a GIS environment. Please refer to the supplemental document GOAA_schema_v1.Htm for the GIS schema.

2.3.2 Changes Affecting Object Data & ETL Processes

A GIS Feature Class that is added/removed from the GIS schema will need to have the corresponding Object Data table added/removed from the GOAACIVIL.dwt template file. Changes to a GIS Feature Class’s Field Properties (i.e., field order, added/removed field, data type etc.) must also be applied to the corresponding Object Data table in the GOAACIVIL.dwt template file. Field order and field names (case sensitive) should be a one-to-one match between the Object Data table and the GIS Feature Class attribute fields. The ESRI controlled fields OBJECTID, Shape_Length and Shape_Area should not be included in the Object Data tables.

Software (or other methods) performing an ETL, such as an FME Workbench for example, may require updates to the scripting if changes are made to the CAD and/or GIS schemas to ensure functionality of the ETL process.

2.4 Coordinate Systems & Units

In an effort to organize, consolidate and standardize the information generated and consumed by all locations within the Authority, Coordinate Systems must be used on all projects. The objective of this requirement is to make the data files easier for users to identify and integrate in planning and design.

The GOAA horizontal coordinate system is North American Datum of 1983 (NAD83) (2011), Florida East State Plane (Zone 901) US Feet.

The GOAA vertical coordinate system is North American Vertical Datum of 1988 (NAVD88).

All features located by survey methods shall be based on the 2011 adjustment of NAD83 for horizontal coordinates. All units for both horizontal and vertical data will be the U.S. Survey Foot (1200/3937 meters). Decimal units are used for all Authority site/civil basemaps.

Two points of geodetic control shall be included in each electronic file for spatial reference; the Primary (PACS) and Secondary (SACS) monument coordinates are listed in Appendix A for MCO and ORL and available on-line from the National Geodetic Survey database. If the included PACS and SACS data is not applicable, acceptable control can include section corners, quarter section corners and other existing airport monumentation.

Site/Civil basemaps should NEVER be moved or rotated in a manner that removes the drawing from the coordinate system. If the orientation of the base map needs to be changed, the use of Paper Space with a User Coordinate System should be used to rotate the perspective of the basemaps.

2.5 Topological Integrity Requirements

GOAA supports both CAD and Geographic Information Systems (GIS) spatial datasets. CAD data is regularly converted to a GIS format for integration in GOAA's GIS database. GIS has more stringent data requirements than AutoCAD. In an effort to make the conversion between both formats and to comply with the FAA's data requirements, this section details the topology requirements that must be followed for all CAD submittals to GOAA. Topology refers to the positional relationship between features. All features are required to meet the following topology rules:

- Collocated Vertices – Collocated vertices must share the same X, Y and Z coordinates.

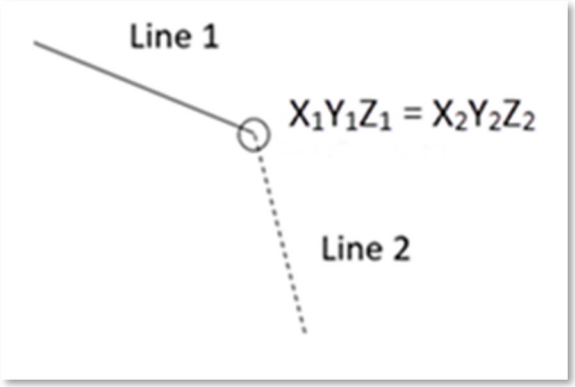


Figure 2. Collocated Vertices

- Polylines Meet at Endpoints – Polylines that join to represent one continuous string of linear features (e.g., a utility network) should have collocated vertices as endpoints.

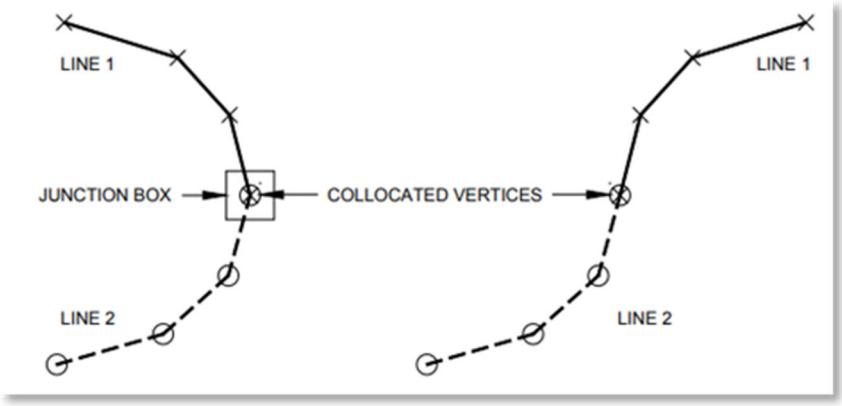


Figure 3. Lines Meeting at Endpoints (Source: FAA AC150/5300-18B, Change 1)

- Sufficient Density of Vertices – Lines and polygon edges should contain one or more segments with vertices placed at intervals, so the feature does not stray from the actual object it represents by more than half of the defined accuracy limit

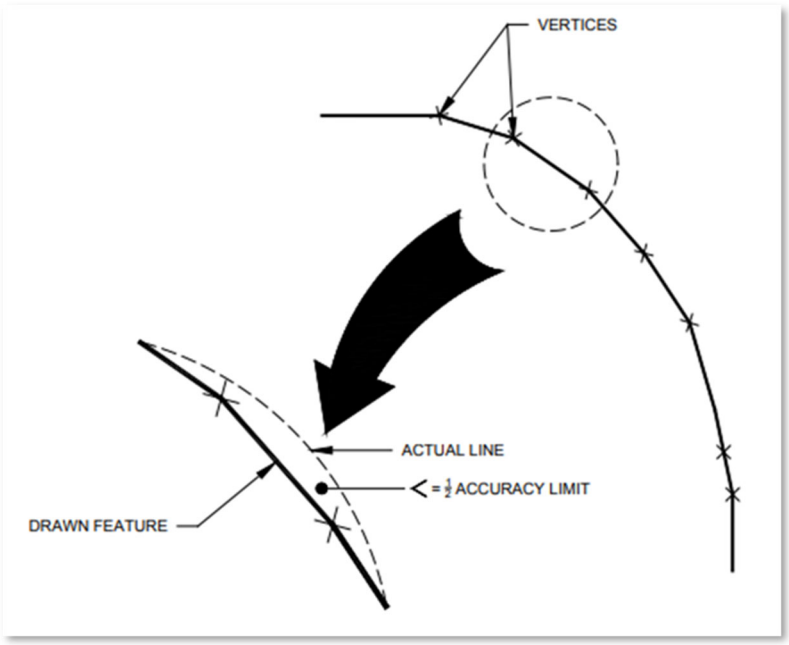


Figure 4. Density of Vertices (Source: FAA AC150/5300-18B, Change 1)

- Shared Edges and Shared Vertices between Adjacent Features – Features that are intended to be adjacent to one another should share all collocated vertices along their common edge(s). This ensures that there are no unintentional gaps (empty space) or slivers (overlaps) between adjacent features

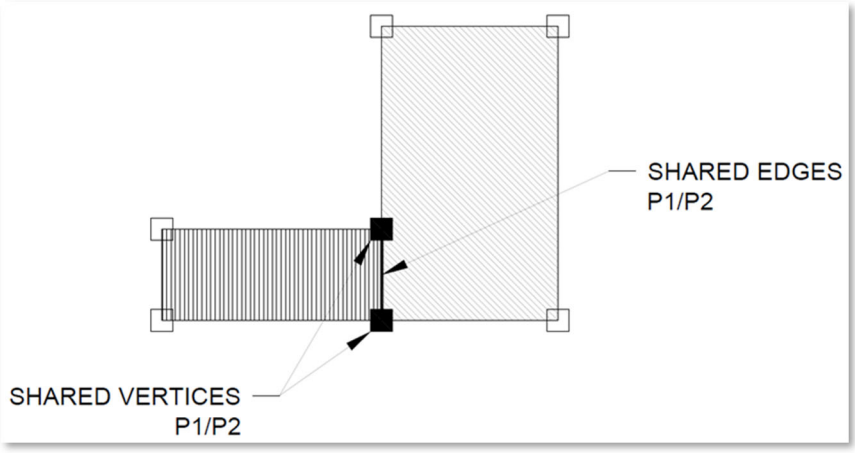


Figure 5. Shared Edges and Shared Vertices (Source: FAA AC150/5300-18B, Change 1)

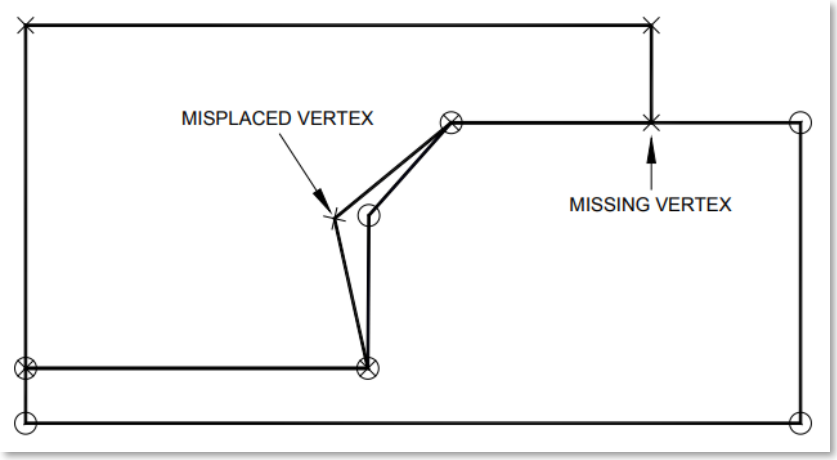


Figure 6. Misplaced Vertices of Adjacent Polygons (Source: FAA AC150/5300-18B, Change 1)

- Polygons must be closed – The endpoints of line segments that form a polygon must be collocated and closed in the CAD program

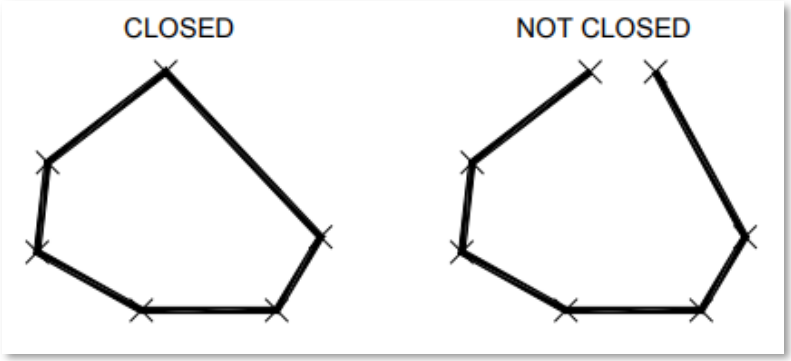


Figure 7. Closed Polygons (Source: FAA AC150/5300-18B, Change 1)

2.6 Accuracy & Precision

If the Consultant's contract specifies a horizontal and/or vertical positional accuracy, all newly collected objects that represent real-world objects shall be located within the specified tolerance from the real-world object they represent (i.e., absolute positional accuracy). The tolerances specified must be achieved at a 95-percent confidence level, meaning that, statistically, 95 percent or more of the objects will be at this accuracy level or better. Coordinate values shall be recorded to a precision (i.e., number of decimal places in the coordinate value) that is at least sufficient to represent the accuracy level specified.

Prior to any data collection efforts beginning, consultants shall confirm that the accuracy of the collection effort is appropriate to the needs of the Authority's Survey Unit.

SECTION 3 – LAYERS

Objects shall be placed on a layer that corresponds to the type of real-world feature it represents. Objects that are used to provide supplemental information about features such as annotations, dimensions, leader lines and revision clouds should be placed on layers designated for this purpose.

3.1 Layer Name Format

The layer names for GOAA are organized as a hierarchy. Names consist of distinct subject fields separated by dashes (“-”) to distinguish between the distinct sections of the layer names. The tilde (“~”) character is used as a place holder when there are less than four-characters for a four-character code. The GOAA CAD template files are loaded with layers meant to be applicable to the type of data to be included in a particular drawing, as defined by Discipline Designators.

The acceptable list of layer names and the descriptions of the Major and Minor codes can also be found in the stand-alone document GOAA_CAD_Standards_Appendix_DE_v1.docx.
The sections of a layer name are defined as:

- **Discipline Designator** (one mandatory character and a second optional character);
- **Major Group** (four-characters);
- Up to Four **Minor Groups** (four-characters each).
- An optional **Status** (A one-character code appended to the end of the layer name to indicate the status of the real-world feature the object represents)

Only the Discipline Designator and Major Group are mandatory fields. In general, it is recommended at least one Minor Group be utilized but it may not be required for general or generic features.

Additional minor groups are optional and used by the GOAA when additional detail is needed to divide features on a drawing. Submitters may also use the additional minor groups to establish further distinctions between layers.

An example of this is a layer name such as A-WALL-FULL-EXTR for an architectural exterior full height wall versus A-WALL-FULL-INTR for an interior full height wall.

The layer name format shown here is used by the GOAA for the level of detailed information desired.

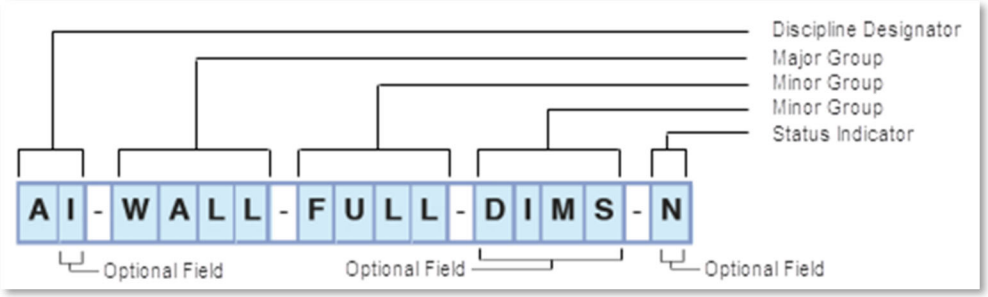


Figure 8. Layer Name Format

The full list of acceptable discipline codes are shown in *TABLE 2 – DISCIPLINE CODES:*

TABLE 2 – DISCIPLINE CODES

Discipline	Designator
Architectural	A
Geotechnical	B
Civil	C
Process	D
Electrical	E
Fire Protection	F
General	G
Hazardous Materials	H
Interior	I
Landscape	L
Mechanical	M
Operations	O
Plumbing	P
Equipment	Q
Resource	R
Structural	S
Telecommunications	T
Utilities	U
Survey/Mapping	V
Distributed Energy	W
Other Disciplines	X
Contractor/Shop Drawings	Z

The full list of acceptable status codes are shown in *TABLE 3 – STATUS CODES:*

TABLE 3 – STATUS CODES

Code	Description
A	Abandoned
D	Demolished/Existing to be Demolished
E	Existing *
F	Future Work *
M	Item to be Moved *
N	New/As-built post design
P	Proposed/Design
T	Temporary Work *
S	Surveyed

* These status codes indicate a status that is applicable to all GOAA drawings. Drawings that represent the As-built or recorded final condition at the end of a project should use a status code of “N” for a new As-built record.

3.2 Dimensions, Text & Annotation Layers

Dimensions, annotations/text, identification tags and hatching patterns used in reference to specific drawing objects outside of the title block shall be placed on layer names with DIMS, ANNO, TEXT, IDEN and PATT designators appended before the status code of the layer on which the reference objects appear between dashes, based on the following rules.

- Dimensions are used to indicate distances, sizes and measurements of or between objects. For example, dimensions related to specific bridges on a drawing should appear on the C-BRDG-DIMS (or C-BRDG-DIMS-N) layer.

- Annotations are used to provide additional details about specific objects. For example, the diameter of a storm pipe shall be placed on the U-STRM-MAIN-ANNO layer. Leader lines connecting an annotation with their corresponding objects shall appear on the same layer as the annotation itself. Flow arrows indicating the direction of flow should also be placed on the -ANNO layer. In some cases, such as with pavement markings, text is a physical feature or object that belongs on a specific layer and not on an ANNO layer. For example, runway numbers and letters that are painted on the pavement of a runway would appear on the C-RUNW-NUMB-MRKG layer.

- Text is used to provide notes or general information that is not specific to objects. For example, general text items belong on G-ANNO-TEXT. General text related to roads should be on C-ROAD-PVMT-OTLN-TEXT. It is the intent that all other text/annotations follow the ANNO layering reference above.

- Identification tags are utilized for unique identification numbers associated to objects. For example, for a unique ID number on a storm sewer manhole would be placed on the U-STRM-MHOL-IDEN layer.

- Hatch patterns are used to fill an area with a color and/or pattern. For example, hatch patterns used to fill building footprints shall appear on C-BLDG-OTLN-PATT.

3.3 Non-Plot Layers

Sometimes it is advantageous to include text and graphical references that are visible to the drawing developer but are not intended to be plotted when the drawing is plotted. To conveniently turn these layers off, a non-plot designator -NPLT shall be appended to the end of the layer name to which the references apply.

3.4 Designate Geometry Specific Layers

It may be advantageous to an ETL (Extract, Transform & Load) process to indicate that a layer is to be used only by a specific Geometry type. This can be achieved by appending -PT, -LN or -PY (Point, Line or Polygon to the very end of the layer name. For example, U-STRM-HWAL-N-LN would indicate that objects on this layer should only consist of polylines in the CAD drawing.

Note that annotation/text (-ANNO) specific layers used in an ETL process should continue to be applied as described in Section *3.2 Dimensions, Text and Annotation Layers*.

3.5 Layers to Use

Only layers contained in the GOAACIVIL.dwt template file – with the appropriate codes referenced above in Section 3.1 through Section 3.4 added – may be used in Authority DWGs. The most appropriate layer for each object shall be selected from this list. Layers not included in the GOAACIVIL.dwt template file shall not be used without the Authority's written approval.

3.6 Layer Groups & Subgroups

Related layers are grouped together in the GOAACIVIL.dwt template. The template file has the layers categorized into two main groups "Building" and "Site" in the Layers Properties manager filter. "Building" and "Site" are categorized further into subgroups. Selecting a group or subgroup will filter the layers to only display the layers assigned to the group or subgroup.

The list of Groups and Subgroups are shown in *TABLE 4 – LAYER GROUPS AND SUBGROUPS:*

TABLE 4 – LAYER GROUPS AND SUBGROUPS

Building
Architectural
Building Electrical
Fire Protection
Interior
Mechanical
Plumbing
Structural
TeleComm

Site
Airside
Airspace
Civil
Electrical
Environmental
Geotechnical
Landside
Structure
Survey
Topographic
Utility

SECTION 4 – PRACTICES & PROCEDURES

Drawings are made up of objects placed onto appropriate layers within model space or paper space. This work must be done in a methodical and organized manner that yields clear, consistent and legible results.

4.1 Project Directory Structure

The Authority requires drawing packages be submitted using the AutoCAD **eTransmit** feature (see *6.1 eTransmit*).

If eTransmit is not available to be utilized for drawing submittals, all Authority Site/Civil CAD projects shall follow the directory structure as described in this section. The root folder shall include the following two folders underneath the main project folder which shall include both the project name and number:

- CAD – All CAD drawings shall be stored in this folder, including externally referenced files. This folder should also include any plot style files and any non-standard AutoCAD font files.
- Shortcuts – All automatically generated Civil 3D folders shall be placed under this subfolder and shall include:

  Alignments
  PipeNetworks
  Profiles
  Surfaces
  ViewframeGroups

4.2 Externally Referenced Files

Basemaps and related drawings being developed by others shall be incorporated into a separate drawing for reference. These eXternally Referenced (XRef) drawings allow objects to be available for viewing and reference without the need to redundantly store a copy of these objects in the drawing itself. The insertion point for XRefs shall be 0,0 for two-dimensional drawings and 0,0,0 for three-dimensional drawings. The rotation angle shall be set to zero. All external reference files shall be attached as “Overlays” and the path types shall be set to “Relative Path”. This ensures the proper exchange of drawings between consultants and the Authority.

XRef files should be appropriately and uniquely named and prefaced with an “X” for XRef.

4.3 Extent of Project Area

At the start of a project, a drawing showing the extent of the project area shall be provided to GOAA. The project extent shall be a closed polyline stored on a layer called C-LOCN-PRJT-OTLN within the drawing.

It is the responsibility of the consultant or contractor to provide this information for GOAA review and approval before work commences. Once approved, the matrix of layers and object data, matrix of data requirements, mapped project extent and associated limitations, restrictions and deviations will be attached to the scope of work and become a binding requirement of the contract or agreement.

4.4 CAD Drawing File Organization

Two distinct types of CAD files are distinguished in this standard: sheet files, which are intended for plotting plan sheets, and model files, which are files containing features and other design/drawing information. Model files are typically used in many sheet files and are usually incorporated “by reference” into the sheet files using the AutoCAD “XRef” command.

The data in the XRef files is only displayed in files to which they are attached, not permanently incorporated into the sheet file data. Examples of model files that are commonly added via XRef include the plan sheet border graphics attached to the layout tab and drawing files of existing and proposed components of the work.

4.4.1 Electronic CAD File Naming Convention

Naming conventions for electronic files allow CAD users to determine the contents of a drawing without actually displaying the file. They also provide a convenient and clear structure for organizing files within project directories. CAD files should be named in accordance with the following conventions unless a waiver has been granted by the GOAA CAD Manager. It is important that CAD file naming follow a standard practice to facilitate the storage and retrieval of many electronic drawing files over time by GOAA staff.

4.4.2 Model File Naming Convention

The model file naming convention is based on the National CAD Standards (NCS) and has four required fields as shown below in *Figure 9. Model File Naming Convention*. File naming conventions are like the CAD Layer naming conventions discussed earlier, but there are important differences as this discussion pertains to file names for improved file organization, whereas the layer naming refers to multiple layers contained within drawing files.

The first two-characters of the File name represent the **Discipline Designator**. The options for the first character in the Discipline Designator are listed in *TABLE 2 – DISCIPLINE CODES* . The first discipline designator character is required. The second character of the Discipline Designator field is either a hyphen (-) or an optional second character to further refine the discipline indicator.

The next two-character field represents the **Model File Type** (see *TABLE 5 – MODEL FILE TYPES*). These third and fourth characters in the model file name are alphabetic characters that define the type of model, based on established model type designators.

The final four-character field is **User Defined** based on the NCS codes or user defined codes if no NCS applicable Model codes are published. The NCS defines an optional additional four-character **prefix** before the Discipline Designator. **However, electronic files submitted to GOAA cannot include any optional four-character prefix.**

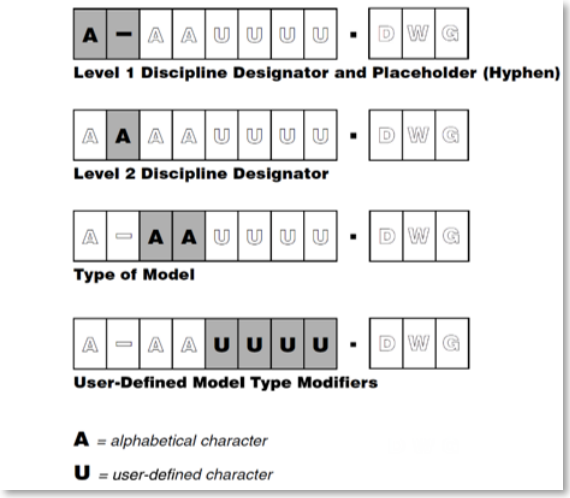


Figure 9. Model File Naming Convention

The National CAD Standard lists "valid" designator values to be used in GOAA design and CAD deliverables. File naming designator codes for Discipline can be found in *TABLE 2 – DISCIPLINE CODES* . The table below, *TABLE 5 – MODEL FILE TYPES*, show the various file naming designator codes for Model File Types.

A comprehensive listing of all possible Level 2 discipline designator codes are omitted here for brevity. For examples of discipline designators, refer to the National CAD Standard Uniform Drawing System **UDS Appendix A – Discipline Designators, UDS section 1.6.**

TABLE 5 – MODEL FILE TYPES

Discipline	Code	Definition
General - Model		
	BS	Border Sheet
	KP	Key plan
Hazardous Materials - Model		
	DT	Detail
	EL	Elevation
	LG	Legend
	PP	Pollution Prevention Plan
	SC	Section
	XD	Existing/Demolition Plan
Survey/Mapping - Model		
	AL	Existing Airfield Lighting Plan
	CP	Existing Communication Plan
	EU	Existing Electrical Utilities Plan
	FU	Existing Liquid Fuel Utilities Plan
	HP	Hydrographic Survey Plan
	HT	Existing HTCW Utilities Plan
	IW	Existing Industrial Wastewater Plan
	LG	Legend
	NG	Existing Natural Gas Utilities Plan
	PB	Project Boundary

Discipline	Code	Definition
	PR	Existing Profile
	SC	Existing Section
	SP	Survey and Mapping Plan
	SS	Existing Sanitary Sewer Plan
	ST	Existing Storm Sewer Plan
	WA	Existing Domestic Water Plan
Geotechnical - Model		
	BL	Boring Location Plan
	LB	Boring Log
	LG	Legend
	SH	Schedule
Civil - Model		
	AF	Airfield Plan
	AM	Airfield Pavement Marking Plan
	CP	Channel Plan
	DT	Detail
	EC	Erosion Control Plan
	EL	Elevation
	FU	Liquid Fuel Utilities Plan
	GP	Grading Plan
	IP	Installation Plan/Base Map
	IW	Industrial Wastewater Plan
	JP	Joint Layout Plan
	KP	Staking Plan
	LG	Legend
	NG	Natural Gas Utilities Plan
	PL	Project Location Map
	PR	Profile
	SC	Section
	SH	Schedule
	SP	Site Plan
	SS	Sanitary Sewer Plan
	ST	Storm Sewer Plan
	TS	Transportation Site Plan
	WA	Domestic Water Plan
	XD	Existing/Demolition Plan
Landscape - Model		
	DT	Detail
	EL	Elevation
	IP	Irrigation Plan
	LG	Legend
	LP	Landscape Plan
	SC	Section
	SH	Schedule
	XD	Existing/Demolition Plan
Structural - Model		
	3D	Isometric/3D
	CP	Column Plan
	DT	Detail

Discipline	Code	Definition
	EL	Elevation
	EP	Enlarged Plan
	FP	Framing Plan
	LG	Legend
	NB	Non-Building Structures Plan
	NP	Foundation Plan
	SC	Section
	SH	Schedule
	XD	Existing/Demolition Plan
Architectural - Model		
	3D	Isometric/3D
	AC	Area Calculations/Occupancy Plan
	CP	Reflected Ceiling Plan
	DT	Detail
	EL	Elevation
	EP	Enlarged Plan
	FF	Floor Finish Plan
	FP	Floor Plan
	GP	Graphic Plan
	LG	Legend
	QP	Equipment Plan
	RP	Roof Plan
	SC	Section
	SH	Schedule
	SP	Architectural Site Plan
	XD	Existing/Demolition Plan
Interiors - Model		
	3D	Isometric/3D
	DT	Detail
	EL	Elevation
	EP	Enlarged Plan
	LG	Legend
	QP	Equipment Plan
	RP	Furniture Plan
	SC	Section
	SH	Schedule
	SP	Signage Placement Plan
	WP	System/Prewired Workstation Plan
	XD	Existing/Demolition Plan
Fire Protection - Model		
	DG	Diagram
	DT	Detail
	FA	Fire Alarm/Detection Plan
	FP	Fire Suppression Plan
	LG	Legend
	LP	Life Safety Plan
	SH	Schedule
	XD	Existing/Demolition Plan
Plumbing - Model		

Discipline	Code	Definition
	DG	Diagram
	DT	Detail
	EL	Elevation
	EP	Enlarged Plan
	LG	Legend
	PP	Piping Plan
	SH	Schedule
	XD	Existing/Demolition Plan
Mechanical - Model		
	3D	Isometric/3D
	DG	Diagram
	DT	Detail
	EL	Elevation
	EP	Enlarged Plan
	HP	HVAC Plan
	HT	HTCW Utilities Plan
	LG	Legend
	MD	Machine Design Plan
	MH	Material Handling Plan
	PP	Piping Plan
	QP	Equipment Plan
	SC	Section
	SH	Schedule
	SP	Specialty Piping Plan
	XD	Existing/Demolition Plan
Electrical - Model		
	AL	Airfield Lighting Plan
	AP	Auxiliary Power Plan
	CP	Exterior Communication Systems Plan
	DG	Diagram
	DT	Detail
	EU	Electrical Utilities Plan
	GP	Grounding System Plan
	LG	Legend
	LP	Lighting Plan
	PP	Power Plan
	SH	Schedule
	SS	Special Systems Plan
	XD	Existing/Demolition Plan
Telecommunications - Model		
	DG	Diagram
	DT	Detail
	LG	Legend
	SH	Schedule
	TP	Telephone/Data Plan
	XD	Existing/Demolition Plan

4.4.3 Existing/Demolition File Naming

There are instances when a facility is being renovated and the As-built designs need to be revised to show demolition and new items. These revisions are made on copies of the existing As-built model files. **Copies of As-built files can be renamed to indicate files depicting existing features to be demolished.**

A file type, **Existing/Demolition (XD)**, has been added to the standard to allow Consultants to indicate revisions to As-built features if this approach is most appropriate for submittal of data pertaining to numerous features “removed” in a project. This model file type can be used if needed to aid Consultants in separating existing “to remain” data files from data files that depict existing as built features to be demolished.

4.4.4 Sheet File Naming Convention

This section describes the Sheet file naming convention established by the National CAD Standard which GOAA has adopted and recommends be followed whenever possible. Maintaining consistency in sheet file naming between projects will aid GOAA staff efforts for data management.

However, GOAA understands each project and each design team are unique and strict conformance to this sheet naming standard may not be appropriate for each project. Very large projects may have unique requirements which would justify deviating from this sheet file naming standard. Very small design projects or planning/environmental projects such as an Airport Layout Plan or maps of Wildlife areas submitted in CAD format may not be applicable for the NCS codes (discipline, major, minor, etc.). Consultants should coordinate with the GOAA Project Manager (PM) if seeking approval to deviate from the Sheet file naming convention.

The sheet file naming convention *(Figure 10. Sheet File Naming Convention)* has five fields. The first field will be used for a 0 to 20-character Project Code which is the GOAA Project Number assigned by GOAA. The next two characters are the Discipline Designator with Level 2 Designator *(TABLE 6 – DISCIPLINE DESIGNATORS WITH LEVEL 2 DESIGNATORS)*. The next character is the Sheet Type Designator *(TABLE 7– SHEET TYPE DESIGNATORS)* followed by a two-character Sheet Sequence Number (typically 01-99). The remaining three characters are user definable to better organize/group sheet data files. For large projects where sheet sequences may exceed two digits, three-digit sheet sequence numbers may be used.

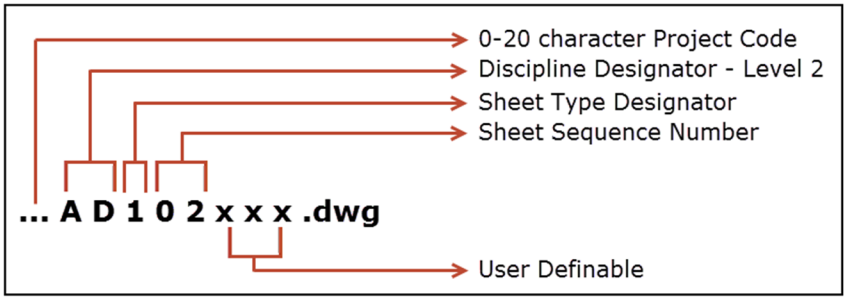


Figure 10. Sheet File Naming Convention

Note: When more than one sheet type (such as plan, elevation and detail) is represented in one sheet file, the dominant sheet type determines the Sheet Type Designator.

TABLE 6 – DISCIPLINE DESIGNATORS WITH LEVEL 2 DESIGNATORS

Discipline	Designator	Description	Content
General - Sheet			
	G-	All General	All or any portion of subjects in the following Level 2 Designators
	GI	General Informational	Drawing index, code summary, symbol legend orientation maps
	GC	General Contractual	Phasing, schedules, contractor staging areas, fencing, haul routes, erosion control, temporary and special requirements
	GR	General Resource	Photographs, soil borings
Hazardous Materials - Sheet			
	H-	All Hazardous Materials	All or any portion of subjects in the following Level 2 Designators
	HA	Asbestos	Asbestos abatement, identification or containment
	HC	Chemicals	Toxic chemicals handling, removal or storage
	HL	Lead	Lead piping or paint removal
	HP	PCB	PCB containment and removal
	HR	Refrigerants	Ozone depleting refrigerants
Survey/Mapping - Sheet			
	V-	All Survey/Mapping	All or any portion of subjects in the following Level 2 Designators
	VA	Aerial Survey	
	VF	Field Survey	
	VH	Hydrographic Survey	
	VI	Digital Survey	
	VU	Combined Utilities	
Geotechnical - Sheet			
	B-	All Geotechnical	
Civil - Sheet			
	C-	All Civil	All or any portion of subjects in the following Level 2 Designators

	CD	Civil Demolition	Structure removal and site clearing
	CS	Civil Site	Plats, dimension control
	CG	Civil Grading	Excavation, grading , drainage, erosion control
	CP	Civil Paving	Roads, driveways, parking lots
	CI	Civil Improvements	Pavers, flagstone, exterior tile, furnishings, retaining walls and water features
	CT	Civil Transportation	Waterways, wharves, docks, trams, railways, airfields and people movers
	CU	Civil Utilities	Water, sanitary sewer, storm sewer, power, communications, fiber optic, telephone, cable television, natural gas and steam systems
Landscape - Sheet			
	L-	All Landscape	All or any portion of subjects in the following Level 2 Designators
	LD	Landscape Demolition	Protection and removal of existing landscaping
	LI	Landscape Irrigation	
	LP	Landscape Planting	
Structural - Sheet			
	S-	All Structural	All or any portion of subjects in the following Level 2 Designators
	SD	Structural Demolition	Protection and removal
	SS	Structural Site	
	SB	Structural Substructure	Foundations, piers, slabs and retaining walls
	SF	Structural Framing	Floors and roofs
Architectural - Sheet			
	A-	All Architectural	All or any portion of subjects in the following Level 2 Designators
	AD	Architectural Demolition	Protection and removal
	AS	Architectural Site	
	AE	Architectural Elements	General architectural
	AI	Architectural Interiors	
	AF	Architectural Finishes	
	AG	Architectural Graphics	
Interiors - Sheet			

	I-	All Interiors	All or any portion of subjects in the following Level 2 Designators
	ID	Interior Demolition	
	IN	Interior Design	
	IF	Interior Furnishings	
	IG	Interior Graphics	Murals and visuals
Fire Protection - Sheet			
	F-	All Fire Protection	All or any portion of subjects in the following Level 2 Designators
	FA	Fire Detection and Alarm	
	FX	Fire Suppression	Fire extinguishing systems and equipment
Plumbing - Sheet			
	P-	All Plumbing	All or any portion of subjects in the following Level 2 Designators
	PD	Plumbing Demolition	Protection, termination and removal
	PS	Plumbing Site	Extensions and connections to Civil Utilities
	PP	Plumbing Piping	Piping, valves and insulation
	PQ	Plumbing Equipment	Pumps and tanks
Mechanical - Sheet			
	M-	All Mechanical	All or any portion of subjects in the following Level 2 Designators
	MD	Mechanical Demolition	Protection, termination and removal
	MS	Mechanical Site	Utility tunnels and piping between facilities
	MH	Mechanical HVAC	Ductwork, air devices and equipment
	MP	Mechanical Piping	Chilled and heated water, steam
	MI	Mechanical Instrumentation	Instrumentation and controls
Electrical - Sheet			
	E-	All Electrical	All or any portion of subjects in the following Level 2 Designators
	EA*	Electrical Airfield Lighting and NAVAIDs	Visual air navigation systems
	ED	Electrical Demolition	Protection, termination and removal
	ES	Electrical Site	Exterior electrical systems (power, lighting, telecommunications, auxiliary)

	EP	Electrical Interior Power	Interior power
	EL	Electrical Interior Lighting	Interior lighting
	EI	Electrical Instrumentation	Controls, relays, instrumentation and measurement devices
	ET	Electrical Interior Telecommunications	Interior telecommunications (telephone, network, voice and data cables)
	EY	Electrical Interior Auxiliary Systems	Interior auxiliary (alarms, nurse call, security, CCTV, PA, music, clock and program)
Telecommunications - Sheet			
	T-	All Telecommunications	All or any portion of subjects in the following Level 2 Designators
	TD	Telecommunications Demolition	Protection, termination and removal
	TN	Data Networks	Network cabling and equipment
	TT	Telephone	Telephone systems, wiring and equipment
Other Disciplines	X		

Sheet type designators are also used to indicate how the various datasets are presented in a defined view or layout method. These designators help users to easily lookup of similar types of views for dissimilar datasets (e.g. Section drawings for structure members and HVAC piping when they are on different plan sheets).

TABLE 7– SHEET TYPE DESIGNATORS

Sheet Type	Designator
General (symbols legend, notes, etc.)	0
Plans (horizontal views)	1
Elevations (vertical views)	2
Sections (sectional views)	3
Large Scale Views (plans, elevations, or sections that are not details)	4
Details	5
Schedules and Diagrams	6
User Defined	7
User Defined	8
3D Representations (isometrics, perspectives, photographs)	9

4.5 Detail & Schedule Sheet Standards

GOAA does not define standards for detail and schedules sheets/files that differ from the National CAD Standards (NCS). Consultants instead should follow appropriate file naming conventions defined above and in NCS version 6 for any questions relating to detail sheets and schedule sheets file naming and sheet naming.

4.6 Cover & Border Sheets

4.6.1 Standard Sheets

A standardized version of a standard Cover Sheet and Borders with Title Blocks are included in the CAD Support Package and should be requested by the Data Provider at the beginning of work on each design project.

4.6.2 Sheet Sizes

Except as noted below, all CAD drawings for a project will be prepared on ANSI D sheets in accordance with the ANSI sheet size shown in *TABLE 8 – ANSI, ARCHITECTURAL & ISO SHEET SIZE DEFINITIONS*. The ANSI D sheet is recommended for large maps (for example, airport master plans and drawings for civil works projects). Other sheet sizes listed in in Table 8 may be used in contract specific circumstances if specified in writing by GOAA.

TABLE 8 – ANSI, ARCHITECTURAL & ISO SHEET SIZE DEFINITIONS

ANSI Sheets		
SIZE	**INCHES**	**MILLIMETERS**
ANSI A	8.5 x 11.0	216 × 279
ANSI B	11.0 x 17.0	279 × 432
ANSI C	17.0 x 22.0	432 × 559
ANSI D	22.0 x 34.0	559 × 864
ANSI E	34.0 x 44.0	864 × 1118
Architectural Sheets		
SIZE	**INCHES**	**MILLIMETERS**
ARCH A	9 x 12.0	229 × 305
ARCH B	12.0 x 18.0	305 × 457
ARCH C	18.0 x 24.0	457 × 610
ARCH D	24.0 x 36.0	610 × 914
ARCH E	36.0 x 48.0	914 × 1219
ARCH E1	30.0 x 42.0	762 × 1067

ISO Sheets		
SIZE	**INCHES**	**MILLIMETERS**
A0	33.1 × 46.8	841 × 1189
A1	23.4 × 33.1	594 × 841
A2	16.5 × 23.4	420 × 594
A3	11.7 × 16.5	297 × 420
A4	8.3 × 11.7	210 × 297

4.6.3 Cover Sheet

Each set of drawings will include a Cover Sheet. A typical Cover Sheet layout is shown in *Figure 11. Typical Cover Sheet* and includes the following data blocks:

- Construction Data block
- Project Data block
- Sheet Index block

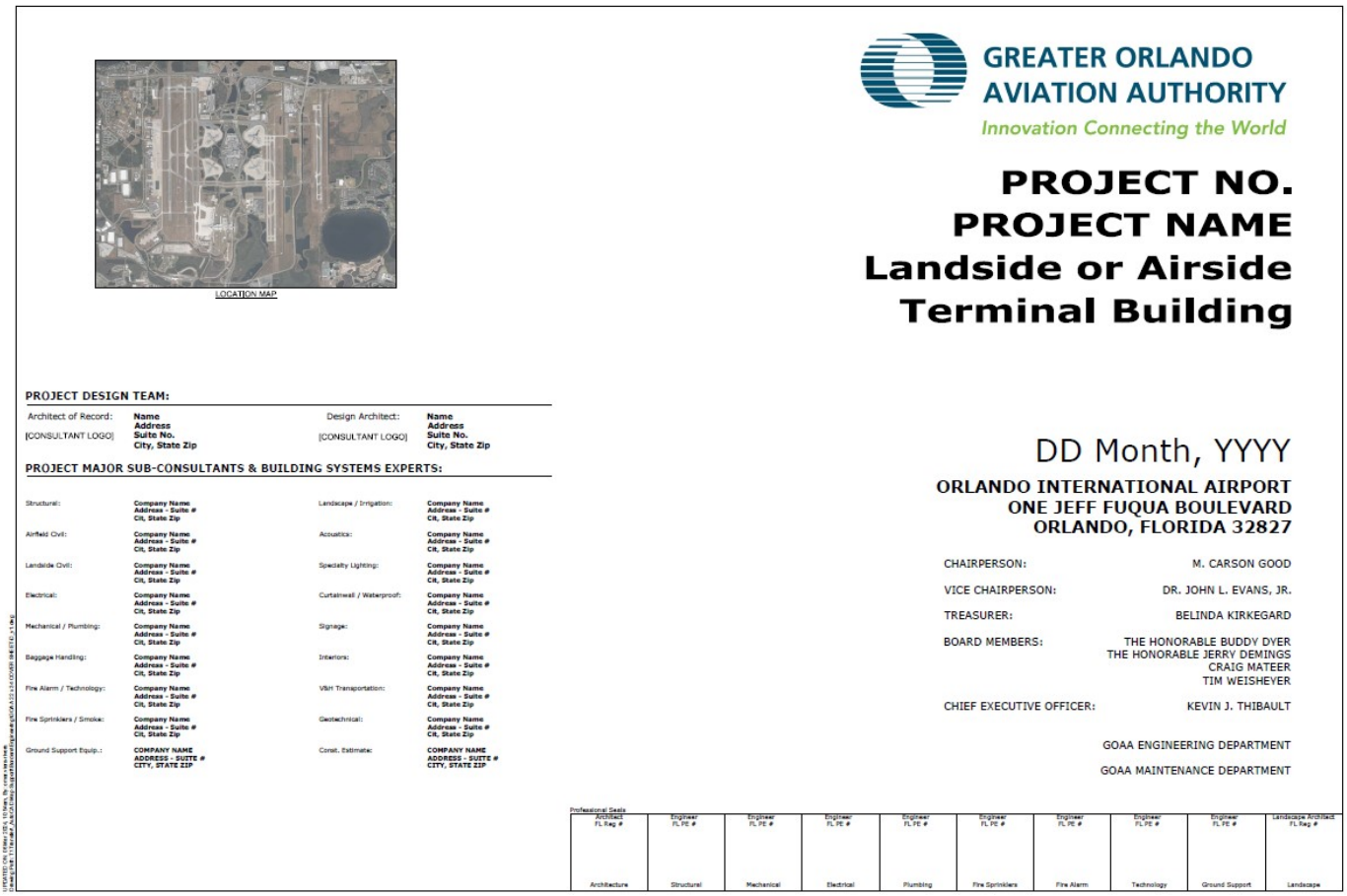


Figure 11. Typical Cover Sheet

4.6.3.1 Project Design Team

The Project Design Team block *(Figure 12. Project Design Team Block)* contains information about the Prime, Subcontractors, Suppliers, the Project Engineers and Building Systems Experts.

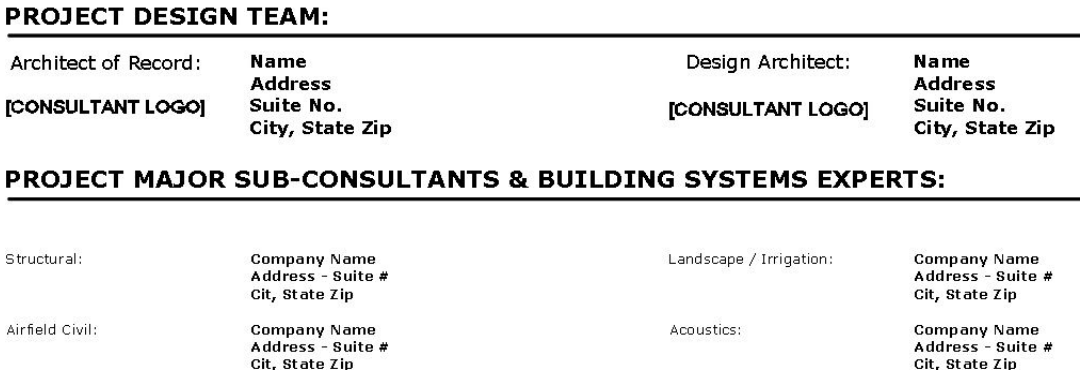


Figure 12. Project Design Team Block

4.6.3.2 Project Data Block

The Project Data block *(Figure 13. Project Data Block)* contains information about the specific GOAA airport and any applicable Project IDs regarding the project.

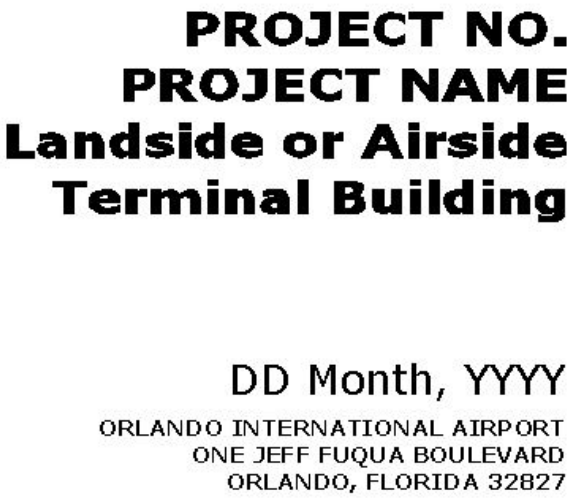


Figure 13. Project Data Block

4.6.3.3 Sheet Index Block

The Sheet Index block *(Figure 14. Sheet Index Block)* lists the individual sheets that comprise the full set of construction plans for a project.

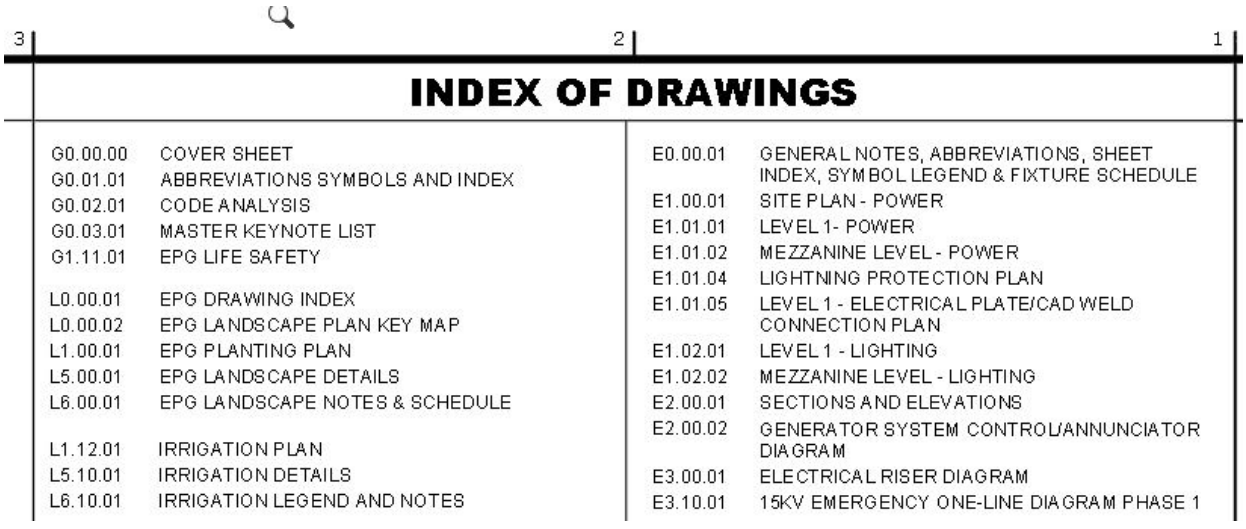


Figure 14. Sheet Index Block

4.6.4 Sheet Border & Title Blocks

The standard GOAA plan sheet layout is a horizontal landscaped orientation with the various title blocks arranged along the right side of the sheet, in a vertical arrangement. The exact arrangement of the various title blocks differs slightly depending on the sheet size.

A typical drawing layout is shown in *Figure 15 Typical Sheet Border and Title Block*. Each Title Block includes the following data blocks:

- Designer Identification block
- Revision block
- Sheet Identification block

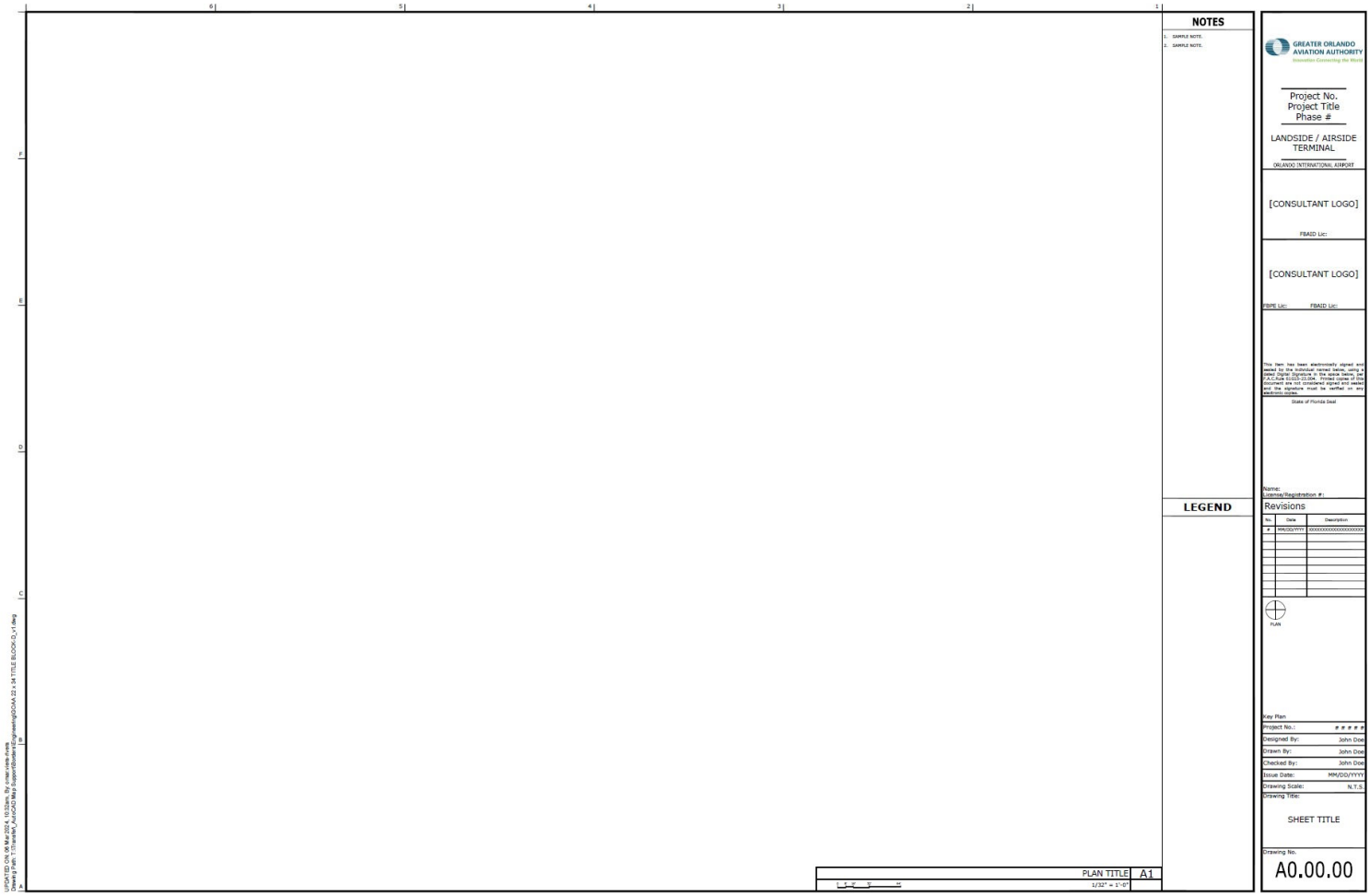


Figure 15. Typical Sheet Border & Title Block

4.6.4.1 Designer Identification Block

The Designer identification block *(Figure 16. Designer Identification Block)* contains the initials of who designed, drew, and checked the drawing files as well as the GOAA number, the job number and date.

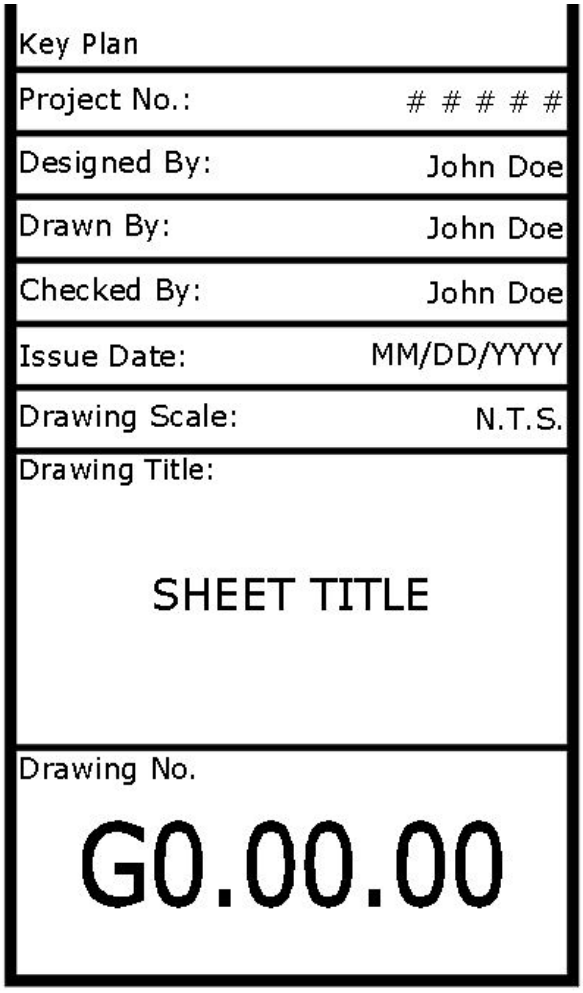


Figure 16. Designer Identification Block

4.6.4.2 Revision Block

The revision block *(Figure 17. Revision Block)* contains a history of revisions, addenda and/or clarifications to the sheet. The first entry should be placed on the upper row of the issue revision block and subsequent entries should be made below it.

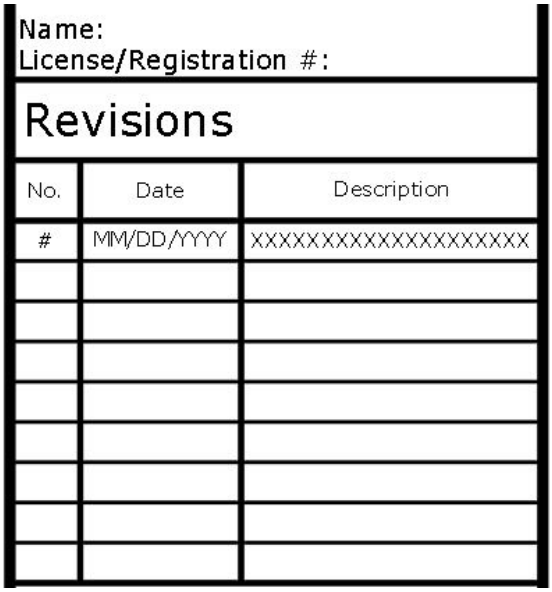


Figure 17. Revision Block

4.6.4.3 Project & Sheet Information Block

The Project & Sheet Information block *(Figure 18. Sheet Identification Block)* contains general information about the project and the sheet.

Figure 18. Sheet Identification Block

4.6.4.4 Use of Blocks to Store Attributes about the Sheet

Drawing submitters are permitted to establish AutoCAD blocks which contain attributes for the border sheet items described above. This provides an efficient way to change the graphical elements described above when the values of attributes such as sheet number and title change.

4.7 Drawing Scales

Typical drawing scales for English measurements are indicated in *TABLE 9 – DRAWING SCALES* below.

TABLE 9 – DRAWING SCALES

Drawing Type	**Civil (Decimal Units)** Where 1 AutoCAD unit equals 1 decimal foot	**Architectural (Inch)** Where 1 AutoCAD unit equals 1 inch
Site plans	1" = 20'	1" = 20' - 0"
	1" = 30'	1" = 30' - 0"
	1" = 40'	1" = 40' - 0"
	1" = 50'	1" = 50' - 0"
	1" = 60'	1" = 60' - 0"
	1" = 100'	1" = 100' - 0"
	1" = 200'	1" = 200' - 0"
	1" = 400'	1" = 400' - 0"
	1" = 500'	1" = 500' - 0"
	1" = 1000'	1" = 1000' - 0"
	1" = 2000'	1" = 2000' - 0"
Floor plans	na	¼”=1’ – 0”
	na	1/8" = 1' - 0"
	na	1/16" = 1' - 0"
Reflective ceiling plans	na	¼”=1’ – 0”
	na	1/8" = 1' - 0"
	na	1/16" = 1' - 0"
Roof plan	na	1/16" = 1' - 0"
Exterior elevations	na	1/16" = 1' - 0"
	na	1/8" = 1' - 0"
Interior elevations	na	1/8" = 1' - 0"
	na	1/4" = 1' - 0"
Cross sections	1" = 5'	1/8" = 1' - 0"
	1" = 10'	1/4" = 1' - 0"
	1" = 50'	1/16" = 1' - 0"
	1" = 100'	
Wall sections	1/2" or 3/4" = 1' - 0"	1/2" or 3/4" = 1' - 0"
Stair details	1" or 1-1/2" = 1' - 0"	1" or 1-1/2" = 1' - 0"
Details	3" = 1' - 0"	3" = 1' - 0"

4.8 SSI Information

All parties who receive electronic or hard copy drawings pertaining to GOAA properties must comply with the following GOAA Regulation, as may be amended or revised:

§ 1520.13 Marking SSI.

a) Marking of paper records. In the case of paper records containing SSI, a covered person must mark the record by placing the protective marking conspicuously on the top and the distribution limitation statement on the bottom, of--
    1) The outside of any front and back cover, including a binder cover or folder, if the document has a front and back cover;
    2) Any title page; and
    3) Each page of the document.

b) Protective marking. The protective marking is: SENSITIVE SECURITY INFORMATION

c) Distribution limitation statement. The distribution limitation statement is:
    WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "need to know", as defined in 49 CFR parts 15 and 1520, except with the written permission of the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520.

d) Other types of records. In the case of non-paper records that contain SSI, including motion picture films, videotape recordings, audio recording and electronic and magnetic records, a covered person must clearly and conspicuously mark the records with the protective marking and the distribution limitation statement such that the viewer or listener is reasonably likely to see or hear them when obtaining access to the contents of the record.

SECTION 5 – QUALITY ASSURANCE/QUALITY CONTROL

Before consultants submit DWGs to the Authority and before staff share DWGs with other staff members or consultants, they are responsible for conducting Quality Assurance (QA) on those drawings. QA should be conducted by an individual who is familiar with the content and the requirements of this document, but who did not directly work on the data in the drawing being checked. QA shall check the drawing(s) against all applicable requirements in this document, including but not limited to:

- Objects have the correct geometry, adhere to topology rules and are on correct layers.
- Proper title block is used with metadata fields filled in correctly and completely.
- Proper cover sheet is used with metadata fields filled in correctly and completely.
- Sheets are numbered correctly and provided in the correct order.
- Filenames are correct.
- External referenced (XRef) files should be included and attached.
- If Object Data is required, the correct Object Data tables have been attached to objects and the appropriate fields have been attributed.

QA should also check to ensure that the data in the drawing is comprehensive, accurate and correct. It may not be feasible to check all objects on drawings. At a minimum a statistically valid sample of objects to establish a 95 percent confidence level in the data shall be checked. Objects shall be sampled randomly but their location shall be distributed across the extent of the drawing's contents. Objects on numerous layers shall be selected. All properties of the selected objects (i.e., geometry type, topology, layer, symbology and object data, if present) shall be checked. If any property is not correctly recorded, then the object shall be considered a failure. All failures shall be corrected. If a pattern of failures (e.g., on a specific layer or in a specific area) is evident or a large number of failures are found, then all content in the drawing shall be thoroughly checked and corrected before QA recommences.

SECTION 6 – DRAWING SUBMITTALS

6.1 eTransmit

GOAA requires the delivery of all submittals to the Records Management's office as well as a copy of all CAD files should be sent to the GOAA's CAD/BIM Manager. The CAD/BIM Manager will coordinate with the consultant the option to deliver the different CAD files using eTransmit for the submission of all drawing files.

The eTransmit feature collects all of a drawing's associated files such as font and XRef and incorporates them into a transmittal package. *Figure 19. eTransmit Settings* shows the settings to which GOAA would prefer.

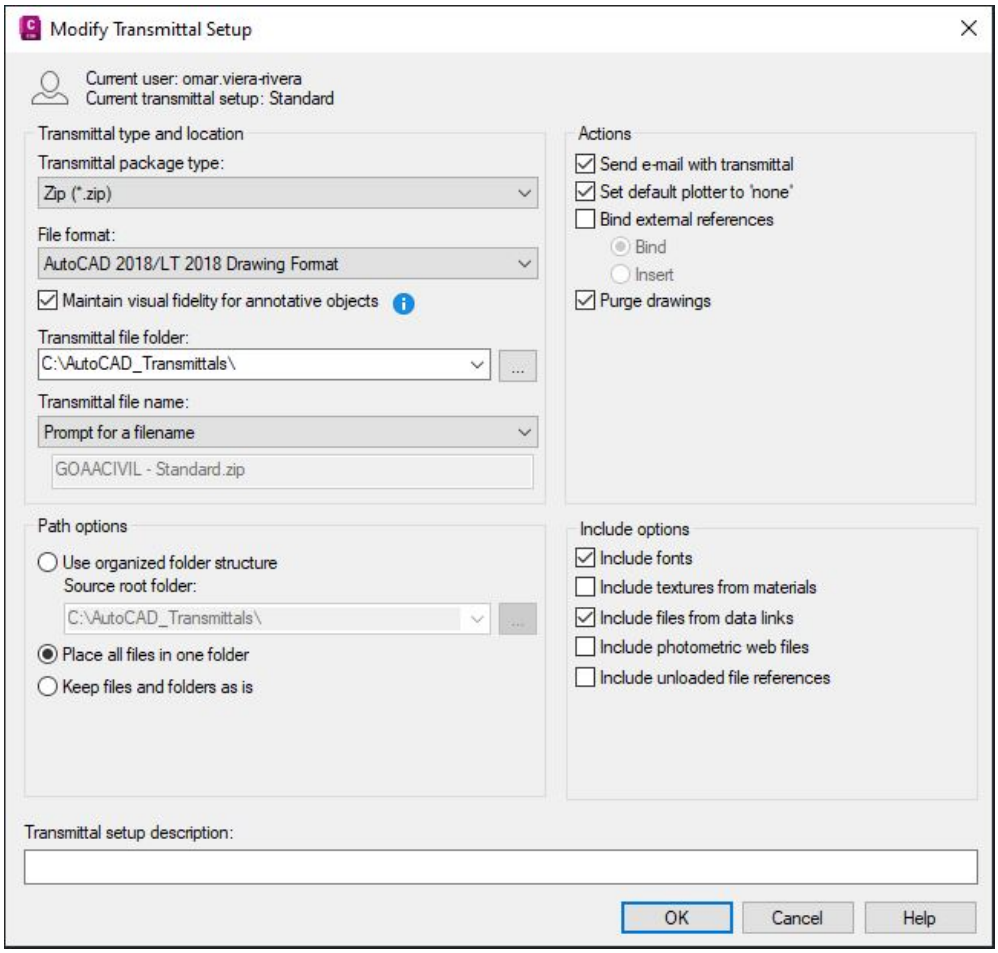


Figure 19. eTransmit Settings

6.2 eTransmit Not Available

In the event the Consultant does not have the ability to eTransmit files, see *4.1 Project Directory Structure,* for the required project directory structure.

GOAA prefers that the Consultant's drawing files be zipped and submitted directly to GOAA Authority staff and GOAA will save the files to the proper location.

SECTION 7 – REVISION HISTORY & CHANGE CONTROL

TABLE 10 – REVISION HISTORY

Version	Date Published	Summary of Changes
1	September 2022	Final version
2		
3		
4		
5		

7.1 Change Control

The Authority understands and expects that this CAD Standard will be updated over time. Consultants and Authority staff may submit requests for changes. These changes may be clarifications, additions or deletions. Requests to add layers shall follow the layer naming conventions specified in the latest version of the United States National CAD Standard (NCS). Any proposed changes will not be implemented until approved by the Authority. The CAD Standards that are in place at the start of a contract are what the consultant will be held responsible for adhering to. If a modification to the CAD Standard takes place during the development of a drawing and said change can be applied with minimal effort, then the drawing should reflect the modification to the CAD Standard.

As requests to modify Standards arise, a Change Control Request Form shall be completed and submitted via email to geospatial@goaa.org with "Requested Change to GOAA CAD Standard" in the subject line. One form shall be used for each change requested, although similar changes to a series of layers or attributes can be provided on one form. A thorough description of why the existing CAD Standard does not accommodate a need should be provided. Additional numbered pages can be submitted along with each form. The result of this evaluation will be communicated via a response to the request email. Approved changes may be implemented by data developers upon receipt of the response email. The Change Control Request Form can be found in Appendix B of this document.

Using a defined process to consider all requests and a standard request form will provide a consistent process to evaluate change requests. This process will also allow GOAA to accumulate information on both adopted and rejected changes to aid long-term Standards maintenance.

Adopted changes shall be appended to this document in both electronic and hardcopy form to record the document evolution and change history. Rejected change requests shall be archived to accumulate a complete change request history to help consistently evaluate future requests and assist in consistent reasoning for rejections.

7.1.1 Change Control Process

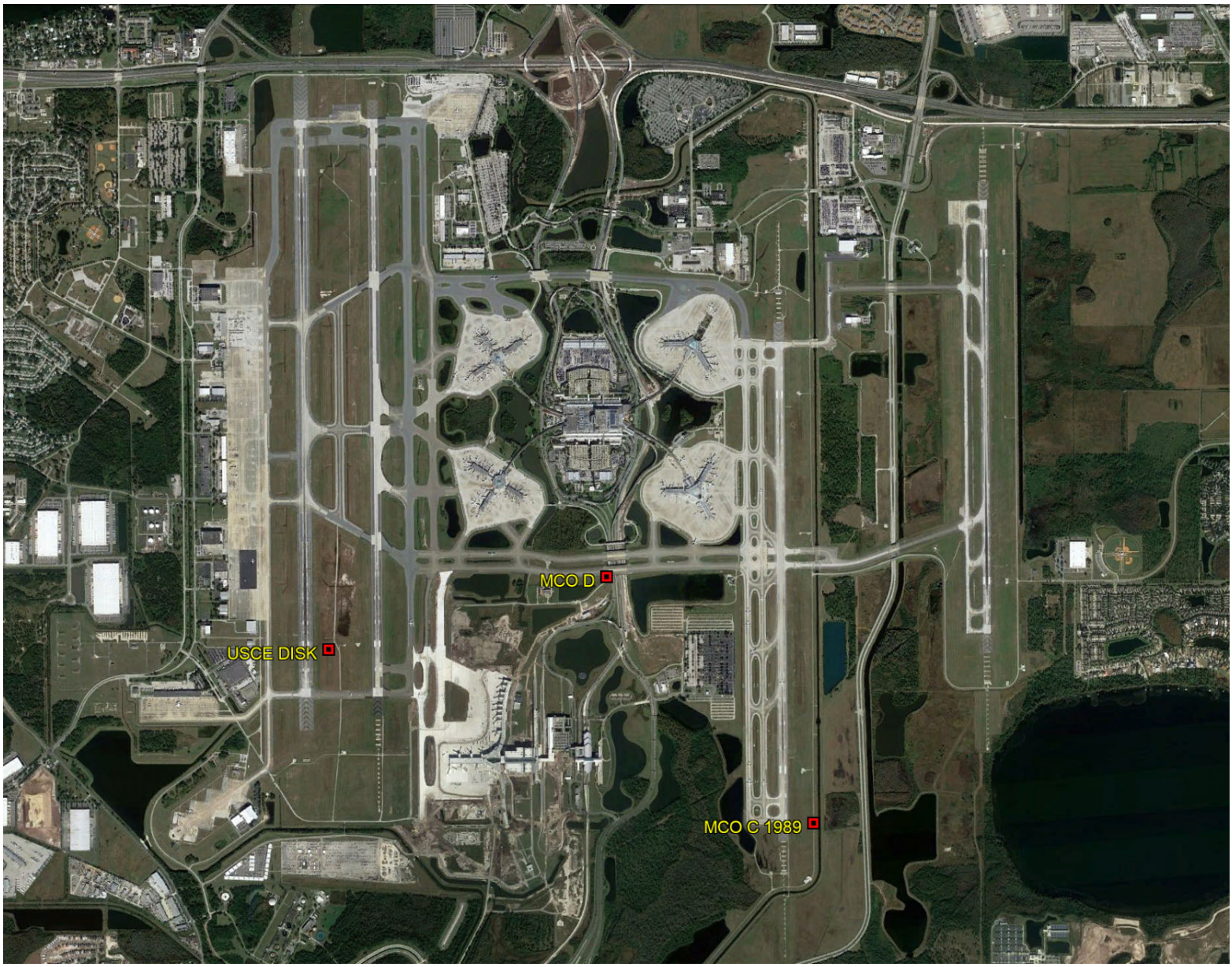
1. Receive informal requests for a modification to the GOAA CAD Standards and provide to the CAD Manager for review.
2. If the Change Request is approved, insert the approved Change Control Request Form in Appendix C of this electronic document for future reference.
3. Save previous version with publication date of approved document.

4. Revise this document to include the requested change and update the revision history table.
5. Archive all rejected change requests.
6. It is the Consultants responsibility to ensure the most current version of the GOAA CAD Standards is being used for the drawings at the start of a contract.

APPENDIX A – PACS/SACS COORDINATES & LOCATIONS

MCO – ORLANDO INTERNATIONAL AIRPORT

Control Type	Designation	PID	Latitude	Longitude	Elevation (ft)
PACS	MCO D	AD9143	28.422242	-81.307042	103.9
SACS	MCO C 1989	AA9569	28.408125	-81.293584	83.2
SACS	USCE DISK	AA9807	28.418042	-81.325112	87.7



ORL – ORLANDO EXECUTIVE AIRPORT

Control Type	Designation	PID	Latitude	Longitude	Elevation (ft)
PACS	ORL F	AD9142	28.546387	-81.336237	103.0
SACS	ORL D	AA9570	28.548836	-81.326317	110.8
SACS	ORL E	AA9571	28.541126	-81.341337	105.7

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APPENDIX B – CHANGE CONTROL REQUEST FORM

GOAA CAD Change Control / Waiver Request Form		
Date Submitted:		
Proposed By: Name, Title, Company		
Contact: Phone No. & Email		
Project Name & No.:		
Requested Revision or Waiver Request:		
Section Number:		
Impact on Budget if not approved:		
Impact on Schedule if not approved:		
Signing this document confirms both the Proposer and CAD Manager have agreed on the changed standards as described in this form.		
Proposer:		
	Signature	**Date**
GOAA CAD Manager:		
	Signature	**Date**
Final Resolution: Approved as requested or as described here		

APPENDIX C – APPROVED CHANGE CONTROL FORMS

This section is reserved for future use.

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Title: BIM STANDARDS

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SECTION 1 – GENERAL INFORMATION

1.1 Foreword

The Greater Orlando Airport Authority ("GOAA" or "Authority") developed this Building Information Modeling (BIM) Standard for professionals working on Revit projects for GOAA. The goal of this BIM Standard is to assure consistency in processes and BIM development, produced at and for the Authority, from GOAA's various service providers across multiple types of projects.

This document will be updated regularly and all professionals working on BIM projects for GOAA shall verify they are using the latest version of this document.

1.2 Purpose

Building Information Modeling (BIM) data created for GOAA must be developed and submitted according to the specifications documented in this Standard. This document represents the minimum BIM requirements for GOAA projects. Additional BIM requirements may be incorporated on projects where appropriate in support of definitive objectives.

This includes data prepared both internally by GOAA staff and by outside organizations for work performed on behalf of Airport tenants and consultants to GOAA.

Each submitted Revit file and CAD drawing file will become part of the permanent archive. The data used to produce the drawings will serve as a critical source for updating information within GOAA's BIM and CAD data storage system.

GOAA uses Autodesk Revit® software as the Building Information Modeling (BIM) solution for building and facilities design and documentation. This information is for anyone authoring Revit® models for GOAA. This includes GOAA staff, as well as external service providers. The reader is assumed to have a basic knowledge of Revit® and the workflows and terms common to the industry. This document presents baseline BIM requirements for all new facilities and facility renovation projects at GOAA.

All consultants and sub-consultants (architecture, structure, MEP, fire protection, BHS, etc.) will create a BIM model and produce 2D construction documents natively using Autodesk Revit (current approved version). The Revit design files shall be 100 percent Revit with all designed equipment and systems to be modeled. The Revit file shall not contain any imported or linked AutoCAD, Bentley or other CAD or graphic files. This file shall include the model, families and 2D documentation.

The content of this manual supersedes all previously published GOAA Site/Civil CAD Standard versions and is subject to change without notice. The Authority shall not be liable for errors and omissions in this Standard.

1.3 Folder and File Structure

GOAA uses BIM360 in the Autodesk Construction Cloud environment to host and manage model information from concept through construction. All projects utilizing Revit shall be hosted on GOAA's BIM360 account as "live" workshared, collaborated Revit documents. The Revit models shall be scheduled to be published automatically on a weekly basis. The published models shall include a published 3D view for each phase of the project that includes all linked models, as well as a complete set of drawing Sheets from the most recent package submittal. After each deliverable has been submitted, all models shall be published and should include all sheets in the submittal along with clouded revisions.

The GOAA PM will create the project in Autodesk Construction Cloud and give access permissions to all users. The GOAA PM is also responsible for automated publishing and maintaining the overall BIM360 project hub.

1.4 BIM Project Execution Plan (BxP)

The BxP is a process management document executed between the AE prime and its consultants and between the GC and its sub-contractors, which defines how those teams will use BIM to meet GOAA requirements. The BxP must include the standards, responsibilities and protocols for modeling and file transfers (such as setting up collaboration servers). The AE and GC's BxP(s) will be used to track progress towards meeting GOAA BIM requirements.

The AE, with the assistance from GOAA, will assist in the transition between the design and construction BxP in Design-Bid-Build (DBB) procurements. The AE BxP must be used as the basis for the GC BxP and will be updated as required by the GC.

The protocol for sharing the models between the AE and GC and the method of coordination during Construction Period Services for the handoff of information, including scheduling handoff dates, formatting, responsibilities, data validation, etc., must be coordinated between the AE and GC and documented in their respective BxP plans.

The BxP(s) must provide the information as required in the Greater Orlando Airport Authority (GOAA) BxP Template. See attached "GOAA BIM Project Execution Plan (BxP).docx" for the template.

1.5 Design and Construction Agent Responsibilities

Design and Construction Agents shall ensure proper synchronization of the BIM requirements with the project acquisition strategy (delivery, contracting and procurement methods). As an example: for traditional project delivery methods, requirements for data synchronization during construction may be established during the design contract execution and must be coordinated with the construction contract.

Design and Construction Agents shall ensure contracts are coordinated to align responsibility with the chosen acquisition strategy.

Design and Construction Agents shall ensure the BIM Execution Plan is in support of the Greater Orlando Airport Authority BIM objectives prior to approval of the BIM Execution Plan.

It is preferable to the Authority to have bidding firms accomplish a draft implementation plan to be used as a discriminator for possible award to the firms who propose maximum BIM use throughout the facility lifecycle. Whether the BIM Project Execution Plan is accomplished before or after award, the plan shall include using the BIM data for the minimum requirements delineated in Section 3: BIM Requirements.

Design and Construction Agents shall coordinate contract requirements to ensure appropriate contractual controls exist to ensure timely and effective implementation of the BIM Execution Plan. Such controls may include withholding of payment for design and construction for unacceptable performance in executing the Plan.

1.5.1 BIM Manager Responsibilities

One individual must be designated as the AE BIM Manager to be the responsible person who is accountable to GOAA for BIM, including data creation and model management coordination between team members for the project. If the project is being procured by Design-Bid-Build then there will be a separate BIM Manager for the AE and the GC who must coordinate their respective work.

If Design-Build (or other similar joint Design/Construction entity) procurement is used, there may be just one Model Manager for the entire project work.

Each Model Manager is accountable to GOAA for the following activities, but not limited to:

- Ensuring compliance with GOAA BIM Standard and required deliverables
- Developing, maintaining, updating, distributing and providing clarifications to/for the BxP
- Structuring, defining, coordinating and managing model creation, model and data quality control across all firms, disciplines or trades under its contractual umbrella
- Leading and facilitating the BIM Management Project Kick-off meeting with project team member modelers to explain the BIM project objectives and management protocols
- Verifying that the geo-references in the associated technical discipline models are properly referenced to the identified project permanent survey monument and with each other
- Ensuring regularly scheduled periodic Design Coordination and/or Construction Coordination review meetings

- Coordinating updates of the Design-Intent model(s) to create the Record Model and delivery of BIM-derived 2D Drawings and other information as required to support the project delivery process

- Instituting Quality Control (QC) for proper modeling, standards adherence and classification of all spaces and equipment as required

- Providing proper delivery and data and model quality control and coordination.

SECTION 2 – LEGAL CONSIDERATIONS

2.1 Ownership and Use of BIM

The ability to own, reuse and properly manage building data throughout the facility lifecycle accrues significant advantages for an owner. Consequently, GOAA places significant importance on the accurate creation, management and stewardship of all digital information (including but not limited to Models, 2D Drawings, specifications, visualizations and data) created during project development and execution. GOAA intends that this information will be used for planning, design, construction, equipment selection, facility management, as well as other purposes (including but not limited to commissioning, management of project activities and real property reporting) and by other software as needed. By submitting any Building Information Model to GOAA, the AE grants a non-exclusive license to GOAA and its representatives and consultants to use the Model for any purpose related to the Project.

2.2 Contract Documents

The Design-Intent Model is the AE's primary design deliverable to GOAA. The 2D drawings are derived from the Design-Intent Model, but only reflect specific extracted views and do not contain as much information as is in the Model, itself. The Contract Documents may specifically state whether 2D drawings or other information takes precedence over the Design-Intent Model. Regardless, all revisions to the Contract Documents after construction award must be made in the Design-Intent Model and the subsequent updated 2D Drawings must be derived from the updated Model. All models must be shared with project stakeholders as needed.

2.3 Reviews, Approvals, Issue Resolution and Waivers

Situations may arise where adherence to this standard is not in the best interest of GOAA. If such a situation arises, the party creating the information must request and obtain a waiver from GOAA before deviating from GOAA BIM Standard. If a Construction Agent is used, the Construction Agent must submit the waiver request to GOAA for a decision. The Construction Agent is not authorized to waive GOAA *BIM Standard***.** GOAA is not opposed to waiver requests, but the request must identify the specific standard section(s) for which the waiver is requested, the reason for the waiver, the resulting impacts on the purposes GOAA intends and any alternative approaches that should be considered. The AE and the GC must update their respective BIM Project Execution Plans (BxP) with any approved waivers.

2.4 Referenced Standards & Documents

The Authority's BIM Standard is part of GOAA's overall guidelines and standards with which consultants and Authority staff must comply. Additional documents, which may be beneficial, can be provided by the GOAA Project Manager (PM) and include:

- BIM Standards Manual & Appendices
- The Authority's CAD Standards
- The Authority's GIS Standards
- BIMForum Level of Development Specification 2019
- Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-18B "General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards", which can be found at https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-18B-chg1-consolidated.pdf

This BIM Standard is based heavily on the National BIM Standard-United States™ (NBIMS-US™) – V3, which can be found at https://www.nationalbimstandard.org.

It is the responsibility of the Consultant to obtain the latest set of Standards referenced in this document. The Consultant is encouraged to contact the GOAA Project Manager (PM) to facilitate obtaining these documents. The Consultant is also encouraged to obtain the GOAA Revit Template File which contains the electronic drawing template in Revit that matches this BIM Standard and any existing "As-built" electronic data which may be applicable.

For each project, the BIM Manager shall notify the consultant of what data model will be maintained in the future and a conformed model should be provided upon project completion.

2.5 Contact Information

Questions pertaining to this document should be directed to the GOAA BIM Management team at geospatial@goaa.org.

SECTION 3 – BIM REQUIREMENTS

3.1 Introduction

GOAA BIM Standard is a suite of documents (including this BIM Manual) that apply to the physical asset documentation of ***existing and new*** facilities ***owned*** by GOAA. These standards apply to design and construction projects where the services of a professional licensed architect or engineer (AE) are required to sign the construction documents and to other work if the final deliverable is ultimately to be used to document the physical asset, even in cases where a licensed professional is not required. GOAA BIM Standard applies to the work of the AE and the construction team managed by the General Contractor (GC). The use of BIM on non- recurring maintenance (NRM) projects is strongly encouraged but is at the discretion of the local GOAA facility.

3.2 BIM Uses

The table below lists the functional capabilities of BIM and when they are used during each major project stage. The BIM Uses highlighted/shaded in red and checked with an (X) are required GOAA BIM Requirements. Additional BIM Uses may be identified on a project as applicable. Contractors may identify additional BIM Uses for the project as Contractor Electives. Reference the BIM Project Execution Planning Guide at www.nationalbimstandard.org for BIM Use descriptions.

TABLE 1 – BIM USES

PLAN (NIC)		DESIGN		CONSTRUCT		OPERATE (NIC)
	PROGRAMMING	X	DESIGN AUTHORING		SITE UTILIZATION PLANNING	BUILDING SYSTEM ANALYSIS
	SITE ANALYSIS	X	DESIGN REVIEWS		CONSTRUCTION SYSTEM DESIGN	ASSET MANAGEMENT
		X	3D COORDINATION - INTERFERENCE MANAGEMENT	X	3D COORDINATION - INTERFERENCE MANAGEMENT	SPACE MANAGEMENT / TRACKING
			ENGINEERING ANALYSIS - STRUCTURAL		DIGITAL FABRICATION	DISASTER PLANNING
			ENGINEERING ANALYSIS - LIGHTING	X	3D CONTROL AND PLANNING / DIGITAL LAYOUT	
			ENGINEERING ANALYSIS - ENERGY	X	RECORD MODELING	RECORD MODELING
			PROGRAM VALIDATION		FIELD / MATERIAL TRACKING	
			ENGINEERING ANALYSIS - MECHANICAL			
		X	3D CONTROL AND PLANNING (DIGITAL LAYOUT) - GEOLOCATING THE PROJECT			
			SUSTAINABILITY (LEED) EVALUATION			
			ENGINEERING ANALYSIS – OTHER (PER CONTRACT REQUIREMENTS)			
			CODE VALIDATION			
	PHASE PLANNING (4D)		PRELIMINARY CONSTRUCTION SCHEDULING (4D)		CONSTRUCTION SCHEDULING (4D)	BUILDING (PREVENTIVE) MAINTENANCE SCHEDULING (4D)
	COST ESTIMATION (5D)	X	COST ESTIMATION (5D)		COST ESTIMATION (5D)	COST ESTIMATION (5D)

	EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING		EXISTING CONDITIONS MODELING
	CONSTRUCTION OPERATIONS BUILDING INFORMATION EXCHANGE (COBie)	X	CONSTRUCTION OPERATIONS BUILDING INFORMATION EXCHANGE (COBie)	X	CONSTRUCTION OPERATIONS BUILDING INFORMATION EXCHANGE (COBie) BUILDER and Omniclass as required		CONSTRUCTION OPERATIONS BUILDING INFORMATION EXCHANGE (COBie) BUILDER and Omniclass as required

3.3 Template Files

All projects must use the most current GOAA BIM templates, **current Revit Template Version is 2022**. These are Revit project files (not Revit template files) for architecture, site files and MEP files. These are available in the standard content, 03 Project Library\02_Templates\, folder:_Revit_Template_YYYY.rvt. Inherent in the Revit project template files are graphic standards and organization of the views, legends, schedules and sheets.

Consistency in Worksets, Phases, Design Options and other built-in characteristics of organization and use has a great impact on the ability for diverse teams to be able to effectively utilize the model.

Because the models will become part of the facilities, maintenance and operations tools, it is essential that the base set of standards established by the GOAA templates be maintained through the design and construction process.

3.4 Revit Project Files: Naming Convention

This section outlines the GOAA naming convention for Revit Models (.RVT) file naming. Naming is divided and group formatted into 3 sections as follows:

GOAA_<FQID-**>_<BIM team-discipline identifier>_<GOAA Project Number>_<Revit Version>.rvt

GOAA_OIA.1000.STLC.ZNW_WLP-A_20110930_R22.rvt

Fields within the general categories are delimited with a hyphen if needed.

*Building identifier (FQID) to be provided by GOAA project manager.

**For tenant fit-outs use level and zone designation.

3.4.1 BIM Team and Discipline Identifier

<Office of Origin>< dash ><Discipline>, e.g., WLP-A (Woolpert, Architecture)

TABLE 2 – DISCIPLINE IDENTIFIERS

Discipline Legend	
A	Architectural
C	Civil
E	Electrical
F	Fire Protection
I	Interiors
L	Landscape
M	Mechanical
P	Plumbing
S	Structural
Q	Equipment

3.5 Project Information

Project Information must be completed as it becomes available including consultant name and address, design contract number, project issue date, package submittal, project address and project name.

3.6 Worksets

Worksets are Revit's way of allowing multiple people to work on the same project. All GOAA project files must have worksharing enabled. All workset enabled projects will have at least the default workset “Workset 1” (which shall be renamed to the name of the model Discipline, e.g., Architecture, Mechanical, Structural) corresponding with the primary UNIFORMAT 2010 Level 2 group below. As project complexity increases worksets are added from the following list. Sub-disciplines will remain under the main designation with sequential number (see Secondary list below). This list is not exclusive. Projects may have other worksets, but at the end of the project, the models must be submitted using the workset names and guidelines below. Worksets unique to the model that should not appear in other models should have a letter “Z” prefix infront of the workset and ‘closed’ / not visible in other models. Example of this case would be for Lighting Photometrics.

PRIMARY LIST

A10 Foundations

B10 Superstructure

B20 Exterior Closure

C10 Interior Construction

C30 Interior Finishes

D10 Conveying systems

D20 Plumbing

D30 HVAC

D40 Fire Protection

D50 Electrical

E10 Equipment

E20 Furnishings

F10 Special Constructions

G10 Site

L10 Airport Equipment

SECONDARY_LIST (examples)

D21 Domestic Water

D22 Sanitary Sewer

D23 Natural Gas

D31 Hydronic Systems

D32 HVAC Controls

D41 Fire Alarm

D51 Electrical Lighting

D52 Electrical Power

D53 Electrical Grounding

Z59 Lighting Photometrics

Z39 HVAC Internal Markups

Z39 HVAC Load Calculations

_LINKED CAD

This workset will be created OFF by default in all views and is never set as the active workset. Link a DWG to all views and then change its property to assign it to this workset. Use Visibility Graphics as needed per view to turn this workset on then isolate the individual drawing using the Imported Categories tab.

_COORD-[DISCIPLINE]

This workset shall contain elements that are contained in the model solely for spatial coordination, system connectivity or that are copy monitored, e.g., Mechanical equipment is copy/monitored to an electrical model for system connectivity purposes or light families that exist in architecture for coordination. These worksets may only be added with GOAA approval.

_LR<DISCIPLINE INITIAL>- For Linked Revit Files.

Create one workset per linked Revit model discipline. These worksets will appear in ALL workset files where another Revit file is linked. This allows users to use Visibility Graphics to turn off a linked Revit model or to use the worksets dialog box to set this to Opened=No, e.g., _LR<DISCIPLINE> such as _LRA for Architecture, _LRS for structure etc.

3.7 Phasing

Phases shall be set up as coordinated with GOAA BIM and must be uniform across all models within the project. Most projects will have an Existing phase and a single new phase for design work. Any phases other than Existing shall be named based on the Expected construction completion date using the last two digits of the year and the quarter.

E.g. a project phase completing in September 2022 would be named 22Q3

If the project has multiple phases or packages, the model shall accurately reflect those

phases or packages in phase naming and phased model content as coordinated with the GOAA PM. In such a case name the phases using the date format above, followed by a hyphen and the name of the phase. See examples:

Existing
22Q3-Phase 1
22Q3-Phase 2
23Q1-Phase 3

3.8 Views

3.8.1 Model Views

The following conventions apply to all views in the project regardless of the view type, plan section, legend or schedule.

3.8.2 Original Views

Once section and elevation marks have started to be placed in the project, do not delete the original Level plan views. This is important as GOAA utilizes the Referenced From parameter. Deleting the original views will create problems with this system.

3.8.3 Creating New Views

When creating a new view/sheet by duplicating or creating new from scratch, always open the view properties and fill in the element properties that are used by your project for view sorting and organization.

3.8.4 Level Names

Level Names, once set by the project BIM Manager, may not be changed. This means that the names that appear in elevations/sections shall not be changed.

3.8.5 Duplication of Section Mark Types

Section -Detail types may not be duplicated.

3.8.6 Duplication of Drafting View Types

Drafting view TYPES may be duplicated in a project to help organize 2D details in projects. In large projects, the view's browser driving parameters shall be used.

3.8.7 View Organization Parameters

Most view types (Plans, Sections, Elevations, Detail and Drafting views) have two custom parameters: ‘Category’ and ‘Sub-Discipline’, which are used with two default Revit view parameters: ‘Discipline’ and ‘Associated Level’, to sort and organize the default views provided in any template.

'*Discipline*' refers to the design discipline for the documents being generated, such as Architectural, Structural, etc.

'Category' is used per the National CAD Standard sheet ordering system to group similar view types together, e.g., 100-PLANS, 150-RCP, 200-ELEVATIONS, 300-SECTIONS, 500-DETAILS, 900-3D, etc.

Plans and RCP – For floor plans and reflected ceiling plans. Associated to a level.

Elevations - Design elevations are intended to be used for color presentations. Sheet elevations are for construction documents.

Sections and Detail Views – Created with **the** section tool. The type determines the look of the mark as well as where the view appears in the project browser.

Drafting views - Used for generating standard 2D details that can be imported across projects.

Sub-Discipline - Sub Discipline is used by the project browser to organize the plan views into different categories based on how the view will be used in the project. Additional Sub Disciplines may be added for specific project needs.

Design views - Used for Presentation views. May include color, shading/shadow and other Conceptual and/or Schematic Design information.

Export views - Set up for exporting to other formats.

Sheet views - Make up the construction document set. They contain final annotation and dimensions.

Working views - Used for day-to-day modeling. These views are never placed on sheets.

Temporary working views - Generated to create a view at a different scale or visibility graphic settings when a working view is in use by another member of the team. If you create one of these views, it is their responsibility to delete it when you are through with it.

3.8.8 View Counts

Keep number of views to a minimum. Delete old and unused views.

3.8.9 View Naming

All Views, Schedules and Legends shall be named in ALL CAPS if going on sheets. Informational or working legends, which are not placed on sheets, are named in all lowercase letters.

3.8.10 Legends

Legends are broken into two general categories.

Notes Legends - Include General Notes and Code Analysis views.

Symbol Legends - Includes the list of GOAA approved default Fill Patterns and the GOAA Symbols reference.

3.8.11 Schedules

Key in a schedule name indicates the scheduling of Revit Keys rather than building components.

3.8.12 Browser Organizations for Views

The GOAA templates have six standard view organizations. Each organization definition sorts and/or filter views in the project browser. For example, in the 01 ALL organization, views are sorted first by Discipline, then Category, Sub discipline and then by their Associated Level.

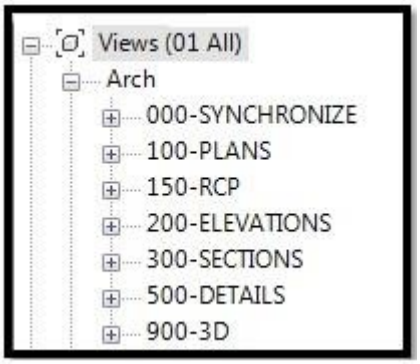

Figure 1 – Browser Organization for Views

All views will be listed and groups of view types are packaged together. A consultant could create a Sub Discipline called Schematic Presentation and place all the Schematic Design views into that package. Those views will remain with the project but will be separate from the rest of the DD and CD views.

3.8.13 Template Browser Organizations: GOAA Standards (Numbered)

These are standard GOAA browser organizations and shall not be modified or deleted.

01 All - Views are ordered in a structure similar to the National CAD Standard

Order: Discipline > Category > Sub discipline > Associated Level

Filter: None Applied

02 Design Views -

Order: Discipline > Category > Sub discipline > Associated Level

Filter: Sub Discipline = Design

03 Sheet Views - Only Sheet views are shown in the project browser

Order: Discipline > Category > Sub discipline > Associated Level

Filter: Sub Discipline = Sheet

04 Working Views - Only Working views are shown in the project browser

Order: Discipline > Category > Sub discipline > Associated Level

Filter: Sub Discipline = Working

05 Export Views - Only Export views are shown in the project browser

Order: Discipline > Category > Sub discipline > Associated Level

Filter: Sub Discipline = Export

06 Details Order - Only Detail views are shown in the project browser

Discipline > Category > Sub discipline > Associated Level

Filter: Category = 500-Details

3.8.14 Schedules

3.8.15 Schedule Creation

Schedules must be created using Revit's built-in scheduling tools. Use of drafting views, CAD, text tools, drafting lines or other workarounds is not permitted.

3.8.16 Template Schedules

The GOAA template contains many customized schedules. They are created to facilitate project data entry and documentation in a manner that is consistent with the needs of GOAA's stakeholders both during and after the project.

Whenever possible and appropriate GOAA Template schedules shall be utilized for documentation. This section outlines the custom schedules available in the GOAA templates and container files.

3.8.17 Schedules: Mechanical Schedules

Use of GOAA's Mechanical schedules is required for all applicable mechanical equipment. No substitution or modification is permitted without authorization from GOAA Systems group and the GOAA PM for the project.

Existing GOAA Mechanical Schedules may be renamed to remove the M- prefix. The GOAA standard mechanical schedules are listed below.

M-ABBREVIATIONS
M-AHU SCHEDULE (1/2)
M-AHU SCHEDULE (2/2)
M-AIR SOLID SEPARATOR SCHEDULE

M-CABINET UNIT HEATER SCHEDULE
M-CRAH SCHEDULE
M-DAMPER SCHEDULE
M-DEDICATED OUTDOOR AIR UNIT SCHEDULE (1/2)
M-DEDICATED OUTDOOR AIR UNIT SCHEDULE (2/2)
M-DEDICATED OUTDOOR AIR UNIT SCHEDULE COMPLETE
M-DIFFUSER, REGISTER and GRILLE SCHEDULE
M-EQUIPMENT SOUND SCHEDULE
M-EXPANSION TANK SCHEDULE
M-FAN COIL UNIT SCHEDULE
M-FAN SCHEDULE
M-HEAT EXCHANGER SCHEDULE
M-INFRARED RADIANT HEATER (NATURAL GAS) SCHEDULE
M-LOUVER SCHEDULE
M-MAKEUP AIR UNIT SCHEDULE
M-PLENUM BOX SCHEDULE
M-RADIANT MANIFOLD SCHEDULE
M-UNIT HEATER SCHEDULE
M-VAV SCHEDULE

3.8.18 Schedules: Door and Frame Schedules

The GOAA template contains a series of door schedules for easy reference. Use of these Schedules is optional currently.

TABLE 3 – DOOR AND FRAME SCHEDULES

Door and Frame Schedule	Schedule intended for plotted set of drawings
Door and Frame Schedule 01 Materials Key	Key schedule. Holds full information for the materials and finishes assigned to the frame and panel in the DOOR AND FRAME SCHEDULE
Door and Frame Schedule 02 Detail Key	Key schedule. Holds head, Jamb and Sill detail references for specific typical wall conditions to populate DOOR AND FRAME SCHEDULE.
Door and Frame Schedule 03 Hardware Key	Hardware Sets are described in the specifications; edit this Key Schedule to correspond to the specifications to populate DOOR AND FRAME SCHEDULE.

Customized schedules to be used to record or plot the standard abbreviations for the project. This schedule is a key schedule that holds values in the Revit Internal Point Loads parameters.

3.9 Sheets

3.9.1 Sheets

Sheets, like views, have their own parameters that are used for sorting and organizing the

sheets in the project browser. The same parameters used to sort and organize the sheets in the project browser are used to organize the sheets in the Drawing Index schedules. For general Sheet naming, numbering and layout standards refer to the National CAD Standards v6.0.

3.9.2 Title Blocks

Standard Titleblocks are provided in GOAA Revit Project Template. GOAA's standard Titleblock is 24x36. The Titleblock family shall not be modified without approval from the GOAA Project Manager. All consultants and subconsultants on a project shall use the same Titleblock.

3.9.3 Sheet Parameters

Sheet Parameters are used to organize the project browser and the drawing lists for document sets. The following section documents to which elements the parameters are assigned. Similar to the view browser organizations, these are set in the template as a base set of schedules and browser organizations. This base set may be added to for any project.

Volume Number – Used for Drawing Index schedule to sort construction document sheets by volume if needed. Volume is also used in the browser organization: 02 Architectural Set by Volume.

Sheet Sort Order – Allows the Drawing Index schedules and Browser Organizations to be organized in a non-alphabetical manner. The sheet sort order number is organized by the National CAD standard Discipline Designator with a two-digit numerical prefix, e.g., 00-GENERAL, 07-ARCHITECTURAL.

Category – In project browser used for browser organization, this is the Sheet Type Designator as defined by NCS, e.g., 100-PLANS, 200-ELEVATIONS, etc.

TABLE 4 – SHEET PARAMETERS

Abbreviation	NCS	Sheet Discipline Order
G	General	00
H	Hazardous Materials	01
V	Survey/Mapping	02
B	Geotechnical	03
C	Civil	04
L	Landscape	05
S	Structural	06
A	Architectural	07
I	Interiors	08
Q	Equipment	09
F	Fire Protection	10
P	Plumbing	11

Abbreviation	NCS	Sheet Discipline Order
D	Process	12
M	Mechanical	13
E	Electrical	14
T	Telecommunications	15
R	Resource	16
X	Other Disciplines	17
Z	Contractor/Shop Drawings	18
O	Operations	19

TABLE 5 – SHEET TYPE DESIGNATORS

Abbreviation	NCS
000	General (Symbols, legends, notes, etc.
100	Plans (Horizontal Views)
200	Elevations (vertical views)
300	Sections (sectional views, wall sections)
400	Large-Scale Views (Enlarged plans, elevations, stair sections or sections that are not details)
500	Details
600	Schedules and Diagrams
700	Assets (user Defined by GOAA)
800	User Defined
900	3D Representations (Isometrics, perspectives, photographs)

3.9.4 Sheet Browser Organization

Like the views, the project browser allows for the organization of sheets. These organization definitions only affect the project browser and not the drawing list schedules. However, the same parameters are used to drive the browser organization as well as the drawing list schedules.

3.9.5 Template Browser Organizations: GOAA Standards (Numbered)

GOAA templates have three customized browser organizations built-in. These are standard GOAA browser organizations and shall not be deleted or changed. Any project may add to this set for project specific organizations. If possible, use parameters already in use by the other browser organizations.

01 By NCS - All sheet views are shown
Group by: Volume Number > Sheet Sort Order > Category
Sort by: Sheet Number
Filter: No Filter applied

02 Architectural Set by Volume - All printed views are shown. Any sheet that is a placeholder (for drawing index) is not shown.

Group by: Volume Number

Sort by: Sheet Number

Filter: Category Not Equal to 999-PLACE HOLDERS

03 Architectural Set - All printed views are shown. Placeholder sheets for drawing index are not shown.

Group by: Category

Sort by: Sheet Number

Filter: Category Not Equal to 999-PLACE HOLDERS

3.10 Annotation

3.10.1 Text Styles

GOAA has selected **Verdana** as the default annotation font as this font is typically installed on most computers as a default Windows True Type font and Arial for the default Border Sheet font for contrast.

Verdana was designed to be readable at small sizes. Additionally, the lack of serifs, large x-height, wide proportions, loose letter-spacing and emphasized distinctions between similarly shaped characters are chosen to increase legibility.

Contrasting text styles are used within a drawing to delineate types of information.

In GOAA deliverable CAD drawings, only the Verdana font shall be used. However, the Verdana font may be modified in size, color or style (bold, italics, underline, outline, etc.) as needed by the data provider for additional emphasis or deemphasize. Only Verdana True Type Font available through a standard MS Windows program is permitted. No special Verdana font downloads are permitted as they will not be “universal” on every PC. The GOAA standard text types as provided in the GOAA Revit templates:

Headings - 5/32 inch - Used for any headings, such as on legends Notes Headings, etc.

Sub-Headings - 1/8 inch - Sub-Headings that need to be hierarchically beneath Headings such as Schedule headings.

Notes - 3/32 inch - This text is the default and is used in all use cases in a project not covered specifically by the preceding types.

Notes - Transparent: 3/32 inch - This text is where a transparent background may be necessary for Notes.

3.10.2 Standard Dimensions

GOAA templates have one linear dimension type available. Any additional types must be removed prior to each submittal:

> **Standard**: Standard dimension type is to be used for all construction document purposes.

3.10.3 Sheet Notation

Annotation shall follow the National CAD Standards current version (As of this writing current version 6.0) Uniform Drawing System Module 7 Notations. Please refer to that document for complete text on any of the topics in this section.

There are five types of notes: general notes, general [discipline] notes, general sheet notes, reference keynotes and sheet keynotes. General notes, general [discipline] notes and general sheet notes do not directly correspond to a graphic representation and are not directly linked by symbol (or other identifier) to other drawings or specifications. Should these three types of notes appear on the same sheet, they are listed in the following hierarchical order:

> General Notes
>
> General [Discipline] Notes (such as General Architectural Notes)
>
> General Sheet Notes

3.10.4 General Notes

General Notes are located within the G-Series, General Drawing's sheet types.

- General [Discipline] Notes

General [Discipline] Notes appear on the first or 0-Series sheets within a particular design discipline and apply to all subsequent sheets within that discipline. For example, general architecture notes appear on sheet A-001 and apply to all architecture sheets within the drawing set.

- Sheet Notes

General Sheet Notes are used to communicate sheet-specific information or instructions. General sheet notes are tabulated sequentially within the note block. General Sheet Notes follow the other types of general notes (general notes or general [discipline] notes) and precede any reference keynotes that may appear in the note block. Refer to the following illustrations.

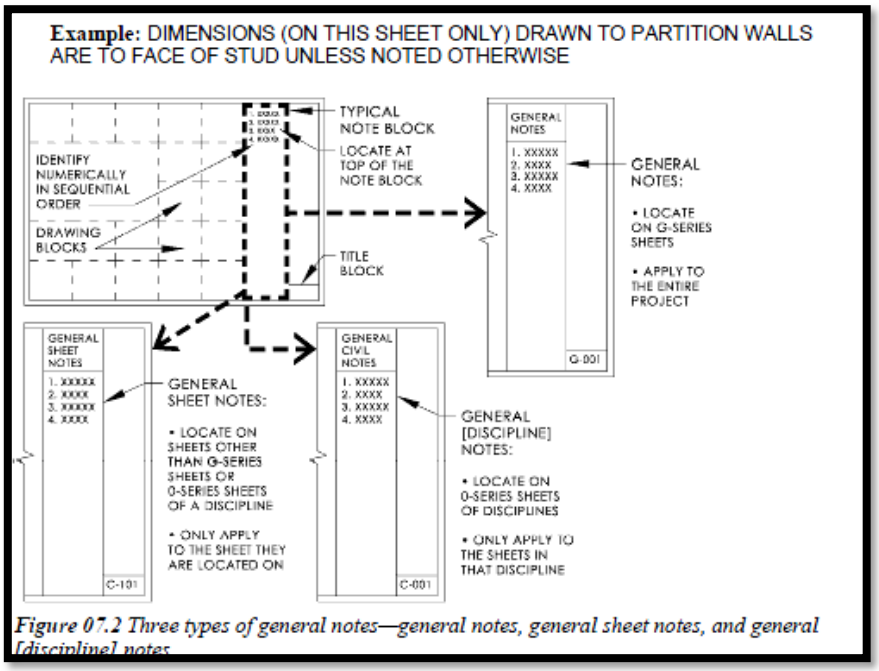

Figure 2 – Sheet Notes: Dimension Examples

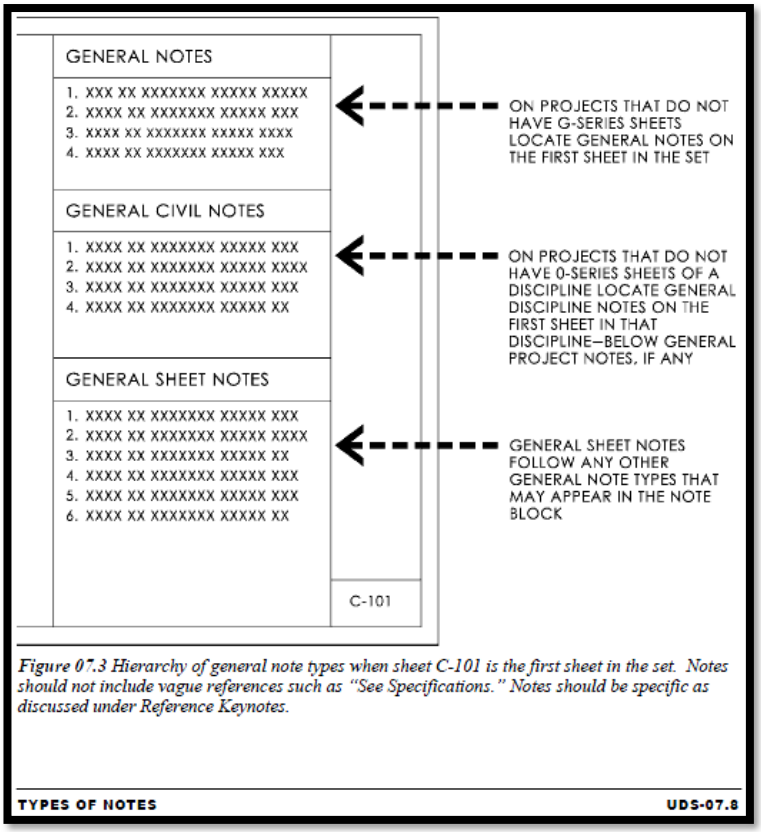

Figure 3 – Sheet Notes: General Note Examples

Sheet Notation General Rules

When placing notes on the drawing, place the note directly next to the noted object, using complete text within the drawing area. Revit Keynote functionality may also be used for sheet notation where possible and appropriate.
If you cannot put the full text of the note within the drawing area, it will become either a Reference Keynote or a Sheet Keynote.
To allow the most flexibility for all firms and disciplines working with GOAA, the following Revit components have been identified to fill the roles established by the National CAD Standard for Reference Keynotes and Sheet Keynotes:

Sheet Keynotes are more generic and may use the Revit Keynote tools or Generic Annotations and Note block schedules.

Reference Keynotes refer to specific specification sections within the project and utilize the Revit Keynote tools.

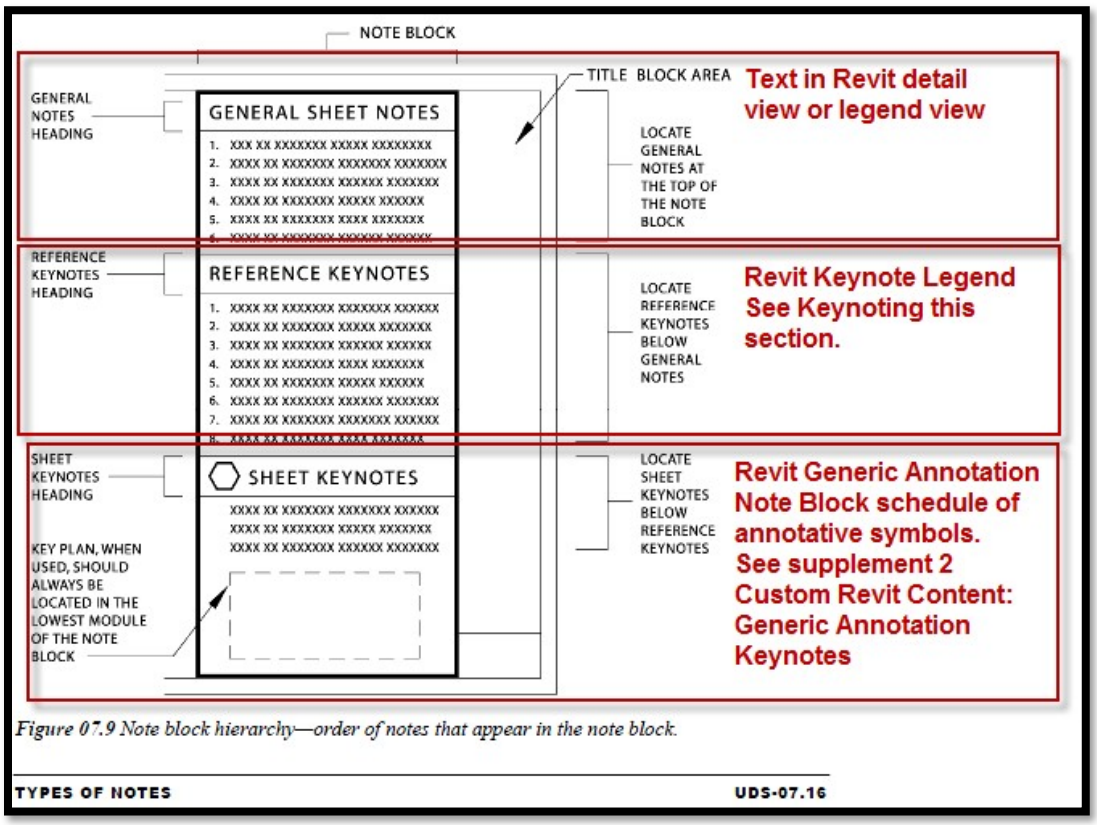

Figure 4 – Reference Keynotes

3.10.5 Keynotes

The Revit Keynoting feature links data in a text file to the elements and/or materials within the Revit model. If one material or element type is linked to a keynote, all future keynotes placed on that same material or element within other views will display the

same value.
GOAA maintains a single master keynote file; GOAA_RevitKeynotes_Imperial.txt. It is located in the 04_Support>03_Keynoting folder.

- Sheet Notes

Family: Annotation: 000000 <Use> SheetNote-GA

Each family is separated by use. Alt notes, Demo notes, Plan Notes and Elev notes, are provided in the base template. If needed save this family from the template for different uses.

000000-PLAN-Sheet Note-GA

000000-ELEV-Sheet Note-GA

- Types

Types are used to designate the number of the sheet note, e.g., Note 2 on A floor plan would use 000000-PLAN- Sheet Note-GA:2.

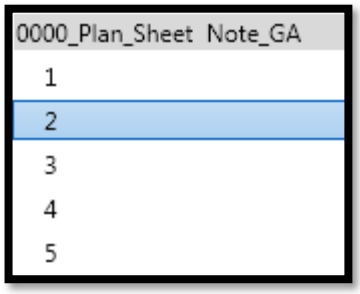

Figure 5 – Sheet Note Types

- Symbol

Figure 6 – Sheet Note Symbol

- Parameters

Figure 7 – Sheet Note: Instance Parameters

Sheet No is used to filter the note block schedules for placing on individual sheets

Type Parameters

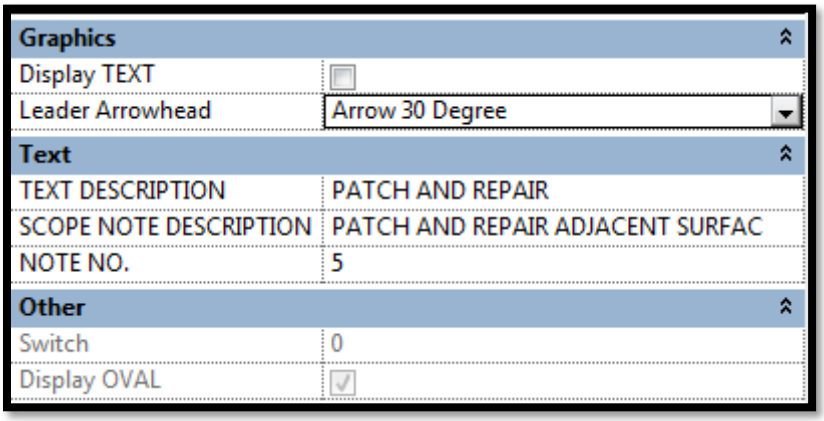

Figure 8 – Sheet Note: Type Parameters

Scope Note Description

Longer text that appears in note block schedule placed on sheet (Sheet Notes).

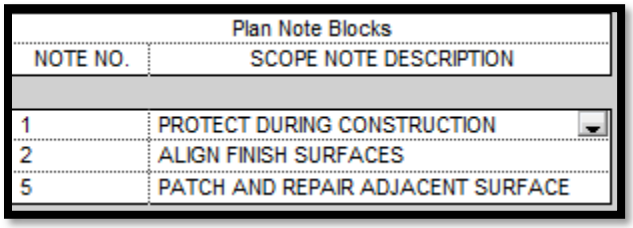

Figure 9 – Scope Note Description

The text associated with any number will match the same number used on other sheets.

Note No. Used for note block schedule. Duplicates Type Name.

3.10.6 Line Patterns and Styles

Line styles and patterns approved by GOAA will be available in all templates and can be found in the legend: Line Types

The Medium, Wide and Thin lines shall not be used (however they cannot be purged from the templates).

GOAA Line Styles shall be named according to their thickness and their color and line pattern if they are not Solid Black.

TABLE 6 – LINE PATTERN AND STYLE EXAMPLES

02	A solid black line with thickness 2
02 Red	A solid red line style with thickness 2
02 Hidden Red	A red line, thickness 2 with the Hidden line pattern

- Line Patterns

Line patterns are documented in the templates in the schedule, Line Patterns for Drafting.

- Line Weights

Line weights approved by GOAA will be available in all templates: Line Weights

TABLE 7 – LINE WEIGHTS

Line Weights						
Weight	**1" = 1'-0"**	**1/2" = 1'-0"**	**1/4" = 1'-0"**	**1/8" = 1'-0"**	**1/16" = 1'-0"**	**1/32" = 1'-0"**
1	0.0030"	0.0030"	0.0030"	0.0030"	0.0030"	0.0030"
2	0.0042"	0.0040"	0.0040"	0.0040"	0.0035"	0.0033"
3	0.0062"	0.0057"	0.0054"	0.0050"	0.0037"	0.0036"
4	0.0090"	0.0082"	0.0076"	0.0070"	0.0049"	0.0038"
5	0.0109"	0.0098"	0.0091"	0.0085"	0.0057"	0.0043"
6	0.0131"	0.0118"	0.0109"	0.0100"	0.0066"	0.0049"
7	0.0159"	0.0142"	0.0130"	0.0119"	0.0076"	0.0056"
8	0.0192"	0.0170"	0.0155"	0.0140"	0.0088"	0.0063"
9	0.0232"	0.0204"	0.0185"	0.0168"	0.0102"	0.0072"
10	0.0280"	0.0245"	0.0221"	0.0200"	0.0118"	0.0082"
11	0.0338"	0.0294"	0.0264"	0.0238"	0.0137"	0.0093"
12	0.0409"	0.0353"	0.0316"	0.0280"	0.0159"	0.0106"
13	0.0508"	0.0508"	0.0450"	0.0390"	0.0213"	0.0138"
14	0.0641"	0.0641"	0.0641"	0.0550"	0.0285"	0.0178"
15	0.0790"	0.0790"	0.0790"	0.0790"	0.0382"	0.0231"
16	0.1100"	0.1100"	0.1100"	0.1100"	0.0511"	0.0298"

3.10.7 Linked Revit and CAD Files

Linked Revit files must be linked and located using Shared Coordinates, must be pinned in place and must be placed on the corresponding Worksets. Linked Revit files shall be linked as Overlays using Relative pathing.

If CAD files are needed, approval must be received from the GOAA BIM Manager. When approved, CAD files must be linked. Linked CAD files must always be placed on

the correct Workset _LINKED CAD.

CAD files must never be imported or exploded.

3.10.8 Design Options

Design Options allow the creation of studies of multiple alternates within the Revit file. Unless specifically approved by GOAA, design options shall be eliminated from the model file prior to submission at 90 percent submittals or later.

3.10.9 Geospatial Coordinates

The geographic location in the Revit template model has been set to the following:
Florida State Plane Coordinate System – East Zone using NAVD 88 for vertical measurements, NAD 83 (2011)
MCO PACS: (this is also referred to as MCO D)
Latitude: 28.422242
Longitude: -81.307042
Elevation: 103.9’

The Project Base Point in the Revit template model is aligned with this Survey Point as a placeholder position. The Project Base Point must be adjusted in relation to this Survey Point at the beginning of each project and aligned to a specific building feature or structural grid intersection chosen by the GOAA PM. All Revit models for a particular project or building that are linked together shall have the same survey point and project base point.

3.10.10 Model Levels

Levels are to be restricted to occupiable floor levels and shall be labeled numerically and in ALL CAPS, e.g., LEVEL 01, LEVEL 02, LEVEL 03.

When using levels that exist in provided GOAA models, match naming of those levels.

If surveyed elevations do not match elevation of existing levels in the model, contact GOAA for direction.

Levels shall not be created for intermediate spaces such as landings or delineation of upper limits such as top of parapet. Reference Planes and Elevation annotation may be used for such conditions. New levels must be approved by GOAA.

3.10.11 Model Delivery

Models must be delivered at each submittal at the same time as the rest of the contract deliverables for that package.

3.10.12 Modeling Standards

The project BIM team shall continue development of their BIM. Parametric links shall be

maintained within the models to enable automatic generation of all plans, sections, elevations, custom details and schedules as well as 3D views. All information needed to describe the detailed design shall be graphically or alphanumerically included in and derived from these models only, except for the Specifications. Documentation of the models or design documents shall not happen outside of the BIM authoring software.

At a minimum, all elements within the scope of work and within the limits of the construction site or that may be affected by construction must be modeled, including but not limited to:

- All building structures, equipment and systems
- Utilities above or below ground inside and outside of project boundaries to service connection points
- Construction Details
- All major vegetation (e.g., heritage trees) to be preserved
- Any areas to be protected during construction
- Project site conditions
- Equipment needed for Room Test-fits and Building Service Equipment

3.10.13 Discipline Models

AE design models must be subdivided by discipline and by non-building equipment as required in the GOAA BIM Standard. All discipline model divisions are to be documented in the BxP.

In general, each discipline model, with the exceptions noted herein, must contain the objects that relate to their discipline's design.

Each project will require different discipline models depending on the scope of work. It is the responsibility of the AE and GC to appropriately structure their modeling to provide adequate information as needed for the project. However, GOAA has the following requirements for these discipline models, which must be included in the Record Model.

Provide Project Specific BIM Facility Data consisting of a set of intelligent elements for the Model (e.g., doors, air handlers, electrical panels). This Facility Data shall include all material definitions, qualities and attributes that are necessary for the project facility design. Data format must be compatible with the Facility Management software (BUILDER and Tririga) for subsequent database searches.

Model Granularity. Models may vary in level of detail for individual elements within a model, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'0") scaled drawing (e.g. at least 1/16th, 1/8th and 1/4th) or appropriately scaled civil drawings.

- Civil

All features and information typically provided in site plans must be provided using Civil Information Modeling (CIM) software and comply with the GOAA BIM Standard. This

includes roadways, walks, physical features, topography (contours), location and rim and invert elevations of underground utilities, soil/geotechnical conditions, etc. AE modeling of subsurface utilities and conditions must be labeled as FOR INFORMATION ONLY. Buildings must be minimally modeled for site civil work but must reflect the accurate location of outside proposed building walls and any utility penetrations through floor slabs and walls below ground. Site elements requiring maintenance must include FM Data as noted and included in the COBie deliverable.

Underground Site Utilities - Objects must be modeled in 3D for civil underground utilities and site work, both existing and proposed and be classified using OmniClass Table 21 to identify the system each asset is a part of, Table 22 for to align with specification sections and Table 23 to identify the asset type. Include all utility properties. Modeling will extend five feet beyond the project construction boundaries and will connect with the site and building utility services.

Digital Terrain Model (DTM) - Model all relevant site conditions and proposed grading, including necessary intelligence to produce accurate Project site topographical plans and cross sections.

Drainage - Model all existing and new drainage piping, including upgrades thereto, including necessary intelligence to produce accurate plans and profiles for the Project site.

Storm Water and Sanitary Sewers -Model all existing and new sewer structures and piping, including upgrades thereto, on the Project site with necessary connections to mains or other distribution points as appropriate, including necessary intelligence to produce accurate plans and profiles for the Project site.

Utilities - Model all necessary new utilities connections from the Project building(s) to the existing or newly- created utilities and all existing above ground and underground utility conduits, including necessary intelligence to produce accurate plans and site-sections.

Roads and Parking -Model all necessary roadways and parking lots or parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections.

- Structure

Structural models must be the basis of evaluating and analyzing the building structure and include all the objects, elements and components to do so. All material and material properties must be included for each Object, the building structure and geometry must be accurately defined and labeled for foundations, subgrade enclosures, slab-on-grade, superstructure and exterior vertical enclosures and roofs.

Foundations - All necessary foundation and/or footing elements, with necessary intelligence to produce accurate plans and elevations.

Floor Slabs - Structural floor slabs shall be depicted, including all necessary recesses, curbs, pads, closure pours and major penetrations accurately depicted.

Structural Steel - All steel columns, primary and secondary framing members and steel bracing for the roof and floor systems (including decks), including all necessary intelligence to produce accurate structural steel framing plans and related building/wall sections.

Cast-in-Place Concrete - All walls, columns and beams, including necessary intelligence to produce accurate plans and building/wall sections depicting cast-in-place concrete elements.

Expansion/Contraction Joints - Joints shall be accurately depicted.

Stairs - The structural Model shall include all necessary openings and framing members for stair systems, including necessary intelligence to produce accurate plans and building/wall sections depicting stair design elements.

Shafts and Pits - The structural Model shall include all necessary shafts, pits and openings, including necessary intelligence to produce accurate plans and building/wall sections depicting these design elements

- Architecture

Architectural models must include the BIM Objects relative to floors, exterior and interior walls and partitions, roofs, vertical transportation, windows, doors, stairs, ramps, railings, ceilings, grilles & gates, interior specialties, etc. Required structural blocking (such as for TV, monitors) must be modeled for quantities, size, shape and location, etc. Reference major structural components from the Structural model (including but not limited to structural walls, floors, roof structure, columns and foundations). Reference the Interiors Model, the PRC Equipment Models and appropriate building equipment and systems models (including mechanical for louvers) and others as needed to coordinate the work.

Floors - The floor slab shall be developed in the structural Model and then referenced by the architectural Model for each floor of the Project building.

Interior Partitions, Fire-Rated Partitions & Smoke Barriers – Must be modeled to include fire resistance ratings in the wall object properties and must graphically be depicted in 2D plansets. Patient safety is paramount in medical care facilities and protecting against fire and smoke is critical to that safety. Consequently, the use of wall fill patterns in models and drawings that depict the appropriate construction is important to understanding which spaces are protected. This information is also required for Joint Commission inspections.

Doors, Windows and Louvers – Doors, windows and louvers shall be depicted to represent their actual size, rating, type and location. Doors and windows shall be modeled with the necessary intelligence to produce accurate window and door schedules. Properties of door objects must include finish information, door swing, vision panels, seals, acoustical properties, hardware, locks and keying, electrical requirements and applicable fire resistance ratings.

Ceilings – All heights and other dimensions of ceilings, including soffits, ceiling materials or other special conditions shall be depicted in the Model with the necessary intelligence to

produce accurate plans, building sections and generic wall sections where ceiling design elements are depicted. Properties of ceilings must include fire ratings and sound transmission coefficients. All ceiling materials, other than paint, must be modeled and included as part of the overall room finish tag.

Raised Floors – Access/Raised Floors are modeled EXCLUDING supports.

Architectural Specialties and Casework - All architectural specialties (i.e., toilet room accessories, toilet partitions, grab bars, lockers and display cases) and casework (i.e., cabinetry and counters) shall be accurately depicted with the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced. Casework materials will generally consist of a horizontal and/or vertical element. Casework and countertops must be modeled to correct dimensions (length/width, depth and height).

Walls and Curtain Walls – Each wall shall be depicted to the exact height, length, width and ratings (thermal, acoustic, fire) to properly reflect wall types. The Model shall include all walls, both interior and exterior and the necessary intelligence to produce accurate plans, sections and elevations depicting these design elements. Wall bases must be modeled (based on dimension and type) where elevated. Wall finishes greater than ¼ inch thickness must be modeled for coordination and clearance. Non- geometric data (e.g., actual material specified) will be included as part of the room finish tag on the architectural finish plans.

Roof - The Model shall include the roof configuration, drainage system, major penetrations, specialties and the necessary intelligence to produce accurate plans, building sections and generic wall sections where roof design elements are depicted.
Stairs / Vertical Circulation - All continuous vertical components (i.e., non-structural shafts, architectural stairs, handrails and guardrails) shall be accurately depicted and shall include the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced. All stairs and their finishes will be scheduled in the model.

- Interiors and FFE

A separate FFE model, referenced to the Architectural model and Medical Equipment, Food service and other Equipment models (as needed in the project), must be created for FFE items that are purchased and installed by GOAA (Acquisition Code OFOI). Do not attach FFE to a surface.

Interior Finishes – Interior finish plans, ceiling plans, elevations and intelligent scheduling of objects/elements must be used to convey materials and finishes in a separate Interiors model, associated with the architectural model (and others as required). Interior Finishes must be included as a part of the room properties. All materials that are representative of a system greater than ¼ inch in thickness must be included in the model as 3D geometry (example: wall protection, interior cladding such as stone, masonry, glass, metal or wood paneling).

Modular Furniture – Manufactured modular furniture selected for the design-intent documents which will be purchased by GOAA and installed by the GC

(Acquisition Code OFCI) must be modeled to correct dimensions (length/width, depth and height) and linked to the basis-of-design cut sheet for the item.

Signage - The Model shall include all signage and the necessary intelligence to produce accurate plans and schedules.

Schedules - Provide door, window, hardware, sets using BHMA designations, flooring and wall finish and signage schedules from the Model, indicating the type, materials and finishes used in the design.

Furniture/Fixtures/Equipment (FFE) - 3D representation of FFE elements is preferred. For projects with an extensive systems furniture layout that may impact BIM system performance the Contractor will consult with GOAA for consideration of 2D representation. The FFE systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

Furniture (INCLUDE AS REQUIRED) - The furniture systems Model may vary in level of detail for individual elements within a Model, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing and shall include all relevant office equipment and furniture system layouts, with necessary intelligence to produce accurate plans, sections, perspectives and elevations necessary to completely depict furniture systems locations and sizes.

Systems Coordination - Furniture that makes use of electrical, data, plumbing or other features shall include the necessary intelligence to produce coordinated documents and data.

Fixtures and Equipment Fixtures and equipment shall be depicted to meet layout requirements with the necessary intelligence to produce accurate plans, elevations, sections and schedules depicting their configuration.

Schedules Provide furniture and equipment schedules from the model indicating the materials, finishes, mechanical and electrical requirements.

- Food Service

Food Service and *Laboratory Equipment* must each be placed in a separate model and referenced to the architectural and appropriate engineering models for the utility hookups or structural support required for the equipment. Food Service and Laboratory Equipment that is ASE will be so designated in their respective models.

- Mechanical, Electrical, Plumbing, Fire Protection, & Medical Technology (MEPFT)

Mechanical, Electrical, Plumbing, Fire Protection and Medical Technology (MEPFT) systems must be in their own discipline models, referenced to the Architectural model and other discipline models as needed. All system models must include all equipment necessary for operations, including (but not limited to) boilers, chillers, geothermal and

solar energy systems; pumps and piping distribution systems (including modeling for pipe slope and insulation), water- side terminal units; fans, air handlers, air distribution and evacuation systems (including modeling for duct and equipment insulation), air-side terminal units, VAV boxes; electrical feed and distribution systems transformers, electrical panels and switchgear, lighting, emergency circuitry, emergency generators; all public utility systems from tap, all control systems, data and phone wiring and terminal devices, data switches, data rooms, etc. Fire protection models must include fire ratings, sprinkler medium, pressure and flow volume. Include all properties and data as noted in FM Data Spreadsheet.

Use OmniClass Table 21 to identify the system each asset is a part of, Table 22 to align with specification sections and Table 23 to identify the asset type. Include all utility properties. Modeling will extend five feet beyond the project construction boundaries and will connect with the site and building utility services.
All *system elements* 1.0 inches in diameter and larger (e.g., general plumbing, fire protection, etc. but not individual electrical cables unless in Patient Headwalls) and *other elements* (ducts, cable trays, etc.) with a dimension 4 inches and over must be modeled. Conduit that will be consolidated into cable trays need not be modeled individually; only the tray needs to be modeled.

All riser diagrams must be model based.

Mechanical - All components of the mechanical systems must be modeled accurately and include the necessary space reservations for appropriate access during maintenance and replacement. Louvers should be modeled as a part of Mechanical.

HVAC - All necessary heating, ventilating, air-conditioning and specialty equipment, including air distribution ducts for supply, return and ventilation and exhaust ducts, including control system, registers, diffusers, grills and hydronic baseboards with necessary intelligence to produce accurate plans, elevations, building/wall sections and schedules. All piping larger than 1.5” diameter shall be modeled.

Mechanical Piping - All necessary piping and fixture layouts and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections and schedules. All piping larger than 1.5” diameter shall be modeled.

Plumbing - All necessary plumbing piping and fixture layouts, floor and area drains and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams and schedules. All piping larger than ½” diameter shall be modeled.

Equipment Clearances - All HVAC and Plumbing equipment clearances shall be modeled for use in interference management and maintenance access requirements.

Elevator Equipment - The Model shall include the necessary equipment and

control system, including necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

Electrical – Ceilings diffusers, light fixtures, etc. are cosmetically arranged by the architect but the systems are designed by the electrical engineer. The architectural, mechanical and electrical models must reference each other and be a part of the Design Coordination to eliminate any mismatches between the models.

Interior Electrical Power and Lighting - All necessary interior electrical components (i.e., lighting, receptacles, special and general purpose power receptacles, lighting fixtures, panel boards and control systems), including necessary intelligence to produce accurate plans, details and schedules. Cable tray routing shall be modeled without detail of cable contents. Lighting and power built into furniture/equipment shall be modeled.

Special Electrical Systems - All necessary special electrical components (i.e., security, Mass Notification, Public Address, nurse call and other special occupancies and control systems), including necessary intelligence to produce accurate plans, details and schedules.

Grounding Systems - All necessary grounding components (i.e., lightning protection systems, static grounding systems, communications, grounding systems and bonding), including necessary intelligence to produce accurate plans, details and schedules.

Communications - All existing and new communications service controls and connections, both above ground and underground with necessary intelligence to produce accurate plans, details and schedules. Cable tray routing shall be modeled without detail of cable contents. Communications conduit larger than 1.5” shall be modeled.

Exterior Building Lighting - All necessary exterior lighting with necessary intelligence to produce accurate plans, elevations and schedules. The exterior building lighting Model shall include all necessary lighting, relevant existing and proposed support utility lines and equipment required with necessary intelligence to produce accurate plans, details and schedules.

Equipment Clearances - All lighting and communications equipment clearances and no-fly zones shall be modeled for use in interference management and maintenance access requirements. Include Original Model Based Schedules for all equipment. No fabricated or extraneously produced Schedules will be accepted.

Schedules - The construction drawings shall include equipment schedules that are of the BIM native schedules. Equipment shall not be generated in third party software and inserted on the drawings as raster images, detail lines and text, AutoCAD line work and text or other non -BIM format for aesthetic

reasons. The data in the schedules as printed on the contract drawings shall be the exact same data as in the model.

Plumbing for Domestic (Potable) Water - Because of the need to manage healthcare environments to prevent legionella and other water-borne pathogens, ***all*** of the supply and return elements, components and distribution systems of the *Domestic Water System* must be modeled regardless of size, with properties for the name of the system (e.g., Domestic Water), material (copper, PVC, etc.) diameter of pipe, direction of water flow, design temperature ranges, filter locations and type, color coded differently for supply and return and other identification necessary to be able to view the Domestic Water System independently from other plumbing so the system can be identified and managed for patient safety during facility management operations.

Other plumbing components may be in the Plumbing Model and identified by system and component if not a part of the *Domestic Water System*.
Fire Protection - The fire protection system Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

Fire Protection System - All relevant fire protection components (i.e., branch piping, sprinkler heads, fittings, drains, pumps, tanks, sensors, control panels) shall be indicated with necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams and schedules. All fire protection piping shall be modeled. In a D-B-B project where the suppression system is specified through a performance specification and designed by the Construction Contractor, the A-E will provide the Design Model with associated FPS components appropriate to the level of design and provide specifications for the Construction Contractor to the final installed FPS in the Record Model.

Fire Alarms - Fire alarm/mass notification devices and detection system shall be indicated with necessary intelligence to produce accurate plans depicting them.

3.10.14 Acquisition Codes

The responsibilities for equipment purchasing and installation are defined by an Acquisition Code that is designated for each piece of equipment. All equipment must have Acquisition Codes associated with the equipment object.
The codes are:

OFOI = Owner Furnished/ Owner Installed
OFCI = Owner Furnished/ Contractor Installed
CFCI = Contractor Furnished/Contractor Installed
R = Reused Existing Equipment

3.10.15 Construction Documents Phase

The project BIM team shall continue development of the models created in the Design Development Phase. Maintain parametric links within the respective models to enable automatic generation of all plans, sections, elevations, custom details, schedules and 3D views. All information needed to describe the execution documents shall be graphically or alphanumerically included in and derived from these models only. Specifications are not required to be linked within the models.

Revit and Civil 3D models to be submitted at 30, 60, 90 and 100 percent construction documents with LoD matching those laid out in the LoD Matrix. Include families in use that were not part of GOAA library for review. GOAA will review models and families within 14 days and schedule meeting with the project team to discuss.

Data

Programmatic spaces - All rooms in the architectural and/or MEP BIM model shall conform to GOAA naming, numbering and categorization requirements

Sustainability

Energy - As called for by BXP Preliminary Energy modeling data included:

Detailed electric and fuel rates as defined by the local service provider

Building function and occupancy

Building operating schedules

Building construction types

Equipment (data) - All equipment in model will be registered in the project equipment library

3.10.16 Concurrent Record Model (Design Team)

The project BIM team shall submit a plan to the Owner for review, prior to the start of construction that outlines the process for concurrent record documentation. Design Team will incorporate changes from Requests for Information (RFIs), Change Orders, Addenda and other CA revisions into their models as they are issued.

Concurrency is mandated. Methods for recording and communicating construction information are left to the discretion of the contractor.
Potential options for concurrency include:

Traditional methods

Periodic laser scanning of completed or partially completed primary systems coordinated with the sequence of construction.

Integration of model changes in RFI, Change Order approval processes. Responsibility of the modeling updates is determined by the BXP.

Primary systems include, but may not be limited to structural framing, primary HVAC duct runs, primary fire protection main runs, primary electrical conduits (2 inches plus tolerance), ceiling grids layouts, any elements or systems indicated as Assets in the LoD Matrix.

Once Contractor model is completely coordinated, Design Team shall reconcile differences between the Contractor and Design models.

3.10.17 Commissioning Requirements

Commissioning data including but not limited to design intent, performance criteria and operations data shall be recorded and/or linked to the REVIT or Civil 3D model as commissioning occurs throughout the project. It shall be the project Team's responsibility to coordinate the information sources and integrate this information into the REVIT or Civil 3D model for transfer at the completion of the project.

3.10.18 Project Close-out

The project BIM team shall update their respective models with contractor recorded changes (record documents). Republish record documents in paper and PDF formats.

In addition to any submissions required per GOAA professional services contract (deliverables sections) and the GOAA As-Builts requirement documents, the project BIM team will submit a record model prior to close out.

3.10.19 Record Models

Record models shall be submitted in .rvt and Civil 3D .dwg format and shall be cleaned of extraneous scrap or working views, stories, abandoned designs, object creation and testing places and other content typically produced in BIM production.

Record models shall be modeled to the LoD noted in the LoD Matrix with any Assets updated to reflect actual location, size, shape and orientation of installed Assets.

3.11 Level of Development (LOD)

Level of Design / Development / Detail (LOD) is the overall state of information model at a particular point in its design process. This includes not only graphical objects, but also the data associated with the objects. Your model should develop over time from a very coarse design to the record drawings and as-builts. This process has been distilled down into five distinct categories as formalized in the AIA E202 contract document.
Specific disciplines will also progress through the process at different rates. It is very common to have structural steel reach 400 level before all mechanical has reached 300 level. The entire team must recognize this and plan accordingly, making sure objects do not make it to the field if their final design will be influenced by objects not yet defined in the model. For example, steel must not be released from the 300 level before mechanical loads are known. This is not to say that mechanical must be complete to the same level, only that the loads needed to calculate the steel are true. As the model progresses from

conceptual through as-built, ownership of graphical objects and their associated data may pass from one group to another. This may also involve the transition from one data format to another. It is critical that data fidelity be maintained through this process.

It is critical to have a clear definition of what is included in the information model at different points in a project's life-cycle. Understanding expectations, roles and responsibilities is one of the most important aspects of a successful BIM-based project. To assist in this, GSA has developed several resources:

Basic Definitions of Level of Detail (listed below)

Detailed Object Definitions

The Level of Development (LOD) is based off the BIM Forum Level of Development (LOD) Specification 2022 that uses ASTM E1157 09 Uniformat II Active Standard. The description excerpt below is according to the LOD Specification 2022:

LOD 100

The Model Element may be graphically represented in the Model with a symbol or other generic representation but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e. cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.

BIMForum Interpretation: LOD 100 elements are not geometric representations. Examples are information attached to other model elements or symbols showing the existence of a component but not its shape, size or precise location. Any information derived from LOD 100 elements must be considered approximate.

LOD 200

The Model Element is graphically represented within the Model as a generic system, object or assembly with approximate quantities, size, shape, location and orientation. Non-graphic information may also be attached to the Model Element.

BIMForum interpretation: At this LOD elements are generic placeholders. They may be recognizable as the components they represent or they may be volumes for space reservation. Any information derived from LOD 200 elements must be considered approximate.

LOD 300

The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location and

orientation. Non-graphic information may also be attached to the Model Element.

BIMForum interpretation: The quantity, size, shape, location and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs. The project origin is defined and the element is located accurately with respect to the project origin.

LOD 350

The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location orientation and interfaces with other building systems. Non-graphic information may also be attached to the Model Element.

LOD 400

The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity and orientation with detailing, fabrication, assembly and installation information. Non-graphic information may also be attached to the Model Element.

BIMForum interpretation. An LOD 400 element is modeled at sufficient detail and accuracy for fabrication of the represented component. The quantity, size, shape, location and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs.

LOD 500

The Model Element is a field verified representation in terms of size, shape, location, quantity and orientation. Non-graphic information may also be attached to the Model Elements.

See attached “GOAA LOD Matrix Template.xlsx” for the LOD Matrix template.

SECTION 4 – BIM DELIVERABLES

4.1 General

Develop all designs using Building Information Modeling (BIM) and Computer Aided Design (CAD) software.

The use of BIM does not negate the need for delivery of CAD files used for the creation of the Construction Documents Drawings. Specification of a CAD file format for these drawings submitted shall not be used to limit which BIM application(s) or software(s) may be used for project development and execution.

Deliver the Model, CAD files and Facility/Site Data, Workspace in the native format, DWF and PDF format for project manager review using viewer software or Adobe Acrobat Reader. The BIM shall be in a native file format with linked performance-based specifications (via e-SPECS for Revit with SpecLink integration or similar), interactive for the user and the model shall be fully compatible with the Air Force standard platform (Autodesk Revit) and in an interoperable file format like the Industry Foundation Class (IFC).

Electronic submittals shall be on digital media acceptable to GOAA. The electronic submittals shall be organized and structured supportive of archival and retrieval. The electronic submittals shall have a “dash-board” type feature to assist viewers navigate through the digital media and associated files. Files not using names which readily identify their content shall have appropriate Meta data attached to include searchable short descriptions of the file’s content or relevance.

SECTION 5 – FINAL RECORD MODEL AND CAD DATA

The following shall be required of the construction contractor.

Submit the final Record Model, Facility and CAD Data files reflecting as-built conditions for GOAA Approval prior to project closeout.

Record Models shall contain updated and accurate parameter data at the time of submittal.

The Record Model shall update the final design Model, Facility and CAD Data files reflecting as-built conditions for GOAA Approval. Update the design model assemblies with actual manufacturer BIMs (when available) as part of the Record Model. Provide Operations and Maintenance, Product and Warranty data within the as-built model.

Include updates from all Field Changes and Contract Modifications.

It is the intent of GOAA to reduce the amount of paper waste in our landfills and to adopt the use of digital formats. Consequently, project deliverables will be digital files (including but not limited to model files, plans and specifications) except as separately identified in AE Deliverables document (PG 18-15). The format of all digital files must be documented in the AE and GC's individual BxP.

BIM files must be cleaned of extraneous "scrap" or "working space" layers, stories, abandoned design, object creation and test places, empty layers and other content which is typically produced in BIM production.

5.1 Drawing Deliverables Requirements (DDR) Compliance

The DDR governs the graphical appearance of 2D and sheet-centric output, whether created from BIM or CAD25. All .dwg and electronic 2D and 3D PDF drawings and formats must comply with the DDR standards.

5.2 Design-Intent Model – Bidding

The AE must provide to the GOAA Contracting Officer for potential bidders the following: 1) The fully assembled26 and coordinated27 non-editable Design-Intent Model in a NWD28 format (or equal) or a digital 3D PDF format; 2) the native BIM files; and 3) Design-Intent 2D Drawings (as noted in the DDR) derived from the Design-Intent Model.

5.3 Construction Award

Once a contract for construction has been awarded, the AE will provide GOAA with an editable copy of the fully coordinated and assembled Design-Intent Model (NWD format or equal), copies of the editable authoring BIMs for each discipline and digital 2D PDF Drawing files, which GOAA will provide to the General Contractor. To assist the sharing of information during construction, the AE and GC will establish a protocol for digital data exchange that addresses interoperability, model divisions and user access requirements prior to providing these files, which must be documented in their respective BxP plans.

5.4 Facility Management Data

GOAA requires data from the design and construction process to be reused for Facility Management purposes. GOAA will use the information in a Computerized Maintenance Management System (CMMS) and Computer- Aided Facility Management (CAFM). To assure that data for Facilities Management (FM) can be adequately transferred into GOAA's CMMS to operate the building, the data described in GOAA Data Requirements for Facility Management (FM Data) must be compiled during project delivery and provided in a COBie or similar database format. Both the AE and the GC must collaborate together and with GOAA to assure this information is available to the facility.

When the information is complete and ready for transfer to CMMS, an FME Workbench will extract the data directly from Revit and convert the 3D geometry and attributes to GIS for use in the CMMS.

5.5 Record Model

The AE is responsible for conforming the Design-Intent Model to the actual constructed building (the as- built), which is the Record Model. After construction is complete, the Record Model will be the engineering Record of Construction used for on-going Facility Management. The Record Model will be updated on a regular basis to keep current with construction changes and include any associated plans, elevations, details, shop drawings or other information pertinent for Facility Management.

Construction details or construction information that is not useful for managing and maintaining the facility (such as concrete pour sections, construction sequencing, etc.), will not be included in the Record Model. The final locations and sizes of the MEPFT equipment and distribution systems, utilities servicing patient headwalls, distribution systems, fire walls and smoke partitions, magnetic shielding for medical equipment, structural support for mounting overhead equipment (medical equipment, lights, etc.) and location of interior partitions (at a minimum) must reflect as-built conditions in the Record Model.

The Record Model must be fully assembled and coordinated in the original Design-Intent native BIM authoring file formats. The AE must develop a 3D grid to be included as a point of reference and provide any necessary instructions for navigating through the model. As the model contains Linked Files, a full description of how to reassemble the model and how to extract 2D documentation, including software names and version numbers, must be provided in the digital project files. See the DDR for file structures and naming.

5.6 Construction Models

The Construction Models (used for construction and reflecting the actual constructed facility at the end of the project) will be comprised of construction models and field changes, including, (but not limited to) RFIs, fabrication information, revision addenda and construction change directives (CCD). The GC is responsible for delivering their construction BIMs to GOAA.

5.7 As-Built Drawings

The Record Model must be used by the AE to derive the 2D **As-Built Drawings**. The drawings must follow the requirements in the Drawing Deliverable Requirements.

SECTION 6 – QUALITY CONTROL

The AE and the GC are responsible for assuring their models and data submittals have been thoroughly checked and meet GOAA BIM Standard and contract requirements for the project. Models and data must be submitted as noted in Section 3.9 – Deliverable Summary, for compliance evaluation by GOAA.

At each stage provide a Contractor-certified written report with each design submittal, confirming that consistency checks as identified in this Section have been completed for the design submittal. This report shall be discussed as part of the design review conference and shall address cross-discipline interferences, if any.

Visual Check - Ensure there are no unintended model components and the design intent has been followed

Interference Check - Locate conflicting spatial data in the Model where two elements are occupying the same physical space. Log hard interferences (e.g., mechanical vs. structural or mechanical vs. mechanical overlaps in the same location) and soft interferences (conflicts regarding service access, fireproofing, insulation), in a written report and document disposition.

Standards Check - Ensure that the BIM and A/E/C CADD Standard have been followed (fonts, dimensions, line styles, levels/layers and other contract document formatting issues are followed per the A/E/C CADD Standard.)

Model Integrity Checks - Conduct QC validation processes to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements and the report on non-compliant elements and corrective action. Provide justification acceptable to GOAA of non-compliant elements if allowed to remain within the Model.

Version Updating Check - Ensure that all users are using the agreed upon version of the software and the method by which changing software version is completed

Revision Authority Check - Describe the method by which all users will be given access and extent of revision authority to versions of the model as updated.

Other QC Parameters - Develop such other QC parameters as Contractor deems appropriate for the Project and provide to GOAA for concurrence.

Over-The-Shoulder Progress Reviews - Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model, including interference management and design change tracking information.

SECTION 7 – DESIGN AND CONSTRUCTION REVIEWS

Design submittal drawings shall be sized per contract requirements and suitable for A3 (11”x17”) legible scaled reproduction.

Provide Models and CADD files for design and construction review submittals in DWG DWF & PDF format for project manager review using viewer software or Adobe Acrobat Reader.

Provide a list of Construction Documents (e.g., drawings, elevations, design sections and schedules, details) produced from the Facility Data and updated as necessary for each submittal.

Perform design and construction reviews at each submittal stage to test the Model. This model review shall correlate to the actual submittal provided to GOAA. Minimum model reviews include:

Visual Checks - Check to ensure the design intent has been followed and that there are no unintended elements in the Model.

Interference Management Checks - Locate conflicting spatial data in the Model where two elements are occupying the same space. Log hard interferences (e.g., mechanical vs. structural or mechanical vs. mechanical overlaps in the same location) and soft interferences (e.g. conflicts regarding equipment clearance, service access, fireproofing, insulation) in a written report and resolve.

IFC Coordination View - Provide an IFC Coordination View in IFC Express format for all deliverables. Provide exported property set data for all IFC supported named building elements. Provide IFC export configuration text file illustrating BIM to IFC assignments.

Model Standards/ CAD Standards Check Reports - Provide a written report documenting that the BIM and AEC CADD Standard have been followed (fonts, dimensions, line styles, levels/layers, etc).

Model Integrity Validation - Provide a written report documenting the QC validation process used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements and the reporting process on non-compliant elements and corrective action plans.

Project Scope Validation Check - Provide report of comparison of programmed scope (from the project Requirements Document) to actual design scope. The comparison shall either be done within the model platform itself or an external project review program approved by GOAA. Actual NSF for the design shall be automatically generated within the model and not manually entered. The project scope validation check shall have a minimum of the following data points listed: Room Number, Department or Functional Area, Space Type, Room Name, Target NSF, Design Actual NSF, Calculated Delta

between Target and Actual NSF for room and calculated exceeds critical delta (yes or no). The project team shall establish a target “critical” delta or allowable variance for rooms at the beginning of the project (e.g. 2%). The project scope validation report will indicate rooms that fall outside of these established criteria.

Project Room Contents (PRC) Validation Check - Provide report of comparison of approved PRC list by room (from the project Requirements Document) to actual design PRC. The comparison shall either be done within the model platform itself or an external project review program approved by GOAA. The report shall provide a list of rooms where the design PRC does not match the approved PRC and the specific items that do not match. The non-matching items list shall include at a minimum the PRC equipment item approved and expected and the designed PRC item not matching.

Gross Area Tabulation Calculation - The contractor shall calculate the departmental gross square feet / meters (GSF / GSM) and the building GSF / GSM using the model’s automatic calculation attributes in accordance with gross square footage calculation guidance contained in AFI 32-1084 Facility Requirements. The total building Gross Area Tabulation report shall as a minimum identify total mechanical gross, circulation gross, electrical gross and overall building gross area factor.

A 3-D interactive review format of the Model in Bentley Navigator, Navisworks, Adobe 3D PDF 9.0 (or later), Google Earth KMZ or other format per Execution Plan requirements. The file format for reviews can change between submittals.

Change Tracking Report - The contractor shall provide documentation of changes made to the Model at each stage utilizing software tools such as the Revit Compare Tool.

During the Construction Submittal stages, the Contractor shall deliver the construction schedule with information derived from the Model.

SECTION 8 – DEFINITIONS

Acquisition Codes (OFOI, OFCI, CFCI, R) – Codes that identify responsibility for purchasing and installing Personal and Real Property Equipment. OFOI = owner furnished/owner installed; OFCI = owner furnished/contractor installed; CFCI = contractor furnished/contractor installed; and R = reused.

AE - the Architect/Engineering firm, along with all the consultants hired by the AE to produce the Design-Intent Model, contract documents and all other documentation necessary to support bidding and construction.

Airport Spatial Data - Any data representing manufactured or natural features that have geometry (size, location, elevation/depth, etc.) and have specific attributes associated with them. The coordinates of a point are the most obvious example of spatial data, but spatial data also incorporates projection systems, line and polygon attributes and other information. There are two main classes of spatial data: vector and raster.

Architecturally Significant Equipment (ASE) – Medical and non-medical equipment items that are customarily installed by the manufacturer or vendor that can impact the construction critical path schedule and/or requires connection to/accommodation by building infrastructure. Close coordination between GOAA Activations and procurement, equipment planners, construction contractor (GC), installer/vendor and AE, is required.

Assets – Item, thing or entity that has potential or actual value to an organization

Asset Information Model (AIM) - Information model relating to the operational phase (ISO)

Asset Information Requirement - Information requirements in relation to the operation of an asset (ISO)

BIM Project Execution Planning (BPIM) - A process that allows consensus decisions to be made by all shareholders in the PBIM. Used to identify Model Element Authors (who is creating the model elements) as well as the level of detail and BIM Uses (who is consuming Data from the PBIM, when and what LoD is needed by them).

Building Information Modeling (BIM) – Building Information Model(ing): various definitions are used within industry. BIM is the process, the Model and the management of creating digital information for design and construction. The context defines the acronym's meaning.

BxP – BIM Execution Plan, a BIM project management plan internal to the working teams, which outlines the management roles, division of work between prime/consultants or general contractor/sub- contractors for modeling responsibilities, standards, software versions, etc. used for model creation on a project.

CAD – Computer Aided Design

Common Data Environment (CDE) - Agreed source of information for any given project or asset for collecting, managing and disseminating each information container through a managed process (ISO)

Construction Model(s) – the GC models used for construction purposes on the project.

Delivery Phase – Part of the life cycle, during which an asset is designed, constructed and commissioned

Design-Intent Model - a complete and coordinated expression of the AE's design. Final equipment and materials choices are based on performance specifications provided by the AE, allowing some variation, but equivalent, equipment and materials to be selected by the GC during construction. Therefore, the Design-Intent Model will be augmented with submittals, shop drawings and substitution requests provided by the GC. Moreover, the GC is responsible for the means and methods of construction, which are similarly not contained in the Design-Intent Model. The GC is, however, responsible for providing, installing and constructing a complete and functional project, which includes requirements explicitly contained in the Design-Intent Model and requirements that, using normal industry practices, are reasonably inferable from the Design-Intent Model and necessary to achieve a complete, functional and maintainable project. Design-Intent model also refers to individual models such as a particular discipline model or in whole such as a composite or federated model.

Drawing Deliverable Requirements (DDR) – defines 2D drawing creation derived from either CAD or BIM.

Federated Model – an assembly of various discipline or trade models into a composite 3D view.

Federation - Creation of a composite information model from separate information containers (ISO)

Exchange Information Requirement (EIR) - Information requirement in relation to the agreed instruction for the provision of information concerning works, goods or services (ISO)

Furnishings, Fixtures, & Equipment (FFE) – Movable and fixed furnishings, fixtures, non-med equipment.

General Contractor (GC) - the General Contractor and all the sub-contractors under contract to the GC who are involved in the construction/fabrication of a specific facility.

Globally Unique Identifier (GUID) - Machine readable identifying codes that must be preserved through generation and regeneration of digital deliverables so that a given object (space, equipment, etc.) can be tracked properly. GUIDs are automatically assigned by the Space and Equipment Planning System (SEPS), BIM and other software. BIM software documentation should be consulted to determine how copied equipment object instances are handled in outputted reports and how they are handled internal to the software.

Industry Foundation Classes (IFC) - An international standard schema for data exchange.

Information - Reinterpretable representation of data in a formalized manner suitable for communication, interpretation or processing (ISO)

Information Model - Set of structured and unstructured named persistent sets of information retrievable from within a file, system or application storage hierarchy (ISO)

Information Requirement - Specification for what, when, how and for whom information is to be produced (ISO)

Level of Development (LOD) - LOD is the degree to which the elements geometry and attached information has been thought through the degree to which project team members may rely on the information when using the model. This base definition is further defined in the “Level of Development Specification,” 2022 by BIM Forum.

Metadata - Information about data, describing the quality (e.g., accuracy, last revised originator, etc.) of that data being examined by a user, to manage user expectations for proper application of that data. Security level restrictions for the use of a certain data are also part of its metadata.

MEPFT Equipment - Mechanical, Electrical, Plumbing, Fire protection, Technology (including medical low voltage systems, structured cabling) equipment such as generators, transformers, electrical fixtures, air handling units, boilers, chillers, VAV boxes, plumbing fixtures and communication technology cable trays.

MEPFT Systems - the distribution systems for piping, conduits or ducting (including but not limited to Mechanical, Electrical, Plumbing, Fire Protection and Technology (including medical low voltage systems, structured cabling, communications).

Model – refers to an individual model containing various components, a combination of models and/OR the process of modeling in general. The most appropriate meaning within the context of use would apply.

Operational Phase – Part of the life cycle during which an asset is used, operated and maintained

Organizational Information Requirement (OIR) - Information requirements in relation to organizational objectives (ISO)

Project Data Security Plan – the documented protocol that defines how the data will be protected from loss or unauthorized access during creation, exchange and retention.

Program for Design (PFD) - the baseline SEPS design program as provided by GOAA that identifies the rooms, net square footage and other requirements for the project.

Project Information – Information produced for or utilized in a specific project

Project Room Contents (PRC) - A SEPS export file providing preliminary room contents for each room.

Record Model - the Design-Intent Model updated with actual constructed locations for equipment, systems, walls, etc. which will be used for Facility Management. This is intended to be a lightweight model with enough detail to enable facilities management operations without overly detailed elements.

Responsibility Matrix – Chart that describes the participation by various functions in completing tasks or deliverables

GREATER ORLANDO AVIATION AUTHORITY
Innovation Connecting the World

Title: GIS STANDARDS

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GREATER ORLANDO AVIATION AUTHORITY
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SECTION 1 – INTRODUCTION

1.1 Foreword

The Greater Orlando Aviation Authority ("GOAA" or "Authority") developed this Geographic Information Systems (GIS) Standard for professionals who maintain or create GIS data for GOAA. The goal of the Standard is to assure consistency in processes and GIS development, produced at and for the Authority, from GOAA's various service providers across multiple types of projects.

This document will be updated regularly and all professionals working on GIS data for GOAA shall verify they are using the latest version of this document.

1.2 Purpose of this Document

This GIS Standard document defines the requirements for all GIS related endeavors produced at and for the Authority. It specifies the minimum software requirements, spatial data standards, ETL tools and processes and data submittal requirements for GOAA GIS data.

These requirements assume that readers have a basic understanding of GIS concepts and terminology. Readers who are new to the Authority's GIS requirements may wish to review the document in its entirety. Those who are familiar with the requirements may wish to use the document as a reminder of the specifics to which they must adhere.

The content of this manual supersedes all previously published Authority GIS Standard versions and is subject to change without notice. The Authority shall not be liable for errors and omissions in this Standard.

1.3 Referenced Standards & Documents

The Authority's GIS Standard is part of other standards with which consultants and Authority staff must adhere to. These documents can be provided by the GIS Coordinator and include the following:

- The Authority's CAD Standards
- The Authority's BIM Standards
- Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-18B "General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards", which can be found at https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-18B-chg1-consolidated.pdf

1.4 Resources

In order to facilitate the implementation of this Standard, the Authority has created the following information which can be made available to Consultants and Authority Staff.

- ESRI File Geodatabase 10.8.1 GOAA GIS schema

- GOAA GIS Data Dictionary - *GOAA_schema_v1.Htm*

Authority GIS data that may be available for the extent of the project area, see below for more information.

This information is only available by request. To request this information, please send an e-mail to the GIS Coordinator and copy geospatial@goaa.org. In your request, include a complete list of requested data, state why this information is necessary and the Authority's project number. In addition, submit a Shapefile or File Geodatabase feature class named ConstructionArea that has a polygon showing the extent of the basemap area required, see Section 4.1.3. The Authority's GIS data shall only be used as an external reference file and shall not be altered.

1.5 GIS Software Format

All GIS data shall be compatible with ESRI File Geodatabase Version 10.8.1 or newer and be compatible with the latest version of ArcGIS Pro software. It is the consultant's responsibility to ensure that all requirements defined in this document are met in the data they create and convert from other software, without any loss of quality or accuracy when they are opened in ESRI software.

SECTION 2 – SPATIAL DATA STANDARDS

2.1 Coordinate System & Units

All spatial data developed for GOAA will be developed in Florida State Plane Coordinate System – East Zone using NAVD 88 for vertical measurements, NAD 83 (2011) for horizontal measurements and feet as the units of measurements. TABLE 1 below lists the details regarding these specifications.

TABLE 1 – GOAA COORDINATE SYSTEM SPECIFICATIONS

XY Coordinate System	
Coordinate System	NAD_1983_2011_StatePlane_Florida_East_FIPS_0901_Ft_US
WKID	6438
Authority	EPSG
Projection	Transverse_Mercator
False Easting	656166.6666666665
False Northing	0.0
Central Meridian	-81.0
Scale Factor	0.9999411764705882
Latitude of Origin	24.33333333333333
Linear Unit	Foot_US (0.3048006096012192)
Z Coordinate System	
Coordinate System	NAVD_1988_Foot_US
WKID	6430
Linear Units	Foot_US
Vertical Shift	0.0
Direction	positive up
Vertical Datum	North_American_Vertical_Datum_1988

All features located by survey methods shall be based on the 2011 adjustment of NAD83 for horizontal coordinates. All units for both horizontal and vertical data will be the U.S. Survey Foot (1200/3937 meters). Decimal units are used for all Authority site/civil basemaps.

2.2 Accuracy

If the Consultant's contract specifies a horizontal and/or vertical positional accuracy, all newly collected objects that represent real-world objects shall be located within the specified tolerance from the real-world object they represent (i.e., absolute positional accuracy). The tolerances

specified must be achieved at a 95-percent confidence level, meaning that, statistically, 95 percent or more of the objects will be at this accuracy level or better. Coordinate values shall be recorded to a precision (i.e., number of decimal places in the coordinate value) that is at least sufficient to represent the accuracy level specified.

Prior to any data collection efforts beginning, consultants shall confirm that the accuracy of the collection effort is appropriate to the needs of the project and follows minimum requirements for geospatial data collection. The use of sub meter GPS or cellular based efforts are strongly discouraged for spatial data collection.

2.3 Sensitivity Level

To keep sensitive airport data secure, data should be attributed with a classification based on the MD_ClassificationCode list in ISO 19115:

- **Unclassified** data is available for general disclosure.
- **Restricted** data is not available for general disclosure.
- **Confidential** data is available to persons who can be entrusted with the information.
- **Secret** data is to be kept private, unknown or hidden from all but a select group of people.
- **Top Secret** data is of the highest secrecy restricting access to only those requiring access to perform their jobs.

Users of the data must be cautious when handling and sharing sensitive data. Some GIS feature classes are Sensitive Security Information (SSI) and must be handled in accordance with 49 CFR 1520.

The security levels for FAA 18-b feature classes are listed under the “Information Assurance Level” in chapter 5 of the Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-18B.

2.4 Database Schema

GOAA uses the ESRI file geodatabase format to store its GIS data. In a file geodatabase, all features are stored in feature classes and multiple feature classes can be stored in feature datasets. File geodatabase Tables can only reside directly in the geodatabase level.

2.4.1 Feature Class Common Attribute Fields

TABLE 2 lists the attribute fields that are common to all feature classes. These attribute fields are organized by type such as system keys, identifiers, data elements and editor tracking. These attribute fields should be completed within all feature classes when required.

TABLE 2 – ATTRIBUTE FIELDS COMMON TO ALL FEATURE CLASSES

FIELD NAME	ALIAS	TYPE	LENGTH	DEFINITION
System Keys				
GlobalID	GlobalID	Global ID	36	A globally unique identifier applied to each feature in the database as a primary key that is managed and maintained by ESRI. Enabled by Authority on Feature Datasets.
Guid	Guid	Guid	36	A globally unique identifier applied to each feature in the database for reference.
Identifiers				
AirportID	Airport ID	Text	3	The 3-letter location identifier code (LID)
AssetId	Asset ID	Text	64	A unique identifier associated with this feature for linking to an asset management system.
Data Elements				
NAME	Name	Text	50	Name of the feature.
DESCRIP	Description	Text	255	Description of the feature.
ProjectID	Project ID	Text	255	Project and/or task the feature is associated with.
Filelink	Filelink	Text	255	File folder link to the project/task data folder for the feature information.
Comments	Comments	Text	255	General Comments
Object Level Metadata Elements				
DataStartDate	Data Start Date	Date	10	The first date on which the data represented by this feature reflects a current, real world condition.
DataEndDate	Data End Date	Date	10	The last date on which the data represented by this feature reflects a current, real world condition.
DataSource	Data Source	Text	50	The organization that developed the data
Reference	Reference	Text	255	Document/Data the feature came from.
Quality	Quality	Text	255	Reliability and accuracy of the feature.
Sensitivity	Sensitivity	Text	50	Sensitivity level of the feature.
QAStatus	QA Status	Text	50	QA Status of Features
QAReason	QA Reason	Text	50	QA Reason for Status
CollectMethod	Collection Method	Text	50	The method used to collect the data.
Editor Tracking (Enabled on Feature Datasets by Authority)				
created_user	created_user	Text	255	Field managed and automatically populated by ESRI with the user that creates a feature.
created_date	created_date	Date	10	Date Field managed and automatically populated by ESRI when the feature was created in the database.
last_edited_user	last_edited_user	Text	255	Field managed and automatically populated by ESRI with the user makes edits to geometry or attributes of the feature.
last_edited_date	last_edited_date	Date	10	Date Field managed and automatically populated by ESRI when a feature was edited in the database.

FIELD NAME	ALIAS	TYPE	LENGTH	DEFINITION
Additional Fields for ETL				
CadLayer	Cad Layer	Text	255	The CAD Layer the feature corresponds to in the Authority's CAD Standard.
CadType	Cad Type	Text	255	A valid value overrides the default output entity type. For example: 3D Polyline outputs POLYLINE entities instead of the default LWPOLYLINE.
RefName	Ref Name	Text	255	The name of the parent object in which the entity resides. (Point feature classes only)
Angle	Angle	Double	--	Rotation angle in degrees. (Point and annotation feature classes only)
FCName	Feature Class Name	Text	50	ESRI Feature Class name that is used for ETL purposes.

2.4.2 Feature Dataset Structure

Feature datasets are similar to folders on a hard drive and are used to better organize the data. Note that no two feature classes in a geodatabase can have the same name, regardless of whether or not they are in separate feature datasets or of separate geometry types. GOAA's GIS database is organized into the following feature datasets:

FAA AC150/5300-18B

These feature datasets contain feature classes that are specific to the FAA's Airport Surveying – Geographic Information System (GIS) Program. The following feature datasets are as follows:

FAA AC150/5300-18B	
AC150_Airfield	AC150_SeaPlane
AC150_Airspace	AC150_Security
AC150_Cadastral	AC150_Structures
AC150_Environmental	AC150_Surface_Transportation
AC150_Geodetic	AC150_Utilities
AC150_Navigational_Aids	

GOAA General

GOAA General	
Address	Maintenance
ALP_Basemap	Map_Service
Asset_Management	Network
Building_Interior	PMS
Control_Systems	Projects
Civil_Survey	Safety
Exhibit_A	StateAndLocal
Inspections	

GOAA Utilities

The GOAA_UTIL_* feature datasets are broken out with more detail than provided by the Utilities included as part of the FAA AC150/5300-18B schema and are maintained by GOAA. The GOAA utility models are based off the ESRI Utility Network Solutions. The following feature datasets are as follows:

GOAA Utilities	
GOAA_UTIL_Communications	GOAA_UTIL_Sewer
GOAA_UTIL_Electric	GOAA_UTIL_Stormwater
GOAA_UTIL_GasPipeline	GOAA_UTIL_Water

Local Utilities

The UTIL_* feature datasets are for local utility data that is not maintained by GOAA.

GOAA Utilities	
UTIL_Electric	UTIL_Sewer
UTIL_Fiber	UTIL_Stormwater
UTIL_Fuel	UTIL_Transmission
UTIL_NaturalGas	UTIL_Water
UTIL_Reuse	

ArcGIS Indoors Data Model (AIIM)

ArcGIS Indoors is ESRI's mapping, wayfinding and space management solution. The following feature datasets are as follows:

ArcGIS Indoors Data Model (AIIM)	
AIIM	AIIM_Network
AIIM_3D	AIIM_PrelimNetwork

2.4.2.1 GOAA General Feature Dataset Notes

The *PMS* feature dataset contains feature classes associated with the Authority's Pavement Management System (PMS).

The *Projects* feature dataset is based on current GOAA managed GIS Data. The features consist of Survey Project Boundaries, Project Limits and Project Cranes. These features are utilized for GOAA to visualize and manage current projects and project data at GOAA Facilities.

The *StateAndLocal* feature dataset contains data that is collected and distributed by others through a State or Local Data Portal or obtained from other entities and that are needed for airport base maps or additional analysis.

2.4.2.2 Indoor Mapping Feature Dataset Notes

Data that is to be used for smart building management, such as an indoor mapping system or tracking system, shall follow the ESRI ArcGIS Indoors Data Model (AIIM) for future interior data needs inside of the terminal building and other relevant buildings.

2.4.3 Data Dictionary

The accompanying Htm document *GOAA_schema_v1.Htm* outlines the data structure and specifications for the GOAA GIS database schema. It is important that these specifications are followed to ensure data integrity.

2.5 Geometry Requirements

All features should be represented as points, lines or polygons, as defined in OGC's Simple Geometry Definitions and explained below:

- **Points** shall represent a specific coordinate in three-dimensional space.
- **Lines** shall represent a line segment (i.e. a straight line between two end points) or polyline (i.e. two or more connected line segments collectively with two end points and one or more vertices in between.
- **Polygons** shall represent areas enclosed by a polyline between two coincident (i.e. at exactly the same location in three dimensions) end points and two or more vertices in between. No two vertices of the polygon shall have the exact same location in three dimensions.

All geometry is defined by vertices, which represent points, end points or intermittent vertices (i.e. points in between endpoints). All vertices represent a specific coordinate tuple (i.e. X, Y and Z) in three-dimensional space. Each coordinate should be recorded to a tolerance of three decimal places or thousandths of a foot.

2.6 Topology Rules

2.6.1 Basic Topological Integrity

Topology refers to the positional relationship between features. All features are required to meet the following topology rules:

- **Collocated Vertices –** Collocated vertices must share the same X, Y and Z coordinates.

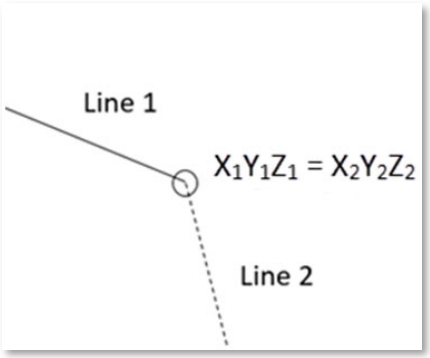


Figure 20. Collocated Vertices

- **Lines Meet at Endpoints –** Line segments and polylines that join to represent one continuous string of linear features (e.g., a utility network) should have collocated vertices as endpoints.

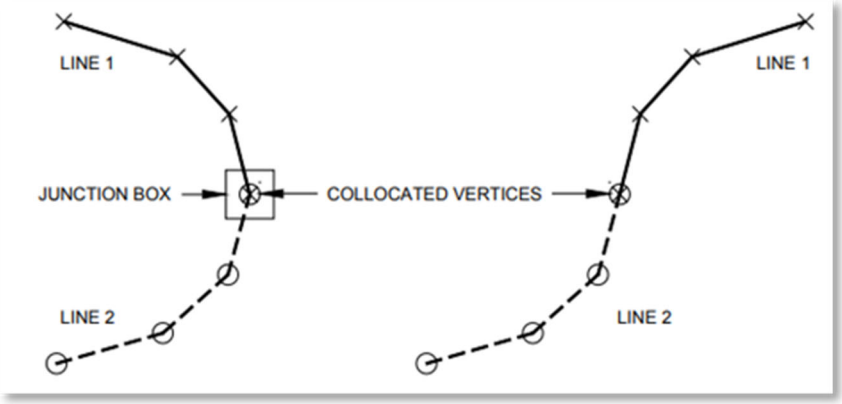


Figure 21. Lines Meeting at Endpoints (source: FAA AC150/5300-18B, Change 1)

- **Sufficient Density of Vertices –** Lines and polygon edges should contain one or more segments with vertices placed at intervals, so the feature does not stray from the actual object it represents by more than half of the defined accuracy limit.

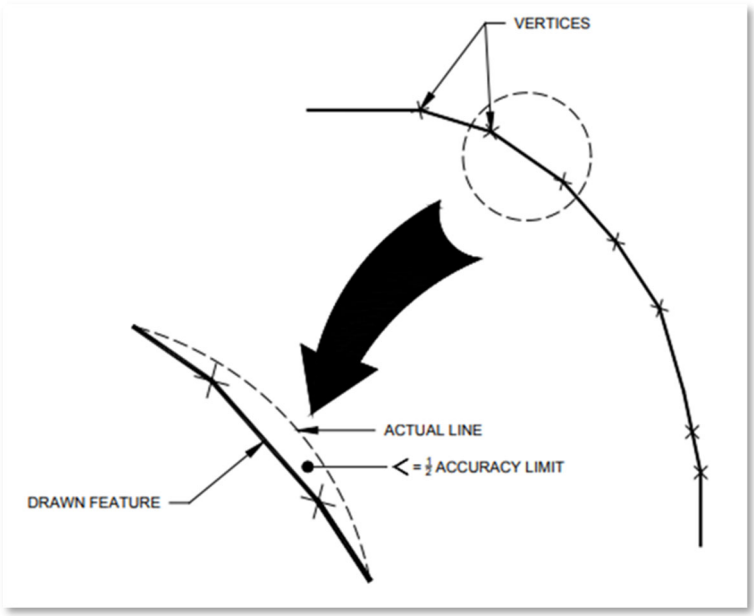


Figure 22. Density of Vertices (source: FAA AC150/5300-18B, Change 1)

- **Shared Edges and Shared Vertices between Adjacent Features –** Features that are intended to be adjacent to one another should share all collocated vertices along their common edge(s). This ensures that there are no unintentional gaps (empty space) or slivers (overlaps) between adjacent features.

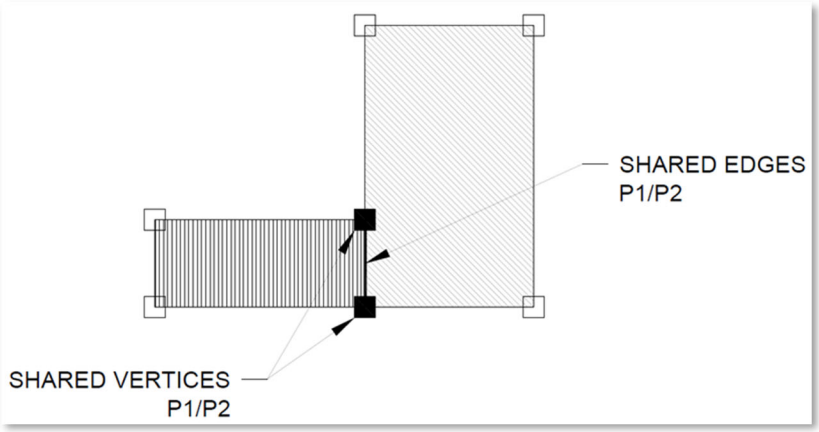


Figure 23. Shared Edges and Shared Vertices (source: FAA AC150/5300-18B, Change 1)

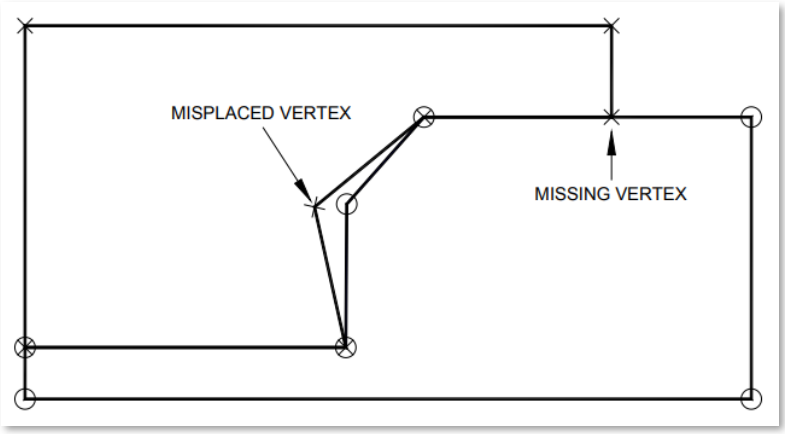


Figure 24. Misplaced and Missing Vertices of Adjacent Polygons (source: FAA AC150/5300-18B, Change 1)

- **Overlapping Polygons –** No polygon will overlap, intersect or fall within another polygon of the same type, except for the Runway feature type, whose polygons can overlap.

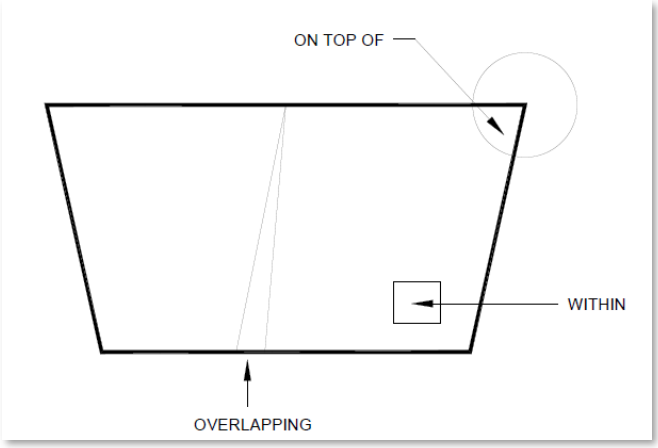


Figure 25. Overlapping Polygons of the Same Feature Type (source: FAA AC150/5300-18B, Change 1)

2.6.2 Geodatabase Topology

Geodatabase topology is used to define the spatial relationship between features in one or more feature classes through a set of predefined rules. *Appendix B – Geodatabase Topology Rules* lists different types of topology rules that may be used in GIS. Only feature classes held within a common feature dataset may participate in a topology. Feature classes may be subject to one or more topology rules.

2.7 Metadata Standard

2.7.1 Purpose

This section defines the metadata standards that will be used for GIS data developed for GOAA. All GIS-oriented spatial data created for GOAA must include metadata that is developed and submitted according to the specifications documented in this standard. This includes data prepared internally by airport staff and data prepared by outside data providers (designers, contractors and consultants).

This section also provides general information about what metadata is and current industry standards. More importantly, this section defines metadata standards and its elements (both required and optional) that will be used for all geospatial data developed for GOAA.

2.7.2 Scope

The term “Metadata” is a term that can be described as “data about data.” It is typically represented as an XML (eXtensible Markup Language) document that answers “who, what, when, where, why, and how” questions about data and its creation. Every metadata file has multiple sections including:

- **General description section –** summary or abstract, data purpose, source, status, etc.
- **Spatial section –** describing the coordinate system and the data’s spatial characteristics
- **Attributes section –** describing attributes included in the dataset

2.7.3 Introduction

The word metadata consists of two words—the Greek word meta, which means going above and beyond and the English word data. There are various descriptions of metadata — metadata is:

- data used to describe other data
- information about particular data, or
- a term that describes the data.

The information and description contained in the metadata helps users to evaluate the data and determine for what and how it can be used.

Geospatial datasets metadata in most cases describes purpose, source, and status of the data; spatial data characteristics such as map projection; and attribute information description which may include a definition of what particular attributes describe.

2.7.4 Geospatial Metadata Standards

Without metadata, it is difficult and sometimes impossible to assess the usability of particular geospatial datasets. Questions such as: when was this data created and by whom, is this data current, what is the map projection, or what are the units of measurements, can all be answered by reading an associated metadata document.

2.7.4.1 When to Gather & Provide Metadata

Metadata must always be delivered with GIS data. If there is no metadata, the investment in geospatial datasets is not protected.

- What if the original data creator leaves the organization?
- What if there is a need to use the data for other purposes? What is its original intent?
- How will potential geospatial data users asses the quality or usability of the data?

Metadata will provide the necessary information to answer these questions. Knowing the actual source and quality of geospatial data is essential in preventing expensive “data disasters.” The answer on all posed questions is in the metadata document that will, if correctly created, be the main source for all that valuable information.

2.7.4.2 When to Maintain Metadata

For metadata to be effective and truly valuable, it has to be updated whenever the dataset is updated. If metadata is created during the initial geospatial data creation and then never updated while the data has changed, the metadata’s value will dissipate. If metadata is not regularly maintained, it will ultimately become unusable, or even worse, become deceiving.

2.7.4.3 What Standard to Use

Several issues must be addressed when deciding what metadata standard to use for a particular dataset. Some of these issues might include the following:

- Data types—text, numeric, date, and so on.
- Is the standard too complex (too many things to report) or too simple (not enough essential information for a specific dataset)?
- Is standard easy to read/follow—the content of the metadata document has to be more important than the actual standard.
- The final product, the metadata document, is easily understandable for users that are not necessarily familiar with the standard.
- Are there existing standards the organization is already using?
- The final product, the metadata document, is easily understandable for users that are not necessarily familiar with the standard.
- What is the intended audience for the metadata, both within and outside of the organization?

GOAA has established a minimum standard for GIS metadata, which must be submitted along with GIS data. See TABLE 3 below.

2.7.4.4 GIS Tools & Storage

The GOAA GIS is based on the ESRI suite of GIS products. The creation of metadata by Data Providers may be automated by ESRI software for GIS data.

2.7.5 Minimum Metadata Element Requirements

TABLE 3 – MEATADATA ELEMENT SPECIFICATIONS below lists metadata elements typically required for geospatial data developed for GIS. **The metadata required for submittal to GOAA for GIS data is highlighted.**

TABLE 3 – METADATA ELEMENT SPECIFICATIONS

Element Description [Required is Highlighted]	Metadata Element
Keywords	• Identification o Keywords Theme • Keyword • Thesaurus (If the keyword(s) are derived from a formal thesaurus add thesaurus name otherwise add None.)
Abstract: Description/Purpose	• Identification o General Description • Abstrac
Creation History: Method, Source	• Data Quality o Source Information General • Source Contribution
Update Frequency	• Identification o Status Update Frequency
Data Creator – Firm & individual	• Identification o Citation General • Originator
Time period for which the data is relevant	• Identification o Time Period Correntness reference Calendar Date
Status of the data	• Identification o Status o Progress
Constraints on accessing the data	• Identification o General

Element Description [Required is Highlighted]	Metadata Element
Security Classification & Use Constraints	• Access Constraints o Use Constraints
Who completed the metadata document	• Metadata reference o General
Publication date and time	• Identification o Citation
Spatial Reference General Information	• Spatial Reference o General (all)
Horizontal Coordinate System Information	• Spatial Reference o Horizontal Coordinate System (all)

2.7.6 Metadata Standard – FGDC

The GOAA Metadata profile listed above is designed to comply with Federal Geospatial Data Center FGDC-STD-001-1998, with some modifications. The FGDC metadata standard is universally accepted as “the” metadata standard for the US Government, many regional and local governments, GIS standards committees and GIS software providers.

2.7.7 Metadata Acceptance Testing Procedures

All geospatial datasets created for GOAA will be evaluated for metadata compliance:

- Every geospatial dataset must have associated metadata information, including “draft” in-progress data being submitted at in-development milestones (30%, 60%, 90% complete).
- All required metadata elements must be completed (information has to be present for every required metadata element, no empty values allowed).
- Metadata Acceptance Testing Steps will consist of the following:

    1. The first step will be to check if every feature dataset has an associated metadata document.
    2. When the first requirement is met, then it is necessary to ensure that the existing metadata document complies with the metadata standard.
    3. Finally, the check will be run on every metadata document to verify that information for all required metadata elements is completed.

SECTION 3 – EXTRACT, TRANSFORM & LOAD (ETL)

3.1 ETL Tools & Processes

ETL (Extract, Transform and Load) processes and related tools could be utilized to keep the spatial data in GIS, CAD and BIM up-to-date. ETL processes and tools would consist of the following:

- ETL Process document describing the process to convert and maintain data, along with a timeline for how often data is updated and who is responsible for updating the data.
- ETL Tools that can automate the data conversion process from GIS, CAD and BIM deliverables for spatial data and most attributes.
- Administration Guidelines for maintaining the process document and keeping the ETL tools up to date as current and concise as possible.

3.2 CAD to GIS Crosswalk Document

A crosswalk document describes how the CAD layers and GIS feature classes are translated between each other. CAD uses layer names and object data while GIS uses feature classes with attribution. The CAD to GIS crosswalk document details how the CAD layers correspond to the feature classes and how the CAD object data corresponds to the GIS attribution. This document will be maintained for and used by the ETL tools and processes.

SECTION 4 – DATA SUBMITTAL

If a GOAA project requires GIS data to be delivered, it must follow the requirements listed below.

4.1 Delivery of Spatial Data to GOAA

This section pertains to projects requiring data to be submitted to GOAA.

4.1.1 GIS Data Format

Spatial data shall be delivered to GOAA in a manner readily converted to the Department's GIS format. The database may be exported into an XML Workspace Document format using ESRI ArcGIS Pro Catalog or by creating a file geodatabase in ESRI ArcGIS Pro Catalog following the data model detailed in the GOAA Data Dictionaries in a ZIP file format. Microsoft Access databases are not recommended because of potential incompatibilities in the manner in which data is stored in the Access database format versus the GOAA Oracle database.

Shapefile (.SHP format) is also permitted, although not preferred, if not delivering data in a file geodatabase.

All GIS data deliverables must be accompanied by metadata, which meets the metadata standards defined in this document.

4.1.2 Spreadsheet of Feature Classes & Attributes

At the start of a project, an Excel spreadsheet listing the GIS feature classes, along with attributes that will be populated, shall be provided to GOAA. All feature classes and attributes shall follow the standard defined in this document.

4.1.3 Extent of Project Area

At the start of a project, a map showing the extent of the project area shall be provided to GOAA. The project extent shall be stored in the ConstructionArea polygon feature class that is compliant with FAA AC 150/5300-18b in an ESRI file geodatabase. Attributes for the ConstructionArea feature class shall be populated. Refer to the GOAA Htm Data Dictionary for details.

At minimum, the following ConstructionArea fields should be populated. PROJECTNAM (Project Name) should be populated with the Project or Task Title. The ProjectID (Project ID) field should be populated with the GOAA assigned project or task number. The COORDINATI (Coordination Contact) field should include the individual's name, company name and direct phone number for the primary point of contact for this project.

To request the Authority's GIS data for a specific project area, see Section 1.4.

It is the responsibility of the consultant or contractor to provide this information for GOAA review and approval before work commences. Once approved, the matrix of feature classes and attributes, matrix of data requirements, mapped project extent and associated limitations,

restrictions and deviations will be attached to the scope of work and become a binding requirement of the contract or agreement.

4.1 Delivery of Spatial Data to FAA

This section pertains to projects requiring data to be submitted to the FAA.

4.1.1 GIS Data Format

If data must be submitted to the FAA Airports Data and Information Portal (ADIP), it must be provided in ESRI shapefile format complying with FAA AC 150/5300-18b. Shapefiles must be uploaded to the ADIP website in a ZIP file format. Consultants who are authorized FAA ADIP users should run their data through the ADIP website and resolve all critical errors unless there is a valid explanation for an error.

Where required by the FAA, the consultant shall prepare a project final report and supporting data as defined in AC150/5300-18B and supporting documentation published by the FAA and NGS. The designated Airport Sponsor at GOAA will perform the final upload of the data to the FAA Airports Data and Information Portal site or the designated Airport Sponsor can delegate this task to a consultant if they should choose to on a project-by-project basis.

4.2.2 List of Project Types

If FAA data is required, a spreadsheet that lists which type of project(s) (as defined by the columns in Table 2-1 of FAA AC 150/5300-18B) will be carried out by the Consultant and which of the data requirements (identified as rows in this table) are applicable. Comments or notes should be added to indicate where requirements will be partially satisfied based on the scope of the project and where the requirement will be met by data provided from another project. Any limitations, restrictions, deviation from FAA requirements or assumptions shall be listed as a part of this matrix.

4.2.3 Supporting Documentation

If data is to be submitted to ADIP as specified in the scope of work, additional documents (as defined by the columns in Table 2-1 of FAA AC 150/5300-18B) including an FAA Statement of Work, Remote Sensing Plan, Survey & Quality Control Plan, Geodetic Survey Plan, Imagery Plan, Imagery Acquisition Report and Final Report along with supporting data may also be required.

TABLE 4 – FAA SUPPORTING DOCUMENTATION

Element	Description	Form	Level
Project Number	The GOAA, TAA or Survey project number associated with the task.	PDF Document	Project
Project Extent	The geographic extent of the data collected by this project.	Feature Class	Project
List of Feature Classes and Attributes	A tabular list of feature classes and attributes that conform to these GOAA data standards that indicates which features and attributes will be developed	XLS Spreadsheet	Project

Element	Description	Form	Level
	and adds additional comments or caveats related to each.		
FAA Statement of Work	The statement of work required by the FAA at the beginning of an Airports GIS data development project (see AC150/5300-16).	PDF Document	Project
FAA Geodetic Control Plan	The Geodetic Control Plan required by the FAA at the beginning of an Airports GIS data development project (see AC150/5300-16 & 18)	PDF Document	Project
FAA Remote Sensing Plan	The Remote Sensing Plan required by the FAA at the beginning of an Airports GIS data development project (see AC150/5300-17)	PDF Document	Project
FAA Survey & Quality Control Plan	The Survey & Quality Control Plan required by the FAA at the beginning of an Airports GIS data development project (see AC150/5300-18)	PDF Document	Project
FAA Final Project Report	The final report document required by the FAA at the end of an Airports GIS data development project (see AC150/5300-18).	PDF Document & ZIP	Project
Tested Vertical Accuracy	The vertical positional accuracy of project data at the 95% confidence level of the data as determined by tests described in the FGDC's National Standard for Spatial Data	PDF Document	Project

SECTION 5 – REVISION HISTORY & CHANGE CONTROL

TABLE 5 – REVISION HISTORY

Version	Date Published	Summary of Changes
1	September 2022	Final version
2		
3		
4		
5		

5.1 Change Control

The Authority understands and expects that this GIS Standard will be updated over time. Consultants and Authority staff may submit requests for changes. These changes may be clarifications, additions and/or deletions. Any proposed changes will not be implemented until approved by the Authority. Approved changes must be implemented before the first datasets of a project are submitted. Change requests shall be submitted by emailing the form provided in Appendix C to geospatial@goaa.org with “Requested Change to GIS Standard” in the subject line.

One form shall be used for each change requested, although similar changes to a series of layers or attributes can be provided on one form. A thorough description of why the existing standard does not accommodate a need should be provided. Additional pages can be submitted along with each form.

The result of this evaluation will be communicated via a response to the request email. Approved changes may be implemented by data developers upon receipt of this email. Approved changes will be reflected in subsequent versions of this document.
Adopted changes shall be appended to this document in both electronic and hardcopy form to record the document evolution and change history. Rejected change requests shall be archived to accumulate a complete change request history to help consistently evaluate future requests and assist in consistent reasoning for rejections.

5.1.1 Change Control Process

1. Receive informal requests for a modification to the GOAA GIS Standards and provide to the GIS Coordinator for review.
2. If the Change Request is approved, insert the approved Change Control Request Form in Appendix D of this electronic document for future reference.
3. Save previous version with publication date of approved document.
4. Revise this document to include the requested change and update the revision history table.
5. Archive all rejected change requests.
6. It is the Consultant and Authority staff’s responsibility to ensure the most current version of the GOAA GIS Standards is being used at the start of a contract or project.

APPENDIX A – GLOSSARY

Term	Definition
AGOL	ArcGIS Online (AGOL) is ESRI's web-based mapping software.
ArcGIS	A collection of Geographic Information System software product lines produced by ESRI, composed of applications such as ArcMap, ArcPro, AGOL and ArcGIS Enterprise.
ArcGIS Enterprise	The foundational software system for GIS, powering mapping and visualization, analytics and data management. It is the backbone for running the ESRI suite of applications and your own custom applications. ArcGIS Enterprise is tightly integrated with ArcGIS Desktop and ArcGIS Pro for mapping and authoring and seamlessly connects with ArcGIS Online to share content between systems.
ArcGIS Server	A GIS web Map Server, produced by ESRI, which facilitates sharing of GIS data across the Internet or within an Intranet.
ArcMap	The central application in ArcGIS Desktop for all map-based tasks including cartography, map analysis and editing.
ArcGIS Pro	Advanced ArcGIS desktop application
ArcSDE	An application server that facilitates storing and managing spatial data (raster, vector and survey) in a database management system. Makes this data available to many applications.
Attribute	Attributes are description information about a feature in a GIS. Attribute data is typically not geographical or spatial in nature but provides descriptive information about the feature itself.
Coded Value	The values assigned to a Domain that consist of a Code and a Description of the code.
Data Dictionary	Information describing the contents, format and structure of a database containing details on the data format, relationships, meaning, source and usage.
Data Model	The logical data structure developed during the database design process. It is a description of the structural properties that define all entities represented in a database and all the relationships that exist among them.
Data Type	The type of data assigned to a Field in GIS. Data types include a variety of number types, text types, date types, binary large objects (BLOBs) or globally unique identifiers (GUIDs). Choosing the correct data type allows you to correctly store the data and facilitates your analysis, data management and business needs.
Domain	A domain defines and limits each distinct attribute value allowed to be entered in as data for each feature. This limitation reduces the amount of error in entering data by enforcing hard data constraints and ensuring data integrity.
ESRI	Environmental Systems Research, Inc., of Redlands, California. Producer of ArcGIS family of products.
ETL	Short for Extract, Transform and Load. Extract is the process of reading data from a database. Transform is the process of converting data from one form to another to be placed into another database. Load is the process of writing the target data into the database.
Feature	A Feature is a cartographic point, line or polygon object which is a representation of a real-world object on a map. GIS features have "spatial" information such as location, length, area, elevation, etc.
Feature Class	A feature class, often called a layer, contains geographic features that have the same geometry (point, line, polygon), attributes and spatial reference.
Geodatabase	A geodatabase refers to a database that stores geographic data. A geodatabase holds a number of objects, including features, feature classes, tables, attributes and domains.
GIS	Geographic Information System. A system that integrates tabular system data with a spatial representation.
Layer	Mechanism to display geographic data that references a dataset and specifies how it is portrayed using symbols, colors and text labels.
Metadata	Detailed information about the dataset—how it was created and by whom. Accuracy and completeness descriptions.
Orthophotograph	An aerial photograph that shows images of ground features in their true map positions.

Planimetric Data	A map that represents the horizontal position of features such as boundaries, fences, streets and structures.
Portal	A component of ArcGIS Enterprise that allows the sharing of maps, scenes, apps and other geographic information with other people in your organization.
Raster Data	A raster data structure is usually a rectangular, square-based “gridding” of a 2D plane into cells. Some raster datasets contain elevation data but most are “flat”. Raster data typically isn’t scalable.
Shapefile	The ESRI shapefile is a popular geospatial vector data format for use in GIS software. Shapefile store geometric information as points, lines or polygons and potentially some attribute information about each in a tabular format.
Schema	A model for storing geospatial attribute data that uses simple tables and well-defined attribute, domains, rules and relationships.
Spatial Data	Information about the location, shape and relationships among geographic features, usually stored as coordinates and topology.
Subtype	Subtypes are a subset of features in a feature class or objects in a table, that share the same attributes. They are used as a method to categorize your data.
Table	A GIS table contains tabular information organized in rows and columns. A column represents a certain type of attribute while a row represents a different item. A table does not contain geometry (point/line/polygon). This is not to be confused with the more standard definition of a table, which could contain geographic information.
Vector Data	Vector data consists of geometric features such as points, lines, curves and shapes or polygon(s), which are all based on mathematical expressions, to represent more complex geometric shapes. Vector data is scalable.

APPENDIX B – GEODATABASE TOPOLOGY RULES

Source: https://desktop.arcgis.com/en/arcmap/latest/manage-data/editing-topology/geodatabase-topology-rules-and-topology-error-fixes.htm

Topology Rules	Rule Description for Appropriate Geometry Type
Polygon Rule	**Rule Description**
Must Be Larger Than Cluster Tolerance	Requires that a feature does not collapse during a validate process. This rule is mandatory for a topology and applies to all line and polygon feature classes. In instances where this rule is violated, the original geometry is left unchanged.
Must Not Overlap	Requires that the interior of polygons not overlap. The polygons can share edges or vertices. This rule is used when an area cannot belong to two or more polygons. It is useful for modeling administrative boundaries, such as ZIP Codes or voting districts and mutually exclusive area classifications, such as land cover or landform type.
Must Not Have Gaps	This rule requires that there are no voids within a single polygon or between adjacent polygons. All polygons must form a continuous surface. An error will always exist on the perimeter of the surface. You can either ignore this error or mark it as an exception. Use this rule on data that must completely cover an area. For example, soil polygons cannot include gaps or form voids—they must cover an entire area.
Must Not Overlap With	Requires that the interior of polygons in one feature class (or subtype) must not overlap with the interior of polygons in another feature class (or subtype). Polygons of the two feature classes can share edges or vertices or be completely disjointed. This rule is used when an area cannot belong to two separate feature classes. It is useful for combining two mutually exclusive systems of area classification, such as zoning and water body type, where areas defined within the zoning class cannot also be defined in the water body class and vice versa.
Must Be Covered By Feature Class Of	Requires that a polygon in one feature class (or subtype) must share all of its area with polygons in another feature class (or subtype). An area in the first feature class that is not covered by polygons from the other feature class is an error. This rule is used when an area of one type, such as a state, should be completely covered by areas of another type, such as counties.
Must Cover Each Other	Requires that the polygons of one feature class (or subtype) must share all of their area with the polygons of another feature class (or subtype). Polygons may share edges or vertices. Any area defined in either feature class that is not shared with the other is an error. This rule is used when two systems of classification are used for the same geographic area and any given point defined in one system must also be defined in the other. One such case occurs with nested hierarchical datasets, such as census blocks and block groups or small watersheds and large drainage basins. The rule can also be applied to nonhierarchically related polygon feature classes, such as soil type and slope class.
Must Be Covered By	Requires that polygons of one feature class (or subtype) must be contained within polygons of another feature class (or subtype). Polygons may share edges or vertices. Any area defined in the contained feature class must be covered by an area in the covering feature class. This rule is used when area features of a given type must be located within features of another type. This rule is useful when modeling areas that are subsets of a larger surrounding area, such as management units within forests or blocks within block groups.
Boundary Must Be Covered By	Requires that boundaries of polygon features must be covered by lines in another feature class. This rule is used when area features need to have line features that mark the boundaries of the areas. This is usually when the areas have one set of attributes and their boundaries have other attributes. For example, parcels might be stored in the geodatabase along with their boundaries. Each parcel might be defined by one or more line features that store information about their length or the date surveyed and every parcel should exactly match its boundaries.

Topology Rules	Rule Description for Appropriate Geometry Type
Area Boundary Must Be Covered By Boundary Of	Requires that boundaries of polygon features in one feature class (or subtype) be covered by boundaries of polygon features in another feature class (or subtype). This is useful when polygon features in one feature class, such as subdivisions, are composed of multiple polygons in another class, such as parcels and the shared boundaries must be aligned.
Contains Point	Requires that a polygon in one feature class contain at least one point from another feature class. Points must be within the polygon, not on the boundary. This is useful when every polygon should have at least one associated point, such as when parcels must have an address point.
Contains One Point	Requires that each polygon contains one point feature and that each point feature falls within a single polygon. This is used when there must be a one-to-one correspondence between features of a polygon feature class and features of a point feature class, such as administrative boundaries and their capital cities. Each point must be properly inside exactly one polygon and each polygon must properly contain exactly one point. Points must be within the polygon, not on the boundary.
Topology Rules	**Rule Description for Appropriate Geometry Type**
Line Rule	**Rule Description**
Must Be Larger Than Cluster Tolerance	Requires that a feature does not collapse during a validate process. This rule is mandatory for a topology and applies to all line and polygon feature classes. In instances where this rule is violated, the original geometry is left unchanged.
Must Not Overlap	Requires that lines not overlap with lines in the same feature class (or subtype). This rule is used where line segments should not be duplicated, for example, in a stream feature class. Lines can cross or intersect but cannot share segments.
Must Not Intersect	Requires that line features from the same feature class (or subtype) not cross or overlap each other. Lines can share endpoints. This rule is used for contour lines that should never cross each other or in cases where the intersection of lines should only occur at endpoints, such as street segments and intersections.
Must Not Intersect With	Requires that line features from one feature class (or subtype) not cross or overlap lines from another feature class (or subtype). Lines can share endpoints. This rule is used when there are lines from two layers that should never cross each other or in cases where the intersection of lines should only occur at endpoints, such as streets and railroads.
Must Not Have Dangles	Requires that a line feature must touch lines from the same feature class (or subtype) at both endpoints. An endpoint that is not connected to another line is called a dangle. This rule is used when line features must form closed loops, such as when they are defining the boundaries of polygon features. It may also be used in cases where lines typically connect to other lines, as with streets. In this case, exceptions can be used where the rule is occasionally violated, as with cul-de-sac or dead-end street segments.
Must Not Have Pseudo Nodes	Requires that a line connect to at least two other lines at each endpoint. Lines that connect to one other line (or to themselves) are said to have pseudo nodes. This rule is used where line features must form closed loops, such as when they define the boundaries of polygons or when line features logically must connect to two other line features at each end, as with segments in a stream network, with exceptions being marked for the originating ends of first-order streams.
Must Not Intersect Or Touch Interior	Requires that a line in one feature class (or subtype) must only touch other lines of the same feature class (or subtype) at endpoints. Any line segment in which features overlap or any intersection not at an endpoint is an error. This rule is useful where lines must only be connected at endpoints, such as in the case of lot lines, which must split (only connect to the endpoints of) back lot lines and cannot overlap each other.
Must Not Intersect Or Touch Interior With	Requires that a line in one feature class (or subtype) must only touch other lines of another feature class (or subtype) at endpoints. Any line segment in which features overlap or any intersection not at an endpoint is an error. This rule is useful where lines from two layers must only be connected at endpoints.

Topology Rules	Rule Description for Appropriate Geometry Type
Must Not Overlap With	Requires that a line from one feature class (or subtype) not overlap with line features in another feature class (or subtype). This rule is used when line features cannot share the same space. For example, roads must not overlap with railroads or depression subtypes of contour lines cannot overlap with other contour lines.
Must Be Covered By Feature Class Of	Requires that lines from one feature class (or subtype) must be covered by the lines in another feature class (or subtype). This is useful for modeling logically different but spatially coincident lines, such as routes and streets. A bus route feature class must not depart from the streets defined in the street feature class.
Must Be Covered By Boundary Of	Requires that lines be covered by the boundaries of area features. This is useful for modeling lines, such as lot lines, that must coincide with the edge of polygon features, such as lots.
Must Be Inside	Requires that a line is contained within the boundary of an area feature. This is useful for cases where lines may partially or totally coincide with area boundaries but cannot extend beyond polygons, such as state highways that must be inside state borders and rivers that must be within watersheds.
Endpoint Must Be Covered By	Requires that the endpoints of line features must be covered by point features in another feature class. This is useful for modeling cases where a fitting must connect two pipes or a street intersection must be found at the junction of two streets.
Must Not Self Overlap	Requires that line features not overlap themselves. They can cross or touch themselves but must not have coincident segments. This rule is useful for features, such as streets, where segments might touch in a loop but where the same street should not follow the same course twice.
Must Not Self Intersect	Requires that line features not cross or overlap themselves. This rule is useful for lines, such as contour lines, that cannot cross themselves.
Must Be Single Part	Requires that lines have only one part. This rule is useful where line features, such as highways, may not have multiple parts.
Topology Rules	**Rule Description for Appropriate Geometry Type**
Point Rule	**Rule Description**
Must Coincide With	Requires that points in one feature class (or subtype) be coincident with points in another feature class (or subtype). This is useful for cases where points must be covered by other points, such as transformers must coincide with power poles in electric distribution networks and observation points must coincide with stations.
Must Be Disjoint	Requires that points be separated spatially from other points in the same feature class (or subtype). Any points that overlap are errors. This is useful for ensuring that points are not coincident or duplicated within the same feature class, such as in layers of cities, parcel lot ID points, wells or streetlamp poles.
Must Be Covered By Boundary Of	Requires that points fall on the boundaries of area features. This is useful when the point features help support the boundary system, such as boundary markers, which must be found on the edges of certain areas.
Must Be Properly Inside Polygons	Requires that points fall within area features. This is useful when the point features are related to polygons, such as wells and well pads or address points and parcels.
Must Be Covered By Endpoint Of	Requires that points in one feature class must be covered by the endpoints of lines in another feature class. This rule is similar to the line rule Endpoint Must Be Covered By except that, in cases where the rule is violated, it is the point feature that is marked as an error rather than the line. Boundary corner markers might be constrained to be covered by the endpoints of boundary lines.
Must Be Covered By Line	Requires that points in one feature class be covered by lines in another feature class. It does not constrain the covering portion of the line to be an endpoint. This rule is useful for points that fall along a set of lines, such as highway signs along highways.

Polygon

Must not overlap

Polygons must not overlap within a feature class or subtype. Polygons can be disconnected or touch at a point or touch along an edge.

Polygon errors are created from areas where polygons overlap.

A voting district map cannot have any overlaps in its coverage.

Use this rule to make sure that no polygon overlaps another polygon in the same feature class or subtype.

Polygon

Must not have gaps

Polygons must not have a void between them within a feature class or subtype.

Line errors are created from the outlines of void areas in a single polygon or between polygons. Polygon boundaries that are not coincident with other polygon boundaries are errors.

Soil polygons cannot include gaps or form voids—they must form a continuous fabric.

Use this rule when all of your polygons should form a continuous surface with no voids or gaps.

Polygon

Contains point

Each polygon of the first feature class or subtype must contain within its boundaries at least one point of the second feature class or subtype.

Polygon errors are created from the polygons that do not contain at least one point. A point on the boundary of a polygon is not contained in that polygon.

School district boundaries must contain at least one school.

Use this rule to make sure that all polygons have at least one point within their boundaries. Overlapping polygons can share a point in that overlapping area.

Polygon

Contains one point

Each polygon must contain exactly one point. Each point must fall within a polygon.

Polygon errors are created from the polygons that do not contain exactly one point. Point errors exist where points are not within a single polygon.

Parcels must contain exactly one address point.

Use this rule to make sure that there is a one-to-one correspondence between features of a polygon feature class and a point feature class.

Polygon

Must be covered by feature class of

The polygons in the first feature class or subtype must be covered by the polygons of the second feature class or subtype.

Polygon errors are created from the uncovered areas of the polygons in the first feature class or subtype.

States are covered by counties.

Use this rule when each polygon in one feature class or subtype should be covered by all the polygons of another feature class or subtype.

Polygon

Boundary must be covered by

Polygon boundaries in one feature class or subtype must be covered by the lines of another feature class or subtype.

Line errors are created where polygon boundaries are not covered by a line of another feature class or subtype.

Major road lines form part of outlines for census blocks.

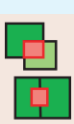
Use this rule when polygon boundaries should be coincident with another line feature class or subtype.

Polygon

Must not overlap with

Polygons of the first feature class or subtype must not overlap polygons of the second feature class or subtype.

Polygon errors are created where polygons from the two feature classes or subtypes overlap.



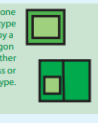
Lakes and land parcels from two different feature classes must not overlap.

Use this rule when polygons from one feature class or subtype should not overlap polygons of another feature class or subtype.

Polygon

Must be covered by

Polygons in one feature class or subtype must be covered by a single polygon from another feature class or subtype.



Polygon errors are created from polygons from the first feature class or subtype that are not covered by a single polygon from the second feature class or subtype.

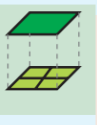
Counties must be covered by states.

Use this rule when you want one set of polygons to be covered by some part of another single polygon in another feature class or subtype.

Polygon

Area boundary must be covered by boundary of

The boundaries of polygons in one feature class or subtype must be covered by the boundaries of polygons in another feature class or subtype.



Line errors are created where polygon boundaries in the first feature class or subtype are not covered by the boundaries of polygons in another feature class or subtype.

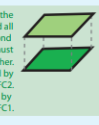
Subdivision boundaries are coincident with parcel boundaries, but do not cover all parcels.

Use this rule when the boundaries of polygons in one feature class or subtype should align with the boundaries of polygons in another feature class or subtype.

Polygon

Must cover each other

All polygons in the first feature class and all polygons in the second feature class must cover each other.
- FC1 Must be covered by feature class of FC2.
- FC2 Must be covered by feature class of FC1.



Polygon errors are created where any part of a polygon is not covered by one or more polygons in the other feature class or subtype.

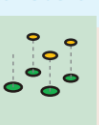
Vegetation and soils must cover each other.

Use this rule when you want the polygons from two feature classes or subtypes to cover the same area.

Point

Must be coincident with

Points in one feature class or subtype must be coincident with points in another feature class or subtype.



Point errors are created where points from the first feature class or subtype are not covered by points from the second feature class or subtype.

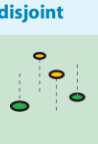
Meters must be coincident with service points in an electric utility network.

Use this rule when points from one feature class or subtype should be aligned with points from another feature class or subtype.

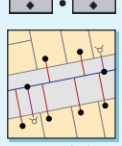
Point

Must be disjoint

Points cannot overlap within the same feature class or subtype.



Point errors are created where points overlap themselves.



Fittings in a water distribution network should not overlap.

Use this rule when points within one feature class or subtype should never occupy the same space.

Point

Must be covered by endpoint of

Points in one feature class or subtype must be covered by the ends of lines in another feature class or subtype.

Point errors are created on the points that are not covered by the ends of lines.

Use this rule when you want to model points that are coincident with the ends of lines.

Street intersections must be covered by the endpoints of street centerlines.

Point

Point must be covered by line

Points in one feature class or subtype must be covered by lines in another feature class or subtype.

Point errors are created on the points that are not covered by lines.

Use this rule when you want to model points that are coincident with lines.

Monitoring stations must fall along streams.

Point

Must be properly inside polygons

Points in one feature class or subtype must be inside polygons of another feature class or subtype.

Point errors are created where the points are outside or touch the boundary of the polygons.

Use this rule when you want points to be completely within the boundaries of polygons.

State capitals must be inside each state.

Point

Must be covered by boundary of

Points in one feature class or subtype must touch boundaries of polygons from another feature class or subtype.

Point errors are created where points do not touch the boundaries of polygons.

Use this rule when you want points to align with the boundaries of polygons.

Utility service points might be required to be on the boundary of a parcel.

Line or Polygon

Must be larger than cluster tolerance

Cluster tolerance is the minimum distance between vertices of features.

Vertices that fall within the cluster tolerance are defined as coincident and are snapped together.

Cluster Tolerance

Any polygon or line feature that would collapse when validating the topology is an error.

This rule is applied to all line and polygon feature classes that participate in the topology.

Soil polygons must be larger than the cluster tolerance.

Line

Must not have pseudonodes

The end of a line cannot touch the end of only one other line within a feature class or subtype. The end of a line can touch any part of itself.

Point errors are created where the end of a line touches the end of only one other line.

Use this rule to clean up data with inappropriately subdivided lines.

For hydrologic analysis, segments of a river system might be constrained to only have nodes at endpoints or junctions.

Line

Must not have dangles

The end of a line must touch any part of one other line or any part of itself within a feature class or subtype.

Point errors are created at the end of a line that does not touch at least one other line or itself.

Use this rule when you want lines in a feature class or subtype to connect to one another.

A street network has line segments that connect. If segments end for dead-end roads or cul-de-sacs, you could choose to set as exceptions during an edit session.

Line

Must not self overlap

Lines must not overlap themselves within a feature class or subtype. Lines can touch, intersect, and overlap lines in another feature class or subtype.

Line errors are created where lines overlap themselves.

Use this rule with lines whose segments should never occupy the same space as another segment on the same line.

For transportation analysis, street and highway segments of the same feature should not overlap themselves.

Line

Must not overlap

Lines must not overlap any part of another line within a feature class or subtype. Lines can touch, intersect, and overlap themselves.

Line errors are created where lines overlap.

Use this rule with lines that should never occupy the same space with other lines.

Lot lines cannot overlap one another.

Line

Must not self intersect

Lines must not cross or overlap themselves within a feature class or subtype. Lines can touch themselves and touch, intersect, and overlap other lines.

Line errors are created where lines overlap themselves, and point errors are created where lines cross themselves.

Use this rule when you only want lines to touch at their ends without intersecting or overlapping themselves.

Contour lines cannot intersect themselves.

Line

Must not intersect

Lines must not cross or overlap any part of another line within the same feature class or subtype.

Line errors are created where lines overlap, and point errors are created where lines cross.

Use this rule with lines whose segments should never cross or occupy the same space with other lines.

Lot lines cannot intersect or overlap, but the endpoint of one feature can touch the interior of another feature.

Line

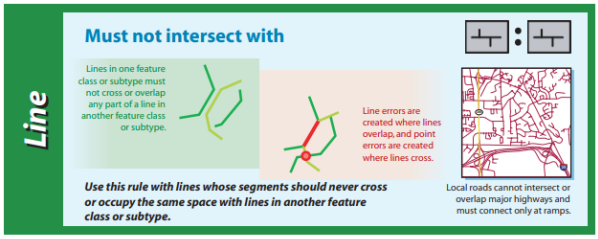
Must be single part

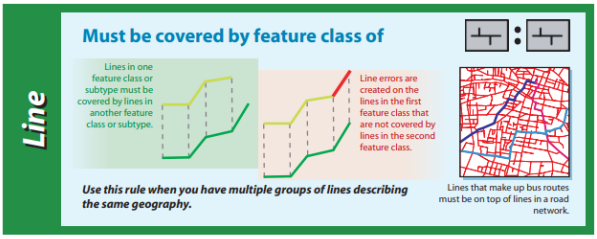
Lines within a feature class or subtype must only have one part.

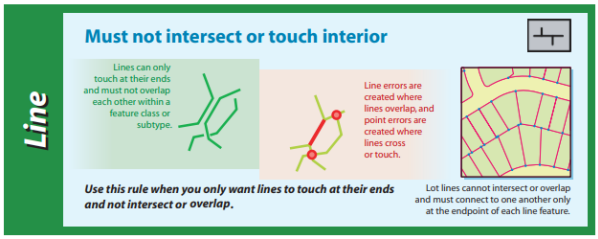
Multipart line errors are created where lines have more than one part.

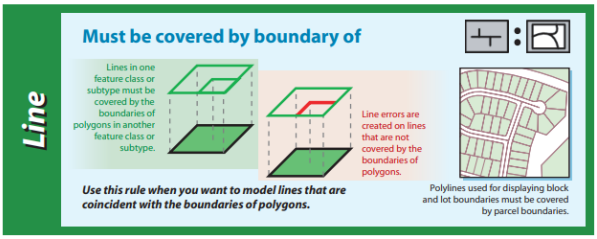
Use this rule when you want lines to be composed of a single series of connected segments.

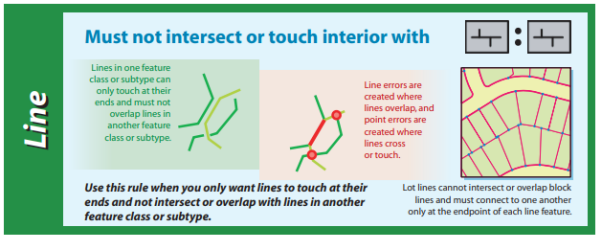
A highway system is made up of individual features where any one feature is not made up of more than one part.

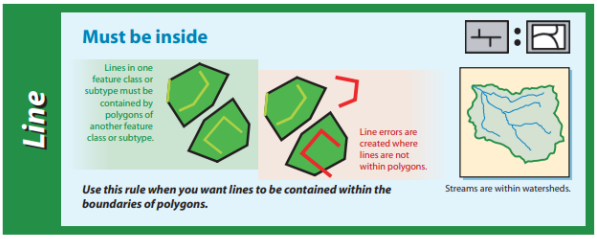

Line
Must not intersect with
Lines in one feature class or subtype must not cross or overlap any part of a line in another feature class or subtype.
Line errors are created where lines overlap, and point errors are created where lines cross.
Use this rule with lines whose segments should never cross or occupy the same space with lines in another feature class or subtype.
Local roads cannot intersect or overlap major highways and must connect only at ramps.

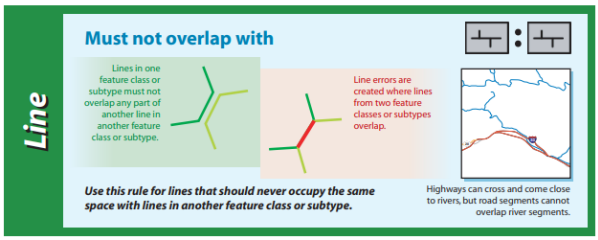

Line
Must be covered by feature class of
Lines in one feature class or subtype must be covered by lines in another feature class or subtype.
Line errors are created on the lines in the first feature class that are not covered by lines in the second feature class.
Use this rule when you have multiple groups of lines describing the same geography.
Lines that make up bus routes must be on top of lines in a road network.

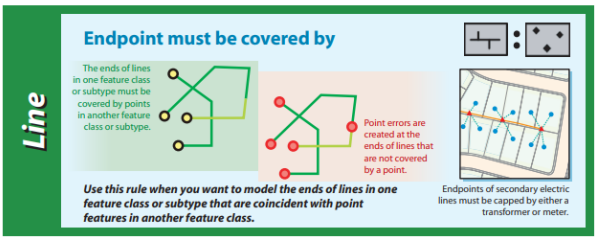

Line
Must not intersect or touch interior
Lines can only touch at their ends and must not overlap each other within a feature class or subtype.
Line errors are created where lines overlap, and point errors are created where lines cross or touch.
Use this rule when you only want lines to touch at their ends and not intersect or overlap.
Lot lines cannot intersect or overlap and must connect to one another only at the endpoint of each line feature.


Line
Must be covered by boundary of
Lines in one feature class or subtype must be covered by the boundaries of polygons in another feature class or subtype.
Line errors are created on lines that are not covered by the boundaries of polygons.
Use this rule when you want to model lines that are coincident with the boundaries of polygons.
Polylines used for displaying block and lot boundaries must be covered by parcel boundaries.


Line
Must not intersect or touch interior with
Lines in one feature class or subtype can only touch at their ends and must not overlap lines in another feature class or subtype.
Line errors are created where lines overlap, and point errors are created where lines cross or touch.
Use this rule when you only want lines to touch at their ends and not intersect or overlap with lines in another feature class or subtype.
Lot lines cannot intersect or overlap block lines and must connect to one another only at the endpoint of each line feature.


Line
Must be inside
Lines in one feature class or subtype must be contained by polygons of another feature class or subtype.
Line errors are created where lines are not within polygons.
Use this rule when you want lines to be contained within the boundaries of polygons.
Streams are within watersheds.


Line
Must not overlap with
Lines in one feature class or subtype must not overlap any part of another line in another feature class or subtype.
Line errors are created where lines from two feature classes or subtypes overlap.
Use this rule for lines that should never occupy the same space with lines in another feature class or subtype.
Highways can cross and come close to rivers, but road segments cannot overlap river segments.


Line
Endpoint must be covered by
The ends of lines in one feature class or subtype must be covered by points in another feature class or subtype.
Point errors are created at the ends of lines that are not covered by a point.
Use this rule when you want to model the ends of lines in one feature class or subtype that are coincident with point features in another feature class.
Endpoints of secondary electric lines must be capped by either a transformer or meter.

GREATER ORLANDO AVIATION AUTHORITY
Innovation Connecting the World

APPENDIX C – REQUESTED CHANGE TO GOAA GIS STANDARDS

GOAA GIS Change Control/Form							
Date Submitted:							
Proposed By: Name, Title, Company							
Contact Phone No. & Email:							
Project Name:							
To:	GIS Development Services, Greater Orlando Aviation Authority (GOAA)						
Attention:	GOAA GIS Coordinator						
GOAA GIS Standard:							
Section		Sub-Section					
Page		Subject					
Justification for Change:							
Existing Provisions are:							
Incomplete		Inaccurate		Redundant			
Conflicting		Obsolete		Other:			
Staff Name/Title				Date			
Page				Approved			
Reason for Disapproval							
Detailed Justification:							
Description of Change:							
Signing this document confirms that both the Proposer and GIS Coordinator have agreed on the changed standards as described in this form.							
Proposer:							
	Signature					**Date**	
GOAA GIS Manager:							
	Signature					**Date**	
Reviewed By:							

APPENDIX D – APPROVED CHANGE CONTROL FORMS

This section is reserved for future use.

Form **W-9**
(Rev. March 2024)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give form to the requester. Do not send to the IRS.

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See *Specific Instructions* on page 3.

1 Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)

RS&H, Inc.

2 Business name/disregarded entity name, if different from above.

3a Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor ☑ C corporation ☐ S corporation ☐ Partnership ☐ Trust/estate

☐ LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) . . . . .

Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner.

☐ Other (see instructions)

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) 5

Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any)

(Applies to accounts maintained outside the United States.)

3b If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions . . . . . ☐

5 Address (number, street, and apt. or suite no.). See instructions.

10748 Deerwood Park Blvd South

Requester's name and address (optional)

6 City, state, and ZIP code

Jacksonville, FL 32256

7 List account number(s) here (optional)

REMIT TO ADDRESS: P.O. Box 4850, Jacksonville, FL 32201 ATTN: ACCOUNTING DEPT.

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. See also *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

[ ][ ][ ] – [ ][ ] – [ ][ ][ ][ ]

or

Employer identification number

[ ][ ] – [redacted]

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and, generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person** [signature] **Date** 5/15/2024

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

EXHIBIT B – NOTICE OF PROFESSIONAL SERVICES (ADVERTISEMENT)

GREATER ORLANDO AVIATION AUTHORITY
NOTICE OF CONTINUING ON-CALL ARCHITECTURE AND ENGINEERING CONSULTING SERVICES (W486)
ORLANDO INTERNATIONAL AIRPORT AND ORLANDO EXECUTIVE AIRPORT

Pursuant to Section 287.055, Florida Statutes and the policies and procedures of the Greater Orlando Aviation Authority (Aviation Authority), notice is hereby given that Statements of Qualifications (SOQs) are invited from firms and individuals (Proposers) to render **Continuing On-Call Architecture and Engineering Consulting Services** (Services) to the Aviation Authority at the Orlando International and Executive Airports (Airport).

The Advertisement, Submission Requirements, Responses to inquiries and Pre-Submittal Conference minutes, and Addenda (if any) will be made available on the Aviation Authority's website at:

http://www.orlandoairports.net/airport-business/#business-opportunities

Summary Description of the Project: Services will consist of the performance of architecture and engineering and related professional services including but not limited to, the following:

- Airport engineering
- Navigational Aids (NAVAIDS) planning and design
- Civil engineering
- Cost estimating/ scheduling
- Airport planning
- Aviation and automotive fueling systems design
- Architecture planning and design
- Landscape architecture
- Interior design
- Marine engineering
- Land management and engineering development
- Pavement and facility inspections
- Structural engineering
- Land surveying
- Electrical engineering
- Aerial photography
- Geotechnical engineering
- Materials testing
- Subsurface utility engineering
- Land use zoning and airspace
- Transportation and traffic engineering
- Sustainability and resilience
- Environmental Engineering
- CAD/GIS/BIM services
- Fire protection systems engineering
- Building envelope and evaluation
- Electric systems design
- Bridge inspection
- Mechanical and plumbing engineering
- Communications/IT systems design
- Other related services

A Pre-Submittal Conference will be held at **2:00 p.m., Wednesday, November 29, 2023, at Orlando International Airport, Alpha/Bravo Conference Rooms, 11344 Terminal C Service Road, Orlando, FL 32824**. The Project Scope, the Submission Requirements, Small Business Participation Programs for the Statements of Qualifications, and questions regarding the Project will be reviewed at this Pre-Submittal Conference.

Proposers are prohibited from submitting more than one proposal, which includes participating as a subconsultant on another Proposer's team. Doing so may result in the disqualification of the Proposer.

The Aviation Authority, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all Proposers that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, will be afforded full and fair opportunity to submit proposals in response to this invitation and no businesses will be discriminated against on the grounds of race, color, or national origin (included limited English proficiency), creed, sex (including sexual orientation and gender identity), age or disability in consideration for an award.

The Project and Services referenced in this Advertisement are subject to approval by the Aviation Authority prior to any work or services being performed.

GREATER ORLANDO AVIATION AUTHORITY

GREATER ORLANDO AVIATION AUTHORITY
NOTICE OF PROFESSIONAL SERVICES

CONTINUING ON-CALL ARCHITECTURE AND ENGINEERING CONSULTING SERVICES (W486)
ORLANDO INTERNATIONAL AIRPORT AND ORLANDO EXECUTIVE AIRPORT

SUBMISSION REQUIREMENTS

For scope of services and information regarding the Pre-Submittal Conference, refer to the Advertisement for subject services, which is available on the Greater Orlando Aviation Authority's (Aviation Authority) website at:

http://www.orlandoairports.net/airport-business/#business-opportunities

Written inquiries shall be directed to **Mr. Robert Furr, Vice President, Engineering and Architecture, Greater Orlando Aviation Authority, Email: W486@goaa.org**. Questions received after close of business on **Wednesday, December 13, 2023,** will not be answered.

Interested Proposers are requested to submit one (1) original and one (1) printed copy along with one (1) electronic PDF version* on a USB portable storage device (flash drive, thumb drive, etc.) of its Statement of Qualifications (SOQ) **up to 2:00 p.m. local time on December 19, 2023, to the Project Controls Office, Greater Orlando Aviation Authority, 11312 Terminal C Service Road, Bldg. 16, Orlando, FL 32824.** Any SOQs received after the time and date stated above will not be considered and will be returned unopened. SOQs shall be submitted in sealed packages clearly labeled, **"Statement of Qualifications for Continuing On-Call Architecture and Engineering Consulting Services (W486)".**

Labeling information provided in documents as "proprietary" or "confidential" or any other designation of restricted use **shall not** protect information from release if required or deemed appropriate by the Aviation Authority under applicable policies, opening meeting laws, or public records laws, see Chapters 119 and 286, Florida Statutes. **Note: Special submission requirements are set out for financial information in Section 7 (Financial Statements).**

***PDF submission requirements:** All documents shall be PDF/A compliant. PDF/A compliant documents have embedded fonts and do not reference external files. Layers shall not be preserved from CADD drawings. Scanned documents shall be created as PDF/A compliant, made text searchable and have a minimum resolution of 300 dpi. Submittals in PDF format shall have navigational bookmarks inserted in lieu of any tabs required in the hard copy. The entire submittal shall not exceed a single USB portable storage device. In cases where there are discrepancies between the PDF and hard copy, the hard copy shall take precedence.

STATEMENT OF QUALIFICATIONS REQUIREMENTS

Statements of Qualifications (SOQs) in print form shall include the following: one (1) volume, addressing each numbered subsection in the order requested, indexed, and clearly identified. The information submitted for Items 1-2 (excluding tabs) shall not exceed 20 one-sided 8-1/2"x11" pages in Arial font with no smaller than 12 pitch font. **SOQs that are not in compliance with the requirements may be downgraded accordingly.**

1. **Proposing Entity Structure:** Proposer's Statement of the following:

   a) The name and address of the legal entity that will contract with the Aviation Authority if awarded the Agreement for the Project.

   b) Name, address, email address and telephone/fax/mobile numbers of one (1) individual to whom all future correspondence and/or communications will be directed.

   c) A statement declaring the type of business relationship the Proposer will use (i.e., a single company, joint venture or other form of business relationship to perform the services for the Projects), and that such entity (or each entity in the case of a joint venture or partnership between two or more entities) possesses a Certificate of Aviation Authority to provide the Services. If the Proposer is a joint venture or partnership, the Qualifying Experience in Section 3 may be satisfied by the joint venture, partnership entity, or any member entity thereof. Please state whether the joint venture or partnership entity is currently in existence, is being formed specifically for this Project, or whether it will be formed upon award. If it is formed specifically for this project or will be formed upon award, please provide a form of the Joint Venture or Partnership Agreement.

2. **Executive Brief:** An executive brief which includes:

   a) A comprehensive project approach to provide the required Services for the Project.

   b) A narrative on why Proposer should be selected for the Project, including:

      i. A brief overview of the specific experience and expertise of the proposed professional team (personnel and subconsultants) explaining why this team should be selected.

      ii. Prior experience working in an operating airport.

      iii. Prior examples and experience where the proposed professional team has worked together on other projects.

      iv. Discussion of similar projects referenced in Paragraph 3 below (USGSA Form 330), with particular reference to scope, phasing, construction delivery methods and lessons learned.

   c) A narrative outlining the Proposer's approach to incorporating sustainable design principles into the Services.

   d) A two (2) page description of the Proposer's quality control program for providing the proposed Services. Include the proposed method for communication and coordinating with the Aviation Authority, its other consultants and other interested governmental agencies.

   e) A two (2) page description of the Proposer's quality control program for providing the proposed Services. Include the proposed method for communication and coordinating with the Aviation Authority, its other consultants and other interested governmental agencies.

f) A statement regarding the Proposer's willingness to meet the Aviation Authority's time and budget requirements, noting the availability of the proposed individuals to start the required services.

g) A statement regarding the recent, current and projected workload of the firm that demonstrates a commitment to completion of the required services.

h) A statement regarding the volume of work previously awarded by the Aviation Authority to the proposer over the past ten (10) years.

3. **Qualifying Experience:** Include USGSA Form 330 for the Proposer, key personnel and proposed subconsultants. Include an Organizational Chart for reference. List not more than three (3) key personnel for each subconsultant category and provide a resume showing the experience on similar projects. **Proposers are prohibited from submitting more than one proposal, which includes participating as a subconsultant on another Proposer's team. Doing so may result in the disqualification of the Proposer.**

   a) It is preferred that Proposers and their key personnel have prior experience as the prime consultant on a minimum of three (3) similar projects within the last five (5) years. Clearly identify the specific project and description in the USGSA Form 330 for each qualifying project.

   b) Provide additional information on other similar projects, which best represent the Proposer's skill and experience in working on projects of the size, type and complexity of the advertised Project.

   c) Propose Proposers and their key personnel should have prior design experience (1) coordinating with; (2) meeting the requirements on projects funded by; and, (3) in accordance with the rules and regulations of the following public/governmental agencies: the Federal Aviation Administration, the Florida Department of Transportation, the applicable Water Management District, the Department of Environmental Protection (DEP), the Orlando Utilities Commission, and other authorities having jurisdiction. Clearly identify the specific project and description in the USGSA Form 330 for each qualifying project.

   d) For each qualifying project, provide the name, title, address, email address and phone/fax/mobile numbers for a reference contact person of the Proposer's client, preferably the owner of the facility, who is familiar with the Proposer's role on that project. Reference checks will be conducted on those projects and may be conducted on other projects.

4. **MWBE/LDB/VBE/DBE Requirements:** All Proposers for non-federal and non-State of Florida funded projects are hereby notified that they must comply with: (1) the Minority and Women Business Enterprise (MWBE) Program requirement as defined in the Aviation Authority's MWBE Policy; and, (2) the Local Developing Business/Veteran Business Enterprise (LDB/VBE) Program requirement as defined in the Aviation Authority's LDB/VBE Policies. All Proposers for State of Florida funded projects are hereby notified that they must comply with the Disadvantaged Business Enterprise (DBE) requirements of 49 CFR Part 26, as referenced in the Aviation Authority's DBE Participation Program. **The Policies and certified MWBE, LDB/VBE and DBE Directories are available on the Aviation Authority's website at:**

http://www.orlandoairports.net/small_business

The Proposer shall prepare a written action plan that demonstrates the Proposer's understanding of the MWBE, LDB/VBE and DBE Participation Programs, and how the Proposer will achieve the participation goals for these type of Services.

The Aviation Authority will establish MWBE, LDB/VBE or DBE Participation Goal for each negotiated project or scope.

Questions concerning the MWBE, LDB/VBE and DBE Participation Programs can be addressed to the Aviation Authority's Office of Small Business Development, Attn. Ms. Iranetta Dennis, Vice President, Small Business Development, Greater Orlando Aviation Authority, Orlando International Airport, 5850-B Cargo Road, Orlando, FL 32827; Phone: (407) 825-7179, Email: iranetta.dennis@goaa.org. Proposers shall be solely responsible for confirming MWBE, LDB/VBE and DBE subconsultants' experience, capacity, certification and any other information related to the Services.

5. **Insurance Requirements:** Include evidence of the Proposer's ability to provide the following insurance coverage, either by means of an existing policy or other verifiable proof (Agent/Broker commitment letter):

Type of Policy	Limits
Commercial General Liability: Maximum Deductible or Self-insured Retention: Coverage shall include Products & Completed Operations and Contractual liability.	$5,000,000, each Occurrence $100,000
Automobile Liability:	$5,000,000, Combined Single Limit
Maximum Deductible or Self-insured Retention:	$100,000
Workers Compensation And Employers' Liability	Statutory Limit $500,000 each accident $500,000 disease-policy limit $500,000 disease-each employee
Professional Liability and Errors and Omissions Maximum Deductible or Self-insured Retention: If coverage is written on a claims-made form basis, coverage shall apply for five (5) years after expiration/termination of this Agreement.	$5,000,000 $100,000

Any deductible or self-insurance retention ($0.00 and higher) for each coverage line must be indicated on the Certificate of Insurance. See Article 15, Indemnification and Insurance, of the Agreement for additional insurance requirements.

Policy terms must be acceptable to the Aviation Authority and must comply with the Aviation Authority's requirements for insurance.

6. **Licensure:** Proposers must be licensed and registered in accordance with Florida State law as a Professional Engineering firm and shall be familiar with all applicable federal, State of Florida, Orange County, Florida, and City of Orlando codes, regulations and laws. Include the following:

   a) Evidence that the Proposer and the proposed key personnel and subconsultants, if any, are properly licensed to perform the services, such as copies of the applicable licenses and certifications.

   b) Evidence that the Proposer (and DBAs) are properly formed, incorporated, or registered with the State of Florida, such as a copy of the electronic certificate of status that was generated from the Florida Department of State, Division of Corporations website within the last 30 days.

   NOTE: If the Proposer is a joint venture or partnership, which is not currently in existence, the above-requested documentation shall be submitted from each entity of the proposed joint venture or partnership.

7. **Financial Statements:** Proposer's most recent audited annual financial statements for the last two years in order to evaluate the Proposer's ability to perform these Services. If audited annual financial statements are not available, provide balance sheets, income statements, and cash flow statements for the last two years. This financial documentation shall be submitted in a sealed envelope, and included in only one copy of the printed SOQ. The sealed envelope should be clearly labeled as follows: **"Confidential Financial Records Submitted under Seal and Exempt from Florida Public Records Disclosure". Include the Project title and the Proposer's firm name on the sealed envelope.** (Reference Florida Statutes Section 119.071(1)(c) for exemption on financial records.)

   If the Proposer is a joint venture or partnership, which is not currently in existence, the above-requested documentation shall be submitted from each entity of the proposed joint venture or partnership.

8. **Claims Information:** Disclose all lawsuits, arbitrations and claims filed or raised by or against the Proposer over the last five (5) years, specifically identifying:

   - The project involved.
   - The parties involved.
   - The nature of the claim(s).
   - Amount at issue.
   - Disposition or status.
   - Litigation, case style, number, and jurisdiction.

   NOTE: If the Proposer is a joint venture or partnership, which is not currently in existence, the above-requested documentation shall be submitted from each entity of the proposed joint venture or partnership.

9. **Additional Information:** Any additional information, which may be requested by the Aviation Authority at the Pre-Submittal Conference.

EVALUATION AND AWARD CRITERIA

The Aviation Authority's Procurement Committee will evaluate the SOQs and intends to shortlist no less than three (3) of the most qualified Proposers. Among the factors that will be considered in selecting the shortlist of Proposers are their capabilities, adequacy of personnel, past record, including prior experience on similar programs, their past performance with the Aviation Authority (if applicable), their past performance with other entities and experience of the firm or individual, approach to providing the Services, compliance with the Aviation Authority's MWBE, LDB/VBE and DBE Participation Programs, and the responses to the inquiries set forth above. The Aviation Authority reserves the right to solicit from available sources relevant information concerning a Proposer's past performance and may consider such information in its selection of shortlisted Proposers, in accordance with the process set forth in Florida Statutes 287.055, Consultants' Competitive Negotiation Act (CCNA).

Shortlisted Proposers will be scheduled for a presentation and interview. Following the interviews, the Aviation Authority's Procurement Committee will evaluate each Proposer, comparatively against each other, considering the SOQs, any additional documentation, the interviews and presentations, and will rank, in order of preference, the most highly qualified Proposers by evaluating each category, scored as follows:

	Score
QUALIFICATIONS OF PROPOSED INDIVIDUALS AND PROPOSED APPROACH Ability of the proposed individuals to furnish the required services Experience and qualifications of the proposed individuals Proposed approach (in the Executive Brief section) **Preferred:** Three similar projects within the last five years	1-50
QUALIFYING PROGRAMS/PROJECTS OF PROPOSER Past performance, including the similarity of the qualifying programs/projects Breadth and depth of experience on the qualifying programs/projects Past performance with the Aviation Authority (if applicable) Past performance with other entities, references **Preferred:** Three similar projects within the last five years	1-30
APPROACH TO SMALL BUSINESS COMPLIANCE Demonstrated understanding of the Aviation Authority's DBE Participation Program and other minority and small business programs Proposed approach for this contract	1-10
CCNA FACTORS Willingness to meet time and budget requirements (availability to start) Recent, current, and projected workload of the firm (commitment to completion Volume of work previously awarded to each firm (without violating the principle of selection of the most qualified)	1-10

The Aviation Authority intends, but is not obligated, to enter into non-exclusive agreements with a minimum of three (3) selected Proposers to perform the required Services. The term of these agreements shall be for a period of five (5) years. The Services are limited by Florida Statute 287.055 to projects of a construction value of $4,000,000.00 or less, and fees for studies of $500,000.00 or less, or as defined by statute.

The Aviation Authority reserves the right to waive any informality in a SOQ, to reject any and all SOQs, to re-advertise or to elect not to proceed with the contract or Services for any reason.

All recommendations and decisions regarding award of the Services shall be made at open public meetings in accordance with the requirements of Florida Statute 286.011, and all interested parties are invited to attend such meetings. In accordance with Florida Statute 287.055(10), the Aviation Authority declares that all or any portion of the documents and work papers prepared and submitted pursuant to this invitation shall be subject to re-use by the Aviation Authority.

OTHER INFORMATION

Proposer's personnel will be required to meet the Aviation Authority's requirements for security background checks. All personnel requiring unescorted access to a secure or sterile area of the airport must undergo a Criminal History Records Check (CHRC) and are subject to the requirements of Title 49 of the Code for Federal Regulations Part 1542 or 1544 and the Airport Security Improvement Act of 2000.

Proposers are hereby advised that individuals, who conduct lobbying activities with Aviation Authority employees or Board members, must register with the Aviation Authority each year prior to conducting any lobbying activities. A statement of expenditures incurred in connection with those lobbying instances should also be filed prior to April 1st of each year for the preceding year. As of January 16, 2013, lobbying any Aviation Authority Staff, who are members of any committee responsible for ranking Proposals, Letters of Interest, Statements of Qualifications or Bids and thereafter forwarding those recommendations to the Board and/or Board Members, is prohibited from the time that a Request for Proposals, Request for Letters of Interests, Request for Qualifications or Request for Bids is released to the time that the Aviation Authority Board makes an award. As adopted by the Aviation Authority Board on September 19, 2012, lobbyists are now required to sign-in at the Aviation Authority offices prior to any meetings with Staff or Board members. In the event a lobbyist meets with or otherwise communicates with Staff or a Aviation Authority Board member at a location other than the Aviation Authority offices, the lobbyist shall file a Notice of Lobbying (Form 4) detailing each instance of lobbying to the Chief Administrative Officer within seven (7) calendar days of such lobbying. The policy, forms, and instructions are available in the Aviation Authority's offices and the website.

Pursuant to Section 287.133(2)(a), Florida Statutes, interested Proposers who have been placed on the convicted vendor list following a conviction for a public entity crime may not submit a proposal on a contract to provide services for a public entity, may not be awarded a consultant contract and may not transact business with a public entity for services in excess of the threshold amount set forth in Section 287.017, Florida Statutes, for Category Two, for a period of 36 months from the date of being placed on the convicted vendor list.

SCRUTINIZED COMPANY CERTIFICATIONS: By submitting a Letter of Interest, Statement of Qualifications or Bid, the Proposer certifies that: (a) (applicable to all agreements, regardless of value), it is not on the Scrutinized Companies that Boycott Israel List and is not engaged in a boycott of Israel, as defined in Florida Statutes § 287.135, as amended; and, (b) (applicable to agreements that may be $1,000,000 or more), it is: (i) not on the Scrutinized Companies with Activities in Sudan List, or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List as defined in Florida Statutes § 287.135; and, (ii) not engaged in business operations in Cuba or Syria, as defined in Florida Statutes § 287.135, as amended.

Aviation Authority contracts require contractors/consultants to comply with the requirements of E-Verify. Contractors/consultants will be required to utilize the U.S. Department of Homeland Security's Employment Eligibility Verification System (E-Verify), in accordance with the terms governing the use of the system, to confirm the employment eligibility of persons employed by the contractor/consultant, during the term of the contract, to perform employment duties within Florida. Prime contractors/ consultants are required to include an express provision in their subcontractor/subconsultant agreements requiring the subcontractors/subconsultants to do the same.

Proposers are notified that if they are selected to perform design or inspection services on an FDOT-funded project, they will be prohibited from performing other services on that project. In accordance with Florida Statutes 337.14(7), the entity performing design and construction engineering and inspection services may not be the same entity.

GREATER ORLANDO AVIATION AUTHORITY

ADDENDUM NO. 1
(Issued 11/22/2023)

GREATER ORLANDO AVIATION AUTHORITY
NOTICE OF PROFESSIONAL SERVICES
W-00486, CONTINUING ON-CALL ARCHITECTURE AND ENGINEERING CONSULTING SERVICES
ORLANDO INTERNATIONAL AIRPORT AND ORLANDO EXECUTIVE AIRPORT

This addendum to the above-referenced notice includes the following changes to the Advertisement and Submission Requirements:

A Pre-Submittal Conference will be held at **11:00 a.m., Thursday, December 7, 2023,** ~~2:00 p.m., November 29, 2023~~**, in the Alpha/Bravo Conference Room, Orlando International Airport, 11312 Terminal C Service Road, Orlando, FL 32824.** The Project Scope, the Submission Requirements, Small Business Participation Programs for the Statements of Qualifications, and questions regarding the Project will be reviewed at this Pre-Submittal Conference.

Written inquiries shall be directed to **Robert Furr, Vice President, Engineering and Architecture,** at email: W486@goaa.org**.** Questions received after 5:00 p.m. (local time) on **Monday, January 9, 2024**, ~~Wednesday, December 13, 2023~~**,** will not be answered.

Interested Proposers are requested to submit one (1) original along with one (1) electronic PDF version* on a USB portable storage device (flash drive, thumb drive, etc.) of its Statement of Qualifications (SOQ) **up to 2:00 p.m. local time on Monday, January 15, 2024,** ~~December 19, 2023,~~ **to the Project Controls Office, Greater Orlando Aviation Authority, 11312 Terminal C Service Road, Orlando, FL 32824.** Any SOQs received after the time and date stated above will not be considered and will be returned unopened. SOQs shall be submitted in sealed packages clearly labeled, **"Statement of Qualifications for Continuing On-Call Architecture and Engineering Consulting (W-00486)".**

It is preferred that Proposers and their key personnel have prior experience as the prime consultant on a minimum of **two (2)** ~~three (3)~~ similar projects within the last **ten (10)** ~~five (5)~~ years. Clearly identify the specific project and description in the USGSA Form 330 for each qualifying project.

Licensure: Proposers must be licensed and registered in accordance with Florida State law as a Professional ~~Engineering firm~~ **Architecture and/or Engineering firm** and shall be familiar with all applicable federal, State of Florida, Orange County, Florida, and City of Orlando codes, regulations and laws.

Revised Schedule:

December 7, 2023	Pre-Submittal Meeting
January 9, 2024	Deadline for Questions
January 15, 2024	Submittals Due

END OF ADDENDUM NO. 1 (W486)

ADDENDUM NO. 2
(Issued 12/01/2023)

GREATER ORLANDO AVIATION AUTHORITY
NOTICE OF PROFESSIONAL SERVICES
W-00486, CONTINUING ON-CALL ARCHITECTURE AND ENGINEERING CONSULTING SERVICES
ORLANDO INTERNATIONAL AIRPORT AND ORLANDO EXECUTIVE AIRPORT

This addendum to the above-referenced notice includes the following changes to the Advertisement and Submission Requirements:

Interested Proposers are requested to submit one (1) original along with one (1) electronic PDF version* on a USB portable storage device (flash drive, thumb drive, etc.) of its Statement of Qualifications (SOQ) **up to 2:00 p.m. local time on Tuesday, January 16, 2024, ~~January 15, 2024,~~ to the Project Controls Office, Greater Orlando Aviation Authority, 11312 Terminal C Service Road, Orlando, FL 32824.** Any SOQs received after the time and date stated above will not be considered and will be returned unopened. SOQs shall be submitted in sealed packages clearly labeled, **"Statement of Qualifications for Continuing On-Call Architecture and Engineering Consulting (W-00486)".**

Revised Schedule:

December 7, 2023	Pre-Submittal Meeting
January 9, 2024	Deadline for Questions
January 16, 2024	Submittals Due

END OF ADDENDUM NO. 2 (W486)

EXHIBIT C – INVOICES

Invoice Instructions

1. Invoices must be received by the Owner no later than the 25th day of the month in order to be processed for payment prior to the end of the following month. The Consultant shall pay each Subconsultant or supplier for satisfactory performance of their contracts no later than ten (10) days from receipt of each payment from the Owner. The invoices shall be prepared and submitted by the Consultant on the Owner's standard Professional Services Invoice form, a copy of which is attached herein. All project information must be included on the form including any addendum, amendment, FAA, and FDOT project numbers if applicable and the Owner's project number and project name. The Consultant's corresponding project number should also be included. Any omitted information may cause delays in processing the invoice or return of the invoice to the Consultant for further information and resubmission. The Balance Remaining column shall not show negative values against the contract amount. The invoice must be signed and dated by a Principal or Officer of the Consultant before submission to the Owner. Consultant's signature certifies that, except as specifically indicated on the documents attached to the Professional Service Invoice, there are no Claims of Subconsultants or Suppliers as of the date of the Professional Service Invoice that have not been completely resolved, that the Consultant has no knowledge of any unresolved Claims by Subconsultants or Suppliers, that all Subconsultants and Suppliers have been paid to date from funds received for previous Professional Service Invoices and that payment has not been previously received for services currently being billed. Additionally, Consultant certifies that the assigned work and services are on schedule to be completed within the contracted lump sum price, or with this certification have attached hereto, a written notice to the Aviation Authority of any deviations.

2. The portion of the amount invoiced for the Consultant's services rendered on a Lump Sum Fee basis, including any reimbursable expenses included as a component of the Lump Sum Fee, will be based upon the Consultant's estimate of the percentage of work completed at the time of billing. If the Owner considers that the completion status indicated in the invoice is representative of actual progress on the Project, the invoice will be approved for payment accordingly. If the Owner considers that the progress on the invoice has not been achieved, then the Owner will adjust the invoice accordingly, process payment for whatever adjusted amount is considered due based upon the Owner's assessment of actual progress achieved, and advise the Consultant in writing of the adjustment.

3. The portion of the amount invoiced for the Consultant's services rendered on a Not To Exceed Reimbursable Fee basis will be invoiced based upon the Services incurred at the time of billing. Each invoice shall include a summary spreadsheet showing total hours spent to date, total hours billed on the current invoice, and the hourly rate for each position that is to be compensated on a Reimbursable Fee basis. Timesheets are not required to be submitted with each invoice, but the Consultant shall maintain timesheets for all individuals billing for Services under this Agreement in the event that an audit is required.

4. The Not To Exceed Reimbursable Expenses, if any, shall be invoiced on an actual cost basis. Reimbursable expenses shall be limited to deliverables requested by the Owner. Any other expenses must be pre-approved by the Owner's Department Manager. A summary spreadsheet listing each reimbursable expense shall be included with each invoice. No mark-up on any Reimbursable Expenses will be permitted. All invoices for Reimbursable Expenses must include complete backup documentation for all expenses, including original invoices, bills, receipts, and other reasonable documentation. No travel expenses will be reimbursed unless they were incurred and documented in strict accordance with the Owner's Travel Policy and no travel expenses will be reimbursed for travel within the local area.

5. The Owner's Disbursement Form must be prepared and submitted with the invoice for processing. Each invoice will include an original disbursement form for the applicable Services performed by the Sub-consultants at the time of billing. All project information must be included on the form including any

addendum or amendment numbers if applicable. The Consultant's corresponding project number should also be included. Complete the evaluation of Sub-consultants section with the submission of the Final Invoice. Any omitted information may cause delays in processing the invoice or return of the invoice to the Consultant for further information and resubmission.

GREATER ORLANDO AVIATION AUTHORITY

Orlando International Airport

PROFESSIONAL SERVICES INVOICE

PO#:

GOAA Project No. and Description:

Date of Base Agreement: 1/1/2022

Reference Addendum: 001

Amendment: 000

Reference FAA AIP / FDOT JPA Nos.:

To:	**Deborah J. McKeown**	Sequential Statement No.:	01
	Assistant Vice President, Project Controls	Consultant's Invoice No.:	
	Greater Orlando Aviation Authority	Consultant's Project No.:	
	11312 Terminal C Service Rd., Bldg. #16	Period Start Date (required):	2/1/2022
	Orlando, FL 32824	Period Ending Date (required):	2/28/2022
		Date Prepared:	3/1/2022
From:	**Company Name**	**Payable To:**	**SAME**
	Address 1		
	City, State, Zip		

LS/ NTE	PHASE/COMPONENT	CONTRACT AMOUNT	TOTAL % COMPLETE	TOTAL BILLED TO DATE	PREVIOUSLY BILLED TO DATE	$ AMOUNT BILLED THIS PERIOD	$ BALANCE REMAINING
NTE	Add 000 (Original award)	$ -	-	$ -	$ -		$ -
NTE	Amd 001	$ -	-	$ -	$ -		$ -
NTE		$ -	-	$ -	$ -		$ -
	TOTAL - NTE FEE's	$ -	-	$ -	$ -	$ -	$ -
LS		$ -	-	$ -	$ -		$ -
LS		$ -	-	$ -	$ -		$ -
LS		$ -	-	$ -	$ -		$ -
	TOTAL - LS FEE's	$ -	-	$ -	$ -	$ -	$ -
NTE		$ -	-	$ -	$ -		$ -
NTE		$ -	-	$ -	$ -		$ -
NTE		$ -	-	$ -	$ -		$ -
	TOTAL - EXPENSES	$ -	-	$ -	$ -	$ -	$ -
	GRAND TOTALS	$ -	-	$ -	$ -	$ -	$ -

TOTAL AMOUNT DUE $ -

Signature Block - Consultant, by and through the undersigned Principal/Officer, hereby certifies that, except as specifically indicated on the attached documents, there are no Claims of Subconsultants or Suppliers as of the date of this Professional Service Invoice that have not been completely resolved, that the Consultant has no knowledge of any unsolved Claims by Subconsultants or Suppliers, that all Subconsultants and Suppliers have been paid to date from funds received for previous Professional Service Invoices and payment has not been previously received for the services currently being billed. Additionally, Consultant certifies that the assigned work and services are on schedule to be completed within the contracted lump sum price, or with this certification have attached hereto, a written notice to the Aviation Authority of any deviations.

Attachments:
1) Disbursement Form
2) If NTE Services - Summary Sheet of Staff (Names & Hours)
3) If NTE Reimbursable Expenses - Back up (invoices)

Name:

Company:

Addendum/Amendment Nos.

Project: BP-###, Project Name
Consultant: Company Name of Consultant

Invoice No. ### - ###
Period Ending: 31-Jan-08

	Total Labor Hours to Date	Labor Hours Previously Billed	Labor Hours Billed This Period	Hourly Rate	Total Billed to Date	Total Billed This Period
Prime Consultant						
Individual / Position Title No. 1						
Individual / Position Title No. 2						
Individual / Position Title No. 3						
Subtotal Prime Consultant						
Subconsultant No. 1						
Individual / Position Title No. 1						
Individual / Position Title No. 2						
Individual / Position Title No. 3						
Subtotal Subconsultant No. 1						
Subconsultant No. 2						
Individual / Position Title No. 1						
Individual / Position Title No. 2						
Individual / Position Title No. 3						
Subtotal Subconsultant No. 2						
Subconsultant No. 3						
Individual / Position Title No. 1						
Individual / Position Title No. 2						
Individual / Position Title No. 3						
Subtotal Subconsultant No. 3						
TOTAL						

ATTACH A LISTING OF DATES SERVICES WERE PERFORMED BY EACH INDIVIDUAL AND A DESCRIPTION OF THE SERVICES PERFORMED

Addendum/Amendment Nos.

CONSULTANT DISBURSEMENTS

Project: BP-###, Project Name
Consultant: Company Name of Consultant

Invoice No. ### - ###
Period Ending: 31-Jan-08

FIRM NAME	Amount Paid to Subconsultant per Invoice								TOTAL $ AMOUNT PAID TO DATE	%	Consultant's Evaluation of Subconsultant Performance (REQUIRED ON FINAL INVOICE ONLY) Ratings: Excellent/Good/Average/Fair/Poor
	INV#1	INV#2	INV#3	INV#4	INV#5	INV#6	INV#7	INV#8			
									-	0.0%	
DBE/MWBE/LDB Subconsultant									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
A. TOTAL DBE/MWBE/LDB DISBURSEMENTS PER INVOICE	-	-	-	-	-	-	-	-	-	0.0%	
									-	0.0%	
Other Subconsultants (Non-DBE/MWBE/LDB)									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
									-	0.0%	
B. TOTAL OTHER (NON-DBE/MWBE/LDB) DISBURSEMENTS PER INVOICE	-	-	-	-	-	-	-	-	-	0.0%	
C. TOTAL SELF-PERFORMED BY PRIME CONSULTANT PER INVOICE									-	0.0%	
TOTAL (A + B + C) = TOTAL PAYMENT TO PRIME CONSULTANT PER INVOICE	-	-	-	-	-	-	-	-	-		

DBE/MWBE/LDB Subconsultant Participation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NON-DBE/MWBE/LDB Subconsultant Participation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The Consultant has reviewed the participation achieved thusfar and remains committed to achieving the participation goal(s) established in the applicable Work Order. If this commitment cannot be achieved, the Consultant shall document the circumstances fully to the satisfaction of the Owner.

EXHIBIT D – OWNER'S TRAVEL POLICY

OBJECTIVE

These provisions establish the policy governing authorized travel, which includes meals and entertainment for employees, consultants, members of the Aviation Authority Board, and other authorized persons who travel at the expense of the Greater Orlando Aviation Authority.

DEFINITIONS

For the purpose of this policy, the following words or phrases shall mean:

Authorized Approver. An employee appointed by the Aviation Authority Board and holding office at the level of Vice President or above.

Authorized Travelers (Travelers)

- Aviation Authority members. Officials serving on the Aviation Authority Board, other than employees.
- Aviation Authority employees. An individual filling an authorized position in the Aviation Authority, other than Aviation Authority Board Members.
- All other Travelers. Persons, including consultants, other than Aviation Authority Board members/employees authorized in advance by the Chief Executive Officer or Executive Vice President to travel at the expense of the Aviation Authority.

Business Associate Any person, other than an Aviation Authority Board Member, employee, consultant, or other Traveler, who receives the services of or is subject to solicitation by the Aviation Authority in connection with the performance of its lawful duties; persons or representatives of firms considering or being solicited; who receives the hospitality of the Aviation Authority in connection with the performance of its lawful duties; and other businesses or persons affiliated with the Aviation Authority's airport system.

Common Carrier. Train, bus, commercial airline operating scheduled flights, or rental cars of an established rental car firm.

Complimentary Upgrade. Any seat assignment arranged in advance by specific request of the Traveler or by an airline employee that provides the Traveler with a class of travel in excess of the airfare paid and which conflicts with Policy 101.02 – Code of Ethics and Business Conduct.

Daily Travel. All travel, including conferences and seminars that do not require an overnight stay.

Day of Travel. Day of departure and day of return for authorized travel.

Denied Boarding Customer. Those Travelers that have been denied boarding a flight by the Airline because of overbooking, mechanical problems or other flight delays.

Domestic Travel. Travel within the 48 continental United States.

Emergency Notice. Notification given to a Traveler less than 24 hours prior to the start of a travel period.

Entertainment Expenses. The actual and reasonable costs of providing hospitality for Business Associates, which costs are defined and prescribed as hereinafter set forth.

International Travel. Travel outside the 48 contiguous United States, to include Alaska, Hawaii and US possessions.

Most Economical Method of Travel. The mode of transportation (Aviation Authority-owned vehicle, privately owned vehicle, Common Carrier, etc.) and schedule of transportation, taking into consideration the following:

- the purpose and nature of the travel;
- the most efficient and economical means of travel (considering the time length of the trip, number of connections, time of day, cost of transportation and Per Diem or subsistence required, early booking of airline reservations to take advantage of discounted fares, any additional add-on fees, and convenience); and
- the number of persons making the trip and the amount of equipment or material to be transported.

Official Headquarters. The airport to which the Aviation Authority member, employee or other Traveler is assigned.

Per Diem. An allowance for meals and incidental expenses. The U.S. General Services Administration (GSA) establishes the per diem reimbursement rates that federal agencies use to reimburse their employees for subsistence expenses incurred while on official travel within the continental U.S. (CONUS), which includes the 48 contiguous states and the District of Columbia. The U.S. Department of Defense (DOD) establishes rates for travel in non-foreign areas outside of CONUS, which includes Alaska, Hawaii, and U.S. Territories. The U.S. Department of State establishes rates for travel in foreign areas.

- Website for GSA: https://www.gsa.gov/travel/plan-book/per-diem-rates

- Website for DOD's Defense Travel Management Office (DTMO): https://www.travel.dod.mil/Travel-Transportation-Rates/Per-Diem/
- Website for Department of State: https://aoprals.state.gov/content.asp?content_id=184&&menu_id=101&menu_id=101

Pre-Travel Request (Request). The request to travel on behalf of the Aviation Authority, which should be submitted for review and approval by an Authorized Approver prior to the Travel Period.

Post-Travel Expense Report (Expense Report). The request for reimbursement of expenditures incurred while traveling at the expense of the Aviation Authority and submitted for review and approval by an Authorized Approver after the Travel Period.

Standardized Regulations. Official documentation specific to the type of travel (domestic or international), based on location and issued by a U.S. governmental authority providing regulatory guidelines with regard to per diem reimbursement rates for lodging, meals, and incidental expenses. U.S. governmental authorities include but shall not be limited to the U.S. General Services Administration (GSA), the U.S. Defense Department, the Defense Travel Management Office, the U.S. Department of State, or the Internal Revenue Service (IRS).

Standby Seat. A seat assigned by the airline to a Traveler when traveling in a standby mode.

Travel and Expense Application (T&E Application) The software application used to manage Requests, Expense Reports and bookings for travel conducted at the expense of the Aviation Authority.

Travel Services. The Aviation Authority employee(s) assigned the duties and responsibilities of reviewing and validating policy compliance for all Aviation Authority travel.

Travel Expenses. The actual and reasonable costs of transportation, meals, lodging, and incidental expenses normally incurred by a Traveler.

Travel Period. The period of time between the time of departure and time of return.

METHOD OF OPERATION

POLICY

Travelers are expected to exercise the same care in incurring Travel Expenses that any prudent person exercises when traveling on personal business.

It is the responsibility of the Traveler to comply with this policy and to be knowledgeable of the nature and extent of reimbursable expenses.

It is the general policy of the Aviation Authority to reimburse reasonable travel, meals and entertainment expenses, incurred during authorized travel, subject to any limitations provided for in this policy.

If a Traveler or Business Associate on a trip deviates from this policy for justifiable reasons, they may continue to be reimbursed for travel related expenses. Travelers should be prepared to justify any additional expenses incurred as a result of these changes. Justifications must be included in the "Comments" box for the related expense within the Expense Report.

If management directs an employee to terminate their travel and return early due to a business need, the Traveler will be reimbursed for any costs that they could not avoid. A statement explaining the unforeseen costs incurred must be included in the "Comments" box of the Expense Report."

If a Traveler is an employee of the City of Orlando Police Department (OPD) who is assigned full-time duty status to the OPD Airport Division to perform services for the Aviation Authority, in accordance with the Operation and Use Agreement between the City of Orlando and the Aviation Authority, as amended, the Traveler shall adhere to Policy Section 412, Management, Budget and Accounting Department established by the City of Orlando (City Travel Policy) and Section 1706.5, Travel/Training Policy and Procedure established by the Orlando Police Department (OPD Travel Policy). To the extent that differences exist between this Policy 430.02, Authorized Travel Expense and Subsistence, and the City Travel Policy and/or the OPD Travel Policy, the provisions of City and OPD policies shall prevail, in accordance with the above referenced Agreement.

The Chief Executive Officer may issue travel directives and guidelines in addition to this policy. It is the responsibility of the Traveler to be knowledgeable of, and comply with the nature and extent of these additional directives and guidelines.

Except as noted above, noncompliance with this policy will be addressed in accordance with Operational Procedure 204.02, Allegations of Misconduct. Noncompliance with this policy may lead to the denial of reimbursement or other disciplinary action, up to or including termination of employment.

Approvals

Authorization of Requests. Requests for travel (domestic and international) must be submitted through the Aviation Authority's T&E Application for approval as soon as reasonably possible. All required fields within the T&E Application, along with any pertinent information related to the trip, must be completed. The Request must include a statement of purpose for the travel and indicate the benefits to the Aviation Authority. A copy of any program or agenda shall also be attached and submitted. If none is available, a statement to that effect must be submitted. Approval should be obtained no later than 5 business days in advance of the proposed travel.

Authorization of Expense Reports. Expense Reports for all travel expense incurred must be submitted through the Aviation Authority's T&E Application for approval. All required fields within the T&E Application, along with any pertinent information related to the trip, must be completed. If not previously included within the corresponding Request, the Expense Report shall include a statement of purpose for the travel and indicate the benefits to the Aviation Authority. A statement of benefits to the Aviation Authority is not required for local travel. Additionally, if not previously submitted within the corresponding Request for travel, a copy of any program or agenda shall also be attached and submitted within the Expense Report. If none is available, a statement to that effect must be submitted. Expense Reports should be submitted no more than 20 business days after the travel period has concluded for domestic travel and no more than 30 business days after the conclusion of the travel period for international travel.

Routing of Requests and Expense Reports. Completed Requests and Expense Reports will start with a compliance review which is conducted by Travel Services. Once a Request or an Expense Report has been approved by Travel Services, routing through the T&E Application will continue until the Request or Expense Report has received final approval. The Chief Executive Officer must approve any Request or Expense Report for any of the following: 1) the amount is equal to or above $10,000, 2) lodging within 50 miles of the Aviation Authority's Official Headquarters, or 3) International Travel (inclusive of Alaska, Hawaii or any U.S. Territory).

Requirements for Final Approval. Final approval for any Request or Expense Report is the responsibility of the Authorized Approver(s), as determined within this policy. Travel for all Authorized Approvers, with the exception of the Chief Executive Officer, must be approved by their direct manager or a higher authority. Travel for the Chief Executive Officer shall be approved by the Vice President of Finance.

Departmental Responsibilities. The department's Authorized Approver shall be responsible for reviewing all travel requests and ensuring their compliance with policy. Additionally, the Authorized Approver is responsible for ensuring all approved travel has been properly budgeted. While Authorized Approvers are authorized to delegate approval of travel to a named designee, nonetheless, the Authorized Approver is ultimately responsible for the appropriateness, accuracy, and budget for all travel within their respective department(s).

Travel Services' Responsibilities. Review and validate all Requests and Expense Reports for compliance with Aviation Authority policy and with any travel related directives issued by the Chief Executive Officer.

Special Conditions of Travel

Travelers Other Than Authority Board Members or Employees. The Chief Executive Officer or Executive Vice President may approve travel by persons who are serving as Business Associates when such travel is on behalf of the Aviation Authority (excluding those consultants and advisors whose contract specifies the terms of travel). Travel Expense provisions may be made within the consulting agreement and approved as part of the agreement, subject to the maximum limits for reimbursement provided for in this policy. If no provision is reflected in the agreement, complete justification must be submitted prior to approval. Travel Expenses for authorized persons shall adhere to the same rates and guidelines as those for Aviation Authority Board members, employees and other Travelers.

Joint Travel Missions. On occasion, the Aviation Authority will enter into a joint travel mission that may be for business, economic, or tourist development reasons with organizations including, but not limited to, the Orlando Economic Partnership, Enterprise Florida, Visit Orlando, Visit Florida, Experience Kissimmee, bi-national chambers of commerce and Offices of the Mayors, etc. When these joint ventures are undertaken, the Aviation Authority will pay travel costs based upon the invoice submitted by the host agency which will be generally distributed among agencies in a predetermined manner. Travel Services will perform procedures to determine that the amounts charged to the Aviation Authority are financially comparable to amounts which would be charged if the Aviation Authority were arranging the trip. Any meals, lodging or incidental expenses not included in the invoice will be reimbursed in accordance with the standard guidelines found elsewhere within this policy. All such travel shall be authorized in advance by the Chief Executive Officer or Executive Vice President.

Travel for Employment Interviews. Travel and transportation expenses of the Aviation Authority's employment applicants will be reimbursed in accordance with this policy. All travel arrangements and lodging will be

made by the Human Resources department in accordance with the Authorization of Requests in the Approvals section of this policy and approved in advance by the Chief Executive Officer, subject to available budget.

Most Economical Method. Travelers are required to use the Most Economical Method of travel. Refundable or nonrefundable airfares may be reserved as deemed appropriate under the circumstances. If a Traveler departs early or returns late to take advantage of reduced airfares, lodging and meals will be reimbursed in accordance with this policy, provided that a net savings to the Aviation Authority is realized and such savings are documented in advance within the Request.

Physically Disabled, Sick, Injured, or Fatigued Travelers. Any Traveler who is on authorized travel, and becomes sick or injured, to the extent they can no longer perform the Aviation Authority's business, may be eligible to continue receiving meal allowances, and other reasonable expenses during his or her incapacitation. This eligibility may extend until such time as the Traveler is able to continue to perform the Aviation Authority's business, or return to official headquarters, whichever is earlier.

In order to qualify, the Traveler must notify the department Vice President, Senior Vice President, Executive Vice President, or Chief Executive Officer as soon as possible, but not later than 24 hours after incurring the illness or injury, and receive authorization for continued reimbursement. Notwithstanding any provision contained herein to the contrary, the Aviation Authority may reimburse or pay Travel Expenses incurred by the physically fatigued or disabled Traveler, which are in excess of the Travel Expenses ordinarily authorized, provided such excess Travel Expenses are reasonable and necessary under the circumstances for the safe travel of the physically disabled or fatigued individual. Any and all reasonable and necessary expenses being claimed by the Traveler must be accompanied by sufficient documentation to justify the expense(s).

Emergency Travel. The Chief Executive Officer or Executive Vice President may authorize travel for any employee, Aviation Authority Board member, or other Traveler pursuant to Emergency Notice. The requirements of Authorization of Requests in the Approvals section of this policy may be waived at the discretion of the Chief Executive Officer or Executive Vice President whenever travel is pursuant to Emergency Notice. Expense Reports shall be submitted upon completion of travel in accordance with Post-Travel Expense Reports section.

Personal Travel. Personal travel combined with business trips are allowed when approved in advance. Personal travel must be taken on one's own

time and at no expense to the Aviation Authority. Any additional expenses, as determined by this policy, are the responsibility of the Traveler and must be reimbursed to the Aviation Authority.

Reimbursement and Per Diem Rates

Lodging. A Traveler may be reimbursed for the actual cost of a single occupancy hotel room for travel that requires overnight absence from Official Headquarters. Lodging expenses must be substantiated by an itemized receipt.

a. Domestic Lodging Rates. Payment for domestic lodging is limited to the group rate, if available. If a group rate is not available, lodging expenses are limited to reasonable amounts for the area traveled. Primary responsibility for the reasonableness of amounts charged rests with the Authorized Approver.

b. International Lodging Rates. International lodging expenses are limited to reasonable amounts, not to exceed 150% of the amount published in the Standardized Regulations for the area traveled at the time of travel, or the conference rate.

c. In-State Lodging - Tax Exemption. When reserving lodging within the State of Florida, the Authorized Traveler is responsible for ensuring exemption from sales tax.

d. Non-reimbursable Expenses. Incidentals along with other additional fees charged to the room, including but not limited to movies, spa services, alcoholic beverages, and/or mini bar purchases will not be reimbursed.

Meals. In order to comply with the IRS regulations, two meal allowance standards are being allowed. The Traveler must elect one of the two methods, receipted or non-receipted, and apply that method consistently throughout their Travel Period.

a. Non-receipted Meals reimburses the Traveler using a meals and incidental expense per diem allowance without the need to submit receipts. The U.S. General Services Administration (GSA) establishes the per diem reimbursement rate while traveling within the contiguous U.S. (CONUS), which includes the District of Columbia. The U.S. Department of Defense (DOD) establishes rates for travel in non-foreign areas outside of CONUS, which includes Alaska, Hawaii and U.S. Territories. The U.S. department of State establishes rates of travel in foreign areas. The meals and incidental expense (M&IE) rates for domestic and international locations are inclusive of taxes

and tips, so Travelers will not be reimbursed separately for these items.

b. Receipted Meals allow the Traveler to be reimbursed up to a specified amount, but must be accompanied by an itemized receipt reflecting the amount spent on the meal. Receipted meal reimbursements shall not exceed 130% for domestic meals and 150% for international meals in accordance with the M&IE per diem rates as published within the Standardized Regulations for the location traveled to, at the time of travel. Receipted meals may be submitted for Travel Periods less than 12 hours.

c. Allocation of M&IE Per Diem for Non-receipted Meals. On the Day of Travel, the Traveler will be reimbursed 75% of the applicable M&IE per diem rate. All remaining days within the travel period are reimbursed at 100% of the applicable M&IE per diem rate. Travel Periods less than 12 hours in duration are ineligible for non-receipted per diem meal reimbursements.

d. Business Meals. Limitations on expenditures set forth above are applicable to Travelers when not accompanied by a Business Associate. When accompanied by a Business Associate, expenditures shall be made in accordance with Special Conditions of Travel section and Post-Travel Expense Reports section of this policy.

e. Complimentary Meals. If a complimentary meal is provided, it shall be the Traveler's option to accept or decline the meal. Continental breakfasts or snacks do not constitute a complimentary meal. If the Traveler opts to accept a complimentary meal, this shall be indicated within the Travel Expense Report and will result in a reduction of the M&IE per diem meal reimbursement for the applicable day(s).

Transportation

General Requirement. All travel shall be booked using the most direct route or common method of travel when possible. If a person travels by an indirect route or any other method for their own convenience, any extra costs shall be borne by the Traveler. Reimbursement of expenses shall be based only on charges which would have been incurred by use of the usually traveled route or method.

Travel Services shall review the Most Economical Method of travel and the usually traveled direct route for any trip.

Commercial Air Travel. Commercial air travel will be by premium economy (or equivalent as designated by an airline). First class rates may be authorized, (1) if a statement from the Common Carrier or Travel

Services or its authorized representative is included with the travel request stating that premium economy class, or business class as described below, is not available for the date and time the travel is requested, or (2) for medical reasons, if substantiated in writing by a physician.

a. Seat Classification. To avoid or minimize undue physical fatigue due to length of trip, number of travel segments, or changes in time zones, Traveler may book travel in business class if any flight segment or leg of a trip, excluding the duration of any layovers, exceeds 4 hours. For purposes of this section, the term "business class" shall mean a class of travel for which the fare is greater than tourist, coach, or premium economy class but which is less than first class.

b. Complimentary Upgrades. Authorized Travelers will not accept a Complimentary Upgrade of seating on any flight. If an Authorized Traveler is deemed to have accepted a Complimentary Upgrade, the Authorized Traveler will pay to the airline the lowest calculated difference between the class of travel purchased and the upgraded class.

The following are not considered Complimentary Upgrades:

- Use of frequent flyer miles or other upgrade benefits to obtain a higher class of airfare.
- Use of system-wide upgrades.
- Compensation paid to passenger who qualifies as Denied Boarding Customer (DBC).
- Standby Seats assigned by the airline, regardless of seat assignment.

Car Rentals

a. Authorization. Use of a rental car must be deemed to be the most economical, convenient and/or efficient form of transportation.

b. State Contract. When renting a vehicle, the approved vehicles shall be rented in accordance with the intermediate size vehicle listed on the annual contract for rental cars competitively bid by the State of Florida when available. Justification for use of a rental vehicle larger than an intermediate size described in the State contract, which is required to transport Business Associates or materials, must be included in the comments field of the travel request.

c. Insurance. Collision damage waiver insurance is required when renting a car for business travel. Normally, the State Contract for rental cars includes this coverage in the rental rate for Travelers.

Privately Owned Vehicles. The Authorized Approver may authorize the use of a privately-owned vehicle for travel on behalf of the Aviation Authority in lieu of Aviation Authority-owned vehicles, rental vehicles, or Common Carriers.

A Traveler who requests, and is approved the use of a privately-owned vehicle, shall be entitled to a mileage allowance in accordance with the IRS published mileage reimbursement rate. The mileage allowance for Travelers shall be reimbursed at the IRS published mileage reimbursement rate or the air carrier fare for such travel, whichever is less.

All travel which is subject to a mileage allowance shall be shown from point of origin to point of destination and return, less mileage for the Traveler's standard commute, and shall be computed using a web based mapping program or mileage calculator.

No reimbursement other than a mileage allowance shall be allowed for expenditures related to the operation, maintenance or ownership of a privately-owned vehicle, except as provided above and in the Incidental Expenses section herein this policy.

a. Auto Allowance. The Chief Executive Officer may grant reasonable monthly allowances in fixed amounts for use of privately-owned vehicles on Aviation Authority business instead of the mileage allowances provided for herein. Such allowances shall be established by taking into account the customary use of the vehicle, the roads customarily traveled and whether any of the expenses incidental to the operation, maintenance or ownership of the vehicle is paid from public funds. Such allowance may be changed at any time, and shall be made on the basis of a statement signed by the Traveler and filed before the allowance is granted or changed, and may be evaluated annually thereafter.

Chartered Transportation. The Chief Executive Officer or Executive Vice President may authorize, in advance, transportation by chartered vehicle or carrier when necessary or where it is to the Aviation Authority's advantage, provided the cost of such transportation does not exceed the cost of transportation by a Common Carrier.

Gratuitous Transportation. No Traveler shall be allowed either mileage or transportation expense when gratuitously transported by another, or when transported by another Traveler who is entitled to mileage or transportation expense.

Receipts, Tips, and Incidental Expenses

Receipts. Receipts are required to support all expenditures with the exception of select cash tips, per diem reimbursements for M&IE, and mileage reimbursement. Receipts shall be attached to the Travel Expense report prior to submission. In accordance with IRS regulations, receipts are always required to support lodging expense. These receipts must be itemized lodging bills and not credit card receipts. If, for any reason, an original receipt is lost and/or unobtainable, the Traveler must submit a Missing Receipt Declaration within the Aviation Authorities' T&E Application.

Tips. Reimbursement for tips shall not exceed the recommended amount at the time of travel for the location traveled as set forth by Travel Services.

Incidental Expenses. The Authority may reimburse the Traveler for incidental expenses in accordance with policy if a proper substantiation of business need has been provided. Incidental expenses may include, but are not limited to the following: Passport/Visa fees, currency exchange fees, immunizations, vehicle storage or parking, toll transponder and gas for rental car, tolls, laundry and pressing (for Travel Periods over 4 days), in-flight wi-fi, or additional travel related incidentals of nominal cost necessary for authorized travel.

Entertainment Expenses

Entertainment expenses are allowable for promotional items and services required to provide hospitality for Business Associates as set forth below:

Tangible Items. Hospitality in the form of tangible items, such as tie tacks, medallions, paperweights, and other non-consumable items are distributed by the appropriate department. Non-consumable items shall be requisitioned through normal purchasing procedures.

Recreational Activities. Hospitality in the form of recreational activities may be provided and shall be requisitioned through normal purchasing procedures when possible.

Entertainment. Actual and reasonable entertainment expenses incurred by Aviation Authority Board members, employees and other authorized persons as described in Special Conditions of Travel section are allowable under this policy only when in the presence of or when physically accompanying a Business Associate, after approval by the Authorized Approver.

Post-Travel Expense Reports

Domestic Travel. A completed Expense Report with all required documentation should be submitted no later than 20 business days after the Travel Period has concluded.

International Travel. A completed Expense Report with required documentation should be submitted no later than 30 business days after the travel period has concluded.

Significant Deviations from the Request. Significant deviation from the Request (i.e., more than 20% or $250, whichever is greater) shall be explained in the Expense Report by the traveler.

Funds Due Aviation Authority. Funds due the Aviation Authority may be deducted from any amount due to the Traveler, including but not limited to, per diem, mileage reimbursements, and other out of pocket expenses incurred by the Traveler. Any funds due to the Aviation Authority should be reimbursed to the Authority's Finance department no later than 20 business days for Domestic travel, and 30 business days for International travel, after the travel period has ended. The Aviation Authority may recuperated via payroll deduction(s) funds which are outstanding for more than 30 days, and are directly attributable to the Traveler's failure to properly submit an Expense Report in a timely manner.

Funds Due Traveler. Expense Reports showing an amount due to or on behalf of a Traveler will be processed for payment in accordance with standard payment procedures. Payment of undisputed items should be processed for payment within two payroll cycles after authorized approval has been obtained.

Canceled Trips. The Traveler shall have the responsibility of requesting refunds for any registration fees and other Travel Expenses which were expended prior to the required cancellation. If a canceled Travel Request results in outstanding credits or non-refundable expenses, the Traveler shall submit documentation through the Aviation Authority's T&E Application. Any credits from airlines, hotels, rental cars, or other services must be used toward future business travel.

APPROVAL AND UPDATE HISTORY

Format and Re-Numbering Authority Aviation Authority Board: August 28, 1991 (R)

Last Approval Aviation Authority Board: April 19, 2023 (To be effective June 1, 2023)
Chief Executive Officer: April 12, 2023

Supersedes: All Previous

EXHIBIT E – INSURANCE LIMITS

1.0 Insurance Limits

The Consultant shall furnish insurance with the following limits for the period of time required by this Agreement for work Inside the Aircraft Operations Area:

Type of Policy	Amount
Commercial General Liability: Maximum Deductible or Self-insured Retention: Coverage shall include contractual libaility	$5,000,000 Each Occurrence $100,000
Automobile Liability: Maximum Deductible or Self-insured Retention:	$5,000,000 Combined Single Limit $100,000
Workers Compensation and Employers' Liability	Statutory Limit $500,000 each accident $500,000 disease-policy limit $500,000 disease-each employee
Professional Liability and Errors and Omissions: Maximum Deductible or Self-insured Retention:	$5,000,000 Each Claim $100,000

2.0 Insurance Certificates

The Consultant shall furnish evidence of insurance reflecting compliance with the insurance requirements listed herein this Agreement. Certificates of Insurance shall be remitted using an ACORD form or in a form acceptable to the Owner and submitted directly to the Owner's Contracts and Grants Manager prior to the start of Services and/or execution of Agreement (whichever comes first). Any deductible or self-insurance retention must be indicated on the certificate of insurance.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 07/10/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Danielle Conklin	
Brown & Brown Insurance Services, Inc. 10151 Deerwood Park Blvd Bldg 100, Ste 500 Jacksonville FL 32256	PHONE (A/C, No, Ext): (904) 565-8286	FAX (A/C, No): (904) 565-2440
	E-MAIL ADDRESS: Danielle.Conklin@bbrown.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
RS&H, Inc 10748 Deerwood Pk Blvd S See Second Page for All Named Insureds Jacksonville FL 32256	INSURER A : Zurich American Insurance Company	16535
	INSURER B : American Guarantee and Liability Insurance Company	26247
	INSURER C : Travelers Property Casualty Company of America	25674
	INSURER D : Continental Insurance Company	35289
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 24-25 Liability **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR [X] Blanket AI- PNC [X] Blanket WOS GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:			GLO1466409-02	06/28/2024	06/28/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 	$ 2,000,000 $ 300,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000 $
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY [X] Blanket AI [X] Blanket WOS			BAP1469564-02	06/28/2024	06/28/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 2,000,000 $ $ $ $
B	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000			See Attached	06/28/2024	06/28/2025	EACH OCCURRENCE AGGREGATE 	$ 29,000,000 $ 29,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC0411471-02	06/28/2024	06/28/2025	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Project #10074312888
Project Name: GOAA: Continuing On-Call Architecture and Engineering Consulting Services; Client Job #W486

30 day notice of cancellation provided per policy provisions.

CERTIFICATE HOLDER

Greater Orlando Aviation Authority
11312 Terminal C Service Road
Orlando FL 32824

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

AGENCY CUSTOMER ID: _____

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

Page ____ of ____

AGENCY	NAMED INSURED
Brown & Brown Insurance Services, Inc.	RS&H, Inc
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability Insurance: Notes

Umbrella Total Limit: $29,000,000
Primary $9M - American Guarantee and Liability Insurance Company; Policy #AUC-1469558-02
$10M XS $9M - Travelers Property Casualty Company of America; Policy #EX-6T35064A-24-NF
$10M XS $19M - Continental Insurance Company; Policy #7039681430

NAMED INSURED LIST:
HB&A, LLC
Reynolds, Smith and Hills Architects – Engineers Planners, P.A.
Reynolds, Smith and Hills CS, Incorporated
Reynolds, Smith and Hills, Inc.
RS&H Alabama, Inc
RS&H Architect and Engineer, P.C.
RS&H Architects-Engineers-Planners, Inc.
RS&H Arkansas, Inc.
RS&H California, Inc.
RS&H Commercial Realty, Inc.
RS&H Idaho, P.C.
RS&H Illinois, inc.
RS&H Iowa, P.C
RS&H Maryland, Inc.
RS&H Massachusetts, Inc.
RS&H Michigan, Inc.
RS&H Mississippi, P.C.
RS&H Montana, P.C.
RS&H Nevada, Inc.
RS&H Ohio, Inc.
RS&H Oregon, Architects-Engineers-Planner, P.C.
RS&H Pennsylvania, Inc.
Tsiouvaras Simmons Holderness, Inc.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/25/2024

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PRODUCER Greyling Ins Brokerage/EPIC 3780 Mansell Road, Suite 370 Alpharetta GA 30022	**CONTACT NAME:** Greyling COI Specialist **PHONE (A/C, No, Ext):** 770.756.6599 **FAX (A/C, No):** **E-MAIL ADDRESS:** greylingcerts@greyling.com
INSURED RS&HINC RS&H, Inc. 10748 Deerwood Park Blvd South Jacksonville, FL 80237-0000	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** Lloyd's of London — 85202 **INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 280664055 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liab Incl. Pollution			B0146LDUSA2404894	6/28/2024	6/28/2025	Per Claim Aggregate	$5,000,000 $5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project # 10074312888
Project Name: GOAA: Continuing On-Call Architecture and Engineering Consulting Services
Client Job # W486
Should any of the above described policies be cancelled by the issuing insurer before the expiration date thereof, we will endeavor to provide 30 days' written notice (except 10 days for nonpayment of premium) to the Certificate Holder. Professional Liability Self-Insured Retention $1,500,000.

CERTIFICATE HOLDER

Greater Orlando Aviation Authority
11312 Terminal C Service Road
Orlando FL 32824

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE