



Savannah/Hilton Head International Airport Short-Term Development Program Draft Environmental Assessment: Appendices

November 2019

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APPENDIX A

Agency Coordination

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APPENDIX A.1

**Early Agency Coordination and Scoping
Comments**

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**Savannah/Hilton Head International Airport Short Term Development Program
Environmental Assessment
Early Agency Coordination Distribution List**

FEDERAL AGENCIES

Mr. Don Imm
Field Supervisor
U.S. Fish and Wildlife Service
Georgia Ecological Services Office
Coastal Georgia Sub Office
4890 Wildlife Drive Northeast
Townsend, GA 31331

Mr. Christopher Coppola
Biologist – Transportation Projects
U.S. Fish and Wildlife Service
Georgia Ecological Services Office
Coastal Georgia Sub Office
4890 Wildlife Drive Northeast
Townsend, GA 31331

U.S. Army Corps of Engineers
ATTN: CESAS-RD
Mr. William M. Rutlin
Chief, Coastal Section
Savannah District
100 West Oglethorpe Avenue
Savannah, GA 31401

Mr. Chris Militscher
Chief, NEPA Program Office
U.S. Environmental Protection Agency
Region 4
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Atlanta, GA 30303

Mr. Kerry Kehoe
Federal Consistency Specialist
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National Oceanic and Atmospheric
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Silver Spring, MD 20910

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Region 12 Representative
Georgia Department of Community Affairs
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Director
Georgia Department of Natural Resources
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Planning Program Manager
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Executive Director
Chatham-Savannah Metro Planning
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Savannah, GA 31412

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Executive Director
Coastal Regional Commission of Georgia
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Darien, GA 31305

Ms. Kerri Reid
Director
City of Savannah Community Planning &
Development Department
2203 Abercorn Street
Savannah, GA 31401

NATIVE AMERICAN TRIBES

None



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Administration**

Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Mr. Don Imm
Field Supervisor
U.S. Fish and Wildlife Service
Georgia Ecological Services Office
Coastal Georgia Sub Office
4890 Wildlife Drive Northeast
Townsend, GA 31331

**RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia
Consultation Code: 04EG1000-2019-SLI-2043, Event Code: 04EG1000-2019-E-03807**

Dear Mr. Imm:

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An Official Species List has been received for the Proposed Project, under Consultation Code 04EG1000-2019-SLI-2043, Event Code: 04EG1000-2019-E-03807. During the EA process, we will consider the List, along with any early comments you provide, in preparing and coordinating a Biological Assessment and effects determination with the Service pursuant to Section 7 of the Endangered Species Act.

Additional project data and information will be developed during preparation of the EA, including locations of potential ancillary project elements such as onsite staging and materials storage areas, construction haul routes, and locations of batch plants, that may prompt you to provide additional comments on issues to be considered in the EA. Consequently, you will be invited to review and provide additional comments on the Draft EA upon publication.

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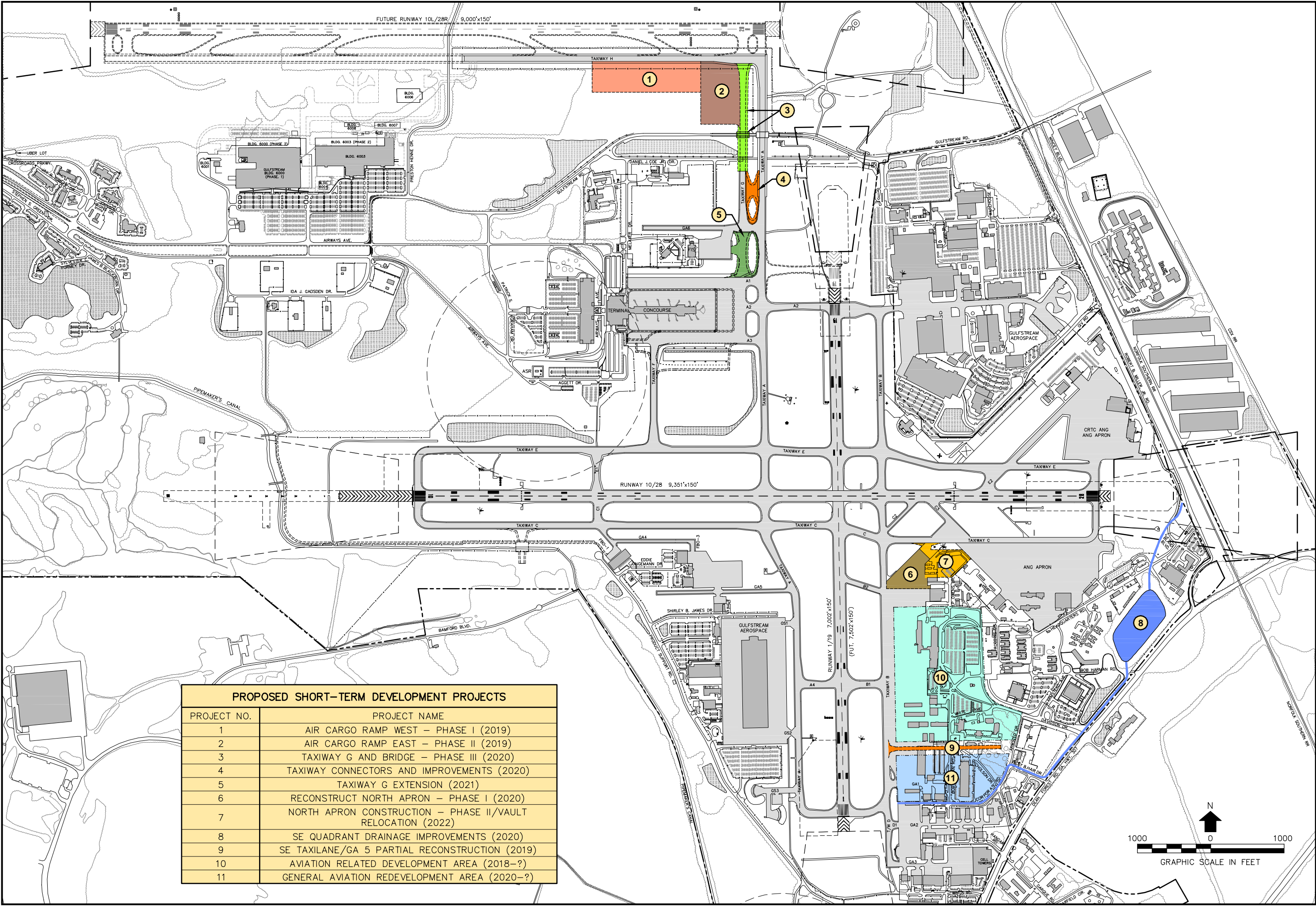
Sincerely,

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Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

Copy: Christopher Coppola, USFWS
Mark Denmark, Savannah Airport Commission
Paul Sanford, AECOM



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U.S. Department
of Transportation
**Federal Aviation
Administration**

Airports District Office
1701 Columbia Ave Room 220
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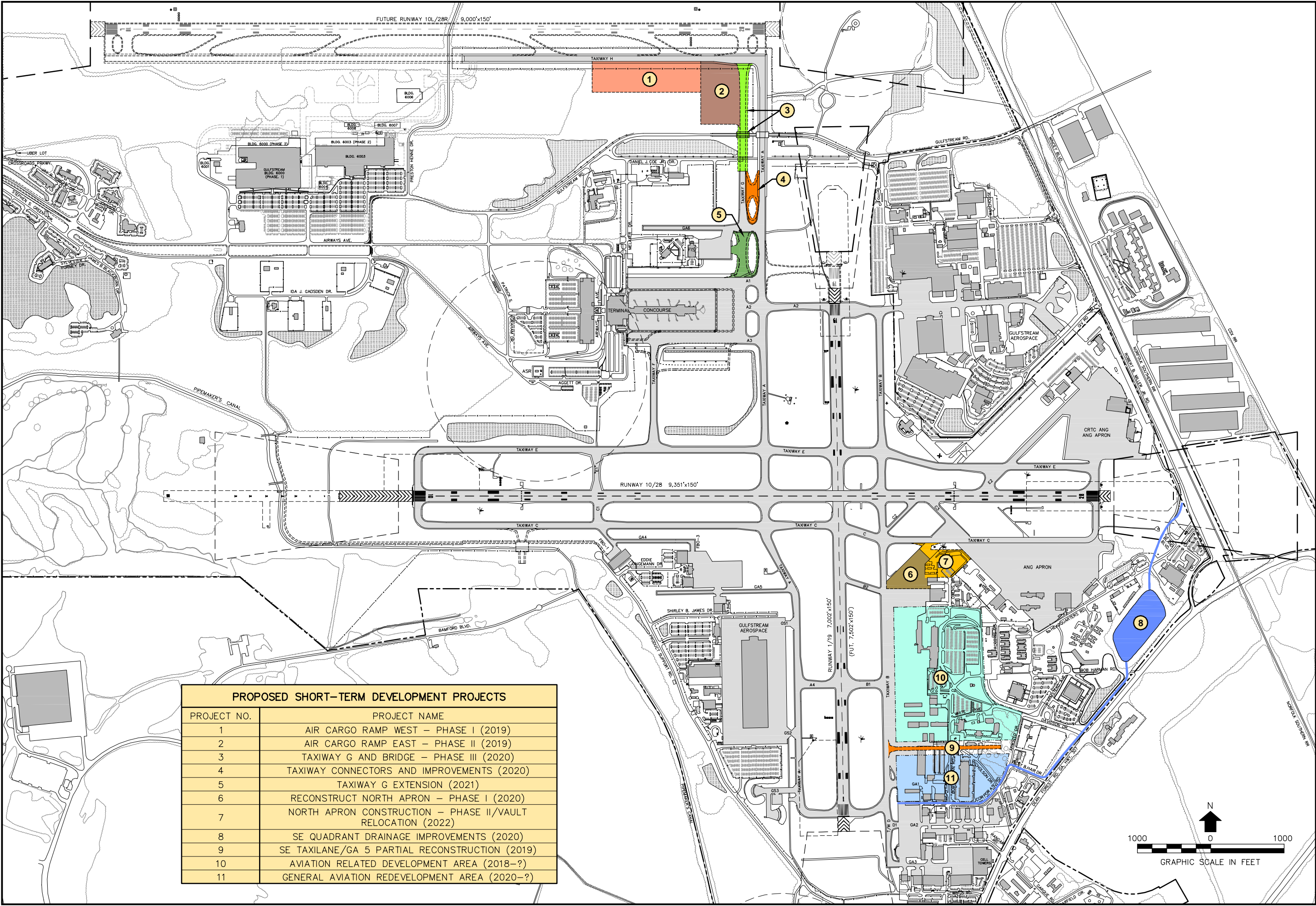
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Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
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Paul Sanford, AECOM



PROPOSED SHORT-TERM DEVELOPMENT PROJECTS	
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ATTN: CESAS-RD
Mr. William M. Rutlin
Chief, Coastal Section
Savannah District
100 West Oglethorpe Avenue
Savannah, GA 31401

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Mr. Rutlin:

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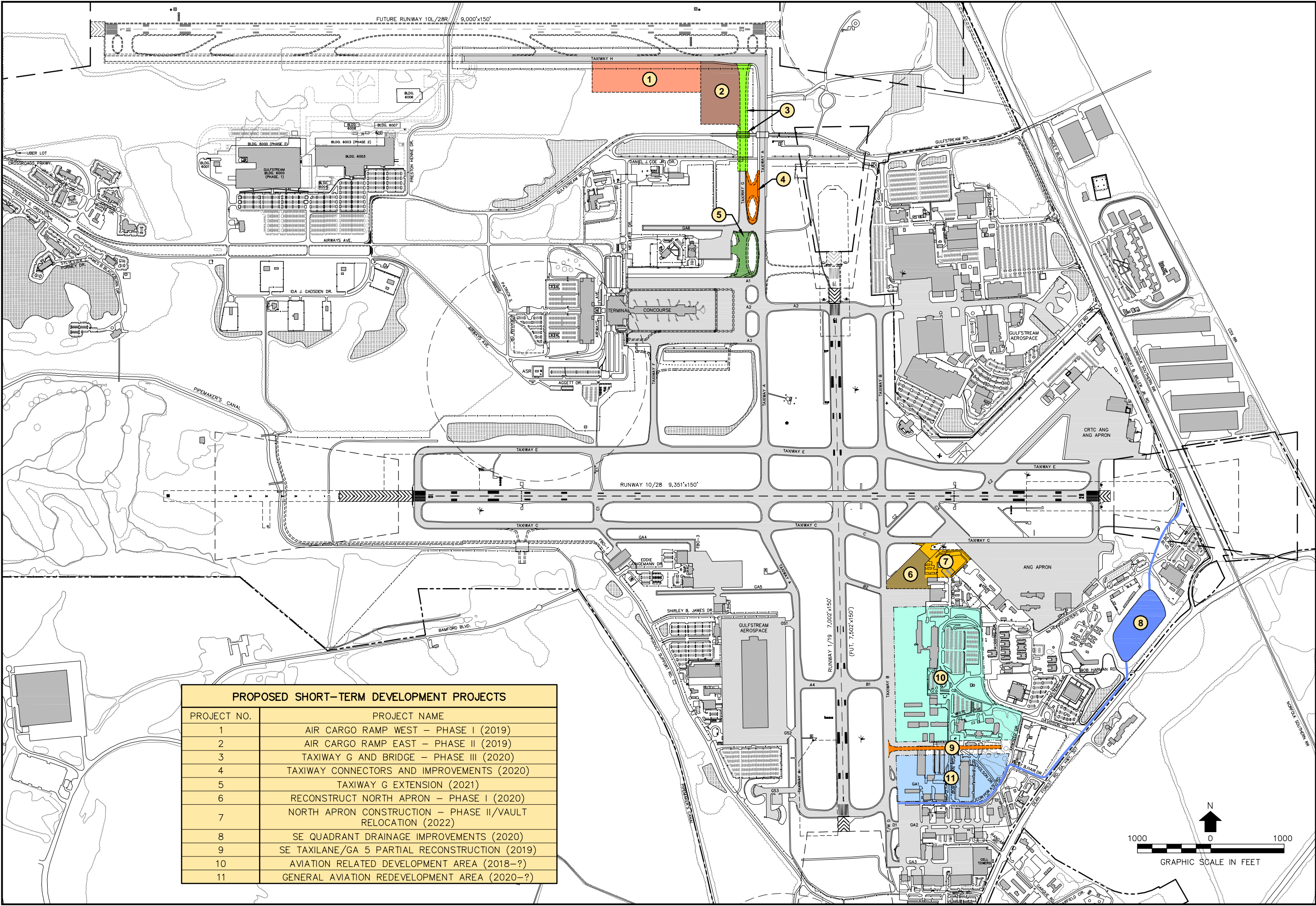
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PROPOSED SHORT-TERM
DEVELOPMENT PROGRAM PROJECTS

FIGURE
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August 01, 2019

Mr. Chris Militscher
Chief, NEPA Program Office
U.S. Environmental Protection Agency
Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, Northwest
Atlanta, GA 30303

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

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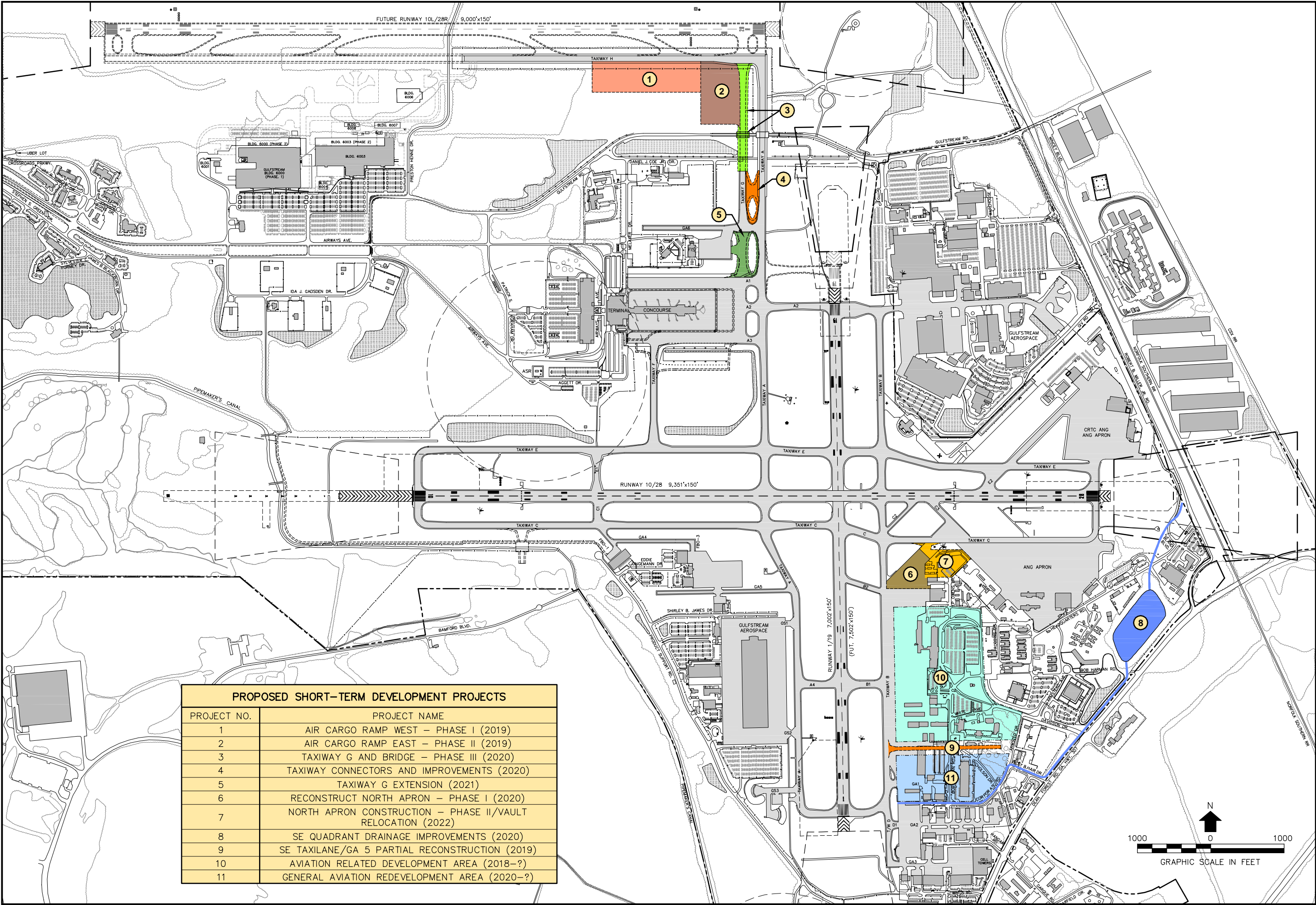
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Mr. Kerry Kehoe
Federal Consistency Specialist
Office for Coastal Management
National Oceanic and Atmospheric Administration
1305 East West Hwy., 10th Floor (N/ORM3)
Silver Spring, MD 20910

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Mr. Kehoe:

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improvements as they relate to your specific area of expertise or regulatory jurisdiction, including permitting or mitigation requirements. Please note, during the EA process, a Federal Coastal Consistency Determination will be prepared and coordinated with applicable Federal, state and local agencies pursuant to 15 Code of Federal Regulations Part 930 et seq. and applicable implementing regulations.

Additional project data and information will be developed during preparation of the EA, including locations of potential ancillary project elements such as onsite staging and materials storage areas, construction haul routes, and locations of batch plants, that may prompt you to provide additional comments on issues to be considered in the EA. Consequently, you will be invited to review and provide additional comments on the Draft EA upon publication.

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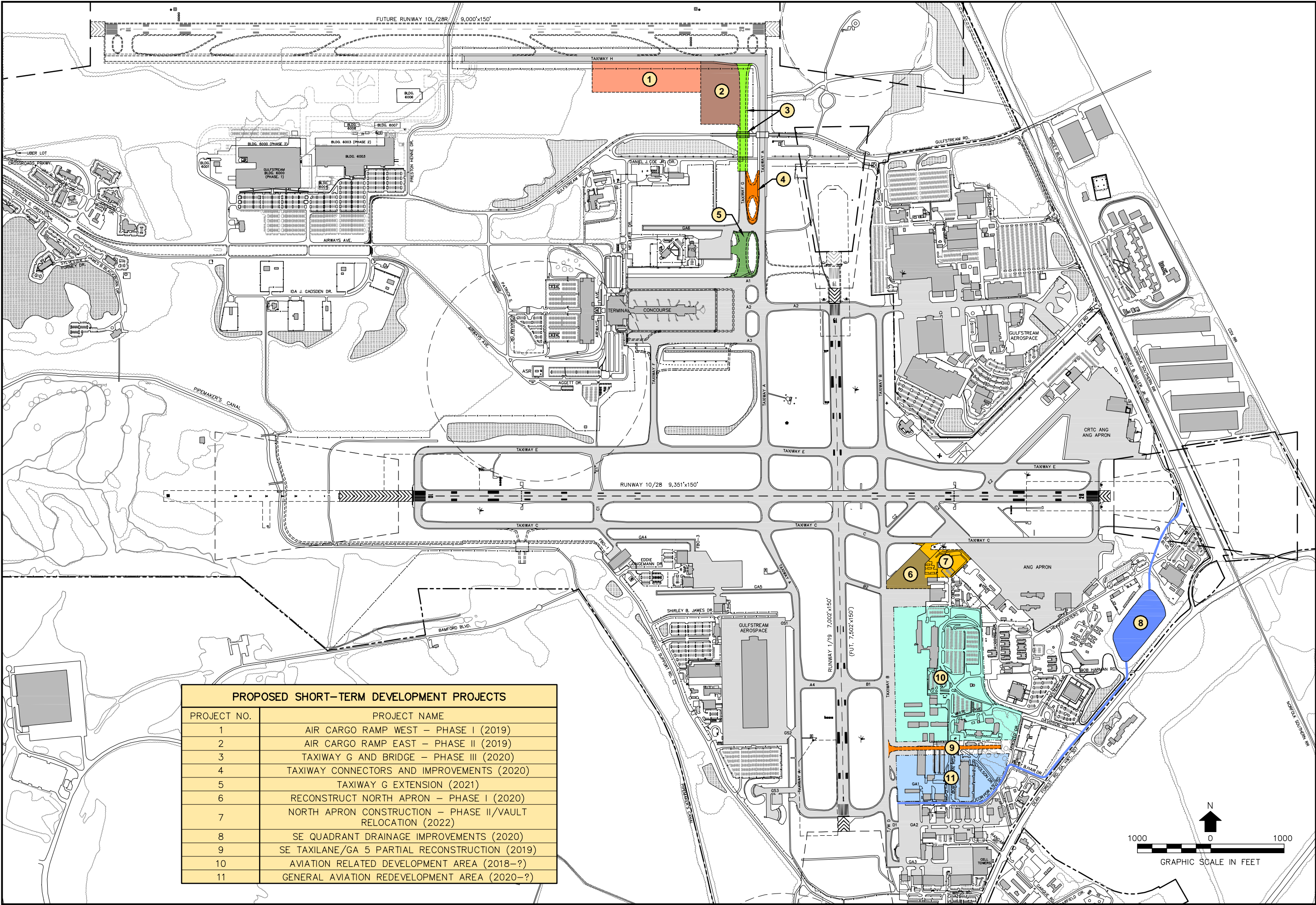
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2 Martin Luther King, Jr. Drive
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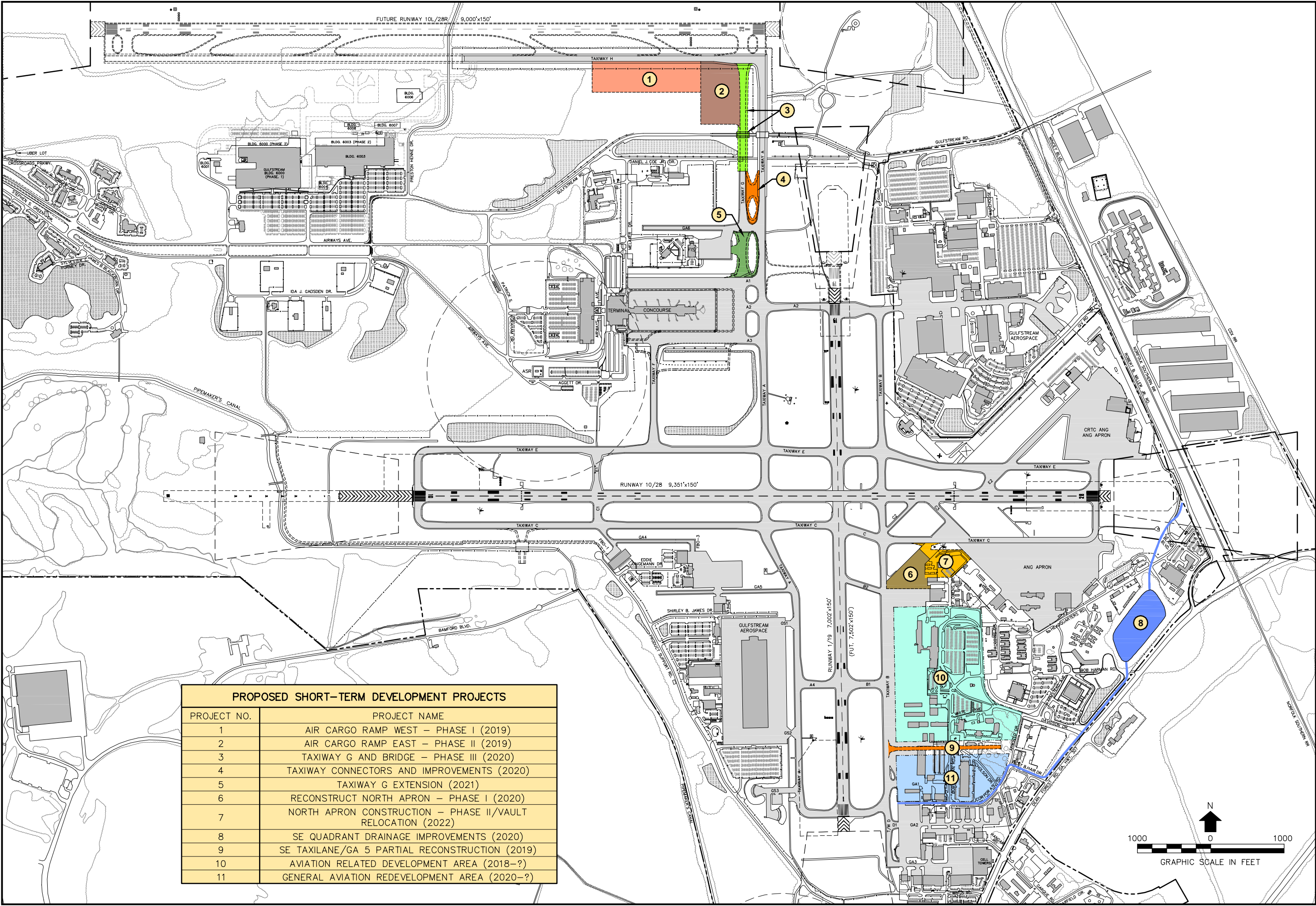
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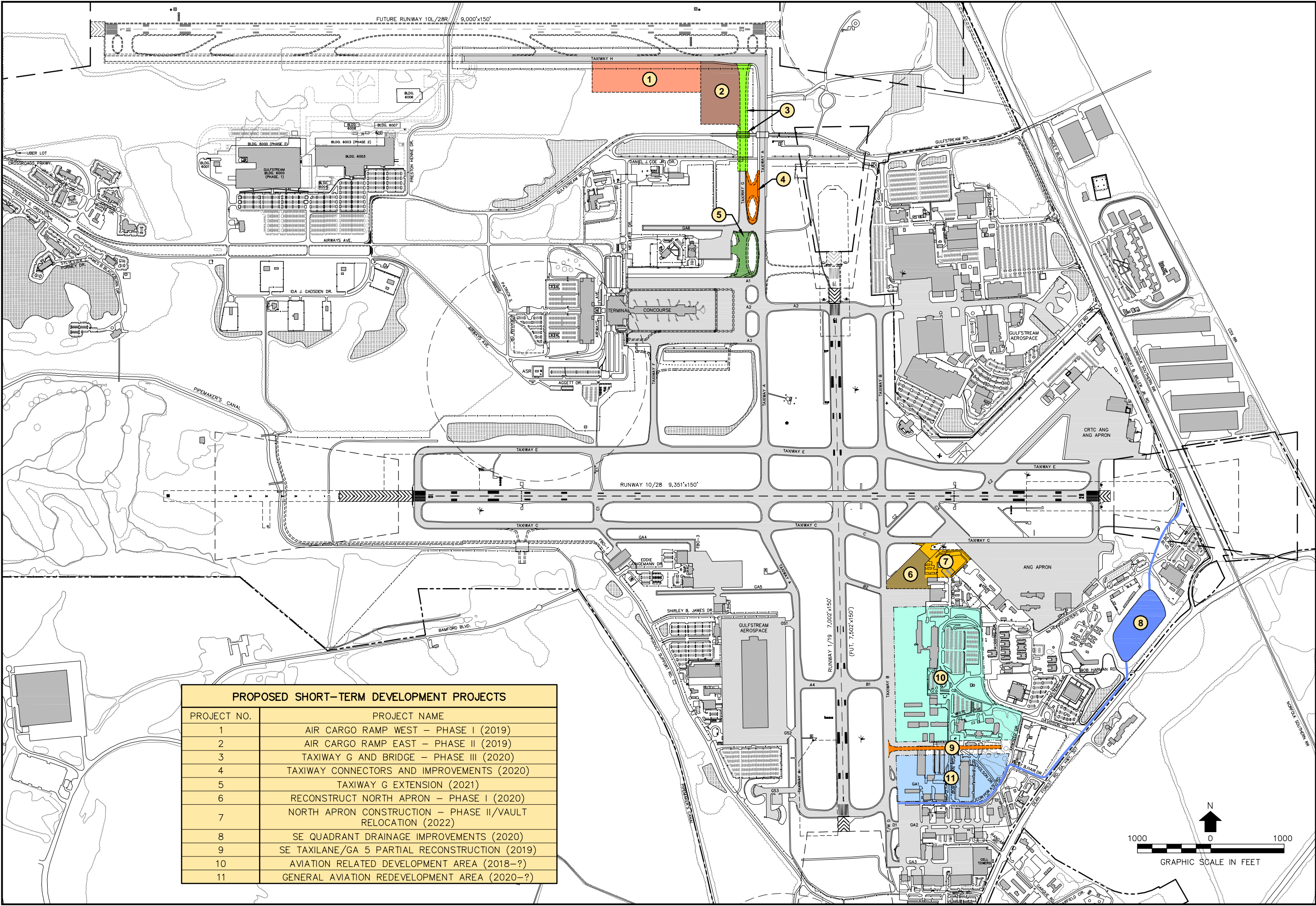
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RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Mr. Garrison:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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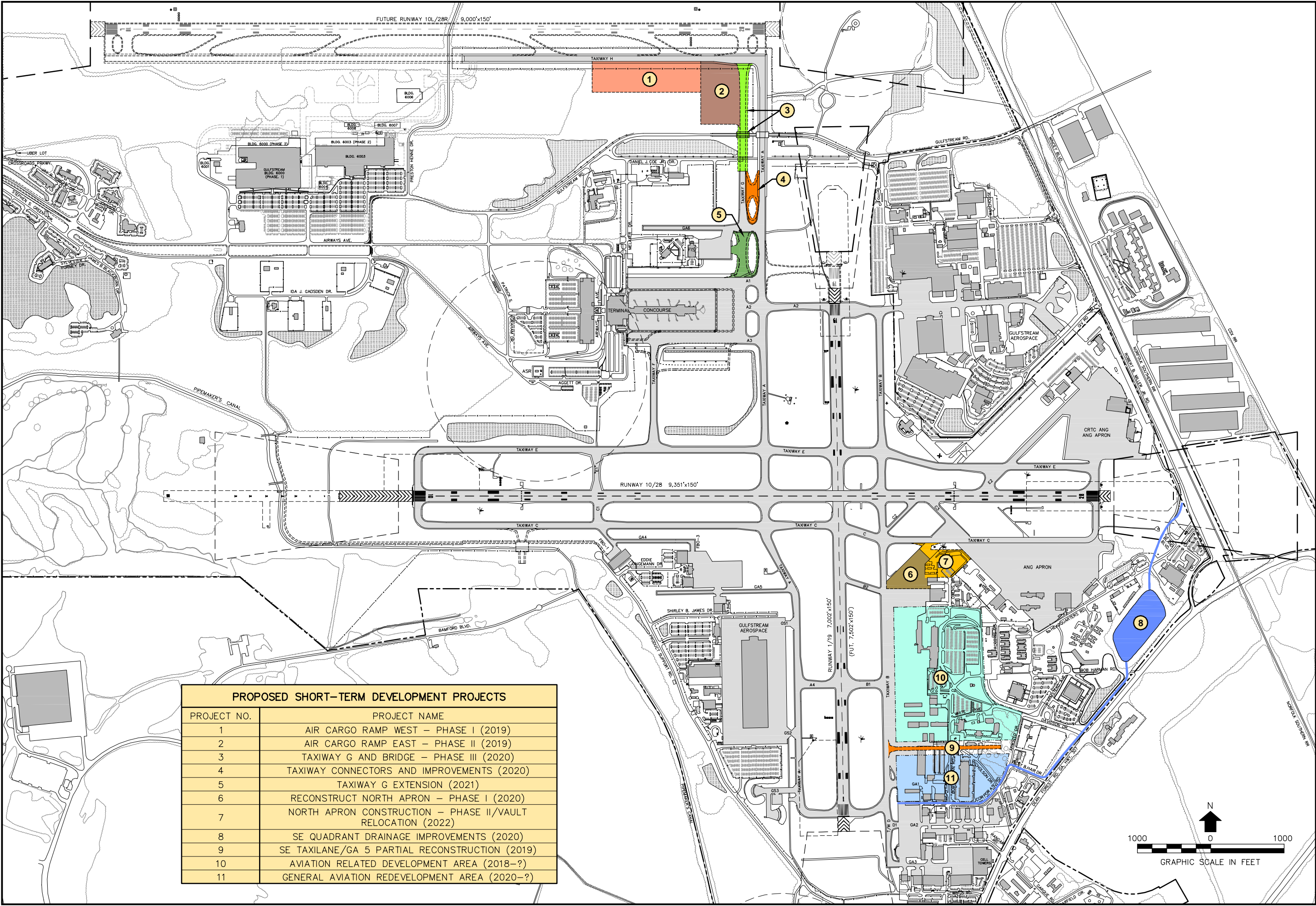
Sincerely,

A handwritten signature in black ink, appearing to read 'Felicia K. Reeves', followed by a long horizontal line.

Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

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Paul Sanford, AECOM



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U.S. Department
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Administration**

Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Ms. Kellie Moore
Federal Consistency Coordinator
Georgia Coastal Resources Division
One Conservation Way
Suite 300
Brunswick, GA 31520-8687

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Ms. Moore:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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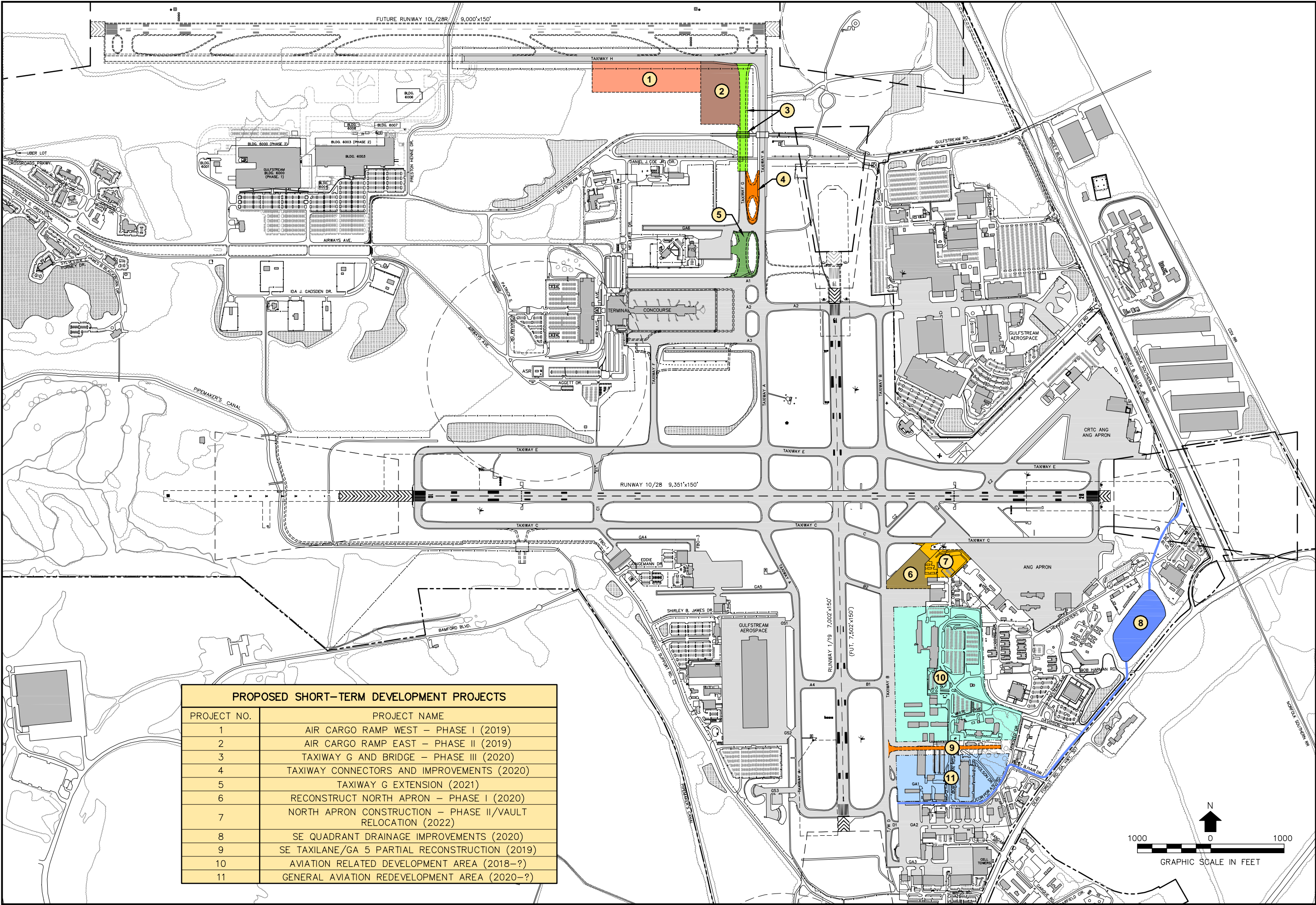
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Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

Copy: Mark Denmark, Savannah Airport Commission
Paul Sanford, AECOM



PROPOSED SHORT-TERM
DEVELOPMENT PROGRAM PROJECTS

FIGURE
1

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Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Ms. Jennifer Dixon
Environmental Review and Preservation Planning Program Manager
Georgia Department of Natural Resources
Historic Protection Division
Jewett Center for Historic Preservation
2610 GA Highway 155, Southwest
Stockbridge, GA 30281

RE: Section 106 Consultation Initiation and Areas of Potential Effect Determination for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Ms. Dixon:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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- Aviation Related Development Area (Project #10); and
- General Aviation (GA) Redevelopment Area (Project #11).

This letter is intended to initiate Section 106 consultation pursuant to the National Historic Preservation Act (NHPA), and to solicit any initial comments you may have on the proposed undertaking. Based on the scope of the Proposed Project and the nature of the individual actions identified above and shown on **Figure 1**, areas of potential effect (APE) have preliminarily been identified and are depicted on the enclosed **Figure 2**. For the evaluation of archaeological resources, the APE has been defined as areas of direct ground disturbance, inclusive of a 100-foot buffer to account for any indirect ground disturbance activities that may occur during construction, such as materials and equipment staging. For the evaluation of historic architectural resources, the APE corresponds to the area within the predicted composite 65 decibel day-night average sound level (DNL 65 dB) noise contour of the Proposed Project and retained alternatives. This APE will be used to identify, disclose and evaluate potential impacts on eligible historic architectural resources protected by the National Historic Preservation Act.

Pursuant to 36 CFR part 800.4(b)(1), the FAA is seeking comment on the preliminary APEs described in this letter, as well as any recommended identification efforts for this undertaking. Of note, additional project data and information will be developed during preparation of the EA that may prompt you to provide additional comments on issues to be considered in the EA. Consequently, you will be invited to review the Draft EA upon publication.

In order to sufficiently address any preliminary key project issues and maintain the project schedule, your written comments are requested by 02 Sept 2019. Please respond to me at the address provided below and feel free to contact me if you have any questions or concerns.

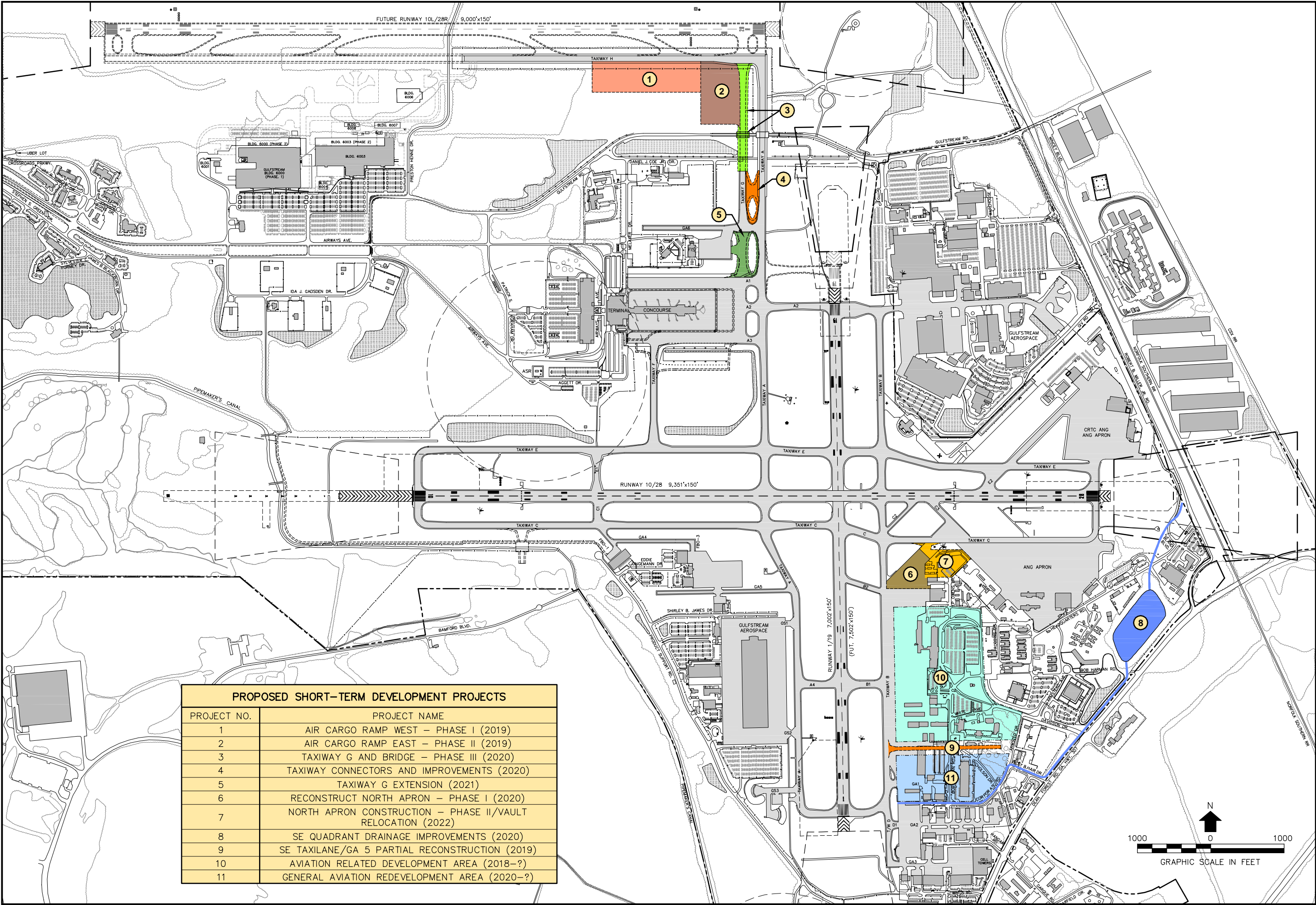
Sincerely,



Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosures (2)

Copy: Mark Denmark, Savannah Airport Commission
Paul Sanford, AECOM

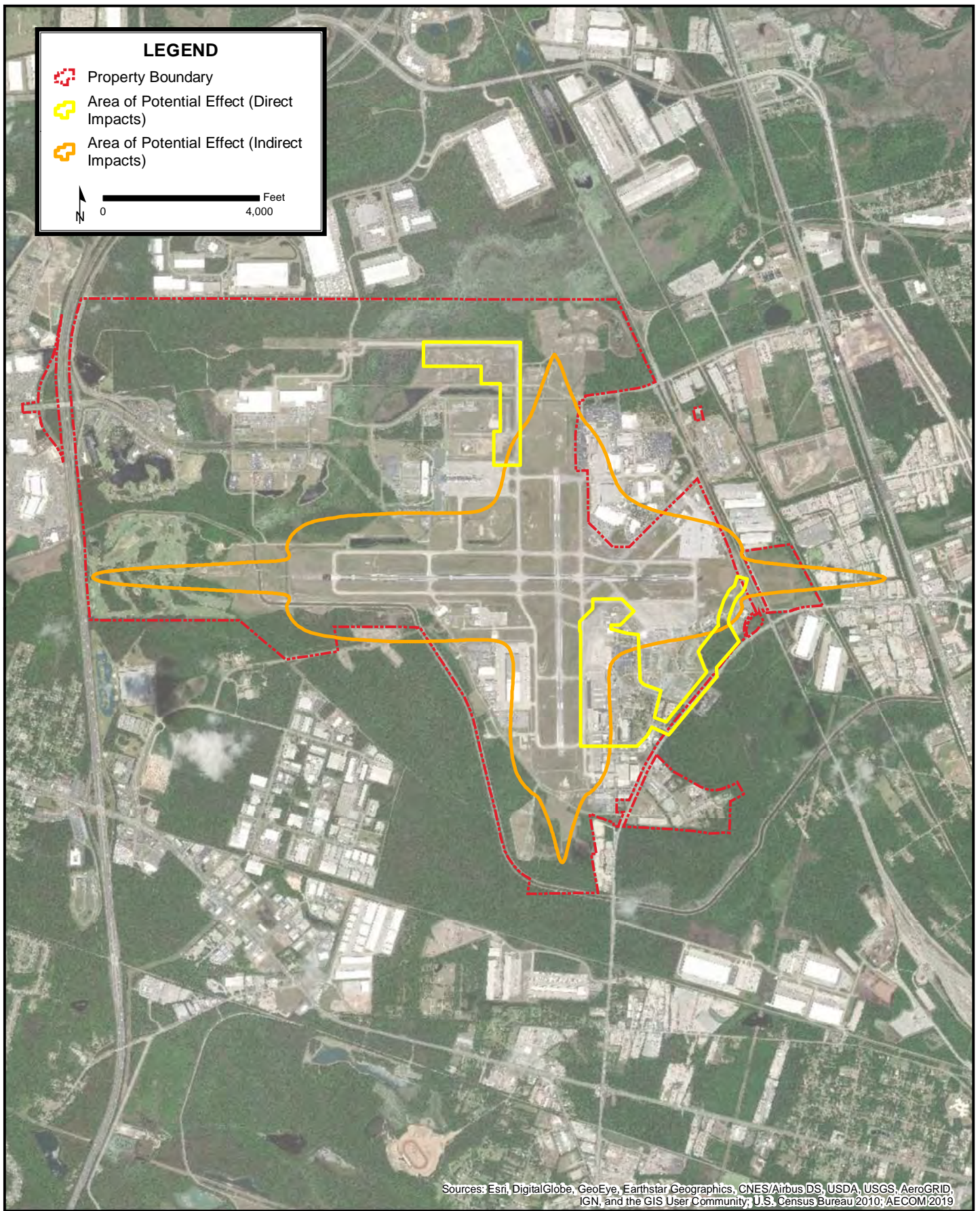


PROPOSED SHORT-TERM DEVELOPMENT PROJECTS	
PROJECT NO.	PROJECT NAME
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2	AIR CARGO RAMP EAST – PHASE II (2019)
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4	TAXIWAY CONNECTORS AND IMPROVEMENTS (2020)
5	TAXIWAY G EXTENSION (2021)
6	RECONSTRUCT NORTH APRON – PHASE I (2020)
7	NORTH APRON CONSTRUCTION – PHASE II/VAULT RELOCATION (2022)
8	SE QUADRANT DRAINAGE IMPROVEMENTS (2020)
9	SE TAXILANE/GA 5 PARTIAL RECONSTRUCTION (2019)
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11	GENERAL AVIATION REDEVELOPMENT AREA (2020–?)

PROPOSED SHORT-TERM
DEVELOPMENT PROGRAM PROJECTS

FIGURE
1

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SAVANNAH/HILTON HEAD
INTERNATIONAL AIRPORT
SHORT-TERM DEVELOPMENT PROGRAM
ENVIRONMENTAL ASSESSMENT

AREAS OF
POTENTIAL EFFECT

FIGURE
2

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Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Mr. Jeffrey Griffith
Aviation Project Manager
Georgia Department of Transportation
Aviation Programs
600 West Peachtree Street, Northwest
6th Floor
Atlanta, GA 30308

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Mr. Griffith:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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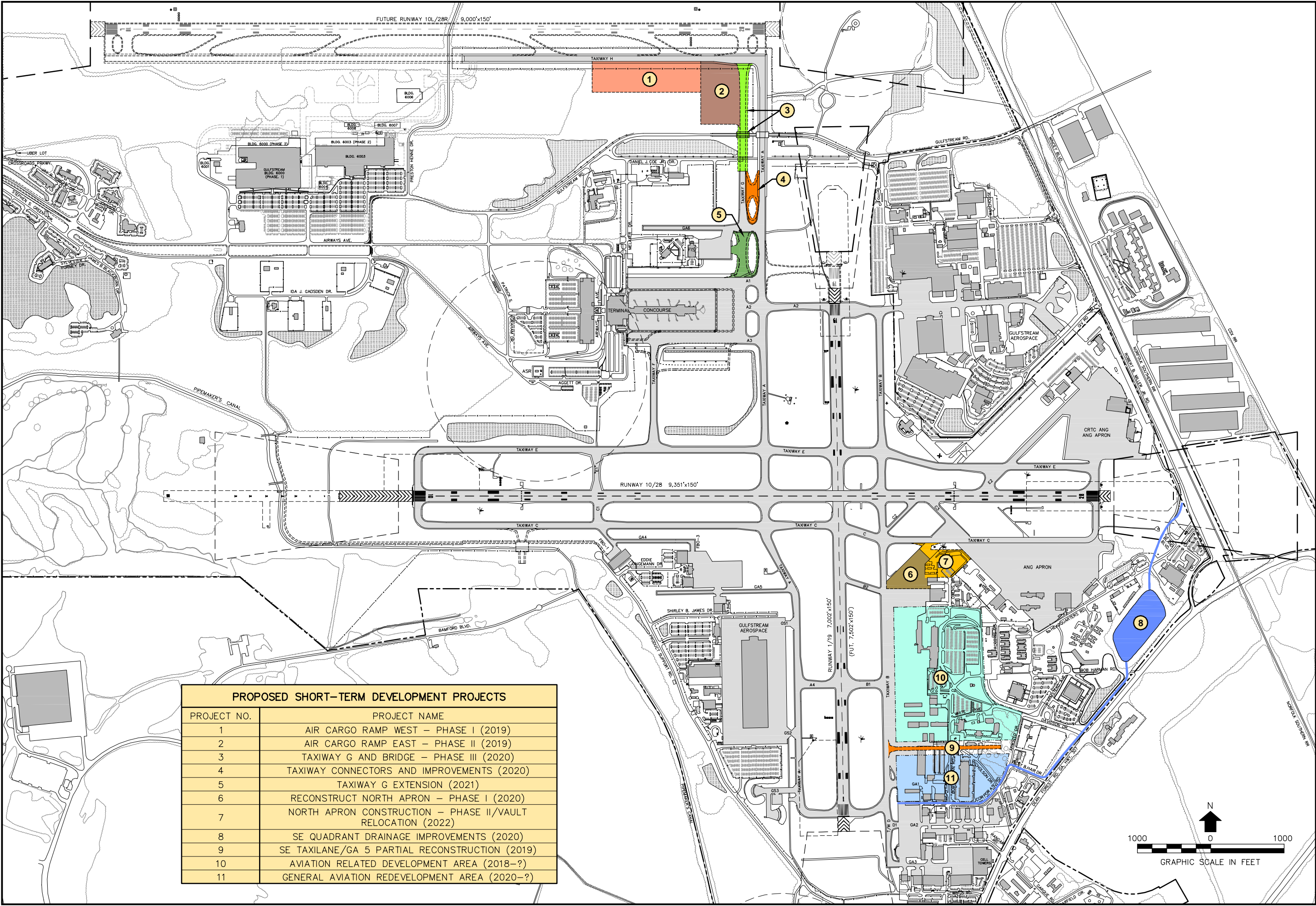
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Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

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Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Mr. Brant Phelps
Environmental Health Director
Georgia Department of Public Health
Environmental Health Office
1395 Eisenhower Drive
Savannah, GA 31406

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Mr. Phelps:

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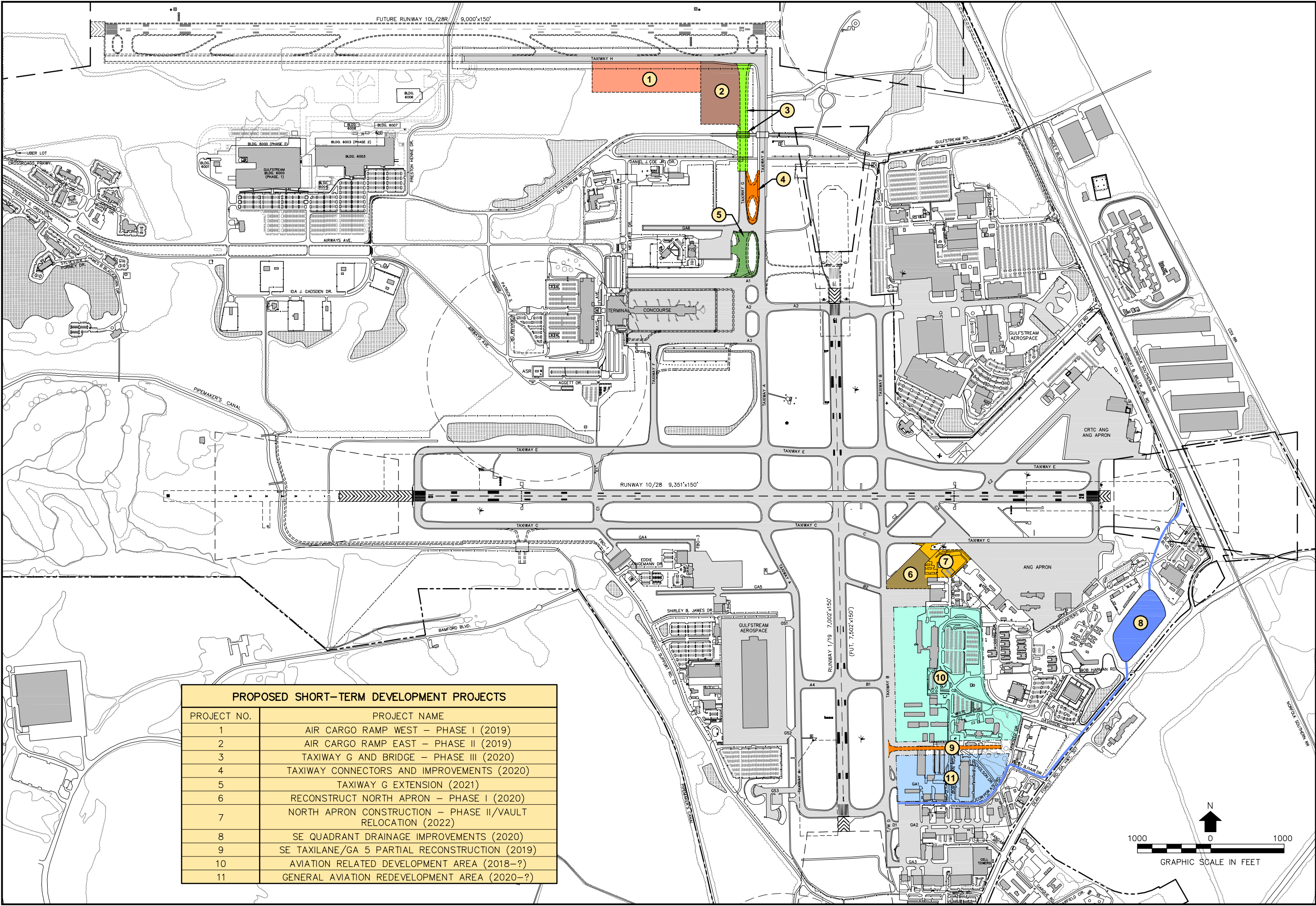
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Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Ms. Melanie Wilson
Executive Director
Chatham-Savannah Metro Planning Commission
110 East State Street
Savannah, GA 31412

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Ms. Wilson:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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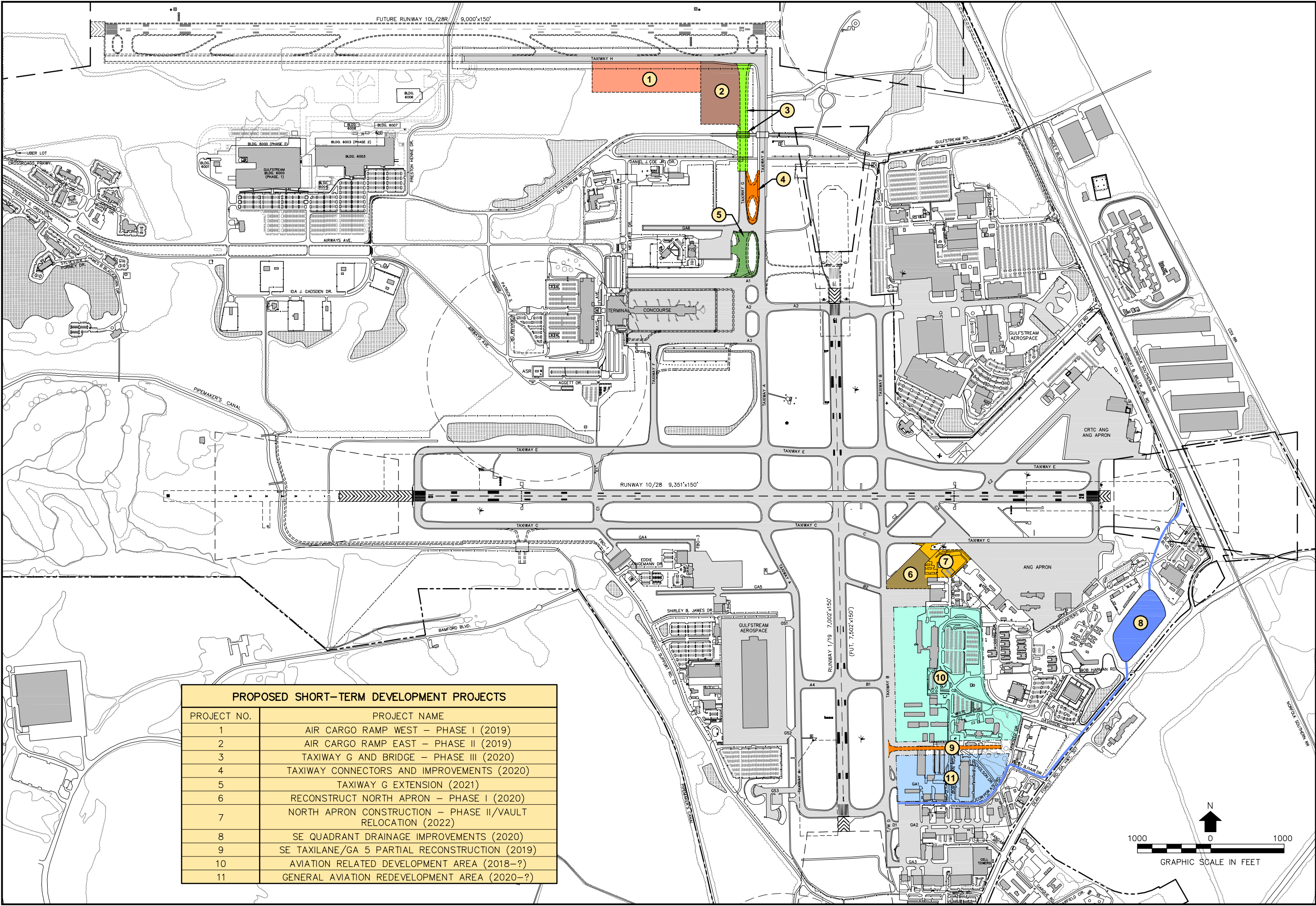
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Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Mr. Allen Burns
Executive Director
Coastal Regional Commission of Georgia
1181 Coastal Drive Southwest
Darien, GA 31305

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Mr. Burns:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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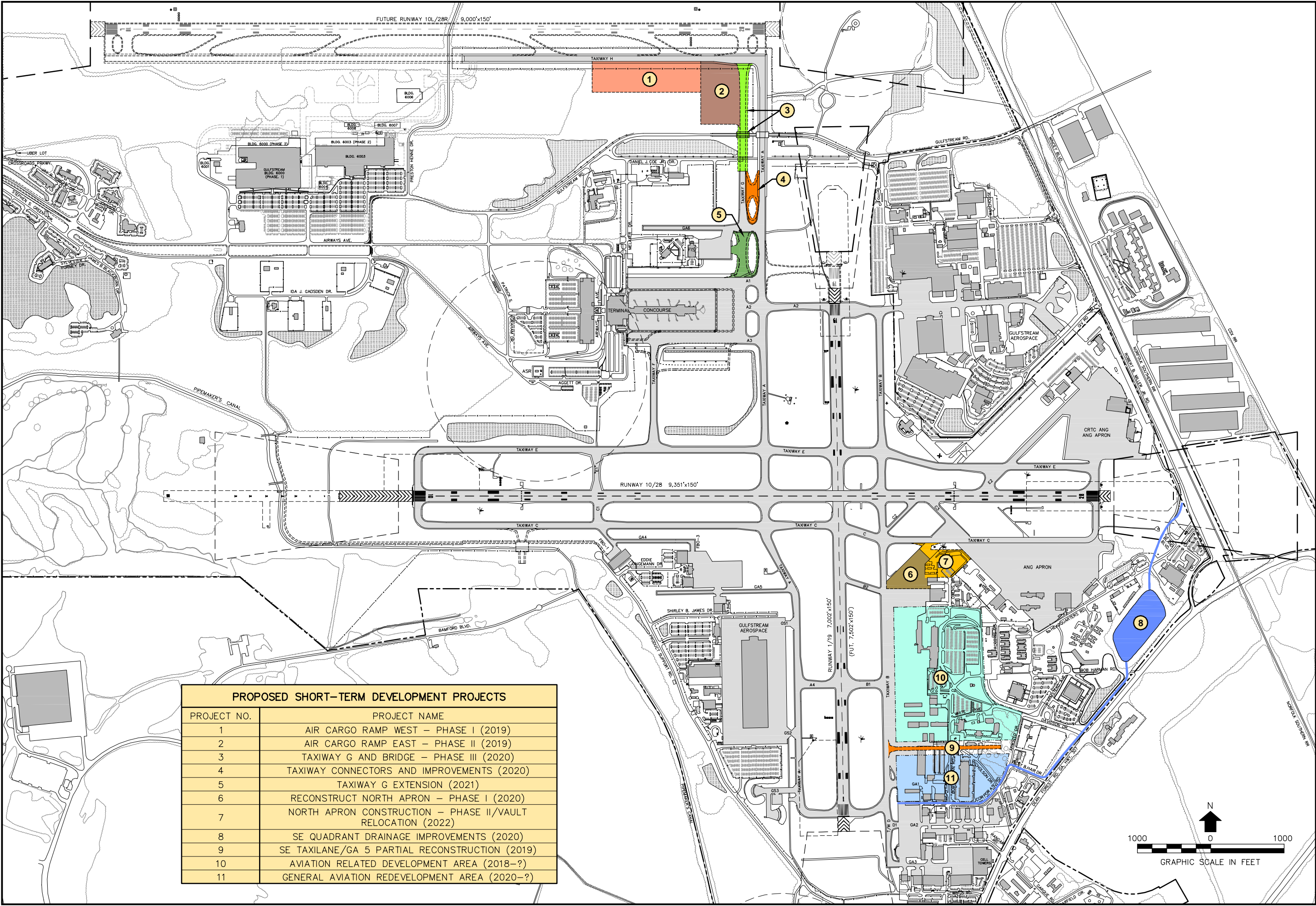
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Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Ms. Kerri Reid
Director
City of Savannah Community Planning & Development Department
2203 Abercorn Street
Savannah, GA 31401

RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia

Dear Ms. Reid:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

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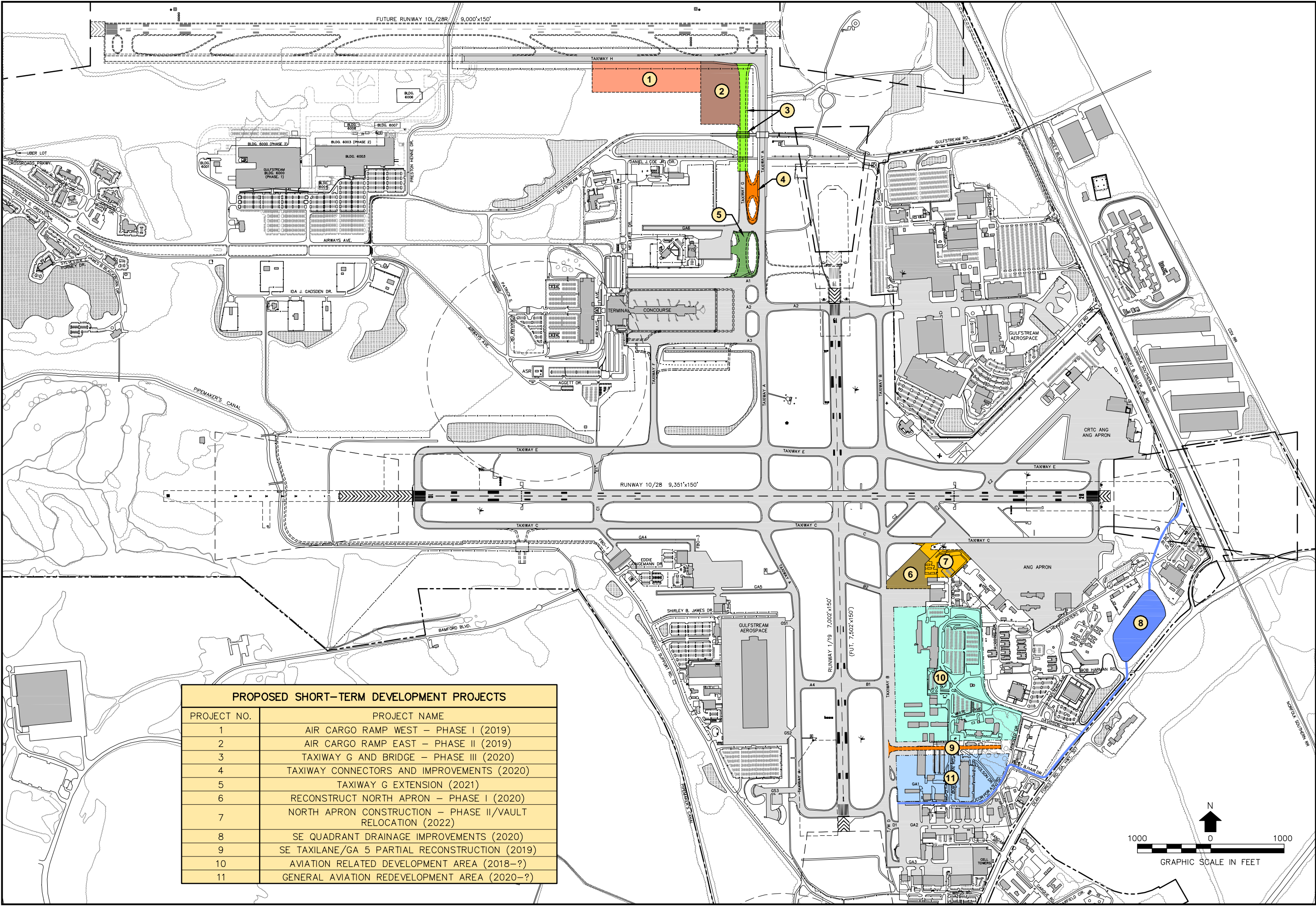
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FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

Copy: Mark Denmark, Savannah Airport Commission
Paul Sanford, AECOM



PROPOSED SHORT-TERM
DEVELOPMENT PROGRAM PROJECTS

FIGURE
1

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From: [Reeves, Felicia \(FAA\)](#)
To: [Moore, Kelie](#)
Cc: [Sanford, Paul](#)
Subject: RE: EA for Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County
Date: Thursday, September 12, 2019 12:01:45 PM
Attachments: [image001.png](#)

Received. Thanks

V/R

Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park GA 30337
404-305-6708



From: Moore, Kelie <Kelie.Moore@dnr.ga.gov>
Sent: Monday, August 05, 2019 2:53 PM
To: Reeves, Felicia (FAA) <felicia.reeves@faa.gov>
Subject: EA for Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County

Good Afternoon Ms. Reeves:

The Coastal Resources Division, whose primary regulatory responsibility lies in tidal wetlands, is not aware of any key issues to be addressed in through the NEPA process. Should there be proposed impacts to non-tidal, freshwater wetlands on the site, it is likely that we can address federal consistency through Corps' of Engineer's Section 404 dredge & fill permits (15 CFR 930 Part D) rather than as a Direct Federal Agency Activity (15 SFR 930 Part C). If a USACE is not required, we will review this through Part C when the draft EA is released. Thank you.

Comment
6-01

Comment
6-02

Kelie Moore
Federal Consistency Coordinator
Coastal Resources Division
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MARK WILLIAMS
COMMISSIONER

DR. DAVID CRASS
DIVISION DIRECTOR

August 21, 2019

Felicia K. Reeves
Noise/Environmental Program Manager
Federal Aviation Administration
1701 Columbia Avenue, Room 220
College Park, Georgia 30337

**RE: Savannah/Hilton Head International Airport: Short Term Development Program
Chatham County, Georgia
HP-190802-009**

Dear Ms. Reeves:

The Historic Preservation Division (HPD) has received initial information concerning the above referenced project requesting comments pursuant to the National Environmental Policy Act of 1969 (NEPA). Our comments are offered to assist the Federal Aviation Administration (FAA) in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Thank you for notifying us of this federal undertaking. We look forward to receiving Section 106 compliance documentation, as appropriate. If the federal agency intends to utilize NEPA to comply with Section 106, in lieu of the procedures set forth in 36 CFR Part 800, the FAA should notify HPD and the Advisory Council on Historic Preservation of its intent.

Comment
10-01

Regarding the proposed area of potential effect (APE) identified for the project, the direct APE should include not only all areas of ground disturbance and staging, but any new access roads or similar needed. Additionally, it appears to HPD that the indirect APE does not take into account the visual or other indirect impacts of construction projects. HPD recommends revising the indirect APE to address all indirect aspects of the project, not just audible.

Comment
10-02

Comment
10-03

Please refer to project number **HP 190802-009** in future correspondence regarding this project. If we may be of further assistance, please contact me at (770) 389-7851 or Jennifer.dixon@dnr.ga.gov.

Sincerely,



Jennifer Dixon, MHP, LEED Green Associate
Program Manager
Environmental Review & Preservation Planning

Cc: Eric Landon, Coastal Georgia Regional Commission



Russell R. McMurry, P.E., Commissioner
 One Georgia Center
 600 West Peachtree Street, NW
 Atlanta, GA 30308
 (404) 631-1000 Main Office

August 29, 2019

Ms. Felicia K. Reeves
 Noise/Environmental Program Manager
 FAA Southern Region/ Atlanta Airports District Office
 1701 Columbia Avenue
 Room 220
 College Park, Georgia 30337

Dear Ms. Reeves,

This letter is in response to your letter of August 1, 2019, requesting early coordination of the Savannah/Hilton Head International Airport (Airport) Short-Term Development Program (Proposed Project) Environmental Assessment (EA). Based on the limited project descriptions, the Georgia Department of Transportation (Department) has the following comments on the Proposed Projects:

1. **Project #8 – Drainage Improvements** – The existing area appears to be forested wetland. The proposed drainage improvements project appears to include a large detention pond approximately 1,700 feet from the end of Runway 28. The Department recommends that the project take into account recommendations/requirements in AC150/5200-33B *Hazardous Wildlife Attractants on or near Airports* and that care is taken to ensure that additional wildlife attractants are not added or mitigated as part of the proposed project. Comment
4-01
2. **Projects #1-5 – Taxiway and Cargo Area Development** - The Proposed Projects should consider the distance of the proposed large cargo area from the active runways, but immediately adjacent to the proposed future runway. It could be construed as segmentation of the new runway project. Comment
23-01
3. **Projects 9-11 – General Aviation Projects** - It is unclear what the proposed development/redevelopment of the aviation/general aviation projects are as they pertain to the ALP. That development should be in accordance with the ALP narrative to meet the approved forecast demands, and clearly shown on the ALP. The EA should include a description of what is proposed in the general aviation area. Comment
23-02

This office looks forward to reviewing the draft EA. Please, let us know if you have any questions, or if we can assist in the preparation of this document.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Steven V. Brian', is written over a light blue horizontal line.

Steven V. Brian
 Aviation Program Manager

cc: Mark Denmark, Savannah Airport Commission

From: [Reeves, Felicia \(FAA\)](#)
To: [Coppola, Christopher](#)
Cc: [Sanford, Paul](#)
Subject: RE: Early Coordination for Short-Term Development Program at Savannah/Hilton Head International Airport
Date: Tuesday, August 27, 2019 1:39:17 PM
Attachments: [image001.png](#)

Mr. Coppola,

Thank you for your comments below.

Will notice you when draft EA is available.

V/R

Felicia K. Reeves

Noise/Environmental Program Manager

FAA Southern Region/Atlanta Airports District Office

1701 Columbia Ave Room 220

College Park GA 30337

404-305-6708



From: Coppola, Christopher <christopher_coppola@fws.gov>

Sent: Tuesday, August 27, 2019 12:27 PM

To: Reeves, Felicia (FAA) <felicia.reeves@faa.gov>

Subject: Early Coordination for Short-Term Development Program at Savannah/Hilton Head International Airport

Ms. Reeves,

I received your 1 August 2019 letter requesting comments and information supplementing the information you obtained from the Service's IPaC species list (04EG1000-2019-SLI-2043).

That species list includes the following:

- Eastern indigo snake (*Drymarchon couperi*),
- Frosted Flatwoods salamander (*Ambystoma cingulatum*),
- Gopher tortoise (*Gopherus polyphemus*),
- Green sea turtle (*Chelonia mydas*),
- Kemp's ridley sea turtle (*Lepidochelys kempii*),
- Leatherback sea turtle (*Dermochelys coriacea*),
- Loggerhead sea turtle (*Caretta caretta*),
- Piping Plover (*Charadrius melodus*),
- Red knot (*Calidris canutus rufa*),
- Red-cockaded woodpecker (*Picoides borealis*),
- Wood stork (*Mycteria americana*),
- West Indian Manatee (*Trichechus manatus*), and
- Pondberry (*Lindera melissifolia*).

Comment
4-02

Based on the information provided in your letter, the site map of the proposed

projects, and aerial imagery of the action areas, I do not anticipate there would be suitable habitats for the above species except for the wood stork. Most of the projects (Numbers 1-7, and 9-11) are in developed areas or highly modified landscapes that lack the natural features that these species require.

Comment
4-02 continued

There used to be a wading bird rookery, that included wood storks, to the southwest of Project Numbers 1 and 2 (Air Cargo Ramp West Phases I & II). Trees were removed from this rookery as part of a separate project, and wood storks do not currently utilize this site. However, ditches and shallow water bodies may still be used by this species as foraging habitats. The Airport is allowed (via a biological opinion and Migratory Bird permit) to harass wood storks and other wading birds to reduce the risks of bird-aircraft-strike hazards.

Comment
4-03

Project 8 (SE Quadrant Drainage Improvements) includes a forested wetland. I do not have records of listed species utilizing this habitat, but it is the only area of natural habitat within a project action area. This area appears to be too dense to offer foraging opportunities for the wood stork; however, if cleared of trees and maintained as a detention/retention pond the site might attract this species or other wading birds.

Comment
4-04

Lastly, near the intersection of Gulfstream Road and Preston Heine Drive (near Building 6003), west of Project Numbers 1 & 2, there are two bald eagle (*Haliaeetus leucocephalus*) nests. These nests are outside of the project action areas. Project activities do not appear to encroach upon the recommended 200 meter buffer or suitable foraging habitats.

Comment
4-05

Thank you for the opportunity to provide comments and recommendations. If you have other questions or need further assistance, please let me know. I am happy to help.

Kind regards,

Chris

--

Christopher Coppola
Fish and Wildlife Biologist

Georgia Ecological Services
Townsend, Georgia 31331

912-832-8739 extension 6

From: [Reeves, Felicia \(FAA\)](#)
To: [Gissentanna, Larry](#)
Cc: [Militscher, Chris](#); [Buskey, Traci P.](#); [Sanford, Paul](#)
Subject: RE: Scoping Comments for the Short-Term Development Program EA at Savannah/Hilton IAP, Chatham County, GA
Date: Tuesday, September 03, 2019 1:51:27 PM
Attachments: [image001.png](#)

Mr. Gissentanna,

Thank you for your response. Per request, you will receive 1 hard copy of the Draft EA.

V/R

Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park GA 30337
404-305-6708



From: Gissentanna, Larry <Gissentanna.Larry@epa.gov>
Sent: Friday, August 30, 2019 11:04 AM
To: Reeves, Felicia (FAA) <felicia.reeves@faa.gov>
Cc: Militscher, Chris <Militscher.Chris@epa.gov>; Buskey, Traci P. <Buskey.Traci@epa.gov>
Subject: RE: Scoping Comments for the Short-Term Development Program EA at Savannah/Hilton IAP, Chatham County, GA

Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
felicia.reeves@faa.gov

RE: Scoping for the Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Int AP, Chatham County, Georgia.

Dear Ms. Reeves,

The USEPA Region 4 NEPA Program Office is in receipt of the scoping document on the proposed preparation of an Environmental Assessment (EA) for the Short-Term Development Program at Savannah/Hilton Int AP, Chatham County, Georgia. This short-term development program is proposing a variety of airside and landside development projects as outlined in FAA memo dated

August 1, 2019.

EPA's preliminary concerns at this time can be summarized to include the following areas: The appropriate NEPA document should address the potential significant impacts to, air quality, water, wetlands, noise, energy, climate change and environmental justice, as it relates to the various Proposed Projects. Also, consider the following; planned construction should address any potential impacts to streams and waterways. The new air cargo apron and taxiway improvement areas site grading, excavation, and construction plans should include implementable measures to prevent erosion and sediment runoff from the various project sites, both during and after construction. Local land disturbance and state construction stormwater permit(s) may also be required, and these permits should be referenced on the plans and in the specifications. Divert recyclable materials such as concrete and asphalt away from landfills, repurpose material instead. Consider energy sustainable buildings utilizing variable forms of proven renewable energy applicable for this type of proposed project, for example, solar power for supplemental electricity and lighting for the ramps, aprons, terminals, and any parking garages that maybe proposed in the General Aviation Redevelopment Area. Please see attached link for additional info.

http://www.wbdg.org/references/federal_mandates.php

Comment 23-03
Comment 18-01
Comment 18-02
Comment 18-03
Comment 9-01
Comment 12-01

Due to the limited preliminary information in this scoping document, the EPA will limit any additional comments at this time. We look forward to reviewing the entire Draft Environmental Assessment. Please keep the local community informed and involved throughout the project process; by having community meetings and updating the community through local and social media outlets.

Comment 26-01

EPA requests to have at least 1 hard copies of the Draft and Final EA, with an electronic version , i.e. website or CD/DVD. Please forward all hard/ electronic copies to the address below.

Comment 26-02

Thank you again, for the opportunity to comment, If you have any questions, please contact us via email or the information below,

Sincerely,

Larry O. Gissentanna

Project Manager, DoD & Federal Facilities

U.S. Environmental Protection Agency/ Region 4
Strategic Programs Office, NEPA Section
61 Forsyth Street, SW
Atlanta, GA 30303-8960
Office: 404-562-8248
gissentanna.larry@epa.gov

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APPENDIX A.2

USFWS Consultation

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United States Department of the Interior

Fish and Wildlife Service

RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, Georgia 30601

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4980 Wildlife Drive
Townsend, Georgia 31331



30 September 2019

Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Avenue
Room 220
College Park, GA 30337

RE: Savannah/Hilton Head International Airport Short-Term Development;
FWS Log 04EG1000-2019-I-2634

Dear Ms Reeves,

Thank you for your 23 September 2019 letter initiating section 7 consultation for the Savannah/Hilton Head International Airport Short-Term Development project in Chatham County, Georgia. We submit the following comments under provisions of the Endangered Species Act of 1973, as amended; (16 U.S.C. 1531 *et seq.*) (ESA) to further the conservation of fish and wildlife resources and their habitats, including federally listed threatened and endangered species. Details of the proposed project actions, including avoidance and minimization measures, are detailed in Biological Assessment (BA) received by the Service on 24 September 2019.

Endangered Species Act

As described in project BA, field surveys of the project action area identified suitable habitats for species listed under the ESA. Foraging habitats for the threatened wood stork (*Mycteria americana*) occurs in the wetlands in project action area as described in BA and in the surrounding landscapes. A historic wood stork rookery was removed from the airport property under a Biological Opinion and Incidental Take Statement issued by the Service in 2018. Stringent erosion and sedimentation controls will help to protect these habitats from indirect impacts associated with the project actions. The Service recommends that the project contractor be directed to avoid disturbing any wood storks that may enter the project area during construction activities, allowing the birds to continue their natural behaviors and leave on their own accord. The Savannah Airport Commission is authorized to harass wood storks under a Migratory Bird Permit and a Biological Opinion and Incidental Take Statement issued by the Service to reduce the risk of avian-aircraft strike hazards.

Foraging habitats and travel corridors for the eastern indigo snake (*Drymarchon couperi*) may be present in the wetlands and upland natural areas in the project action area, as described in the BA. This species utilizes gopher tortoise (*Gopherus polyphemus*) burrows during the winter. No tortoise burrows were observed in the action area. Given the extensive development in the and around the project areas the Service does not anticipate that eastern indigo snakes would be present. However, the Service recommends that the project contractor will be directed to avoid disturbing any indigo snakes that may enter the project area during construction activities. If an indigo snake is observed project activities in the vicinity will cease pending consultation with USFWS.

Based on the information provided in the BA, we concur with the determinations that the proposed project “is not likely to adversely affect” the wood stork or the eastern indigo snake. Compensatory wetland mitigation associated with a US Army Corps of Engineers 404 permit would offset the loss of wetland functions. The requirements of section 7 of the ESA have been satisfied and no further consultation is required. However, obligations under section

30 September 2019

Letter to Ms Felicia Reeves

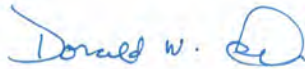
FAA

RE: Savannah/Hilton Head Airport Short-Term Development

7 of the ESA must be reconsidered if: (1) new information reveals impacts of this identified action may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner which was not considered in this assessment; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

If you have any questions or require further information, please contact staff biologist Chris Coppola at 912-832-8739.

Sincerely,

A handwritten signature in blue ink that reads "Donald W. Imm" followed by a stylized circular flourish.

Donald W. Imm, Ph.D.
Field Supervisor

APPENDIX B

Biological Assessment

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

September 23, 2019

Mr. Christopher Coppola
Biologist – Transportation Projects
U.S. Fish and Wildlife Service
Georgia Ecological Services Field Office
Coastal Georgia Sub Office
4890 Wildlife Drive Northeast
Townsend, GA 31331

RE: Section 7 Consultation for Activities Associated with the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia
Consultation Code: 04EG1000-2019-SLI-2456, Event Code: 04EG1000-2019-E-04676

Dear Mr. Coppola:

As you know from recent communications, Savannah Airport Commission (Commission) is undertaking an Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations; the EA will consider and document the potential social, economic, and environmental impacts associated with the Short-Term Development Program at the Savannah/Hilton Head International Airport (i.e., SAV, or the Airport), hereinafter referred to as the Proposed Project. Federal actions associated with the Proposed Project comprise FAA's environmental approval of the EA and unconditional approval of updates to the Airport Layout Plan to reflect the Proposed Project.

The purpose of this letter is to describe the Proposed Project and to fulfill FAA's consultation obligations with the U.S. Fish and Wildlife Service (i.e., the Service) pursuant to Section 7 of the Endangered Species Act of 1973, as amended.

Description of the Proposed Project

As indicated in our scoping letter dated August 1, 2019, a variety of airside and landside development options are currently being considered for the Short-term Development Program.

For the purposes of EA project definition, alternatives evaluation and environmental impact analysis, these individual projects are grouped into the following five main categories. Please refer to Figure 1-2 in the enclosed Biological Assessment (BA) for the location of each individual project:

- Air Cargo Relocation: this category includes the construction of new air cargo facilities north of Gulfstream Road, south of Taxiway H and west of Taxiway A and an extension of Taxiway G. Individual projects are Air Cargo Ramp West - Phase I (Project #1), Air Cargo Ramp East - Phase II (Project #2), and Taxiway G and Bridge - Phase III (Project #3).
- Taxiway Improvements: this category consists of connecting the existing segments of Taxiway A and Taxiway G south of Gulfstream Road. Individual projects are Taxiway Connectors and Improvements (Project #4), and Taxiway G Extension (Project #5).
- North Apron Improvements: this category consists of reconstructing an existing apron and constructing a new apron to provide additional parking for aircraft. Individual projects are Reconstruct North Apron - Phase I (Project # 6) and North Apron Construction - Phase II/Vault Relocation (Project #7).
- General Aviation (GA) Redevelopment: projects related to GA redevelopment include construction of new facilities for current airport tenants east of Taxiway B and south of Taxiway C. Individual project are Southeast (SE) Taxilane/GA 5 Partial Reconstruction (Project #9), Aviation-Related Development Area (Project #10), and GA Redevelopment Area (Project #11).
- SE Quadrant Drainage Improvements: this project consists of new facilities to treat and attenuate the stormwater runoff generated from existing impervious surfaces, as well as any new impervious surfaces associated with the Proposed Project (Project #8).

Effects Determination

As part of the NEPA process, an Advance Notification (AN) of the Proposed Project was sent to the Service on August 1, 2019 requesting comments on potential effects of the Proposed Project on listed species and potential permit requirements. In addition, an official species list was requested from the Information for Planning and Consultation (IPaC) database (Consultation code 04EG1000-2019-SLI-2043) (dated July 11, 2019). On August 27, 2019, the Service responded to the AN stating that suitable habitats for listed species are not anticipated within the study area with the exception of the wood stork (*Mycteria americana*). However, as stated in the Service's response, a wood stork rookery previously located at the Airport has been removed, and through a Migratory Bird permit and biological opinion, the Commission is allowed to harass wood storks and other wading birds to reduce the risk of bird-aircraft-strike hazards. The Service also stated in their response to the AN that there are two bald eagle (*Haliaeetus leucocephalus*) nests located near the intersection of Gulfstream Road and Preston Heine Drive, west of Project #s 1 and 2. However, these nests are outside of the Proposed Project's footprint and do not appear to encroach upon the recommended 200-meter buffer or

suitable foraging habitats. Agency coordination details are further provided within the enclosed BA.

To address the recommendations of the Service in regards to this request, and pursuant to FAA's Section 7 consultation obligations under the ESA, the enclosed BA has been prepared for the Service's review.

A revised species list was requested from the Service through IPaC (Consultation code 04EG1000-2019-SLI-2456) on September 11, 2019 based on recent changes to the Service's methodology on determining the list of species potentially occurring within a designated project area. As suggested in conversation with the Service, a species list was also obtained from the Georgia Ecological Services Office HUC 10 Watershed Report for guidance. All agency coordination is provided within the enclosed BA.

A summary of the effects determination on both federally and state listed species is provided on **Table 1** below and detailed within the enclosed BA. The BA contains detailed descriptions of methods, data and considerations used to arrive at these conclusions.

Table 1 – Effects Determination Summary

Project Impact Determination	Federally Listed Species
May affect, not likely to adversely affect	Eastern indigo snake (<i>Drymarchon corais couperi</i>) Wood stork (<i>Mycteria americana</i>)
No effect	Listed plant species
Project Impact Determination	State Listed Species
Will not affect	Spotted turtle (<i>Clemmys guttata</i>) Swallow-tailed kite (<i>Elanoides forficatus</i>) Gopher tortoise (<i>Gopherus polyphemus</i>) Bald eagle (<i>Haliaeetus leucocephalus</i>)

FAA's rationale for making a determination of "may affect, not likely to adversely affect" pertains to the potential for suitable habitat for select species to exist in the *direct* areas of disturbance for the Proposed Project, even though no associated individuals have been observed in these areas during completion of the BA. No *indirect* effects on any federally or state listed species in areas adjoining the areas of disturbance (i.e., those from increased air emissions, noise, or other operational activities) are reasonably anticipated.

The effects determinations detailed in the BA and summarized above also recognizes the following commitments:

1. During the permitting phase of the Proposed Project, the Commission will provide appropriate compensation for the loss of wetland functions and values;
2. Prior to construction, the Commission will commit to resurvey appropriate habitats within the project area to confirm the presence or absence of gopher tortoises and swallow-tailed kite nests. If any of these listed species or their nests are present, the

Commission will coordinate with the Georgia Department of Natural Resources to minimize the Proposed Project impacts and obtain the necessary permits; and

3. Prior to construction, the Commission will resurvey appropriate habitats within 1,000 feet of the Proposed Project area for bald eagle nests prior to construction. If a bald eagle nest is found within 1,000 feet of the Proposed Project, the Commission will coordinate with the Service to secure any and all approvals regarding this species.

Requested Action

The FAA requests the Service's concurrence with the effects determination summarized in this letter and detailed within the enclosed BA. We will also accept and consider any comments you have on the provided materials in preparing the EA. Please respond to me within 30 days of receipt of this letter at the address provided above with your comments/concurrence decision, and feel free to contact me if you have any questions or concerns.

Sincerely,



Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosures (1)

Copy: Don Imm, U.S. Fish and Wildlife Service
Mark Denmark, Savannah Airport Commission
Paul Sanford, AECOM

Savannah/Hilton Head International Airport Short-Term Development Program Environmental Assessment

Biological Assessment

Prepared for:

**Savannah Airport Commission
and
Federal Aviation Administration**

Prepared by:

**AECOM
and
Environmental Services, Inc.**

September 2019

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1.0 INTRODUCTION

The Savannah Airport Commission (Commission) (i.e., the Airport Sponsor) is undertaking this Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA) to support a variety of airside and landside development options within its Short-Term Development Program (i.e., the Proposed Project) at Savannah/Hilton Head International Airport (SAV, or the Airport). The purpose of the EA is to identify and consider the potential environmental impacts associated with the Proposed Project and any reasonable alternatives.

A Biological Assessment (BA) is required as part of the EA due to the presence of listed species within the study area of the Proposed Project. This BA is intended to: (1) describe the Proposed Project at SAV; (2) discuss the biology and distribution of plant and animal species that have the potential to be present in the project vicinity and have protection under the Endangered Species Act of 1973, as amended (ESA); and (3) determine the potential effect of the Proposed Project on such ESA protected species. This BA is part of the EA documentation prepared for the Commission and submitted to Federal Aviation Administration (FAA) for environmental approval of the Proposed Project. This process included field inspections by qualified biologists of habitats within and adjacent to the Proposed Project, as well as literature and database reviews. Details on the study methodologies and results are provided below.

1.1. AIRPORT DESCRIPTION

SAV is owned and operated by the Commission and is located in Chatham County on the east side of Interstate Highway 95, approximately seven miles west of the central business district of the City of Savannah and four miles south of the South Carolina border. **Figure 1-1** depicts the location of the Airport as it relates to the City of Savannah and surrounding areas.

1.2. DESCRIPTION OF THE PROPOSED PROJECT

A variety of airside and landside development options are currently being considered for the Short-term Development Program. Individual projects included in the Short-term Development Program are shown on **Figure 1-2**. For the purposes of EA project definition, alternatives evaluation and environmental impact analysis, these individual projects are grouped into the following five main categories:

- Air Cargo Relocation: this category includes the construction of new air cargo facilities north of Gulfstream Road, south of Taxiway H and west of Taxiway A and an extension of Taxiway G. Individual projects are Air Cargo Ramp West - Phase I (Project #1 on **Figure 1-2**), Air Cargo Ramp East - Phase II (Project #2), and Taxiway G and Bridge - Phase III (Project #3).
- Taxiway Improvements: this category consists of connecting the existing segments of Taxiway A and Taxiway G south of Gulfstream Road. Individual projects are Taxiway Connectors and Improvements (Project #4 on **Figure 1-2**), and Taxiway G Extension (Project #5).

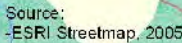
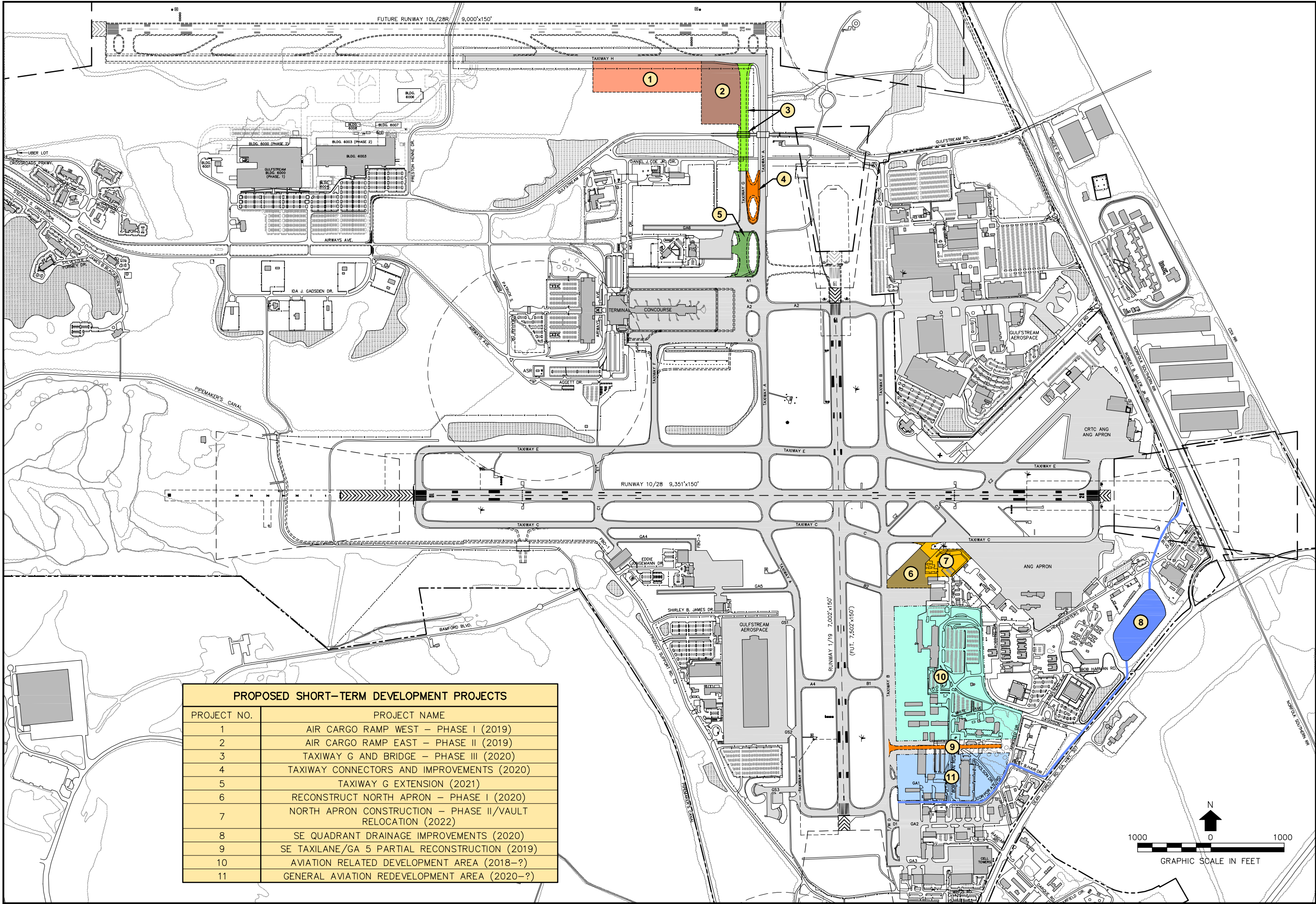


FIGURE
1-1



PROPOSED SHORT-TERM
DEVELOPMENT PROGRAM PROJECTS

FIGURE
1-2

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- North Apron Improvements: this category consists of reconstructing an existing apron and constructing a new apron to provide additional parking for aircraft. Individual projects are Reconstruct North Apron - Phase I (Project # 6 on **Figure 1-2**) and North Apron Construction - Phase II/Vault Relocation (Project #7).
- General Aviation (GA) Redevelopment: projects related to GA redevelopment include construction of new facilities for current airport tenants east of Taxiway B and south of Taxiway C. Individual project are Southeast (SE) Taxilane/GA 5 Partial Reconstruction (Project #9 on **Figure 1-2**), Aviation-Related Development Area (Project #10), and GA Redevelopment Area (Project #11).
- SE Quadrant Drainage Improvements: this project consists of new facilities to treat and attenuate the stormwater runoff generated from existing impervious surfaces, as well as any new impervious surfaces associated with the Proposed Project (Project #8 on **Figure 1-2**).

2.0 METHODOLOGY

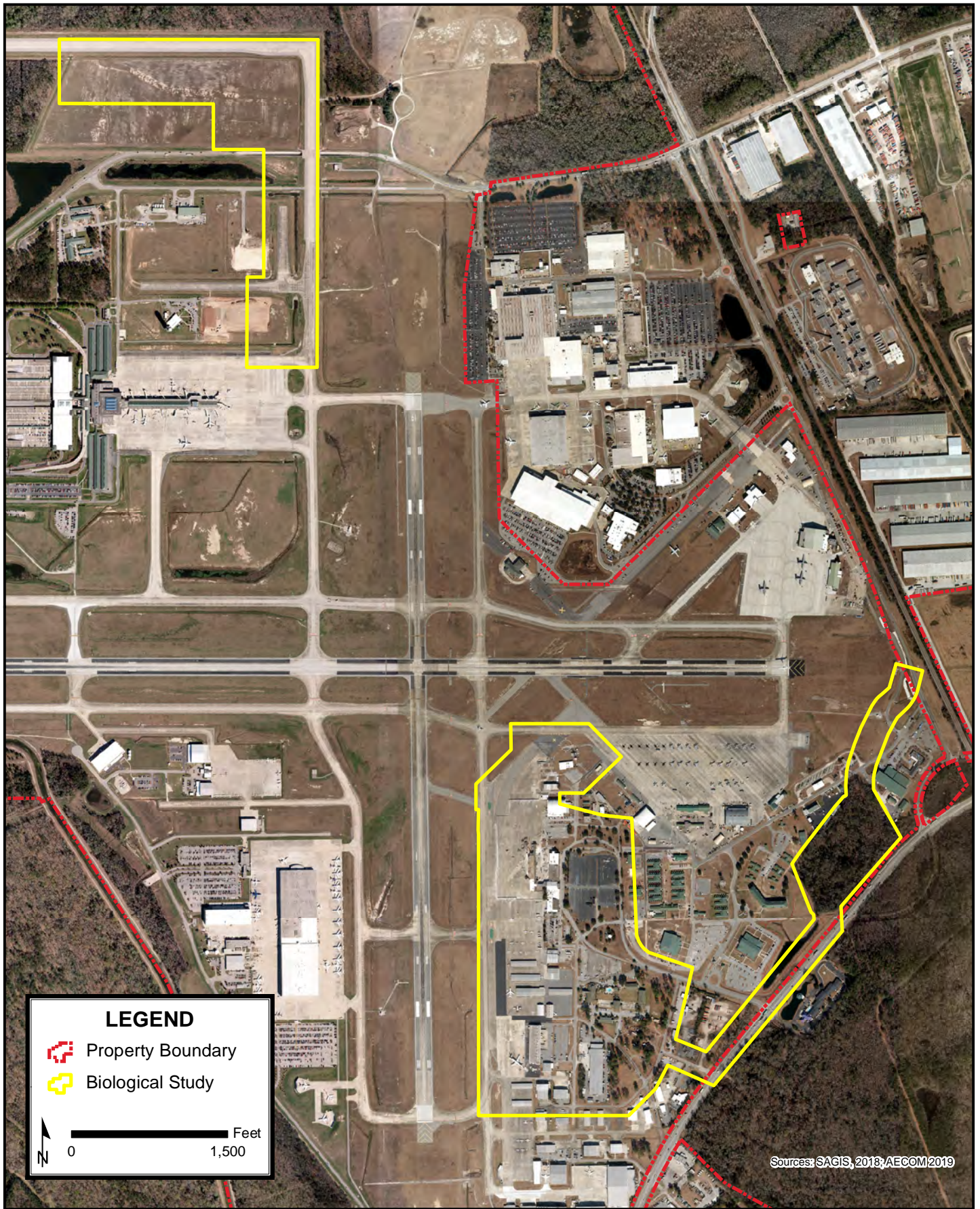
The purpose of this BA is to describe the existing environmental conditions of the Biological Study Area (BSA) defined for the EA and the potential impacts to wetlands, other surface waters, and federally and state listed species that could occur as a result of the Proposed Project. The BSA for the BA encompasses a 100-foot buffer from the construction footprint of the Proposed Project and comprises a total of 243.7 acres (**Figure 2-1**).

The potential presence of state and federally listed species within the BSA was assessed by review of the following:

- Listed species accounts;
- U.S. Fish and Wildlife Service (USFWS) and Georgia Department of Natural Resources (GADNR) listings of species known to occur or potentially occurring in Chatham County;
- Online database sources from the USFWS and GADNR; and
- Field observations of habitats and wildlife species.

2.1. AGENCY COORDINATION

As part of the NEPA process, an Advance Notification (AN) of the Proposed Project was sent to the GADNR and USFWS on August 1, 2019 requesting comments on potential effects of the Proposed Project on listed species and potential permit requirements (see **Appendix A**). In addition, an official species list was requested from the USFWS Information for Planning and Consultation (IPaC) database (Consultation code 04EG1000-2019-SLI-2043) on July 11, 2019. On August 27, 2019, the USFWS responded to the AN stating the following:



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BIOLOGICAL STUDY AREA

FIGURE
2-1

- Suitable habitats for the species listed in the IPaC are not anticipated with the exception of the wood stork (*Mycteria americana*).
- A previous wood stork rookery has already been removed. Through a biological opinion and Migratory Bird permit, the Commission is allowed to harass wood storks and other wading birds at SAV to reduce the risks of bird-aircraft-strike hazards.
- The SE Quadrant Drainage Improvements include a forested wetland that appears to be too dense to offer foraging habitat to listed species; however, if cleared of trees and maintained as a detention/retention pond, the site might attract this species and other wading birds.
- There are two bald eagle (*Haliaeetus leucocephalus*) nests located near the intersection of Gulfstream Road and Preston Heine Drive, west of Project #s 1 and 2. However, these nests are outside of the BSA and project activities do not appear to encroach upon the recommended 200-meter buffer or suitable foraging habitats.

A revised species list was requested from the USFWS through IPaC (Consultation code 04EG1000-2019-SLI-2456) on September 11, 2019 based on recent changes to the USFWS's methodology on determining the list of species potentially occurring within a designated project area. As suggested in conversation with the USFWS, a species list was also obtained from the USFWS Georgia Ecological Services' HUC 10 Watershed Report for guidance. Agency coordination documentation is provided in **Appendix A**.

2.2. DATA COLLECTION AND FIELD REVIEW

Elemental occurrences of rare species likely to occur within Chatham County were obtained from the GADNR's online biodiversity portal and observations recorded during the August 23, 2019 field inspections by Environmental Services, Inc. (ESI) biologists.

The following information was reviewed prior to the field reviews to characterize habitat features and land use patterns within the BSA:

- U.S. Geological Survey (USGS) 7.5-minute Topographical Quadrangle Map, Port Wentworth, Georgia, 1993;
- 2018 aerial photographs, Savannah Area Geographic Information Systems (SAGIS, 2018);
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *Web Soil Survey of Chatham County, Georgia*. (<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>) (NRCS, 2018);
- USFWS, *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979);

- USFWS National Wetland Inventory for Chatham County (<https://data-sagis.opendata.arcgis.com/>) (SAGIS, 2019); and
- GADNR Chatham County vegetation mapping from the Georgia GIS Data Clearinghouse (<https://data.georgiaspatial.org/>) (GADNR, 2010).

As stated, ESI biologists familiar with Georgia's natural communities conducted a field review of the BSA on August 23, 2019. During the field review, each vegetative community and land use type within the BSA was visually inspected to assess approximate boundaries and document dominant vegetation. Exotic plant infestations and other disturbances such as erosion and existing structures (i.e. riprap) were noted. Field activities also included identifying wildlife and signs of wildlife usage within the BSA and within adjacent habitats.

3.0 EXISTING LAND USES AND VEGETATIVE COVER

Based on in-house and field reviews, three upland community types, one wetland community type, and one surface water community type are present within the BSA (**Figure 3-1**). The individual wetlands and other surface waters are depicted on **Figure 3-2**. All vegetative habitats within the BSA were classified based on the U.S. National Vegetation Classification (USNVC, 2017) system. Wetland and other surface water habitats were also classified using the *U.S. Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et. al., 1979). A summary description of each land use/vegetative cover type is provided below. **Table 3-1** summarizes the acreage of each land use/vegetative cover type within the BSA.

Table 3-1: Existing Land Use and Vegetative Communities within the BSA

Vegetative Community/Land Use ¹	USFWS Classification ²	Acres in BSA
Uplands		
Unvegetated Upland / Transportation Land Use	N/A	165.2
Lawn, Garden, & Recreational Vegetation (CFO09)	N/A	59.1
Southeastern Coastal Plain Ruderal Sweetgum – Oak – Loblolly Pine Forest (CEGL007726)	N/A	3.1
<i>Subtotal Uplands</i>		<i>227.4</i>
Wetlands		
Sweetgum Seepage Forest (CEGL004631)	PFO1/3C	13.2
<i>Subtotal Wetlands</i>		<i>13.2</i>
Other Surface Waters		
Developed Aquatic Vegetation (CF013)	POWx/PEM1Jx	3.1
<i>Subtotal Other Surface Waters</i>		<i>3.1</i>
TOTAL		243.7

¹ USNVC, 2017; ESI, 2019.

² Cowardin, Lewis M., et.al. 1979.

NA = Not applicable; PFO1/3C = palustrine, forested, broad-deciduous/evergreen, seasonally flooded; POWx = palustrine, open water, excavated; PEM1Jx = palustrine, emergent, persistent, intermittently flooded, excavated

3.1. UPLAND LAND USE/VEGETATIVE COVER DESCRIPTIONS

The main land use type throughout the BSA consists of unvegetated developed areas, which support the Airport's transportation land use. Essentially none of these areas are covered by vegetation, besides the occasional planted shade tree or patch of grass. As shown on **Figure 3-1**, approximately 165.2 acres of the 243.7-acre BSA is characterized as transportation land use.

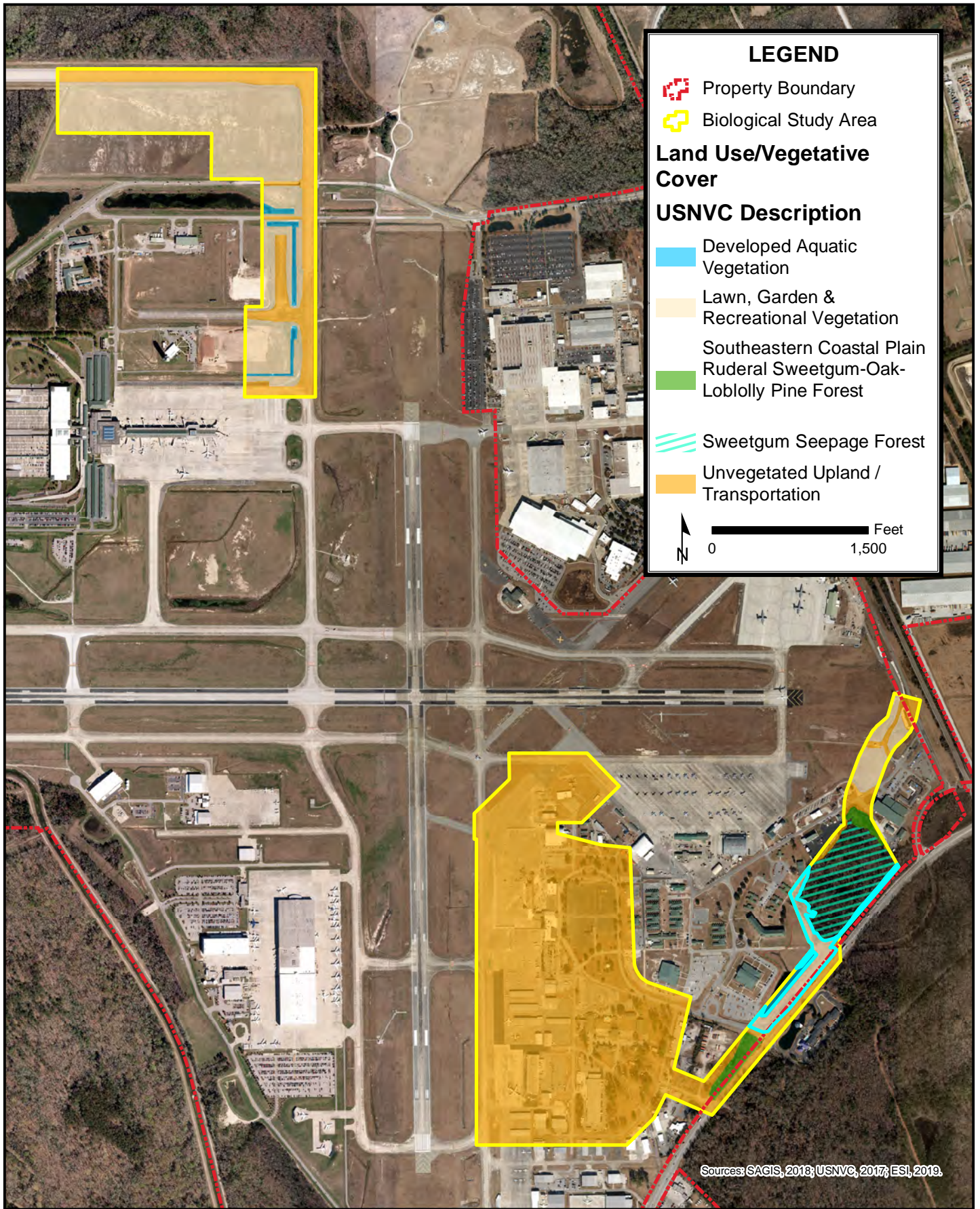
The most widely distributed vegetated upland type includes USNVC classification Lawn, Garden, and Recreation Vegetation (CFO09). Specifically, this vegetative cover within the BSA includes closely chipped lawns with no tree canopy. As shown on **Figure 3-1**, approximately 59.1 acres of the 243.7-acre BSA is characterized as Lawn, Garden and Recreation Vegetation.

There are only two portions of intact hardwood forested upland remaining within the southeastern corner of the BSA. These areas are classified by the USNVC as Southeastern Coastal Plain Ruderal Sweetgum-Oak-Loblolly Pine Forest (CEGL007726). Within the BSA, these areas are primarily dominated by laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), and red maple (*Acer rubrum*) with an overarching canopy of loblolly pine (*Pinus taeda*). A thick shrub stratum below is dominated by various oaks (*Quercus sp.*), red maple, vaccinium (*Vaccinium sp.*), and wax myrtle (*Morella cerifera*).

Vines are sparse, but diverse, consisting of muscadine grape (*Vitis rotundifolia*), green briars (*Smilax bona-nox* and *Smilax rotundifolia*), yellow jessamine (*Gelsemium sempervirens*), and poison ivy (*Toxicodendron radicans*). Groundcover is sparse with occasional longleaf woodoats (*Chasmanthium sessiliflorum*) and bracken fern (*Pteridium aquilinum*). As shown on **Figure 3-1**, approximately 3.1 acres of the 243.7-acre BSA is characterized as Southeastern Coastal Plain Ruderal Sweetgum-Oak-Loblolly Pine Forest.

3.2. WETLAND AND OTHER SURFACE WATER LAND USE/VEGETATIVE COVER DESCRIPTIONS

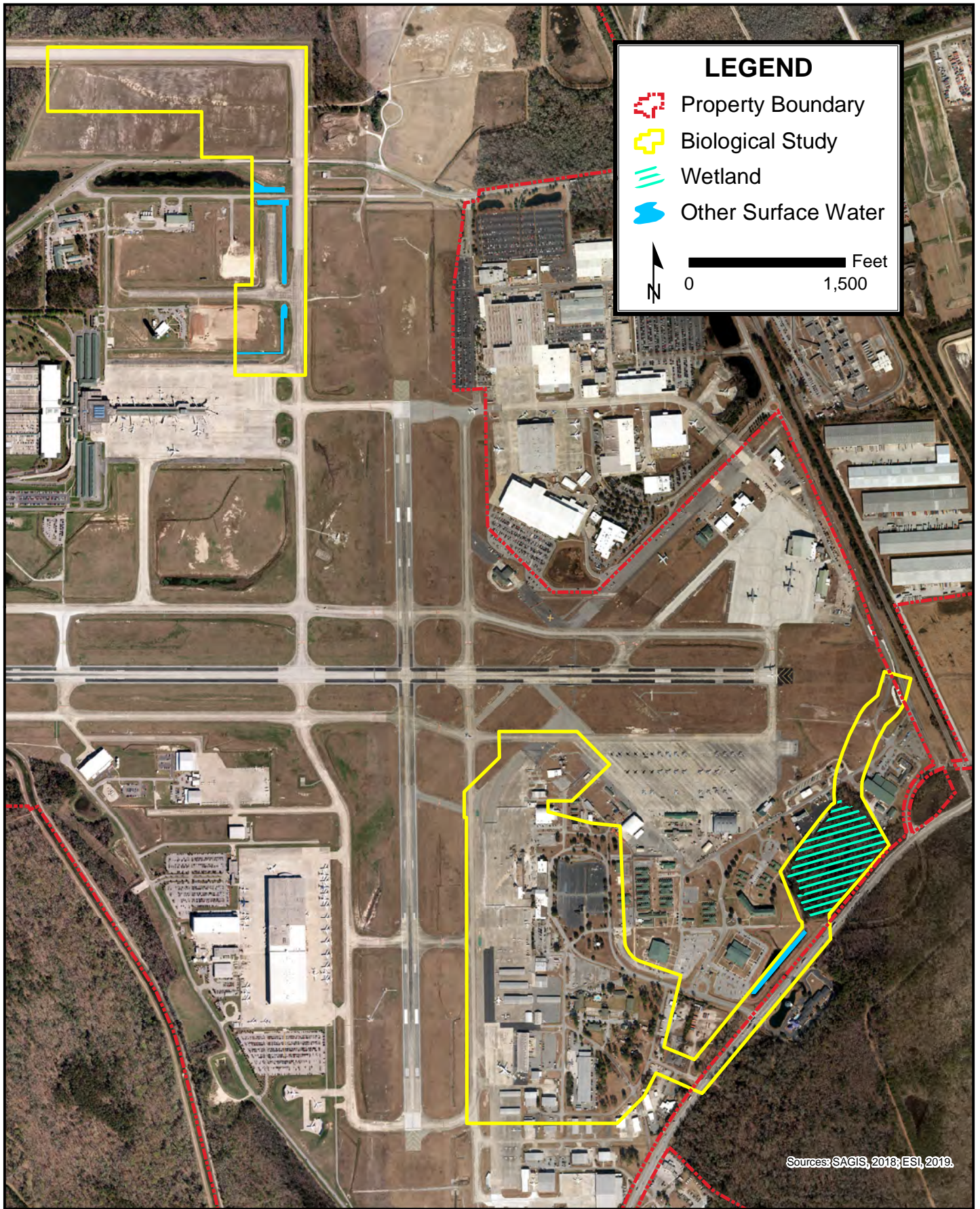
There is only one wetland within the BSA, which most closely resembles the USNVC vegetative cover type Sweetgum Seepage Forest (CEGL004631). This environment is nearly constantly saturated, but rarely flooded, maintained mostly by a high water table. This environment is characterized by its well-developed thick vegetative cover across all strata. Within the BSA, the canopy and subcanopy is dominated by sweetgum, laural oak, water oak, blackgum (*Nyssa sp.*), red maple, loblolly pine, sweetbay (*Magnolia virginiana*), southern magnolia (*Magnolia grandiflora*), American holly (*Ilex opaca*), and American elm (*Ulmus americana*). The shrub layer is thick consisting of the above-mentioned woody species, in addition to sweet pepperbush (*Clethra alnifolia*) and fetterbush (*Lyonia lucida*). The groundcover is dominated by royal fern (*Osmunda spectabilis*), cinnamon fern (*Osmundastrum cinnamomeum*), netted chain fern (*Woodwardia areolate*), and Virginia chain fern (*Woodwardia virginica*).



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EXISTING LAND USE AND
VEGETATIVE COVER

FIGURE
3-1



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WETLANDS AND
OTHER SURFACE WATERS

FIGURE
3-2

As shown on **Figure 3-1** and **Figure 3-2**, approximately 13.2 acres of the 243.7-acre BSA is characterized as Sweetgum Seepage Forest.

Other surface water features present within the BSA include upland-cut drainage ditches and stormwater ponds which are associated with the overall stormwater management plan for the Airport. These other surface waters are typical of urban development and can be distinguished from natural features due to their form and function. Within the BSA, these features have been regularly managed and therefore have not had a chance to naturalize. For the purposes of this assessment these features most closely resemble the USNVC type Developed Aquatic Vegetation (CFO13). Vegetation in these areas is either completely lacking or is characterized by floating or submerged aquatic vegetation. As shown on **Figure 3-1** and **Figure 3-2**, approximately 3.1 acres of the 243.7-acre BSA is characterized as Developed Aquatic Vegetation.

4.0 WILDLIFE

The BSA primarily consists of developed areas supporting the transportation land use of the Airport, which does not provide for conducive environment for most listed species; however, many species that tolerate urban conditions could and would utilize the area. The Airport has a Wildlife Hazard Management Plan (WHMP), which has a goal to minimize wildlife populations on the Airport property that may pose a threat to aviation safety. To achieve this goal, the WHMP identifies wildlife control procedures and habitat modification projects that would deter or exclude wildlife from utilizing Airport property.

The WHMP is applied across the entire Airport property and is reviewed annually by the Airport Operations department and a USDA Animal and Plant Health Inspection Service Wildlife Services biologist so that portions of the WHMP can be updated, as needed. The plan details a depredation permit from the USFWS that allows for lethal take of non-listed migratory birds (Permit Number MB673816-0), but it also emphasizes the use of nonlethal techniques, such as pyrotechnics, when appropriate. The Airport also maintains a permit from the GADNR, which authorizes the removal of white-tail deer (*Odocoileus virginianus*) by lethal method. This WHMP details specific wildlife control procedures for a wide variety of species including gulls, ducks, geese (*Anserini* spp.), wading birds, raptors, starlings (*Sturnidae* spp.), blackbirds, pigeons, doves, crows, swallows, martins, killdeer (*Charadrius vociferous*), sandpipers (*Scolopacidae* spp.), coyotes (*Canis latrans*), fox, white-tail deer, beavers (*Castor canadensis*), wild turkey (*Meleagris gallopavo*), and alligators (*Alligator mississippiensis*).

Due to the WHMP deterring species from occupying the Airport, minimal long-term wildlife occupancy is anticipated, especially within the northwestern BSA in particular, which is directly adjacent to the airfield, where the depredation techniques are most utilized. In contrast, the southeastern BSA area has some intact forested areas that a variety of species could utilize; however, these areas are fenced in, which does not allow for much movement into or out of the BSA.

5.0 LISTED SPECIES

The BSA was evaluated for potential occurrences of federally and state listed plant and animal species. Federally listed species are those plant and animal species protected by the federal government pursuant to the ESA. Federally listed species are classified as endangered or threatened. State listed species are those plant and animal species managed by the state of Georgia pursuant to Georgia's Protection of Endangered, Threatened, Rare, or Unusual Species Rules and Regulations (Rule 391-4-10). State listed species are classified as endangered, threatened, rare, or unusual. During the August 23, 2019 field review, the BSA was assessed for the presence of, or potential use by, federally and state listed plant and animal species. The following literature and online data sources were used to collect information concerning the potential presence of federally and/or state listed species within the BSA:

- USFWS, Endangered and Threatened Wildlife and Plants, 50 Code of Federal Regulations (CFR) 17.11 and 17.12 (USFWS, 2015);
- USFWS, IPaC (<https://ecos.fws.gov/ipac>) (USFWS, 2019a);
- USFWS, Georgia Ecological Services office, HUC 10 Watershed Report (https://www.fws.gov/athens/transportation/huc10/0306010903_FWS_guidance.pdf) (USFWS, 2019b);
- NatureServ Explorer (<http://explorer.natureserve.org/index.htm>), updated March 2019 (NatureServ, 2019);
- GADNR's Online Biodiversity Portal (<https://georgiabiodiversity.org/natels/natural-element-locations.html>) (GADNR, 2019);
- Georgia Rules and Regulations, Protection of Endangered, Threatened, Rare, or Unusual Species, Rule 391-4-10 (GADNR, 2017); and
- U.S. Army Corps of Engineers's (USACE's) Savannah District and the USFWS Georgia Ecological Services Office Effects Determination Guidance for Endangered and Threatened Species (EDGES) (<https://www.sas.usace.army.mil/Regulatory/Permitting/EDGES/>) (USACE, 2018).

For a listed species to be considered potentially occurring within the BSA, appropriate habitat for reproduction, nesting, foraging, feeding, or resting must be present in the BSA and the BSA must be located within the species' geographical range. The listed species with potential to occur within the BSA are described below. **Table 5-1** provides a summary of the listed and protected species with potential to occur within the BSA.

Table 5-1: Listed Species¹ Potentially Occurring within BSA

Scientific Name	Common Name	Federal Status ²	State Status ³	Habitat Preference
Plants				
<i>Lindera melissifolia</i>	Pondberry	E	E	Pond margins and wet savannas.
<i>Sarracenia minor</i> var. <i>minor</i>	Hooded pitcherplant	NL	U	Wet savannas, pitcherplant bogs.
Reptiles				
<i>Clemmys guttata</i>	Spotted turtle	NL	U	Heavily vegetated swamps, marshes, bogs, small ponds, and tidally influenced freshwater wetlands.
<i>Drymarchon corais couperi</i>	Eastern indigo snake	T	T	During winter, den in xeric sandridge habitat preferred by gopher tortoises; during warm months, forage in creek bottoms, upland forests, and agricultural fields
<i>Gopherus polyphemus</i>	Gopher tortoise	C	T	Dry upland habitats, including disturbed habitats such as pastures, old fields, and road shoulders.
Birds				
<i>Elanoides forficatus</i>	Swallow-tailed kite	NL	R	River swamps, marshes, open pine and bottomland forest.
<i>Haliaeetus leucocephalus</i>	Bald eagle	NL	T	Nests in tall trees. Forages near bodies of water.
<i>Mycteria americana</i>	Wood stork	T	E	Nests in inundated forested wetlands; forages in freshwater marshes, swamps, flooded pastures.

Notes:

F = Federal; E = Endangered; T = Threatened; R = Rare; U = Unusual; NL = Not Listed; C = Candidate

¹ As reported by the GADNR Biodiversity Portal (GADNR, 2019) and the USFWS IPaC "Official Species List" (USFWS, 2019).² As listed by the USFWS in 50 CFR 17 (<http://www.fws.gov/endangered/>), updated February 2015 (USFWS 2015).³ As listed by the GADNR in Georgia Rule 391-4-10, updated December 2017 (GADNR, 2017).⁴ The bald eagle is neither state nor federally listed; however, this species is federally protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

5.1. FLORA

Pondberry (*Lindera melissifolia*)

Pondberry is a perennial, deciduous shrub that is federally and state listed as endangered. This shrub typically flowers between March and April before leaves appear, and fruits between August and October. Pondberry generally occurs in seasonally-flooded forested wetlands and seasonal ponds of old dune fields, pinelands, and forested coastal areas.

Hooded pitcherplant (*Sarracenia minor var. minor*)

The hooded pitcherplant is a perennial, carnivorous plant that is listed as unusual by the GADNR. This species typically flowers in late March to mid-May and eats a wide range of flying insects. Hooded pitcherplants occur in swampy environments with poor nutrients.

The majority of the BSA is either routinely mowed and maintained for airport operations or is already developed in support of transportation land use. The general field reviews did not detect the occurrence of any protected plant species within the BSA. Additionally, a protected species survey was conducted on August 23, 2019 within the 13.2-acre forested wetland. Biologist traversed the area, conducting a plant specific survey for both pondberry and hooded pitcherplants, while also assessing habitat to determine whether the species habitat requirements could be supported. No protected plant species were discovered. Additionally, the habitat requirements for pondberry were not met within the 13.2-acre wetland. This wetland is constantly saturated by a high water table, but rarely flooded, and has a thick understory and herbaceous layer which means it does not meet the habitat requirements of pondberry.

5.2. FAUNA**5.2.1. FEDERALLY LISTED SPECIES****Eastern indigo snake (*Drymarchon corais couperi*)**

The eastern indigo snake is federally and state listed as threatened. The indigo snake can be found in a variety of habitats including mesic flatwoods, swamps, wet prairies, xeric pinelands, and scrub areas. It may use gopher tortoise burrows for shelter to escape hot or cold ambient temperatures within its range. While suitable habitat is available for this species in limited areas of the BSA, no eastern indigo snakes were observed during the August 23, 2019 field review.

Wood stork (*Mycteria americana*)

The wood stork is federally listed as threatened and state listed as endangered. This wading bird species is opportunistic and uses various habitat types, including forested wetlands, freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches for feeding. A specialized feeding technique commonly referred to as “groping” limits the wood stork to feeding in shallow water. Wood storks and a wading bird rookery have been observed historically in wetlands occurring on and adjacent to Airport property. The rookery was adjacent to the northern portion of the BSA and was determined to be a wildlife hazard that endangered human and aircraft safety at SAV. Therefore, in 2017, an EA was prepared to move the rookery away from Airport property and alter the habitat to avoid further nesting. In 2018, the USFWS issued a Biological Opinion that included an Incidental Take Statement authorizing SAV to remove the rookery, alter the habitat, and remove any future nests that are observed on Airport property. Even though no known wood stork nests and/or rookeries currently exist within the BSA, there is a potential for storks to use the area for foraging purposes; however, the BSA does not offer any unique habitat for this species.

5.2.2. STATE LISTED SPECIES

Spotted turtle (*Clemmys guttata*)

The spotted turtle is listed by the GADNR as unusual and inhabit shallow water bodies with a soft bottom and aquatic vegetation, such as small marshes, marshy pastures, bogs, fens, woodland streams, swamps, and small ponds. Marginally suitable habitat for this species occurs within the BSA in the southeast forested wetland, however due to the lack of ponded hydrologic conditions within this wetland, the likelihood for occurrence is low. Additionally, movement of wildlife to and from this wetland habitat is limited due to the surrounding roadways, fences, and other airport operations. During the August 23, 2019 field review, no individuals were observed within the BSA.

Swallow-tailed kite (*Elanoides forficatus*)

The swallow-tailed kite is listed as rare by the GADNR and nests in tall trees that occur in various pine forests, cypress swamps, hardwood hammocks, mangrove swamps, and riparian forests. Foraging occurs in savannahs, freshwater marshes, prairies, and over tree canopies. Suitable nesting and foraging habitat occur within the BSA; however, no kites were observed within the BSA during the August 23, 2019 field review.

Gopher tortoise (*Gopherus polyphemus*)

The gopher tortoise is listed as threatened by the GADNR and is considered a candidate species by USFWS due to habitat loss, degradation, and a declining number of individuals. The gopher tortoise requires well-drained, loose, sandy soils for burrowing, and low-growing herbs and grasses for food. Marginally suitable habitat for this species is present throughout the BSA; however, no gopher tortoise burrows were observed within the BSA during the August 23, 2019 field review.

Bald eagle (*Haliaeetus leucocephalus*)

The bald eagle is listed as threatened by the GADNR. Though the bald eagle has been removed from Federal listings, it is still protected by the Bald and Golden Eagle Protection Act in accordance with 16 United States Code (U.S.C.) § 668 and the Migratory Bird Treaty Act in accordance with 16 U.S.C. §§ 703-712. The bald eagle typically uses riparian habitat associated with coastal areas, lake shorelines, and river banks. The nests are generally located near water bodies that provide a dependable food source. In 2009, an active bald eagle nest was observed approximately 1,700 feet southwest of the northern portion of the BSA. In coordination with the USFWS, a Non-Purposeful Eagle Take Permit was issued in February 2012 prior to the clearing and grading of an approximate 40-acre area. This Non-Purposeful Eagle Take Permit expired in 2016. Prior to development of the Proposed Project, coordination with the USFWS may be required to obtain either another Non-Purposeful Eagle Take Permit or authorization to remove the nest structure permanently. However, pursuant to USFWS bald eagle guidelines, any disturbance within 1,000 feet of a bald eagle nest requires additional coordination and potential permitting with the USFWS.

6.0 EFFECTS OF PROPOSED PROJECT

The only natural habitat to occur with the BSA is the Sweetgum Seepage Forest. Implementation of the Proposed Project will result in the conversion of approximately 13.2 acres of the Sweetgum Seepage Forest wetland to Stormwater Management (Pond) as a result of the Proposed Project. In addition, approximately 49.2 acres of Lawn, Garden, and Recreational Vegetation, which consists mostly of mowed/maintained, grassed areas located within the BSA, will be converted to Airport/Transportation land use as a result of the Proposed Project. **Table 6-1** lists the vegetative communities and land uses that will be converted to Airport/Transportation or Stormwater Management use by the Proposed Project.

**Table 6-1: Vegetative Community/Land Use Conversions
Resulting from the Proposed Project**

Vegetative Community/ Land Use ¹	USFWS Classification ²	Acres Converted to Airport/Transportation	Acres converted to Stormwater Pond	Total
Uplands				
Lawn, Garden, & Recreational Vegetation (CFO09)	N/A	49.2	--	49.2
Wetlands				
Sweetgum Seepage Forest (CEGL004631)	PFO1/3C	--	13.2	13.2
TOTAL		49.2	13.2	62.4

¹ USNVC, 2017; ESI, 2019.

² Cowardin, Lewis M., *et.al.* 1979.

6.1. LISTED SPECIES

The Proposed Project would result in adverse impacts to habitats potentially utilized by listed and protected species. The potential effect of the habitat impacts on state and federally listed species with potential to occur within the BSA are discussed below. The EDGES program was developed jointly by the Savannah District USACE and the USFWS, Georgia Ecological Services Office, to improve Section 7 consultation pursuant to the ESA and shall be applied to all federally-authorized actions. Therefore, EDGES was used to determine the potential effects on federally listed species resulting from the Proposed Project when applicable. Currently, there are 12 EDGES that have been developed for 41 species listed in Georgia, two of which are applicable to the Proposed Project and provided in **Appendix B**.

6.1.1. FLORA

Most of the BSA has been disturbed as part of ongoing airport activities. Therefore, it is unlikely that any listed plant species will be adversely affected by the project. One federally listed plant species (pondberry) was surveyed for within the only intact forested wetland; however, habitat

requirements were not met nor were any individual species observed. General field reviews did not detect the occurrence of any state or federally listed species within the BSA. As a result, it is anticipated that the Proposed Project would have “no effect” on listed plant species.

6.1.2. FAUNA

6.1.2.1. FEDERALLY LISTED SPECIES

While no **eastern indigo snakes** or gopher tortoise burrows were observed during the field review, suitable habitat for this species is available within the BSA. Most of the BSA, however, has been disturbed and/or altered and movement to and from suitable habitat is limited due to the surrounding roadways, fences, and on-going airport operations. Additionally, there are no suitable soils for gopher tortoise burrows occurring within the BSA. Based on this information and the draft EDGES for the eastern indigo snake (**Appendix B**), it has been determined that the Proposed Project “may affect, but is not likely to adversely affect” the eastern indigo snake.

Though suitable habitat for the **wood stork** occurs within the BSA, the USFWS issued a Biological Opinion in 2018 that included an Incidental Take Statement authorizing SAV to remove a rookery once present near the BSA and remove any future nests that are observed on Airport property. As part of the Proposed Project, adverse wetland impacts will be mitigated as necessary to prevent a net loss of wetland habitat functions and values. Additionally, the Proposed Project is not within 2,500 feet of an active wood stork rookery; however, suitable foraging habitat does occur within the BSA. Based on this information and the draft EDGES for the wood stork (**Appendix B**), it has been determined that the Proposed Project “may affect, but is not likely to adversely affect” the wood stork.

6.1.2.2. STATE LISTED SPECIES

Marginally suitable habitat for the **spotted turtle** is available within the BSA; however, movement to and from this habitat is limited due to the surrounding roadways and on-going airport operations. No individuals were observed within the BSA during the field review. Therefore, no adverse effects on the spotted turtle are anticipated as a result of the Proposed Project.

Suitable habitat does occur within the BSA for the **swallow-tailed kite**; however, no kites were observed within the BSA during the field review. If a nest is observed prior to construction, coordination with the GADNR will occur to develop and implement the appropriate protection criteria. Therefore, no adverse effects on the swallow-tailed kite are anticipated as a result of the Proposed Project.

Marginally suitable habitat for the **gopher tortoise** is present throughout the BSA; however, no gopher tortoise burrows were observed within the BSA during the field review. Most of the BSA, has been disturbed and/or altered from airport activity and movement to and from suitable habitat is limited due to the surrounding roadways and on-going airport operations. Additionally, no suitable soils for gopher tortoise burrows occur within the BSA. If gopher tortoise burrows are observed within the project area prior to construction, coordination with the GADNR will occur to

develop and implement the appropriate protection criteria. Therefore, no adverse effects on the gopher tortoise are anticipated as a result of the Proposed Project.

An active **bald eagle** nest was observed within 1,700 feet of the BSA in 2009. During the August 23, 2019 field review, the nest remains intact and appears to be active; however, no eagles were observed in or around the nest, most likely due to seasonality since nesting season in Georgia spans from late October/early November until late April. Pursuant to USFWS bald eagle guidelines, any disturbance within 1,000 feet of a bald eagle nest requires additional coordination and potential permitting with the USFWS. Either a Non-Purposeful Eagle Take Permit or authorization to remove the nest structure permanently may be required prior to construction of the Proposed Project. Based on this information, commitments to implement the appropriate conservation measures, and the distance of the nest from the BSA, it is unlikely that the Proposed Project will affect the bald eagle.

6.2. CRITICAL HABITAT

The BSA was also evaluated for the occurrence of listed species critical habitat designated by Congress in 50 CFR 424. No designated critical habitat for any federally listed species occurs within the BSA. Based on this information, it has been determined that the Proposed Project will have “no effect” on any critical habitat.

7.0 COMMITMENTS

To minimize potential impacts to listed species discussed in this BA, the Commission will commit to the following as part of this project:

1. During the permitting phase of the Proposed Project, the Commission will provide appropriate compensation for the loss of wetland functions and values;
2. Prior to construction, the Commission will commit to resurvey appropriate habitats within the project area to confirm the presence or absence of gopher tortoises and swallow-tailed kite nests. If any of these listed species or their nests are present, the Commission will coordinate with the GADNR to minimize the Proposed Project impacts and obtain the necessary permits; and
3. Prior to construction, the Commission will resurvey appropriate habitats within 1,000 feet of the Proposed Project area for bald eagle nests prior to construction. If a bald eagle nest is found within 1,000 feet of the Proposed Project, the Commission will coordinate with the USFWS to secure any and all approvals regarding this species.

8.0 SUMMARY

The Proposed Project would result in permanent impacts to approximately 62.4 acres of existing terrestrial and wetland habitats. The Proposed BSA has been previously affected by anthropogenic activities at the Airport, including regular mowing of the grassed infield areas and

airport operations. No federally listed species or designated critical habitat are expected to be adversely affected by the Proposed Project. **Table 8-1** provides the project impact determination for federally and state listed species. Based on the findings and commitments of this BA, a determination has been made that the Proposed Project is not likely to adversely affect any state or federally listed plant or animal species.

Table 8-1: Effects Determination Summary

Project Impact Determination	Federally Listed Species
May affect, not likely to adversely affect	Eastern indigo snake (<i>Drymarchon corais couperi</i>) Wood stork (<i>Mycteria americana</i>)
No effect	Listed plant species
Project Impact Determination	State Listed Species
Will not affect	Spotted turtle (<i>Clemmys guttata</i>) Swallow-tailed kite (<i>Elanoides forficatus</i>) Gopher tortoise (<i>Gopherus polyphemus</i>) Bald eagle (<i>Haliaeetus leucocephalus</i>)

9.0 REFERENCES

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Appendix A

Agency Coordination

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708

August 01, 2019

Mr. Christopher Coppola
Biologist – Transportation Projects
U.S. Fish and Wildlife Service
Georgia Ecological Services Office
Coastal Georgia Sub Office
4890 Wildlife Drive Northeast
Townsend, GA 31331

**RE: Environmental Assessment for the Short-Term Development Program at Savannah/Hilton Head International Airport, Chatham County, Georgia
Consultation Code: 04EG1000-2019-SLI-2043, Event Code: 04EG1000-2019-E-03807**

Dear Mr. Coppola:

The Savannah Airport Commission (Commission) is proposing a variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (SAV). The developments are hereinafter referred to as the Proposed Project. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. The enclosed **Figure 1** shows the extent of the Proposed Project, which is comprised of the following development actions:

- Air Cargo Ramp West Phase I (Project #1);
- Air Cargo Ramp East Phase II (Project #2);
- Taxiway G and Bridge Phase III (Project #3);
- Taxiway G Extension (Project #4);
- Taxiway Connectors and Improvements (Project #5);
- Reconstruct North Apron Phase I (Project #6);
- North Apron Construction Phase II/Vault Relocation (Project #7);
- Southeast (SE) Quadrant Drainage Improvements (Project #8);
- SE Taxiway/GA 5 Partial Reconstruction (Project #9)
- Aviation Related Development Area (Project #10); and
- General Aviation (GA) Redevelopment Area (Project #11).

As part of our early coordination efforts for the EA, and on behalf of the Commission, we are attempting to identify preliminary key issues that will need to be addressed in the NEPA process. To accomplish this we would like to receive your comments relative to the proposed improvements as they relate to your specific area of expertise or regulatory jurisdiction, including permitting or mitigation requirements.

An Official Species List has been received for the Proposed Project, under Consultation Code 04EG1000-2019-SLI-2043, Event Code: 04EG1000-2019-E-03807. During the EA process, we will consider the List, along with any early comments you provide, in preparing and coordinating a Biological Assessment and effects determination with the Service pursuant to Section 7 of the Endangered Species Act.

Additional project data and information will be developed during preparation of the EA, including locations of potential ancillary project elements such as onsite staging and materials storage areas, construction haul routes, and locations of batch plants, that may prompt you to provide additional comments on issues to be considered in the EA. Consequently, you will be invited to review and provide additional comments on the Draft EA upon publication.

In order to sufficiently address any preliminary key project issues and maintain the project schedule, your written comments are requested by 02 Sept 2019. Please respond to me at the address provided below and feel free to contact me if you have any questions or concerns.

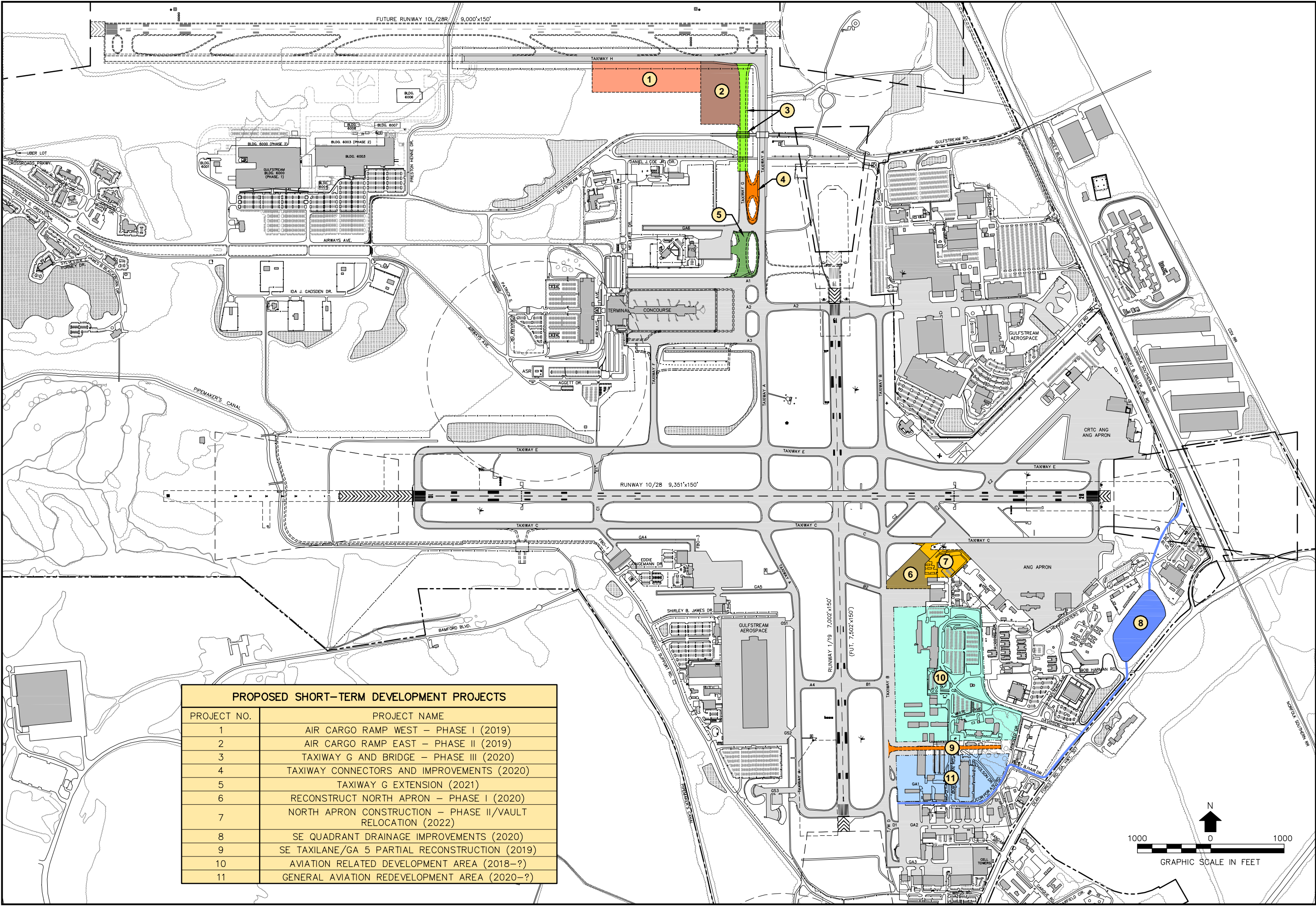
Sincerely,

A handwritten signature in dark ink, appearing to read 'Felicia K. Reeves', followed by a long horizontal line extending to the right.

Felicia K. Reeves
Noise/Environmental Program Manager
FAA Southern Region/Atlanta Airports District Office
1701 Columbia Ave Room 220
College Park, GA 30337
404.305.6708
felicia.reeves@faa.gov

Enclosure (1)

Copy: Don Imm, USFWS
Mark Denmark, Savannah Airport Commission
Paul Sanford, AECOM



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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601
Phone: (706) 613-9493 Fax: (706) 613-6059



In Reply Refer To:

July 11, 2019

Consultation Code: 04EG1000-2019-SLI-2043

Event Code: 04EG1000-2019-E-03807

Project Name: SAV Short-Term Development Program EA

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This list identifies threatened, endangered, proposed and candidate species, as well as critical habitat, that may be affected by your proposed project. This list may change before your project is completed. Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation.

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*). Projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html).

Wind energy projects should follow the wind energy guidelines <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts of communication towers on migratory birds can be found under the "Bird Hazards" tab at: www.fws.gov/migratorybirds.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Georgia Ecological Services Field Office

355 East Hancock Avenue

Room 320

Athens, GA 30601

(706) 613-9493

Project Summary

Consultation Code: 04EG1000-2019-SLI-2043

Event Code: 04EG1000-2019-E-03807

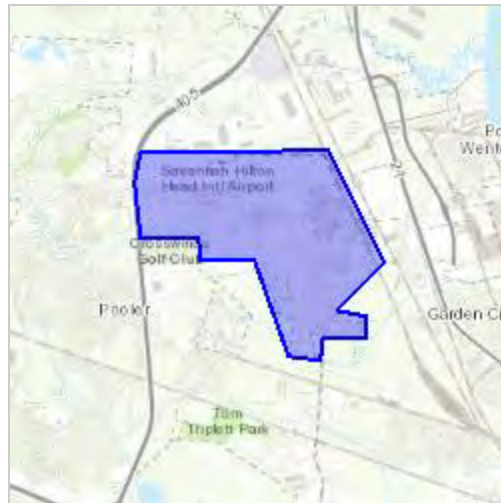
Project Name: SAV Short-Term Development Program EA

Project Type: DEVELOPMENT

Project Description: The Savannah Airport Commission is undertaking this Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 to support a variety of airside and landside development options within its Short-Term Development Program (i.e., the Proposed Project) at Savannah/Hilton Head International Airport .

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/32.12732206314638N81.20324451006154W>



Counties: Chatham, GA

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. Your location is outside the critical habitat. <i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i> Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.)</p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.</p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/1864</p>	Threatened
<p>Red-cockaded Woodpecker <i>Picoides borealis</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/7614</p>	Endangered
<p>Wood Stork <i>Mycteria americana</i></p> <p>Population: AL, FL, GA, MS, NC, SC</p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/8477</p>	Threatened

Reptiles

NAME	STATUS
Eastern Indigo Snake <i>Drymarchon corais couperi</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/646	Threatened
Gopher Tortoise <i>Gopherus polyphemus</i> Population: eastern No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6994	Candidate
Green Sea Turtle <i>Chelonia mydas</i> Population: North Atlantic DPS There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Kemp's Ridley Sea Turtle <i>Lepidochelys kempii</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle <i>Dermochelys coriacea</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle <i>Caretta caretta</i> Population: Northwest Atlantic Ocean DPS There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Amphibians

NAME	STATUS
Frosted Flatwoods Salamander <i>Ambystoma cingulatum</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4981	Threatened

Flowering Plants

NAME	STATUS
Pondberry <i>Lindera melissifolia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1279	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

From: [Reeves, Felicia \(FAA\)](#)
To: [Coppola, Christopher](#)
Cc: [Sanford, Paul](#)
Subject: RE: Early Coordination for Short-Term Development Program at Savannah/Hilton Head International Airport
Date: Tuesday, August 27, 2019 1:39:17 PM
Attachments: [image001.png](#)

Mr. Coppola,

Thank you for your comments below.

Will notice you when draft EA is available.

V/R

Felicia K. Reeves

Noise/Environmental Program Manager

FAA Southern Region/Atlanta Airports District Office

1701 Columbia Ave Room 220

College Park GA 30337

404-305-6708



From: Coppola, Christopher <christopher_coppola@fws.gov>

Sent: Tuesday, August 27, 2019 12:27 PM

To: Reeves, Felicia (FAA) <felicia.reeves@faa.gov>

Subject: Early Coordination for Short-Term Development Program at Savannah/Hilton Head International Airport

Ms. Reeves,

I received your 1 August 2019 letter requesting comments and information supplementing the information you obtained from the Service's IPaC species list (04EG1000-2019-SLI-2043).

That species list includes the following:

- Eastern indigo snake (*Drymarchon couperi*),
- Frosted Flatwoods salamander (*Ambystoma cingulatum*),
- Gopher tortoise (*Gopherus polyphemus*),
- Green sea turtle (*Chelonia mydas*),
- Kemp's ridley sea turtle (*Lepidochelys kempii*),
- Leatherback sea turtle (*Dermochelys coriacea*),
- Loggerhead sea turtle (*Caretta caretta*),
- Piping Plover (*Charadrius melodus*),
- Red knot (*Calidris canutus rufa*),
- Red-cockaded woodpecker (*Picoides borealis*),
- Wood stork (*Mycteria americana*),
- West Indian Manatee (*Trichechus manatus*), and
- Pondberry (*Lindera melissifolia*).

Based on the information provided in your letter, the site map of the proposed

projects, and aerial imagery of the action areas, I do not anticipate there would be suitable habitats for the above species except for the wood stork. Most of the projects (Numbers 1-7, and 9-11) are in developed areas or highly modified landscapes that lack the natural features that these species require.

There used to be a wading bird rookery, that included wood storks, to the southwest of Project Numbers 1 and 2 (Air Cargo Ramp West Phases I & II). Trees were removed from this rookery as part of a separate project, and wood storks do not currently utilize this site. However, ditches and shallow water bodies may still be used by this species as foraging habitats. The Airport is allowed (via a biological opinion and Migratory Bird permit) to harass wood storks and other wading birds to reduce the risks of bird-aircraft-strike hazards.

Project 8 (SE Quadrant Drainage Improvements) includes a forested wetland. I do not have records of listed species utilizing this habitat, but it is the only area of natural habitat within a project action area. This area appears to be too dense to offer foraging opportunities for the wood stork; however, if cleared of trees and maintained as a detention/retention pond the site might attract this species or other wading birds.

Lastly, near the intersection of Gulfstream Road and Preston Heine Drive (near Building 6003), west of Project Numbers 1 & 2, there are two bald eagle (*Haliaeetus leucocephalus*) nests. These nests are outside of the project action areas. Project activities do not appear to encroach upon the recommended 200 meter buffer or suitable foraging habitats.

Thank you for the opportunity to provide comments and recommendations. If you have other questions or need further assistance, please let me know. I am happy to help.

Kind regards,

Chris

--

Christopher Coppola
Fish and Wildlife Biologist

Georgia Ecological Services
Townsend, Georgia 31331

912-832-8739 extension 6



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601
Phone: (706) 613-9493 Fax: (706) 613-6059



In Reply Refer To:

September 11, 2019

Consultation Code: 04EG1000-2019-SLI-2456

Event Code: 04EG1000-2019-E-04676

Project Name: SAV Short-Term Development Program EA

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This list identifies threatened, endangered, proposed and candidate species, as well as critical habitat, that may be affected by your proposed project. This list may change before your project is completed. Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation.

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*). Projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html).

Wind energy projects should follow the wind energy guidelines <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts of communication towers on migratory birds can be found under the "Bird Hazards" tab at: www.fws.gov/migratorybirds.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Georgia Ecological Services Field Office

355 East Hancock Avenue

Room 320

Athens, GA 30601

(706) 613-9493

Project Summary

Consultation Code: 04EG1000-2019-SLI-2456

Event Code: 04EG1000-2019-E-04676

Project Name: SAV Short-Term Development Program EA

Project Type: TRANSPORTATION

Project Description: Environmental Assessment for Short-Term Development Program projects at the Savannah/Hilton Head Airport

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/32.12263424675196N81.19584805111865W>



Counties: Chatham, GA

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered
Wood Stork <i>Mycteria americana</i> Population: AL, FL, GA, MS, NC, SC No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8477	Threatened

Reptiles

NAME	STATUS
Eastern Indigo Snake <i>Drymarchon corais couperi</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/646	Threatened
Gopher Tortoise <i>Gopherus polyphemus</i> Population: eastern No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6994	Candidate

Amphibians

NAME	STATUS
Frosted Flatwoods Salamander <i>Ambystoma cingulatum</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4981	Threatened

Flowering Plants

NAME	STATUS
Pondberry <i>Lindera melissifolia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1279	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Georgia Ecological Services U.S. Fish & Wildlife Service

HUC 10 Watershed Report



HUC 10 Watershed: 0306010903

Dasher Creek-Savannah River

HUC 8 Watershed: Lower Savannah

Counties:

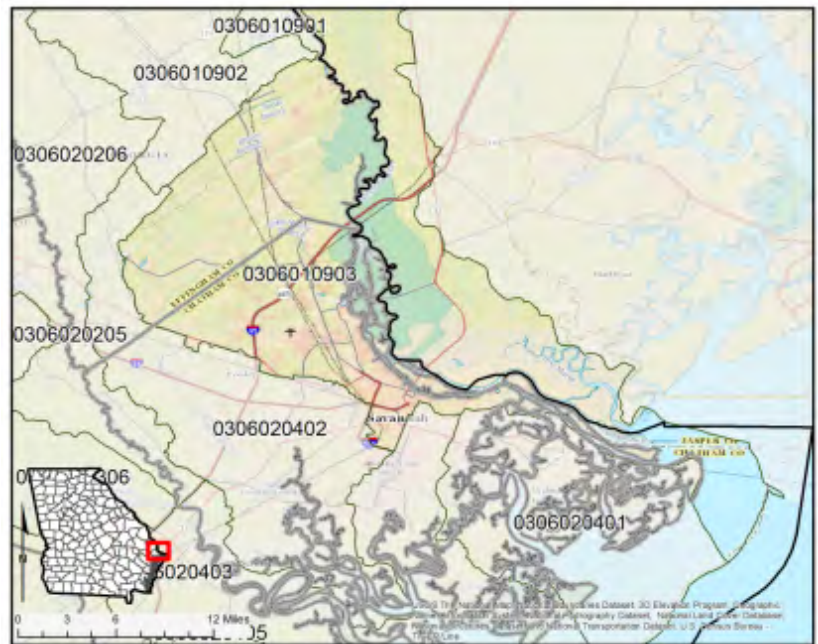
Chatham, Effingham

Major Waterbodies (in GA):

Savannah River, Saint Augustine Creek, Black Creek, Mill Creek, Walthour Swamp, Skidders Bay, Coldbrook Swamp, Three Men Swamp, Horning Swamp

Federal Listed Species:

(historic, known occurrence, or likely to occur in the watershed)



E - Endangered, T - Threatened, C - Candidate, CCA - Candidate Conservation species, PE - Proposed Endangered, PT - Proposed Threatened, Pet - Petitioned, R - Rare, U - Uncommon, SC - Species of Concern.

Shortnose Sturgeon (*Acipenser brevirostrum*) US: E; GA: E

Occurrence; Please coordinate with National Marine Fisheries Service.

Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) US: E; GA: E

Critical Habitat; Occurrence; Please coordinate with National Marine Fisheries Service.

Red Knot (*Calidris canutus*) US: T; GA: T

Occurrence; Winters on coast; survey period: late Jan - early Feb. Coordinate surveys with GADNR.

Piping Plover (*Charadrius melodus*) US: T; GA: T

Critical Habitat; Survey period: for larvae 15 Feb - 15 Mar.

Wood Stork AL, FL, GA, SC (*Mycteria americana*) US: T; GA: E

Occurrence; Survey period: early May

Red-cockaded Woodpecker (*Picoides borealis*) US: E; GA: E

Occurrence; Survey period: habitat any time of year or foraging individuals: 1 Apr - 31 May.

Frosted Flatwoods Salamander (*Ambystoma cingulatum*) US: T; GA: T

Occurrence; Survey period: for larvae 15 Feb - 15 Mar.

Georgia Ecological Services U.S. Fish & Wildlife Service

HUC 10 Watershed Report



Loggerhead Sea Turtle (*Caretta caretta*) US: T; GA: E

Occurrence; Survey period: 1 Apr - 30 Sep.

Green Sea Turtle (*Chelonia mydas*) US: T; GA: T

Potential Range (county); Survey period: 1 May - 30 Sep.

Leatherback Sea Turtle (*Dermochelys coriacea*) US: E; GA: E

Occurrence; Survey period: 1 Mar - 30 Sep.

Eastern Indigo Snake (*Drymarchon couperi*) US: T; GA: T

Potential Range (county); Survey period: 1 Nov - 31 Mar.

Hawksbill Sea Turtle (*Eretmochelys imbricata*) US: E; GA: E

Potential Range (county); No surveys necessary for this species.

Kemp's Ridley Sea Turtle (*Lepidochelys kempii*) US: E; GA: E

Potential Range (county); Survey period: 1 Apr - 30 Aug.

West Indian Manatee (*Trichechus manatus*) US: E; GA: E

Occurrence; Survey period: 1 May - 31 Aug.

North Atlantic Right Whale (*Eubalaena glacialis*) US: E; GA: E

Occurrence; Migratory species with low detection, any surveys should be coordinated with NMFS, GDNR.

Pondberry (*Lindera melissifolia*) US: E; GA: E

Occurrence; Survey period: flowering 1 Feb - 31 Mar or fruiting 1 Aug - 31 Oct.

Federal Candidate, Candidate Conservation, or Petitioned Species:

(likely or known to occur in the watershed)

Robust Redhorse (*Moxostoma robustum*) US: Pet

Occurrence; Migratory species with low detection, any surveys should be coordinated with FWS, GDNR.

Spotted Turtle (*Clemmys guttata*) US: Pet; GA: U

Occurrence; Survey period: 1 Feb - 30 Apr. GDNR assumes presence within known range.

Eastern Diamondback Rattlesnake (*Crotalus adamanteus*) US: Pet

Occurrence; Surveys are best conducted April - November.

Gopher tortoise - eastern population (*Gopherus polyphemus*) US: C; GA: T

Occurrence; Survey period: Year-round

Georgia Ecological Services U.S. Fish & Wildlife Service

HUC 10 Watershed Report



Southern Hog-nosed Snake (*Heterodon simus*) US: Pet; GA: T

Occurrence; Survey period: Surveys not practical.

Florida Pine Snake (*Pituophis melanoleucus mugitus*) US: Pet

Occurrence; Surveys are best conducted spring (May – June) or fall (September – October). May also be conducted during July and August, or in warmer periods of late March and April.

Say's Spiketail (*Cordulegaster sayi*) US: Pet; GA: T

Occurrence; Survey period: 1 Mar - 30 Apr, when air temperature is above 24°C.

State Listed or Other At-risk Species: (likely or known to occur in the watershed)

Bluebarred Pygmy Sunfish (*Elassoma okatie*) GA: E

Occurrence; Please consult with GDNr for survey efforts.

Altamaha Arcmussel (*Alasmidonta arcula*) GA: T

Occurrence; Please consult with GDNr for survey efforts.

Swallow-tailed Kite (*Elanoides forficatus*) GA: R

Occurrence; Survey period: 1 Apr - May and post-breeding aggregations between 1 Jul - 31 Aug.

Bald Eagle (*Haliaeetus leucocephalus*) GA: T

Occurrence; Survey period: year-round.

Black Skimmer (*Rynchops niger*) GA: R

Occurrence; Please consult with GDNr for survey efforts.

Least Tern (*Sternula antillarum*) GA: R

Occurrence; Please consult with GDNr for survey efforts.

(Wading Bird Colony) SC

Occurrence; Evidence of wading bird colonies can be seen year round.

Diamondback Terrapin (*Malaclemys terrapin*) GA: U

Occurrence; Please consult with GDNr for survey efforts.

Rafinesque's Big-eared Bat (*Corynorhinus rafinesquii*) GA: R

Occurrence; Please consult with GDNr for survey efforts.

Greenfly Orchid (*Epidendrum magnoliae*) GA: U

Occurrence; Please consult with GDNr for survey efforts.

Georgia Ecological Services U.S. Fish & Wildlife Service

HUC 10 Watershed Report



Florida Wild Privet (*Forestiera segregata*) GA: R

Occurrence; Please consult with GDNR for survey efforts.

Pond Spice (*Litsea aestivalis*) GA: R

Occurrence; Please consult with GDNR for survey efforts.

Yellow Flytrap (*Sarracenia flava*) GA: U

Occurrence; Please consult with GDNR for survey efforts.

Hooded Pitcherplant (*Sarracenia minor* var. *minor*) GA: U

Occurrence; Please consult with GDNR for survey efforts.

Silky Camellia (*Stewartia malacodendron*) GA: R

Occurrence; Please consult with GDNR for survey efforts.

Any of the above species may occur in suitable habitat in this HUC 10 watershed. Survey dates are provided for reference only. Please coordinate with your lead federal agency, Georgia Department of Natural Resources, or USFWS to determine if surveys will help assess project impacts to species of concern.

Watershed Specific Concerns:

There are federally listed aquatic/wetland and terrestrial species that occur or could occur in this watershed. If the project contains suitable habitat for listed species, please contact your lead federal agency to determine the appropriate next step for those species to inform their NEPA and ESA decisions. Coordination with Georgia Department of Natural Resources may also be helpful in those decisions.

Critical Habitat: There is Critical Habitat designated under the Endangered Species Act for at least one species in this watershed. Please see the list above to determine which species. Please coordinate with our office to determine if your project will impact this habitat.

Frosted Flatwoods Salamander: Suitable habitat includes isolated depressional wetlands located in pine flatwoods. If this habitat occurs in the vicinity of the project area, it may represent potential breeding sites for this species. Minimizing impacts to wetland and pond habitats including impacts caused by fill, draining, and altered hydrology in areas where this species occurs can assist with its recovery.

Bald Eagle: Bald Eagles and their nests are protected from take, including disturbance, under the federal Bald and Golden Eagle Protection Act. For information about Bald and Golden Eagles see the Service's regional web page: <https://www.fws.gov/southeast/our-services/permits/eagles/>

Wood Stork: The Wood Stork feeds in shallow emergent wetlands, ditches, pond margins, and coastal areas. The successful fledging of chicks from the nest is dependent on adults finding sufficient foraging areas that contain prey species. Minimizing potential impacts and ensuring water quality is preserved or enhanced is vital to the successful recovery of this species. If the project area is located within the Core Foraging Area (13 mile radius) of a Wood Stork rookery, additional considerations may be requested for unavoidable impacts to foraging and nesting habitats.

Red-cockaded Woodpecker: Red-cockaded Woodpecker requires large expanses of mature (approximately 60-80 years old or older), open pine forest, preferably longleaf, slash, or loblolly pine or younger forests with artificial nesting cavities. Natural nest cavities are excavated in mature living pines and may take several years to complete. Red-cockaded woodpecker

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colonies require large, contiguous tracts of habitat, ranging in size from approximately 60-600 acres per family group, depending upon the quality of the habitat. Currently, its range is fragmented and most populations are found on public lands where timber harvesting has not been maximized.

Shorebirds (Red Knot / Piping Plover / Least Tern): There are several species of shorebirds that are federally or state protected that occur along coastal areas of this watershed. Please avoid foraging, nesting, wintering, and migratory individuals when possible. Limit use of construction equipment, vehicle use, and pedestrian traffic in beach and dune habitats. If nests are found, please appropriately mark the area and avoid disturbance of nesting birds. Staging areas and waste collection areas should be located to avoid beaches, dunes, inlets, and ephemeral tidal pools. Restore beach topography and the wrack line to their natural pre-project conditions to the maximum extent practicable.

Sturgeon: Atlantic, Gulf, and Shortnose Sturgeon are all under the jurisdiction of National Marine Fisheries Service. Please contact National Marine Fisheries Services for coordination of any impacts to the species or their designated Critical Habitat and project related avoidance and minimization measures under Section 7.

Robust Redhorse: This HUC 10 provides habitat for Robust Redhorse, a petitioned species of conservation concern for FWS and GDNr. Please be considerate of actions that may impede migration between winter (mid to lower sections of the Savannah River mainstems) and spawning habitats in the mainstem of the Savannah from Augusta Shoals to 16 km downstream of New Savannah Bluff Lock and Dam. Migrating fish have been known to move between these spawning sites downstream to near the I-95 bridge crossing in Effingham County where young-of-year and juvenile fish have been captured. Because of captures of young-of-year and juvenile Robust Redhorse in the lower reaches of the Savannah River mainstem, this watershed has been identified as rearing habitat for the species. These fish have been captured in association with large woody material along the banks of the mainstem river.

Manatee: Manatees can be found in tidal waters of Georgia from March through October. Manatees then migrate south to Florida in the fall in search of warmer water. They can be found associated with warm water discharges as waters cool. Care must be taken when conducting in-water activities during periods when manatees might be present and to protect important foraging habitats (marsh grass, *Spartina alterniflora*, and other emergent wetland vegetation) in tidal areas. If a manatee comes within 50 feet of the operational area of any construction equipment, please cease work until the manatee leaves the area. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible. Any in-water barriers in the range of manatees should be made of a material that will not entangle manatees, and must be securely anchored and routinely monitored.

Pondberry: Habitat for Pondberry includes the edges of sandhill ponds and lime sinks, and it often occurs with pondspice. If suitable habitat is present, please conduct seasonally-appropriate surveys for this species.

Sea turtles: On Georgia's beaches designated as nesting areas for sea turtles, activities should be coordinated with FWS and GDNr. Disturbance to these areas should be minimized. They should not be used for borrow material, as dredge spoil sites, or compacted through the use of heavy equipment or vehicle traffic. Pest species including raccoons, dogs, and other pets can also disturb nesting females, eggs, and hatchlings. Temporary and permanent lighting should be kept to a minimum especially during hatchling emergence. Workers should obey any signage marking nesting areas for any protected species. If any nesting individuals are found, please contact the DNR and clearly mark the area to prevent future disturbance.

Eastern Indigo Snake: This species is often associated with Gopher Tortoise burrows during the winter months, but it is wide-ranging during the rest of the year. When not wintering in Gopher Tortoise burrows, the Eastern Indigo Snake can be found in a variety of habitats, including bottomland forests along creeks and rivers, sandhills, pine woods, and along agricultural fields. Eastern indigo snakes primarily utilize wetland habitats for foraging. Seasonally appropriate surveys may be helpful to identify any Gopher Tortoise burrows within or near the project area for possible use by the Eastern Indigo Snake and assess the possible presence of these species.

Gopher Tortoise: This species requires well-drained, sandy soil for burrowing, abundant sunlight availability, and rich herbaceous vegetation for foraging. It is a characteristic species of the disappearing longleaf pine and wiregrass community,

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which includes sandhills, dry flatwoods, and turkey oak scrub. Very little of this community remains, so many individuals have been forced to utilize artificial habitats such as roadsides or old fields that retain the three main habitat requirements. In Georgia, extant and historical populations are generally known throughout the state below the fall line. Avoiding direct impacts to Gopher Tortoise, including burying burrows and fragmenting colonies, and the use of upland culverts as wildlife passages to reconnect colonies where colonies are already fragmented by existing roadways can help minimize risk of harm to this species.

Priority Soils for Gopher Tortoise and Eastern Indigo Snake: This watershed contains high priority soils identified from GIS analysis as habitat for candidate species Gopher Tortoise and threatened Eastern Indigo Snake. This dataset was developed to identify high priority habitat for both species. Specifically, higher priority rankings generally indicate known occupied habitat, with some areas containing both species and/or known "minimum viable populations" of Gopher Tortoise. Please note that for projects located outside of the range of Eastern Indigo Snake, potential impacts to this species do not need to be considered.

Eastern Diamondback Rattlesnake and Florida Pine Snake: These snakes are upland at-risk species that have been petitioned for federal protection. Where possible, the Service recommends avoiding and minimizing impacts to sandhills and providing educational materials to construction personnel instructing that these species should not be harmed or molested.

Priority Watershed: This watershed has been identified as a high significance high priority watershed for aquatic species. This indicates that the watershed contains important populations of high priority aquatic species or is an important watershed for aquatic organisms. For more information, please see the following fact sheet:

https://www.fws.gov/athens/transportation/pdfs/SWAP_Priority_Watershed_fact_sheet_2017.pdf

Species and Habitat Concerns

Bridges / Culverts / Structures: *Bridges, culverts, and structures (barns, buildings, etc.) can be used by migratory bird species for nesting and roosting and by federally listed and sensitive bat species for roosting. To comply with the national programmatic agreement between FHWA, FRA, and FWS and to assess risk and potential impacts to species protected under the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.), or state protected bat species, inspections of all bridges, culverts, and structures will help determine if there is evidence of roosting bats. If an inspection is conducted, please fill out the "Georgia Bats in Bridges" datasheet and submit the data online to GA DNR (a website address is provided on the datasheet) and a scanned copy with any report to the lead federal agency. Please note that there is an updated version of the datasheet and new link to the website (<https://ee.kobotoolbox.org/x/#YVhJ>). Please follow any previous coordination with the Service and/or Georgia Department of Natural Resources related to activities impacting roosting bats or nesting migratory birds.*

Erosion Control Netting: *Monofilament or plastic mesh commonly used for slope stabilization can ensnare snakes and other wildlife, including listed species. The use of alternative natural fibers (e.g., coir, jute, or wood fiber) and moveable mesh strands can reduce impacts to wildlife.*

Fish and Wildlife Coordination Act and additional Endangered Species Act Considerations

The Fish and Wildlife Coordination Act (FWCA) requires federal agencies to consider the effects of their water-related actions (that modify or control natural streams or waterbodies) on fish and wildlife resources. Many of the following recommendations are also specific to endangered or threatened aquatic species protected under the Endangered Species Act. The following may be applicable to proposed project actions.

Riparian Buffer, Streambank, and Stream Channel Protection

Minimize disturbance to stream banks and riparian areas during project work. Do not operate equipment in the stream channel or ford the channel during work. Service recommendations for riparian buffer protection are consistent with those of the Metropolitan North Georgia Water Planning District requiring maintenance of a 50 ft. undisturbed buffer and an additional 25 ft. impervious setback on all streams. Any staging areas, the storage of materials and equipment, borrow pits, or waste sites should not occur in buffer areas or other environmentally sensitive areas. Additionally, when impacts to streambanks and/or stream channel occur, the Service recommends a biotechnical approach to streambank and channel stabilization and restoration where feasible. The use of hard armoring of streambanks or channels should be minimized except where necessary for safety or the protection of structures or property.

Wetland Protection

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Wetland losses diminish important wetland values including: the provision of habitat which wetland and terrestrial fauna need for reproduction and/or survival, the storage of storm and flood waters with resultant moderation of flow extremes to receiving waters, and the natural filtration processes that enhance water quality. Wetlands along riparian corridors can provide important connectivity for wildlife movement at the landscape-level. Bridge or culvert construction associated with wetland impacts can alter stream hydrology, degrade water quality, create fish passage barriers, and result in the loss of stream bottom habitat. Measures to avoid and reduce impacts to wetlands and wetland hydrology should be considered during project design.

Water Quality Protection

The Service recommends use of erosion control practices, post construction stormwater management, and other best management practices to protect water quality. The Service's recommendations can be found below.

Erosion and Sedimentation Sedimentation from construction sites is regulated through Georgia's Erosion and Sedimentation Act, which in most cases is administered by local jurisdictions that have been delegated enforcement authority. We recommend all projects ensure compliance with the Georgia Erosion and Sedimentation Act and encourage consistent communication with the local issuing authority or Georgia Environmental Protection Division both in the design phase and during construction.

Stormwater Post construction stormwater management recommendations are consistent with performance standards for Water Quality protection (WQv) and Channel Protection (CPv) found in the Georgia Stormwater Management Manual, otherwise known as the Blue Book (<https://atlantaregional.org/georgia-stormwater-management-manual/>). The Service recommends both the Water Quality and Channel Protection performance standards be met on all projects when applicable under the Blue Book, to minimize impacts to water quality associated with stormwater runoff. For projects that drain to streams or wetlands with federally protected species, we would recommend that additional water quality protection be provided through implementation of the Runoff Reduction performance standard, also found in the Blue Book.

Other Protections For all project types, the Service recommends equipment storage, equipment maintenance, supply storage, and use of pesticides, herbicides, and/or other chemicals not occur within the 100-year floodplain or 200 feet from the stream banks or wetland edge, whichever is greater. All storage and maintenance areas should be protected with secondary containment. Material utilized in, or adjacent to aquatic resources for temporary fill, permanent fill, or bank protection shall consist of suitable material, free from toxic contaminants in other than trace quantities. Materials that contain toxic contaminants, such as used asphalt, pressure treated lumber, and uncured concrete, should not be used because it can alter water quality causing mortality in aquatic organisms and can be harmful to public health. For projects authorized by the U.S. Army Corps of Engineers, please ensure that all permit conditions are followed.

Road Stream Crossings (Bridges, Culverts)

Many road stream crossings, especially where pipe culverts are used, limit aquatic organism passage upstream and downstream, leading to fragmentation of aquatic populations. The construction, repair, and replacement of stream crossings can also increase turbidity and sedimentation downstream of road crossings leading to degradation of aquatic habitat. The Service recommends designs that provide habitat continuity through the crossing by maintaining or recreating natural stream reach geomorphic elements including slope, channel width, bed material, and bedform.

Bridges and arch spans are the preferred option for stream crossings from an aquatic habitat continuity perspective. However, when spanning the stream is prohibitively expensive, use of culverts at stream crossings must be designed and implemented in a way that ensures the structures do not become barriers to aquatic organism passage. Making culverts suitable for aquatic organism passage requires preventing excessive water velocities in culverts at base flow conditions, preventing drops resulting from scour in and around the culvert, and providing adequate depth in the culvert at base flows.

The Service recommends following the U.S. Army Corps of Engineers, Savannah District Regional Conditions for Nationwide Permits when designing culverts. The Regional Conditions contain specific guidelines for designing and constructing culverts to promote the safe passage of fish and other aquatic organisms.

Additional information about regional conditions can be found at the following web address:

<http://www.sas.usace.army.mil/Missions/Regulatory/Permitting/General-Permits/Regional-General-Permits/>

For culvert replacements or extensions involving less than 100 feet of all stream impacts in total, FWCA coordination is not required where no federally listed aquatic species occur. When modifying the design of a culvert that was previously consulted on under FWCA (but excluding those previously exempt from past coordination), new consultation would not be required unless stream impacts have been increased by more than 10% or 50 feet

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(whichever is less), or the change results in modifications to the morphology or flow of the waterbody.

When bridges or arch spans are the chosen construction method, the Service recommends minimizing the number of in-stream piles or structures and aligning them with the natural stream flow. Additionally, the use of bridge scuppers that directly discharge stormwater to streams should be minimized, except where necessary for safety. For bridge construction activities that require the use of temporary in-stream construction access (e.g., jetties, work bridges, barges, etc.), the Service recommends performing all work in a manner that does not inhibit aquatic organism passage, including minimizing river constriction. For situations where river constriction is greater than 25% of the cross sectional area of the critical flow, we would recommend a flow analysis to evaluate water velocity alterations and development of a contingency plan in the event channel scour, bank erosion, or undesirable conditions occur. Upon completion of activities, temporary fills should be entirely removed and the site restored to pre-existing elevation. Equipment should not be stored on any in-stream structure to reduce equipment loss if flows exceed the height of the in-stream structure and reduce contamination from pollutant leakage during off-use times.

Direct all stormwater runoff from road approaches toward floodplains, letting the runoff discharge as sheet flow across the floodplain or into stormwater management structures. When road approaches are composed of unpaved surfaces, consider paving the road approaches to improve the water quality of stormwater runoff around stream crossing locations. If spread footers, containment structures, or other structures require the use of dry or poured concrete, flowable fill, or similar materials and are elected for use in the construction within any waterway, such methods shall be constructed using cofferdams or similar containment structures. If uncured, dry or wet concrete will be used, the water used for curing shall not be allowed into the waterways. The use of uncured concrete in a waterway can raise the pH of the surrounding water causing mortality in aquatic organisms and potential public health concerns.

The Service also recommends incorporating measures to provide connectivity and reduce mortality to terrestrial wildlife species during project design. Opportunities for terrestrial species to cross under road crossings at stream crossing locations exist both within the banks of the stream along constructed benches, as well as, in the floodplain when additional structures are used to pass flood flows.

Utility Stream Crossings Construction, relocation, and maintenance of powerlines and other utilities can disturb aquatic systems and affect fish and other populations. To minimize impacts from these activities, use best management practices to control stormwater runoff from the project area during construction. Direct runoff via sheetflow to vegetated areas or stormwater treatment basins and utilize rolling dips or water bars to divert water from the utility right-of-way (ROW) into vegetated areas on slopes to minimize erosion.

Underground Utilities Directional boring is preferred when a utility line must be installed across a perennial stream that supports federally protected aquatic species. Bore pits should be located as far away from the stream channel as possible.

Dry open trench pipe installation using isolation crossing diversions, such as coffer dams, are preferred for all other perennial stream crossings. The diversions should not dewater downstream reaches or create excessive water velocity that could scour downstream reaches. Wet open trench construction should be avoided in all perennial streams unless no other method is feasible, or if it can be shown that alternative methods would cause greater sedimentation and environmental harm. For both wet and dry open trench installation, stream banks and channels should be restored to their original contours and the banks stabilized with native vegetation (except in areas where permanent road crossings are to be maintained). In-channel stream restoration techniques should be considered to stabilize the channel elevation and protect buried utility lines. In-channel restoration techniques can also effectively prevent downstream scour or upstream head cutting which can result from open trenching.

Wet open trench installation should not be conducted during the sensitive reproductive periods of federally-listed aquatic species, when eggs and newly-hatched larvae are most likely to be buried or harmed by increased turbidity and sedimentation. Only directional boring or isolation crossing methods should be used during these times of year. Please consult the Service for timing of sensitive reproductive periods for aquatic species in this watershed.

Aerial Utilities Maintain a 100-foot undisturbed riparian buffer within the powerline's ROW on both sides of all streams with endangered or threatened aquatic species. No crossings, either temporary or permanent, via culverts, fords, or other methods should be constructed and all access roads should end at the buffer's edge farthest from the streambank. The buffer, where possible, should be retained in or planted with native vegetation of at least shrub size.

Within the powerline's ROW, maintain a 50-foot riparian buffer on both sides of other perennial and intermittent streams that will be crossed. Some vegetation within these buffer zones may be temporarily disturbed if culverts, fords, or other stream crossings are necessary, but streambanks should be restored to normal contours and

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stabilized after the crossing is removed.

Impoundments/Farm Ponds

For proposed impoundments, the Service recommends excavated ponds be constructed where feasible. Though the volume of material requiring excavation is greater to construct an excavated pond, they have fewer problems than dammed ponds, which can be plagued with muddy water, rapid filling with silt, flow rate fluctuations, aquatic weeds, temperature fluctuations, and wild fish invasions.

The Service recommends consulting the county Natural Resources Conservation Service office (<https://www.nrcs.usda.gov/wps/portal/nrcs/site/ga/home/>) or the Georgia Department of Natural Resources for advice regarding pond construction and avoiding or minimizing downstream impacts from sediment and toxicant input into aquatic systems.

Stream Gage Replacement

If a U.S. Geological Survey (USGS) stream gage will potentially be impacted by a proposed project, the Service recommends assessing what coordination or compensation may need to occur with the USGS related to the disturbance, moving, and recalibration of the gage structure prior to project implementation.

Conservation Lands in Georgia and within the Watershed:

Bazemore Park

Blackshear Park

Boaen Park

Bowles Ford Park

Cann Park

Carver Villiage

Charlie S. Brian Park

Chatham Square

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Chippewa Square

City of Savannah - Woodville Neighborhood Center, Wright Square

Cloverdale Park

Columbia Square

Crawford Square

Davant Park

Easement - Southeastern Trust for Parks and Land (2013101)

Easement / Mitigation - U.S. Army Corps of Engineers (Abercorn Plantation)

Easement / Mitigation - U.S. Army Corps of Engineers (Coastal Property)

Easement / Mitigation - U.S. Army Corps of Engineers (Crossroads Business Center)

Easement / Mitigation - U.S. Army Corps of Engineers (Exley Mitigation Parcel)

Easement / Mitigation - U.S. Army Corps of Engineers (Godley Station)

Easement / Mitigation - U.S. Army Corps of Engineers (Horning Swamp)

Easement / Mitigation - U.S. Army Corps of Engineers (Jones Canal)

Easement / Mitigation - U.S. Army Corps of Engineers (Nettles Industrial Park)

Easement / Mitigation - U.S. Army Corps of Engineers (Newport)

Easement / Mitigation - U.S. Army Corps of Engineers (North Port Industrial Center)

Easement / Mitigation - U.S. Army Corps of Engineers (Pipe Makers)

Easement / Mitigation - U.S. Army Corps of Engineers (Rincon-Stillwell Road Mitigation)

Easement / Mitigation - U.S. Army Corps of Engineers (The Heritage subdivision)

Easement / Mitigation - U.S. Army Corps of Engineers (Whitehall Plantation)

Easement / Mitigation - U.S. Army Corps of Engineers / City of Garden City (Pipe Makers Canal)

Easement / Mitigation - U.S. Army Corps of Engineers / City of Savannah (North Port Industrial Center)

Easement / Mitigation - U.S. Army Corps of Engineers / Georgia Ports (Mulberry Plantation)

Eastside Reg/Comm Center

Effingham County Greenspace

Emmett Park

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Fellwood Park

Fort Pulaski National Monument

Franklin Square

Fred Wessels Park

Goat Head Park

Grant Regional Comm Center

Greene Square

Hitch Villiage Park

Hunter Army Airfield

Jaycee Veterans Mamorial Park

Jefferson St Park

Johnson Square

Kennedy(Carver Heights)

Liberty City

M Jackson Golden Age Center

M. C. Flournoy Golden Age Center

Macomber Ballpark

Madison Square

Mitigation Bank - USACE (Tronox (Phase I))

Monterey Square

Morrell Park

Myers Park

Ogeecheeton Park

Oglethorpe Square

Orleans Square

Port Wentworth Rec Dept

Pulaski Square

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R. Robinson Park

Rebecca Gray Park

Reynolds Square

Riverfront Plaza

Savannah National Wildlife Refuge and Natural Area

Staley Heights Park

Stark/Clinch Park

Summerside Park

Tatemville Park

Telfair Square

Tompkins Park

Tremont Neighborhood Center and Playground

Tybee Island Tract

Tybee Pier And Pavilion

W. C. Ross

Warren Square

Washington Square

Wells Park

Westside Park

Yamacraw

If your project crosses watershed boundaries, please use the appropriate guidance document for each portion of the project area.

Your agency or lead federal agency may have coordination procedures in place or determination keys for urban areas or activities with classified as having "no effect" on listed species. Please use those guidelines to help determine impacts to federally listed species.

If you have questions relating to this guidance, please contact our office at gaes_assistance@fws.gov or 706-613-9493.

Data provided in this document is for guidance only and applies to portions of the watershed within the Georgia State Boundary. Please contact the appropriate FWS Field Office for coordination outside of the state. This document does not replace any requirements for consultation under the Endangered Species Act.

As written in 50 CFR § 402.16 of the Endangered Species Act, obligations under the Act must be reconsidered if a new species is listed or critical habitat is determined that may be affected by the project, or new information indicates that the project may affect listed species or critical habitat in a manner not previously considered. We will continue to update these documents to help

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project proponents meet their obligations under the Endangered Species Act.

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Appendix B

Effects Determination Guidance for Endangered and Threatened Species

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DRAFT – Eastern Indigo Snake -- DRAFT

Effects Determination Guidance for Endangered & Threatened Species (EDGES)

South Georgia Coastal Plain Counties

Species Covered by This EDGES: Eastern indigo snake (*Drymarchon couperi*) - Threatened

The Eastern indigo snake (EIS) in Georgia is closely associated with the gopher tortoise (*Gopherus polyphemus*), a reptile that excavates extensive underground burrows that provide the snake shelter from winter cold and summer desiccation. Gopher tortoises are a characteristic species of the longleaf pine and wiregrass community, which includes sandhills, dry flatwoods, and turkey oak scrub. Historically, this community was found in open-canopied forest that allowed abundant sunlight penetration and conditions favorable for a rich growth of herbaceous vegetation. Little of this habitat still exists; many tortoises have been forced into artificial habitats, such as roadsides and old fields that retain the three key habitat



requirements: sandy soil for burrowing, sunlight, and abundant herbaceous vegetation.

During the warmer months, EIS during the day forage on the edge of wetlands where frogs and other snakes typically are abundant. In Georgia, adult EIS may range 1-4 mi from the overwintering sandhill, although they typically return to the same sandhills in winter. Breeding occurs November - April, and females often place eggs in the moist sand of tortoise burrows. Threats to EIS include loss and fragmentation of sandhill habitats that support tortoises, removal of prescribed fire, which maintains suitable understory habitat, and declining gopher tortoise populations.

This EDGES covers maintenance of existing structures and new development, including subdivisions, commercial development, roads, water supply infrastructure, and sewer mains, pipe and powerlines, stream restoration and stabilization (including mitigation banks) and similar projects. It does not cover new drinking water reservoirs, airports, or similar large-impact projects.

Endangered Species Act Consultation Checklist:

Applicant:

1. IPAC indicates EIS may occur in the project area.
 - a. No.....No effect. Provide IPaC information to the Savannah District with application/PCN.
 - b. Yes.....Go to #2.
2. The Fish and Wildlife Service's Georgia Field Office (FWS-GA) provided documentation stating project impacts to EIS were likely to be minimal (FWS-GA signed letter or sticker, T&E survey where FWS-GA provided concurrence with negative findings, or similar documentation).
 - a. No.....Provide completed EDGES Applicant Coordination Slip, with supporting documentation, and a soil map with the project site clearly marked, to the Savannah District with 404 application/PCN.
 - b. Yes.....Provide FWS-GA project review documentation and/or survey data to the Savannah District with application/PCN.

Savannah District:

3. A soil map, with the site clearly marked (provided by applicant), shows suitable soils for gopher tortoise burrows on site (see list of suitable soils list below).
 - a. No.....NLAA. Consultation complete. FWS-GA concurrence not needed.
 - b. Yes.....Go to #4.
4. There are gopher tortoise burrows on site.
 - a. No.....NLAA. Consultation complete. Further review from FWS-GA not needed.
 - b. Yes or Don't Know.....Go to #5.
5. The area has an open tree canopy AND abundant forb groundcover (see photos below) OR is on a right-of-way, fence row, orchard edge, golf course, old field, or pastureland.
 - a. NoNLAA. Consultation complete. FWS concurrence is needed, in writing, for JPNs, but is assumed for other Savannah District actions if FWS-GA does not respond.
 - b. Yes.....May affect. Consult with FWS-GA



Best Gopher Tortoise Soils	Moderate Gopher Tortoise Soils	Marginal Gopher Tortoise Soils
Bonifay	Bonneau	Ailey
Centenary	Fuquay	Albany
Foxworth	Hurricane	Cowarts
Lakeland	Luch	Norfolk
Lucknow	Mandarin	Orangeburg
Troup	Meldrim	Tifton
Valdosta	Ridgewood	Vaocluse
	Stilson	
	Uchee	

DRAFT – Wood Stork -- DRAFT

Effects Determination Guidance for Endangered & Threatened Species (EDGES)

South Georgia Coastal Plain Counties

Species Covered by this EDGES: Wood stork (*Mycteria americana*) – Threatened

The wood stork is a large, bald-headed wading bird that stands more than 3 feet tall, has a 5-foot wing spread, and weighs 4 to 6 pounds. It is the only stork that breeds in the United States. It eats primarily fish, foraging in a variety of open, shallow freshwater and estuarine wetlands. It favors areas with falling water levels (when fish and other prey are likely to be more concentrated in pools). Birds forage mainly by wading in shallow water with their bills partly open in the water, so they can quickly snap them shut when contact is made with prey.

The wood stork is a highly colonial species usually nesting in large rookeries and feeding in flocks. Colony size in Georgia has ranged from fewer than 12 to more than 500 nests. Nests may be located in



small trees (3-7' above ground) or large trees (60' or more above ground), but the trees must be in standing water or on islands surrounded by water to protect from predators. Nesting periods vary geographically. In north and central Florida, Georgia, and South Carolina, storks lay eggs March-late May, with fledging occurring July-August. Wood storks have also nested in man-made structures. Storks occasionally use the same rookeries for years, but most colonies are shorter lived. Loss of foraging and breeding wetland habitat is the primary cause for declines.

This EDGES covers any project that might affect freshwater or estuarine wetlands.

Endangered Species Act Consultation Checklist:

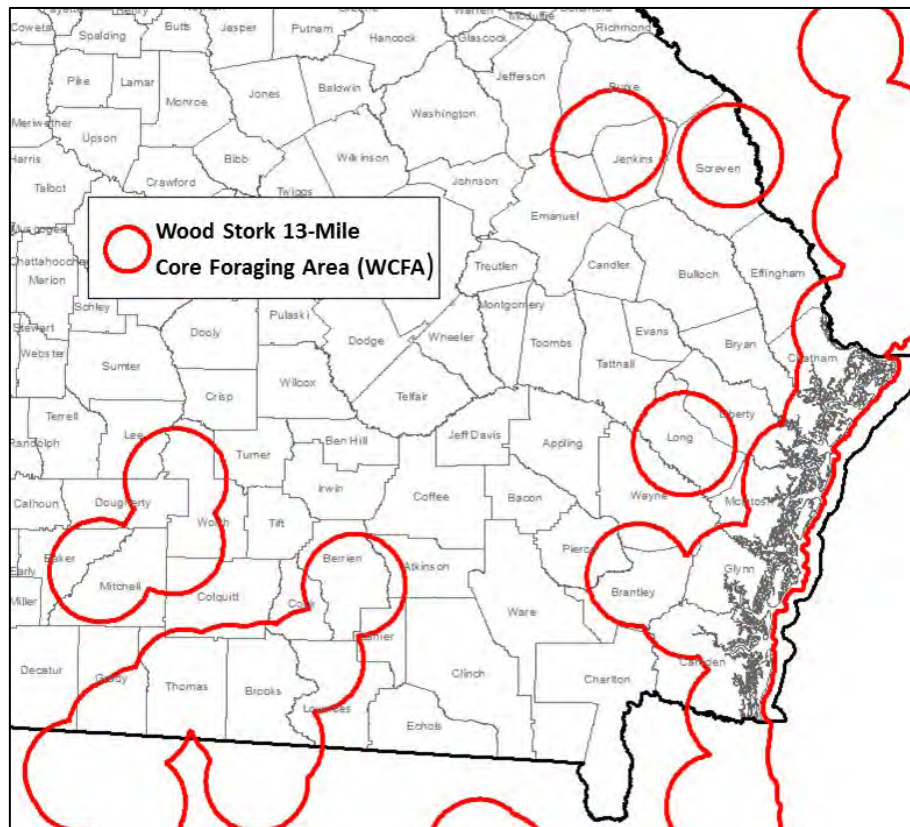
Applicant:

1. IPAC indicates wood storks may occur in the project area.
 - a. No.....No effect. Provide IPaC information to the Savannah District with application/PCN.
 - b. Yes.....Go to #2.
2. The Fish and Wildlife Service's Georgia Field Office (FWS-GA) provided documentation stating project impacts to listed wood storks were likely to be minimal (FWS-GA signed letter or sticker, T&E survey where FWS-GA provided concurrence with negative findings, or similar documentation).
 - a. No.....Provide completed EDGES Applicant Coordination Slip, with supporting documentation, to the Savannah District with 404 application/PCN.
 - b. Yes.....Provide FWS-GA project review documentation and/or survey data to the Savannah District with application/PCN.

Savannah District

3. The project is within 2,500 feet of an active wood stork nesting colony (see GIS layer).
 - a. No.....Go to #4.

- b. Yes.....May affect. Consult with FWS-GA.
4. The project will affect suitable wood stork foraging habitat (SFH). SFH contains patches of relatively open (< 25%) aquatic vegetation, calm water, and a permanent or seasonal water depth between 2 and 15 inches. Examples of SFH include, but are not limited to, freshwater marshes, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.
- No.....NLAA. Consultation complete. FWS-GA concurrence not needed.
 - Yes.....Go to #5.
5. Project impacts to SFH are greater than 0.5 acre.
- No.....NLAA. Consultation complete. FWS-GA concurrence not needed.
 - Yes.....Go to #6.
6. The project will impact SFH within a Wood Stork Core Foraging Area (WSCFA) for a known colony (see map below) OR wood storks have been documented foraging in the wetland. WCFAs in Georgia include SFH within a 13-mile radius of a colony.
- No.....NLAA. Consultation complete. FWS concurrence is needed, in writing, for JPNs, but is assumed for other Savannah District actions if FWS-GA does not respond.
 - Yes.....May affect. Consult with FWS-GA



August 16, 2018

APPENDIX C
Air Quality Technical Report

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Savannah/Hilton Head International Airport Short-Term Development Program Environmental Assessment

Air Quality Technical Report

Prepared for:

**Savannah Airport Commission
and
Federal Aviation Administration**

Prepared by:

AECOM

October 2019

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ACRONYMS AND ABBREVIATIONS

ACEIT	Airport Construction Emissions Inventory Tool
ACRP	Airport Cooperative Research Program
AEDT	Aviation Environmental Design Tool
APU	Auxiliary Power UNit
AVMT	Annual Vehicle Miles of Travel
BMP	Best Management Practice
CO	Carbon Monoxide
CO _{2e}	Carbon Dioxide Equivalent
EF	Emissions Rate
EPA	U.S. Environmental Protection Agency
GA	General Aviation
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GSE	Ground Support Equipment
HP	Horsepower
MOVES	Motor Vehicle Emissions Simulator
mph	miles-per-hour
NO _x	Nitrogen Oxides
PM	Particulate Matter
PM _{2.5}	Particulate Matter equal to or less than 2.5 micrometers in diameter
PM ₁₀	Particulate Matter equal to or less than 10 micrometers in diameter
SAV	Savannah/Hilton Head International Airport
SO ₂	Sulfur Dioxide
TPY	Tons Per Year
TSP	Total Suspended Particulate
VOC	Volatile Organic Compounds

CHAPTER 1 INTRODUCTION

This *Air Quality Technical Report* details the assessment scope, calculation methodology, input data and other technical information used in the analysis of air quality impacts associated with the proposed Short-Term Development Program at the Savannah/Hilton Head International Airport (i.e., SAV, or the Airport), hereinafter referred to as the Proposed Project.

1.1. ANALYSIS METHODOLOGY

1.1.1. CONSTRUCTION EMISSIONS

Construction period emission inventories of the following criteria pollutants and their precursors were prepared for the Proposed Project: carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM), and volatile organic compounds (VOC). Greenhouse gas (GHG) emissions, expressed in metric tons of carbon dioxide equivalent (CO₂e) emissions, were also computed. The inventories include annual emissions from the following construction emissions sources: off-road equipment, on-road vehicles, and fugitive sources including asphalt paving and dust generation from site-wide construction activities. Off-road equipment and on-road vehicle emissions were computed using **Equations 1** and **2**, respectively.

Annual hours of off-road equipment operation and on-road annual vehicle miles of travel (AVMT) were derived using an engineering estimate of probable materials quantities and construction cost developed for the proposed air cargo relocation, taxiway extension and improvements, north apron construction, General Aviation (GA) redevelopment, and Southeast Quadrant stormwater improvements.. This information was input to the Airport Cooperative Research Program Airport Construction Emissions Inventory Tool (ACRP ACEIT), which then estimates the number and types of equipment to be used on the project and the deployment schedule (monthly and annually). Annual construction equipment and vehicle activity is summarized on **Table 1.1-1**.

Equation 1:

$$\text{Emissions}_{(\text{tpy})} = \sum_{v=1}^n \text{EF}_v \times \text{HP}_v \times \frac{\text{hours}}{\text{day}} \times \frac{\text{days}}{\text{year}} \div 2,000 \div 453.59$$

Where:

Emissions_(tpy) = annual emissions (tons per year)

EF_v = emissions rate for equipment v(i)...v(n) (grams per horsepower-hour of operation)

HP_v = rated horsepower for equipment v(i)...v(n)

2,000 = pounds per ton

453.59 = grams per pound

Equation 2:

$$\text{Emissions}_{(\text{tpy})} = \sum_{v=i}^n \text{EF}_v \times \frac{\text{miles}}{\text{day}} \times \frac{\text{days}}{\text{year}} \div 2,000 \div 453.59$$

Where:

Emissions_(tpy) = annual emissions (tons per year)EF_v = emissions rate for vehicle v(i)...v(n) (grams per mile)

2,000 = pounds per ton

453.59 = grams per pound

Table 1.1-1: Estimated Annual Construction Activity

Off-road Equipment	Fuel	Annual Operating Hours			
		2020	2021	2022	2023
40 Ton Rough Terrain Crane	Diesel	16	16	0	0
90 Ton Crane	Diesel	240	240	0	0
90 Ton Crane Supplemental Hoisting	Diesel	240	0	0	0
Air Compressor	Gasoline	507.86	227.72	49	75.52
Asphalt Paver	Diesel	190.45	85.4	18.38	28.32
Auger Drill	Gasoline	24	24	0	0
Backhoe	Diesel	1000	520	0	0
Bob Cat	Diesel	7054.7	4824	0	414.94
Bulldozer	Diesel	56	56	0	0
Caisson Drilling Rig	Gasoline	160	0	0	0
Chain Saw	Gasoline	399.6	219.6	38.4	58.8
Chain Saws	Gasoline	24	24	0	0
Chipper/Stump Grinder	Diesel	399.6	219.6	38.4	58.8
Compacting Equipment	Gasoline	16	16	0	0
Concrete Pump	Gasoline	384	240	0	0
Concrete Ready Mix Trucks	Gasoline	864	384	0	0
Concrete Saws	Gasoline	507.86	227.72	49	75.52
Concrete Truck	Diesel	3708.46	1091.55	208.96	318.26
Concrete Truck Pump	Gasoline	1140	0	0	0
Crane	Diesel	0	12	0	0
Curb/Gutter Paver	Diesel	110.04	16	0	0
Distributing Tanker	Diesel	368.97	65.54	0	60.41
Dozer	Diesel	2798.23	2745.8	261.05	390.65
Dump Truck	Diesel	8954.59	6131.1	151.54	613.48
Dump Truck (12 cy)	Diesel	4796.38	4863.99	462.8	713.21
Excavator	Diesel	1068.53	1752.07	63.08	86.24
Excavator with Bucket	Diesel	3515.35	2668	0	207.47
Excavator with Hoe Ram	Diesel	0	268	0	0
Flat Bed or Dump Trucks	Diesel	40	40	0	0
Flatbed Truck	Diesel	3137.31	1406.75	302.72	466.51
Fork Truck	Diesel	8568	3608	0	0
Front Loader	Diesel	40	40	0	0
Generator	Gasoline	320	80	0	0
Generator Sets	Gasoline	3515.35	2400	0	207.47
Grader	Diesel	160.32	72.46	15.53	23.72
Grout Mixer	Gasoline	2020	420	0	0
Grout Wheel Truck	Diesel	400	160	0	0
High Lift	Diesel	3536	976	0	0

Off-road Equipment	Fuel	Annual Operating Hours			
		2020	2021	2022	2023
Hydroseeder	Gasoline	144.43	81.57	13.99	21.37
Line Painting Truck and Sprayer	Diesel	8	8	0	0
Loader	Diesel	412.49	616.67	31.74	29.39
Log Chipper	Diesel	24	24	0	0
Man Lift	Diesel	11320	4920	0	0
Man Lift (Fascia Construction)	Diesel	40	0	0	0
Material Deliveries	Diesel	204	84	0	0
Mulcher	Diesel	24	24	0	0
Off-Road Truck	Diesel	144.43	81.57	13.99	21.37
Other General Equipment	Diesel	5807.75	3046.48	501.13	798.02
Paving Machine	Diesel	32	32	0	0
Pickup Truck	Diesel	13263.78	8690.65	791.89	1487.06
Pile Driver	Gasoline	160	0	0	0
Pumps	Gasoline	133.2	74.8	12.8	19.6
Roller	Diesel	1758.48	2046.44	164.84	242.84
Rubber Tired Loader	Diesel	507.86	227.72	49	75.52
Scraper	Diesel	634.82	1302.15	61.25	94.4
Skid Steer Loader	Diesel	571.05	277.86	47.33	55.47
Slip Form Paver	Diesel	507.86	227.72	49	75.52
Small Dozer	Diesel	16	16	0	0
Surfacing Equipment (Grooving)	Gasoline	751.63	337.02	72.52	111.77
Survey Crew Trucks	Diesel	24	14	0	0
Ten Wheelers	Diesel	16	16	0	0
Ten Wheelers- Material Delivery	Diesel	32	32	0	0
Tool Truck	Diesel	10420	3100	0	0
Tower Crane	Diesel	1960	0	0	0
Tractor	Diesel	40	40	0	0
Tractor Trailer- Material Delivery	Diesel	7896	2776	0	0
Tractor Trailer- Steel Deliveries	Diesel	360	360	0	0
Tractor Trailer with Boom Hoist- Delivery	Diesel	24	24	0	0
Tractor Trailers- Rebar Deliveries	Diesel	760	0	0	0
Tractor Trailers Temp Fac.	Diesel	12	8	0	0
Tractors/Loader/Backhoe	Diesel	834.25	346.81	49.57	52.71
Trowel Machine	Gasoline	800	40	0	0
Truck Tower (Mantiwoc type)	Diesel	920	920	0	0
Vibratory Compactor	Gasoline	220.08	32	0	0
Water Truck	Diesel	6240	7920	240	480
Total, Off-road Equipment		127,305.71	73,888.76	3,757.91	7,364.36
On-road Vehicles	Fuel	Annual Vehicle Miles of Travel (VMT)			
		2020	2021	2022	2023
Asphalt 18 Wheeler	Diesel	19916	8929	1922	2961
Cement Mixer	Diesel	458471	167762	30627	47198
Cement Truck for Fencing	Diesel	0	4043	0	0
Dump Truck	Diesel	121832	86481	0	6403
Dump Truck - Asphalt	Diesel	28419	12856	2722	4195
Dump Truck Subbase Material	Diesel	244518	89472	16334	25172
Passenger Car	Gasoline	1897648	1825793	48180	122873
Tractor Trailer	Diesel	4120	2520	0	0
Total, On-road Vehicles		2,774,924	2,197,856	99,785	208,802

Because construction equipment and vehicle emissions rates contained in ACEIT are not sufficiently representative of local conditions, equipment and vehicle emissions rates were instead generated using the current version of the U.S. Environmental Protection Agency Motor Vehicle Emissions Simulator (EPA MOVES2014a). MOVES2014a was invoked at the project-level using input databases specific to Chatham County, Georgia. Input databases were adapted from EPA's most recent National Emissions Inventory, which incorporates Chatham County-specific information to the extent it was submitted to the EPA by state and local air quality and transportation agencies.

Vehicle age distributions, inspection and maintenance programs (to the extent applied), fuel supply and other data were held constant for future years; that is, projections or adjustments were not applied unless available from locally-developed data. A summer design hour representative of an August weekday in Chatham County from 1600 to 1700 was selected for emissions rate modeling based on the worst-case temperature/humidity hourly condition, according to the MOVES 'ZoneMonthHour' input database. Emissions rates for on-road vehicles were generated for five mile-per-hour (mph) increments ranging from 5 to 65 mph. For the purposes of emissions calculations it was assumed that all on-road vehicles would travel at an average speed of 35 miles per hour. **Tables 1.1-2a** through **1.1-2e** specify the annual off-road equipment and on-road vehicle emissions rates applied in the analysis.

Equation 3 was used to estimate dust emissions from site-wide construction activities, adapted from EPA's AP-42 methodology¹. EPA studies have concluded that ten percent of the dust emissions in the PM₁₀ or less size fractions are PM_{2.5}.² Therefore, uncontrolled PM₁₀ dust emissions were factored by 0.10 to derive the PM_{2.5} component. Further, dust suppression and erosion control Best Management Practices (BMPs) during construction, such as site watering and track-out prevention measures, will ensure that PM impacts from construction activities are minimized. According to EPA, adherence to these BMPs can result in a dust control efficiency of 75 percent, which was applied to the calculation to represent controlled PM emissions.³

Estimation of annual evaporative VOC emissions from asphalt curing is based upon the EPA methods outlined in AP-42⁴ as well as the Emissions Inventory Improvement Program⁵. **Equation 4** outlines this method. Because the asphalt characterization is not known, assuming that 35 percent of liquefied asphalt is diluent that can evaporate as VOC, 95 percent of this diluent would evaporate during asphalt curing, and that the density of the diluent is 1.98 pounds per liter of diluent applied.

¹ U.S. Environmental Protection Agency. *Compilation of Air Pollutant Emissions Factors (AP-42). Fifth Edition, Volume I Chapter 13: Miscellaneous Sources*. 1995.

² Pace, Thompson G. *Examination of the Multiplier Used to Estimate PM_{2.5} Fugitive Dust Emissions From PM₁₀*. Presented at the Environmental Protection Agency 14th International Emission Inventory Conference. Las Vegas, NV, 2005

³ U.S. Environmental Protection Agency. *Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures*. OAQPS, EPA-450/2-92-004. 1992.

⁴ U.S. Environmental Protection Agency. *Compilation of Air Pollutant Emission Factors (AP-42). Fifth Edition Volume I Chapter 4.5: Asphalt Paving Operations*. 1995.

⁵ U.S. Environmental Protection Agency. *Emissions Inventory Improvement Program (EIIP), Volume III: Chapter 17, "Asphalt Paving"*. 2001.

Table 1.1-2a: 2020 Off-Road Equipment Emissions Rates

Equipment	Fuel Type	Load	Horsepower	2020 Emission Rate (grams per horsepower-hour at operating load)						
				CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
Aerial Lifts	Diesel	0.21	60.46	3.915	4.727	0.526	0.510	0.004	0.809	694.173
Air Compressors	Gasoline	0.56	5.19	208.388	2.130	0.378	0.348	0.007	9.939	1247.369
Bore/Drill Rigs	Gasoline	0.79	2.21	204.600	1.997	0.318	0.293	0.007	9.609	1247.860
Cement & Mortar Mixers	Gasoline	0.59	8.37	276.522	1.805	0.111	0.102	0.006	10.269	1061.292
Chain Saws < 6 HP (com)	Gasoline	0.7	3.92	266.029	1.528	9.748	8.968	0.004	73.326	710.952
Chippers/Stump Grinders (com)	Diesel	0.43	84.47	1.670	2.974	0.283	0.274	0.003	0.363	589.666
Commercial Turf Equipment (com)	Gasoline	0.6	5.22	204.485	1.993	0.316	0.291	0.007	7.589	1247.877
Concrete/Industrial Saws	Gasoline	0.78	4.53	266.030	1.528	9.748	8.968	0.004	63.530	710.951
Cranes	Diesel	0.43	237.70	0.216	1.016	0.040	0.039	0.003	0.171	530.867
Crawler Tractor/Dozers	Diesel	0.59	136.10	0.282	0.719	0.050	0.049	0.003	0.165	536.670
Excavators	Diesel	0.59	137.60	0.228	0.558	0.036	0.035	0.003	0.160	536.676
Generator Sets	Gasoline	0.68	8.82	274.728	1.654	0.113	0.104	0.006	8.545	1060.761
Graders	Diesel	0.59	231.20	0.196	0.649	0.027	0.026	0.003	0.161	536.675
Off-highway Trucks	Diesel	0.59	419.90	0.195	0.524	0.021	0.020	0.003	0.157	536.680
Other Construction Equipment	Diesel	0.59	442.60	0.955	2.244	0.131	0.127	0.003	0.204	536.542
Pavers	Diesel	0.59	134.60	0.379	0.911	0.077	0.075	0.003	0.172	536.660
Plate Compactors	Gasoline	0.55	4.41	204.899	2.008	0.323	0.297	0.007	8.696	1247.823
Pumps	Gasoline	0.69	4.63	206.455	2.062	0.348	0.320	0.007	10.518	1247.622
Rollers	Diesel	0.59	84.76	1.208	1.216	0.140	0.136	0.003	0.187	595.957
Rubber Tire Loaders	Diesel	0.59	136.30	0.442	1.042	0.095	0.092	0.003	0.178	536.651
Scrapers	Diesel	0.59	422.50	0.525	1.294	0.077	0.075	0.003	0.168	536.658
Skid Steer Loaders	Diesel	0.21	57.67	4.264	4.652	0.616	0.598	0.004	0.861	694.027
Surfacing Equipment	Gasoline	0.49	8.92	277.968	1.705	0.124	0.114	0.006	6.557	1060.480
Tractors/Loaders/Backhoes	Diesel	0.21	87.17	3.935	3.037	0.535	0.519	0.004	0.647	694.777

Source: EPA MOVES2014a

Table 1.1-2b: 2021 Off-Road Equipment Emissions Rates

Equipment	Fuel Type	Load	Horsepower	2021 Emission Rate (grams per horsepower-hour at operating load)						
				CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
Aerial Lifts	Diesel	0.21	60.46	3.648	4.562	0.481	0.466	0.004	0.743	694.359
Air Compressors	Gasoline	0.56	5.19	208.388	2.130	0.378	0.348	0.007	9.939	1247.371
Bore/Drill Rigs	Gasoline	0.79	2.21	204.600	1.997	0.318	0.293	0.007	9.609	1247.861
Cement & Mortar Mixers	Gasoline	0.59	8.37	275.654	1.746	0.111	0.102	0.006	10.016	1061.107
Chain Saws < 6 HP (com)	Gasoline	0.7	3.92	266.029	1.528	9.748	8.968	0.004	73.326	710.951
Chippers/Stump Grinders (com)	Diesel	0.43	84.47	1.550	2.746	0.258	0.250	0.003	0.339	589.739
Commercial Turf Equipment (com)	Gasoline	0.6	5.22	204.486	1.993	0.316	0.291	0.007	7.589	1247.876
Concrete/Industrial Saws	Gasoline	0.78	4.53	266.030	1.528	9.748	8.968	0.004	63.531	710.951
Cranes	Diesel	0.43	237.70	0.170	0.840	0.030	0.030	0.003	0.166	530.876
Crawler Tractor/Dozers	Diesel	0.59	136.10	0.241	0.578	0.039	0.038	0.003	0.162	536.675
Excavators	Diesel	0.59	137.60	0.198	0.438	0.027	0.026	0.003	0.158	536.679
Generator Sets	Gasoline	0.68	8.82	274.592	1.644	0.113	0.104	0.006	8.512	1060.733
Graders	Diesel	0.59	231.20	0.173	0.525	0.022	0.021	0.003	0.159	536.676
Off-highway Trucks	Diesel	0.59	419.90	0.174	0.416	0.017	0.016	0.003	0.157	536.681
Other Construction Equipment	Diesel	0.59	442.60	0.864	2.031	0.119	0.116	0.003	0.197	536.564
Pavers	Diesel	0.59	134.60	0.290	0.725	0.052	0.051	0.003	0.166	536.668
Plate Compactors	Gasoline	0.55	4.41	204.898	2.008	0.323	0.297	0.007	8.696	1247.822
Pumps	Gasoline	0.69	4.63	206.456	2.062	0.348	0.320	0.007	10.518	1247.622
Rollers	Diesel	0.59	84.76	0.969	0.989	0.102	0.099	0.003	0.178	595.972
Rubber Tire Loaders	Diesel	0.59	136.30	0.354	0.855	0.070	0.068	0.003	0.171	536.661
Scrapers	Diesel	0.59	422.50	0.445	1.116	0.064	0.062	0.003	0.165	536.665
Skid Steer Loaders	Diesel	0.21	57.67	3.961	4.499	0.564	0.547	0.004	0.788	694.231
Surfacing Equipment	Gasoline	0.49	8.92	277.968	1.705	0.124	0.114	0.006	6.557	1060.480
Tractors/Loaders/Backhoes	Diesel	0.21	87.17	3.642	2.761	0.485	0.470	0.004	0.589	694.926

Source: EPA MOVES2014a

Table 1.1-2c: 2022 Off-Road Equipment Emissions Rates

Equipment	Fuel Type	Load	Horsepower	2022 Emission Rate (grams per horsepower-hour at operating load)						
				CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
Aerial Lifts	Diesel	0.21	60.46	3.389	4.406	0.437	0.424	0.004	0.680	694.536
Air Compressors	Gasoline	0.56	5.19	208.388	2.130	0.378	0.348	0.007	9.939	1247.371
Bore/Drill Rigs	Gasoline	0.79	2.21	204.600	1.997	0.318	0.293	0.007	9.609	1247.860
Cement & Mortar Mixers	Gasoline	0.59	8.37	275.047	1.704	0.111	0.102	0.006	9.835	1060.984
Chain Saws < 6 HP (com)	Gasoline	0.7	3.92	266.029	1.528	9.748	8.968	0.004	73.326	710.950
Chippers/Stump Grinders (com)	Diesel	0.43	84.47	1.447	2.537	0.237	0.230	0.003	0.320	589.795
Commercial Turf Equipment (com)	Gasoline	0.6	5.22	204.487	1.993	0.316	0.291	0.007	7.589	1247.875
Concrete/Industrial Saws	Gasoline	0.78	4.53	266.029	1.528	9.748	8.968	0.004	63.530	710.948
Cranes	Diesel	0.43	237.70	0.144	0.703	0.025	0.024	0.003	0.163	530.882
Crawler Tractor/Dozers	Diesel	0.59	136.10	0.211	0.464	0.031	0.030	0.003	0.159	536.677
Excavators	Diesel	0.59	137.60	0.176	0.382	0.020	0.020	0.003	0.157	536.680
Generator Sets	Gasoline	0.68	8.82	274.534	1.640	0.113	0.104	0.006	8.498	1060.721
Graders	Diesel	0.59	231.20	0.155	0.425	0.018	0.018	0.003	0.158	536.680
Off-highway Trucks	Diesel	0.59	419.90	0.159	0.367	0.014	0.013	0.003	0.156	536.681
Other Construction Equipment	Diesel	0.59	442.60	0.780	1.830	0.108	0.105	0.003	0.191	536.582
Pavers	Diesel	0.59	134.60	0.249	0.594	0.041	0.040	0.003	0.163	536.673
Plate Compactors	Gasoline	0.55	4.41	204.898	2.008	0.323	0.297	0.007	8.696	1247.821
Pumps	Gasoline	0.69	4.63	206.456	2.062	0.348	0.320	0.007	10.518	1247.619
Rollers	Diesel	0.59	84.76	0.761	0.787	0.068	0.066	0.003	0.171	595.985
Rubber Tire Loaders	Diesel	0.59	136.30	0.278	0.689	0.048	0.047	0.003	0.166	536.668
Scrapers	Diesel	0.59	422.50	0.372	0.954	0.051	0.049	0.003	0.163	536.670
Skid Steer Loaders	Diesel	0.21	57.67	3.670	4.353	0.514	0.499	0.004	0.720	694.424
Surfacing Equipment	Gasoline	0.49	8.92	277.968	1.705	0.124	0.114	0.006	6.557	1060.480
Tractors/Loaders/Backhoes	Diesel	0.21	87.17	3.360	2.497	0.436	0.423	0.004	0.534	695.064

Source: EPA MOVES2014a

Table 1.1-2d: 2023 Off-Road Equipment Emissions Rates

Equipment	Fuel Type	Load	Horsepower	2023 Emission Rate (grams per horsepower-hour at operating load)						
				CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO _{2e}
Aerial Lifts	Diesel	0.21	60.46	3.155	4.263	0.398	0.386	0.004	0.625	694.687
Air Compressors	Gasoline	0.56	5.19	208.388	2.130	0.378	0.348	0.007	9.939	1247.370
Bore/Drill Rigs	Gasoline	0.79	2.21	204.600	1.997	0.318	0.293	0.007	9.609	1247.860
Cement & Mortar Mixers	Gasoline	0.59	8.37	274.582	1.673	0.111	0.102	0.006	9.697	1060.891
Chain Saws < 6 HP (com)	Gasoline	0.7	3.92	266.029	1.528	9.748	8.968	0.004	73.326	710.950
Chippers/Stump Grinders (com)	Diesel	0.43	84.47	1.350	2.338	0.217	0.211	0.003	0.302	589.846
Commercial Turf Equipment (com)	Gasoline	0.6	5.22	204.487	1.993	0.316	0.291	0.007	7.589	1247.877
Concrete/Industrial Saws	Gasoline	0.78	4.53	266.028	1.528	9.748	8.968	0.004	63.530	710.948
Cranes	Diesel	0.43	237.70	0.128	0.590	0.021	0.020	0.003	0.161	530.885
Crawler Tractor/Dozers	Diesel	0.59	136.10	0.188	0.406	0.024	0.023	0.003	0.158	536.680
Excavators	Diesel	0.59	137.60	0.161	0.344	0.016	0.015	0.003	0.156	536.680
Generator Sets	Gasoline	0.68	8.82	274.508	1.639	0.113	0.104	0.006	8.491	1060.714
Graders	Diesel	0.59	231.20	0.141	0.378	0.015	0.015	0.003	0.157	536.680
Off-highway Trucks	Diesel	0.59	419.90	0.150	0.334	0.012	0.012	0.003	0.156	536.681
Other Construction Equipment	Diesel	0.59	442.60	0.703	1.643	0.098	0.095	0.003	0.186	536.599
Pavers	Diesel	0.59	134.60	0.221	0.487	0.033	0.032	0.003	0.161	536.675
Plate Compactors	Gasoline	0.55	4.41	204.899	2.008	0.323	0.297	0.007	8.696	1247.823
Pumps	Gasoline	0.69	4.63	206.457	2.062	0.348	0.320	0.007	10.519	1247.622
Rollers	Diesel	0.59	84.76	0.668	0.643	0.053	0.052	0.003	0.166	595.992
Rubber Tire Loaders	Diesel	0.59	136.30	0.243	0.571	0.039	0.038	0.003	0.163	536.672
Scrapers	Diesel	0.59	422.50	0.305	0.806	0.039	0.038	0.003	0.161	536.673
Skid Steer Loaders	Diesel	0.21	57.67	3.407	4.219	0.468	0.454	0.004	0.660	694.590
Surfacing Equipment	Gasoline	0.49	8.92	277.968	1.705	0.124	0.114	0.006	6.557	1060.478
Tractors/Loaders/Backhoes	Diesel	0.21	87.17	3.090	2.246	0.390	0.378	0.004	0.483	695.191

Source: EPA MOVES2014a

Table 1.1-2e: On-Road Vehicle Emissions Rates

Vehicle Type	Fuel Type	2020 Emission Rate (grams per vehicle mile traveled)						
		CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO ₂ e
Light commercial truck	Diesel	2.381	0.954	0.098	0.054	0.005	0.185	584.611
Single unit short-haul truck	Diesel	1.852	3.651	0.453	0.296	0.009	0.581	1071.531
Passenger car	Gasoline	4.513	0.304	0.045	0.010	0.007	0.249	341.796
Passenger truck	Gasoline	7.768	0.632	0.050	0.012	0.009	0.362	458.969
Vehicle Type	Fuel Type	2021 Emission Rate (grams per horsepower-hour at operating load)						
		CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO ₂ e
Light commercial truck	Diesel	3.158	1.090	0.094	0.050	0.005	0.187	618.029
Single unit short-haul truck	Diesel	1.650	3.404	0.407	0.254	0.010	0.509	1166.049
Passenger car	Gasoline	4.340	0.274	0.045	0.010	0.007	0.235	333.836
Passenger truck	Gasoline	7.351	0.566	0.050	0.012	0.009	0.336	446.905
Vehicle Type	Fuel Type	2022 Emission Rate (grams per horsepower-hour at operating load)						
		CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO ₂ e
Light commercial truck	Diesel	3.205	0.918	0.081	0.038	0.005	0.155	605.874
Single unit short-haul truck	Diesel	1.482	3.101	0.374	0.225	0.010	0.446	1161.214
Passenger car	Gasoline	4.189	0.249	0.045	0.010	0.006	0.222	326.171
Passenger truck	Gasoline	6.984	0.510	0.050	0.011	0.009	0.312	434.810
Vehicle Type	Fuel Type	2023 Emission Rate (grams per horsepower-hour at operating load)						
		CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO ₂ e
Light commercial truck	Diesel	2.621	0.824	0.079	0.036	0.005	0.125	593.244
Single unit short-haul truck	Diesel	1.363	2.835	0.350	0.203	0.010	0.404	1155.443
Passenger car	Gasoline	4.018	0.227	0.045	0.010	0.006	0.211	317.386
Passenger truck	Gasoline	6.641	0.463	0.050	0.011	0.008	0.292	422.356

Source: EPA MOVES2014a

Equation 3:**

$$PM_{10(tpy)} = EF_{TSP} \times \frac{\text{days}}{\text{year}} \times \frac{\text{acres}}{\text{day}} \times 0.45 \div 2,000$$

Where:

$PM_{10(tpy)}$ = annual PM_{10} dust emissions (tons per year)

EF_{TSP} = total suspended particulate (TSP) emissions rate (80 pounds per acre-day)

0.45 = estimated ratio of PM_{10} to TSP

2,000 = pounds per ton

**Represents uncontrolled emissions of PM_{10} . Controlled emissions are derived by applying a 75% control factor.

$PM_{2.5} = PM_{10} \times 0.10$

Equation 4:

$$VOC_{(tpy)} = A \times AR \times VD \times EF \times D \div 2,000$$

Where:

$VOC_{(tpy)}$ = annual VOC paving emissions (tons per year)

A = area of pavement in square meters(m^2)

AR = asphalt application rate (0.679 liter/ m^2)

VD = volume fraction of diluent (0.35)

AF = mass fraction of diluent which evaporates as VOC (0.95)

D = solvent density (1.98 pounds/liter)

2,000 = pounds per ton

1.1.2. OPERATIONAL EMISSIONS

Operations of aircraft (Boeing 767), aircraft Auxiliary Power Unit (APU), Ground Support Equipment (GSE), would change as a result of the relocated and expanded air cargo facilities described by the EA Proposed Project. Additionally, an increase in truck traffic and employee commute trips would result from increased cargo handling activities. Operations of stationary combustion sources and on-airport motor vehicles would not be expected to increase substantially as a result of the Proposed Project. Therefore, operational emissions estimates for the future year conditions in the EA with the Proposed Project Alternatives, include emissions from aircraft, APUs, GSE, cargo truck traffic, and air cargo carrier employee vehicles. Emissions from aircraft, APUs, and GSE were estimated using FAA's Aviation Environmental Design Tool (AEDT), version 2d. Air emission analyses for airports are required to use AEDT for these sources. Emissions from cargo trucks and employee commutes were estimated using **Equation 2**, using emission rates obtained from MOVES.

Table 1.1-3 Estimated Annual Operations Activity

Description	Net Increase Over No-Action Alternative	
	Alternative 1a	Alternative 1b
Annual Cargo Truck Operations	38,357	89,477
Annual Cargo Truck Vehicle Miles Traveled (VMT)	3,508,783	8,187,170
Annual Cargo Air Carrier Employee Commute Trips	21,730	50,704
Annual Cargo Air Carrier Employee Commute VMT	434,603	1,014,074

Sources: ACRP 2017, AECOM 2019

Additional annual air cargo aircraft operations were derived from the expected rates of use at each of the gates that would be built under the Proposed Project Alternatives. Each proposed gate was assumed to handle three turns per day, each turn representing a cargo aircraft arriving, being processed, and then departing. This would result in 9 additional turns per day under Alternative 1a and 24 additional turns per day under Alternative 1b. APU and GSE operations were derived using default values for the Boeing 767 in AEDT 2d. Form 41 filings at SAV were used to estimate the average rate, in metric tons, of cargo per aircraft operation. The increase in cargo truck and employee commute trips was then estimated using methodology provided in the 2017 National Academy of Science Airport Cooperative Research Program (ACRP) Synthesis Report 80, *Estimating Truck Trip Generation for Airport Air Cargo Activity*. AVMT were derived assuming that half of the trucks departing SAV cargo facilities would travel to Charleston, South Carolina and the other half would travel to Brunswick, Georgia. Employee commutes were assumed to total 20 miles round-trip.

Emission rates for air cargo aircraft, APUs, and associated GSE are built into AEDT 2d, using Boeing 767 aircraft with the PW4060 engine (representative of tenant in-use aircraft fleet), and using default rates for APU and GSE. Emission rates, (including vehicle age distributions, inspection and maintenance programs, to the extent applied, fuel supply and other data) for cargo trucks and employee vehicles were derived using MOVES, as described in **Section 1.1.1** above. Cargo trucks were assumed to be single utility short-haul diesel trucks. Employee vehicles were assumed to be gasoline passenger cars. Truck speeds were assumed to average 65 miles per hour to represent a mix of regional Interstate freeway speed limits. Employee commute speeds were assumed to average 35 miles per hour to represent local roadway speed limits.

Table 1.1-4 Air Cargo On-road Vehicle Emission Rates

Vehicle Type	Fuel Type	Average Speed (mph)	2023 Emission Rates (Grams per VMT)						
			CO	NOx	PM10	PM2.5	SO2	VOC	CO2e
Cargo Trucks	Diesel	60	0.993	1.857	0.181	0.128	0.007	0.270	765.860
Employee Vehicles	Gasoline	35	4.018	0.227	0.045	0.010	0.006	0.211	317.368

Source: EPA MOVES2014a

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APPENDIX D

Coastal Zone Consistency Determination

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Savannah/Hilton Head International Airport Short-Term Development Program Environmental Assessment

Draft Coastal Zone Consistency Determination

Prepared for:

**Savannah Airport Commission
and
Federal Aviation Administration**

Prepared by:

AECOM

October 2019

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1.1. INTRODUCTION AND BACKGROUND

Savannah/Hilton Head International Airport (SAV), owned and operated by the Savannah Airport Commission (Commission), is proposing to undertake a short-term development program to meet the facility and operational requirements of existing and future tenants. Current facility conditions constrain operations of existing tenants and limit the potential for future operations of existing tenants and for possible future tenants. The program, herein referred to as the Proposed Project, involves several development activities intended to expand operational flexibility, improve safety, and manage existing stormwater and increased stormwater volume resulting from the Proposed Project.

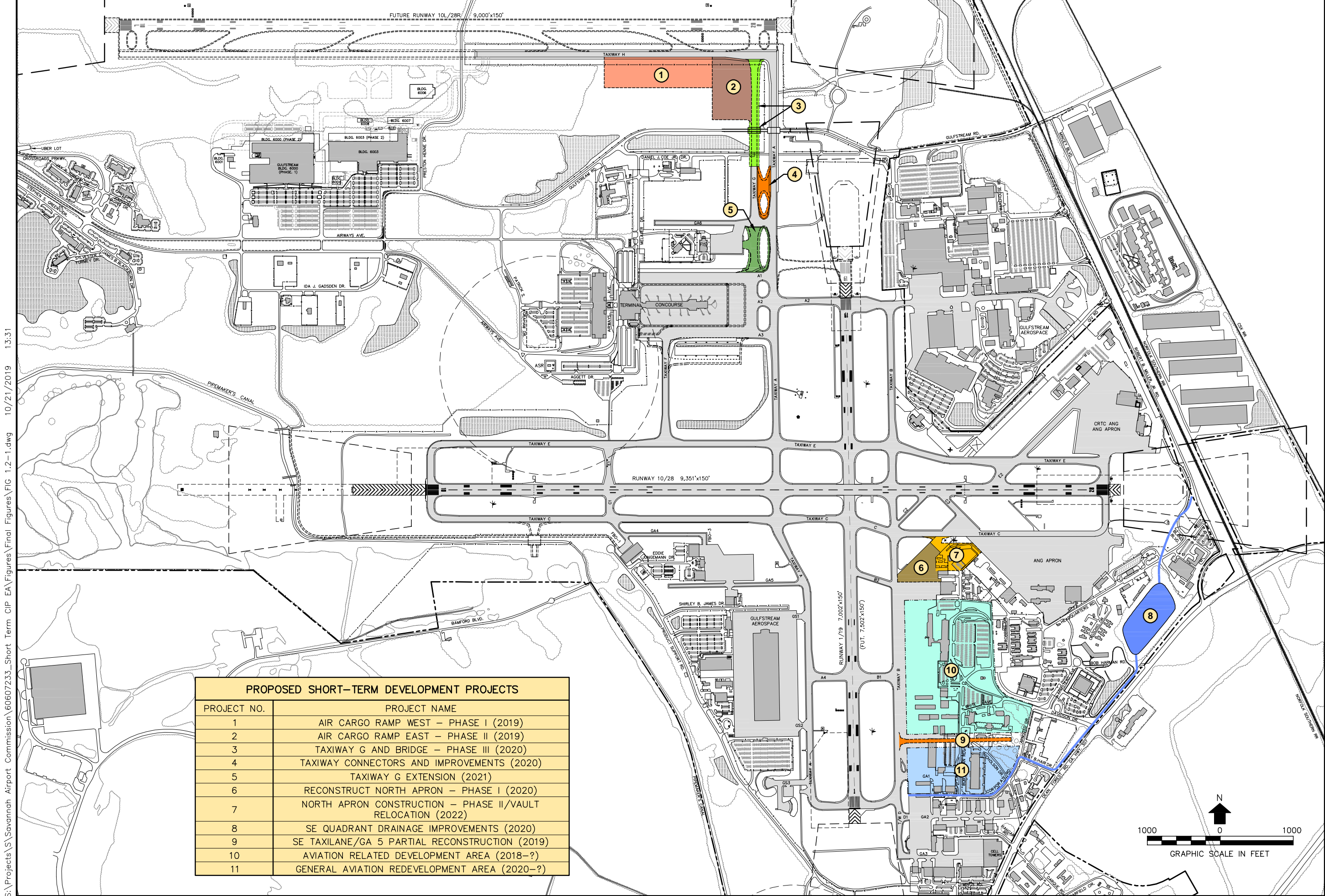
Coastal resources comprise any natural resources or natural environments occurring in coastal waters or adjoining shorelines and are primarily protected by the Coastal Zone Management Act, as well as the Coastal Barrier Resources Act, which governs development within the Coastal Barrier Resources System (CBRS). SAV is within Georgia's designated coastal area and therefore provisions of the federal Coastal Zone Management Act (CZMA) and Georgia's federally-approved Coastal Management Program (GCMP) apply to activities occurring at SAV. The Georgia Department of Natural Resources (GADNR) Coastal Resources Division is responsible for administering the GCMP and considers all development projects within the coastal area to have direct effects on the coastal zone. All such projects must be reviewed for consistency with the GCMP and the Enforceable Policies contained therein. These policies are further discussed in **Section 5.5** of this EA.

The CZMA codified at 16 United States Code (U.S.C.) §1456 et seq., is administered by the National Oceanic and Atmospheric Administration (NOAA) and applies to federal actions within and outside the coastal zone, which have reasonably foreseeable effects on any coastal use (land or water) or natural resource of the coastal zone. Section 307 of the Act requires that federal actions within the coastal zone be consistent with the enforceable policies of a state's federally approved coastal management program. This Coastal Zone Consistency Determination (i.e., Determination) has been prepared in accordance with Section 307 of the CZMA and updated Georgia State guidance (GADNR 2017a, GADNR 2017b) to demonstrate that the Proposed Project is consistent to the maximum extent practicable with the enforceable policies of the approved GCMP (GADNR 1997). During early agency coordination for this EA, the GADNR Coastal Resources Division agreed in correspondence dated 5 August 2019 (**Appendix A of this EA**) to review the following Coastal Zone Consistency Determination during the Draft EA review process.

1.2. PROPOSED PROJECT DESCRIPTION

A variety of airside and landside development options are currently being considered for the Short-term Development Program. Individual projects included in the Short-term Development Program are shown on Figure 1.1-1. For the purposes of this Determination, these individual projects are grouped into the following five main categories:

- Air Cargo Relocation: this category includes the construction of new air cargo facilities north of Gulfstream Road, south of Taxiway H and west of Taxiway A and an extension of Taxiway G. Approximately 180,000-square feet of new air cargo buildings, 50,000 square yards of new aircraft apron pavement, and a new access road to the relocated Air Cargo area would be constructed. Individual projects are Air Cargo Ramp West - Phase I (Project #1 on **Figure 1.1-1**), Air Cargo Ramp East - Phase II (Project #2), and Taxiway G and Bridge - Phase III (Project 3).
- Taxiway Improvements: this category consists of connecting the existing segments of Taxiway A and Taxiway G south of Gulfstream Road. Individual projects are Taxiway Connectors and Improvements (Project #4 on **Figure 1.1-1**), and Taxiway G Extension (Project #5).
- North Apron Improvements: this category consists of reconstructing an existing apron due to current pavement conditions, constructing a new apron to provide additional parking for aircraft that have been displaced by ongoing tenant facility expansion to the south, removal of existing buildings, and relocation of an existing electrical vault. Individual projects are Reconstruct North Apron - Phase I (Project # 6 on **Figure 1.1-1**) and North Apron Construction - Phase II/Vault Relocation (Project #7).
- General Aviation (GA) Redevelopment: projects related to GA redevelopment include construction of new facilities for Gulfstream and Signature east of Taxiway B and south of Taxiway C. A new 50-foot wide by approximately 1200-foot long Airplane Design Group (ADG)-III taxilane, two new 115,000-square foot buildings, and new paved aircraft apron, 120,000-square feet of box hangars, four T-hangars, parking areas, an access road, and a fuel farm would be constructed. Individual project are SE Taxilane/GA 5 Partial Reconstruction (Project #9 on **Figure 1.1-1**), Aviation-Related Development Area (Project #10), and General Aviation Redevelopment Area (Project #11).
- Southeast (SE) Quadrant Drainage Improvements: this project consists of new facilities, including an inlet, piping, and a raised berm, to comply with City of Savannah stormwater regulations, and treat and attenuate the stormwater runoff generated from existing impervious surfaces, as well as any new impervious surfaces associated with the Proposed Project (Project #8 on **Figure 1.1-1**).



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1.2.1. PUBLIC PARTICIPATION

In accordance with direction received from GADNR Coastal Resources Division, this Determination is presented as part of the Draft EA, which is subject to review and comment by the public for 30 days. The FAA will actively solicit and consider comments from agencies and the interested public regarding information presented in the Draft EA, of which this Determination is part. The FAA will review and address public comments received. The Final EA will reflect any necessary changes incurred by public comments and will document public comments received and the FAA's response to each.

1.2.2. OTHER CONSULTATIONS

As part of the NEPA process, an Advance Notification (AN) of the Proposed Project was sent to the GADNR and the United States Fish and Wildlife Service (USFWS) on August 1, 2019 requesting comments on potential effects of the Proposed Project on listed species and potential permit requirements (see **Appendix A of this EA**). On August 27, 2019, the USFWS responded to the AN stating that suitable habitats for the species listed in the USFWS Information for Planning and Consultation (IPaC) database are not anticipated with the exception of the wood stork (*Mycteria americana*). A previous wood stork rookery has already been removed. Through a biological opinion and Migratory Bird permit, the Commission is allowed to harass wood storks and other wading birds at SAV to reduce the risks of bird-aircraft-strike hazards. USFWS also noted that the SE Quadrant Drainage Improvements include a forested wetland that appears to be too dense to offer foraging habitat to listed species; however, if cleared of trees and maintained as a detention/retention pond, the site might attract this species and other wading birds. Finally, USFWS identified two bald eagle (*Haliaeetus leucocephalus*) nests located near the intersection of Gulfstream Road and Preston Heine Drive, west of Projects 1 and 2. However, these nests are outside of the BSA and project activities do not appear to encroach upon the recommended 200-meter buffer or suitable foraging habitats.

Section 106 National Historic Preservation Act consultations with the Georgia State Historic Preservation Office are being conducted concurrent with the Draft EA review process.

A General Conformity Determination was not required for the Proposed Project, because air emissions estimates presented in the EA indicate that both operational and construction phase air emissions are within applicable de minimis thresholds specified by the General Conformity Regulations of the Clean Air Act and its amendments. Therefore, no agency coordination or consultation was conducted for air quality.

1.2.3. BASIS OF DETERMINATION OF CONSISTENCY WITH GEORGIA COASTAL PROGRAM ENFORCEABLE POLICIES

SAV is within Georgia's designated coastal area and therefore provisions of the federal CZMA and Georgia's federally-approved GCMP apply to activities occurring at SAV.

The Proposed Project considered in this Determination would be fully consistent with Georgia's Enforceable Coastal Policies as approved by the National Oceanic and Atmospheric Administration. No effects on Georgia's coastal resources would be incurred from implementing the Proposed Project. All activities would be conducted in accordance with applicable environmental laws, regulations and policies and would be subject to applicable permitting processes, which would ensure that the Proposed Project would be implemented consistently with the GCMP.

The GADNR Coastal Resources Division considers all development projects within the coastal area to have direct effects on the coastal zone. Therefore, no major components of the Proposed Project would be considered de minimis or environmentally beneficial as defined by regulation at 15 CFR §930.33(1)(3)(i) and 15 CFR §930.33(a)(4), respectively. Therefore, evaluation of direct and indirect effects on Georgia coastal resources through Georgia's Enforceable Coastal Policies is required. The following sections identify Georgia's Enforceable Coastal Policies set forth in the 1997 GCMP and includes the policy statements and descriptions provided in the April 17, 2017, GADNR Enforceable Policies update. The Proposed Project is analyzed below, relative to each policy to determine consistency with the GCMP. In the following analysis, the 1997 GCMP and applicable state codes (Official Code of Georgia Annotated, or O.C.G.A.) are incorporated by reference.

1.2.3.1. AIR QUALITY

O.C.G.A. 12-9-1. General Description

The Georgia Air Quality Act provides authority to the Environmental Protection Division to promulgate rules and regulations necessary to abate or to control air pollution for the State as a whole or from area to area, as may be appropriate. Establishment of ambient air quality standards, emission limitations, emission control standards, and other measures are necessary to provide standards that are no less stringent than the federal Clean Air Act are mandated. The Act also requires establishment of a program for prevention and mitigation of accidental releases of hazardous air contaminants or air pollutants, training and educational programs to ensure proper operation of emission control equipment, and standards of construction no less stringent than the federal Act. The Environmental Protection Division administers the Georgia Air Quality Act throughout the State. The Memorandum of Agreement between the Georgia Coastal Resources Division and the Environmental Protection Division ensures cooperation and coordination in the achievement of the policies of the Program.

The EA includes a detailed analysis and discussion of the projected annual air emissions associated with construction and operation of the Proposed Project. Emissions from construction related activities are temporary in nature, are expected to be of low intensity, and will be minimized to the extent practicable by employing the following typical emissions reduction measures, in accordance with FAA AC 150/5370-10H, *Standards for Specifying Construction of Airports*:

- Suspension of construction activities during high-wind conditions;

- Creation of dust, odor and nuisance reporting system;
- Reduction of exposed erodible surface area through appropriate materials and equipment staging procedures;
- Cover of exposed surface areas with pavement or vegetation in an expeditious manner;
- Reduction of equipment idling times;
- Ensure contractor knowledge of appropriate fugitive dust and equipment exhaust controls;
- Soil and stock-pile stabilization via cover or periodic watering;
- Use of low- or zero-emissions equipment;
- Use of covered haul trucks and conveyors during materials transportation;
- Reduction of electrical generator usage wherever possible; and
- Prohibition of open burning for waste disposal.

As disclosed and discussed in the EA, potential emissions increases resulting from operation of newly-constructed facilities and from expanded current and future tenant operations would not incur significant impacts to air quality. The Savannah Airport Commission and any contractors would comply with all applicable air pollution control regulations when implementing the Proposed Project. Boilers and emergency generators capable of producing emissions could be installed as a part of the Proposed Project. During permitting, all devices subject to air permitting requirements by the Air Protection Branch of the Georgia Environmental Protection Division will require a permit to construct and operate based on the specific combustion characteristics and potential to emit (PTE) of the devices. Emissions minimization opportunities to be applied by the Savannah Airport Commission and SAV tenants include adoption of alternatively-fueled equipment and stationary combustion devices, minimization of Auxiliary Power Unit (APU) operating times and using the most expeditious taxi routes between the runways and relocated or newly constructed facilities.

The Proposed Project would be consistent with this policy.

1.2.3.2. AQUACULTURE DEVELOPMENT

O.C.G.A. 27-4-251 General Description

The Georgia Aquaculture Development Act was enacted in 1992 to study aquaculture development in Georgia. A 14-member Aquaculture Development Commission composed of industry representatives, scientists, agency representatives, and others is created. The Department of Natural Resources, with assistance from the Department of Agriculture and the Department of Industry, Trade, and Tourism provides staff support for the Commission.

The Proposed Project would not affect aquaculture-related resources or impede the State's ability to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.3. BOAT SAFETY*O.C.G.A. 52-7-1 General Description*

The Georgia Boat Safety Act provides enforceable rules and regulations for safe boating practices on Georgia's lakes, rivers, and coastal waters. This Act establishes boating safety zones for a distance of 1,000 feet from the high-water mark on Jekyll Island, Tybee Island, St. Simons Island, and Sea Island. All motorized craft, including commercial fishing vessels, jet skis, and power boats, are prohibited from these waters, except at certain pier and marina access points. This Act defines "abandoned vessels" as any left unattended for five days and provides for their removal. The Law Enforcement Section of the Georgia Department of Natural Resources, Wildlife Resources Division and the Georgia Bureau of Investigation enforces these regulations.

The Proposed Project would not affect boating or boating practices or impede the State's ability to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.4. COAST MANAGEMENT*O.C.G.A. 12-5-320 General Description*

The Coastal Management Act provides enabling authority for the State to prepare and administer a coastal management program. The Act does not establish new regulations or laws; it is designed to establish procedural requirements for the Department of Natural Resources to develop and implement a program for the sustainable development and protection of coastal resources. It establishes the Department of Natural Resources as the State agency to receive and disburse federal grant monies. It establishes the Governor as the approving authority of the program and as the person that must submit the program to the federal government for approval under the federal Coastal Zone Management Act. It requires other State agencies to cooperate with the Coastal Resources Division when exercising their activities within the coastal area.

The Proposed Project is consistent with all applicable policies developed and administered by GADNR relative to the Coast Management Act, and therefore is consistent with this Enforceable Policy.

1.2.3.5. COASTAL MARSHLANDS PROTECTION*O.C.G.A. 12-5-280 General Description*

The Coastal Marshlands Protection Act provides the Coastal Resources Division with the authority to protect tidal wetlands. The Coastal Marshlands Protection Act limits certain activities and structures in marsh areas and requires permits for other activities and structures. Erecting structures, dredging, or filling marsh areas requires a Marsh Permit administered through the Coastal Management Program. In cases where the proposed activity involves construction on State-owned tidal water bottoms, a Revocable License issued by the Coastal Resources Division

may also be required. Marsh Permits and Revocable Licenses are not issued for activities that are inconsistent with the Georgia Coastal Management Program.

The jurisdiction of the Coastal Marshlands Protection Act extends to "coastal marshlands" or "marshlands", which includes marshland, intertidal area, mudflats, tidal water bottoms, and salt marsh area within estuarine area of the state, whether or not the tidewaters reach the littoral areas through natural or artificial watercourses. The estuarine area is defined as all tidally influenced waters, marshes, and marshlands lying within a tide-elevation range from 5.6 feet above mean high-tide level and below. Exemptions from the jurisdiction of the Act include: Georgia Department of Transportation activities, generally; agencies of the United States charged with maintaining navigation of rivers and harbors; railroad activities of public utilities companies; activities of companies regulated by the Public Service Commission; activities incident to water and sewer pipelines; and, construction of private docks that don't obstruct tidal flow.

Any agricultural or silvicultural activity that directly alters lands within the jurisdictional areas of the Coastal Marshlands Protection Act must meet the permit requirements of the Act and must obtain a permit issued by the Coastal Resources Division on behalf of the Coastal Marshlands Protection Committee. Permits for marinas, community docks, boat ramps, recreational docks, and piers within the jurisdiction of the Coastal Marshlands Protection Act are administered by the Coastal Resources Division. To construct a marina, a marina lease is required. Private-use recreational docks are exempt from the Coastal Marshlands Protection Act but must obtain a Revocable License and a State Programmatic General Permit.

The Proposed Project would not include structures or activities in the jurisdictional area, nor would it impede the State's ability to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.6. SAFE DAMS

O.C.G.A. 12-5-370 General Description

The Georgia Safe Dams Act provides for the inspection and permitting of certain dams to protect the health, safety, and welfare of Georgia residents. The Environmental Protection Division of the Georgia Department of Natural Resources is responsible for inspecting and certifying dams.

The Proposed Project would not affect dams or impede the State's ability to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.7. SAFE DRINKING WATER

O.C.G.A. 12-5-170 General Description

The Georgia Safe Drinking Water Act of 1977 charges the Environmental Protection Division with the responsibility for maintaining the quality of drinking water and for maintaining a water-supply program adequate for present and future needs of the State. The Environmental Protection

Division is designated as the agency to establish rules and policies for the proper administration of drinking water management programs.

The Proposed Project would not result in adverse impacts to drinking water supply or impact drinking water sources, relative to the No-Action Alternative, nor would it impede the State's ability to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.8. ENDANGERED WILDLIFE

O.C.G.A. 27-3-130 General Description

The Endangered Wildlife Act provides for identification, inventory, and protection of animal species that are rare, unusual, or in danger of extinction. Additional species may be added by the Board of Natural Resources at any time. The protection offered to these species is limited to those that are found on public lands of the State. It is a misdemeanor to violate the rules prohibiting capture, killing, or selling of protected species, and protection of protected species habitat on public lands. The rules and regulations are established and administered by the Department of Natural Resources for implementation of this Act.

Projects permitted under the authority of the Coastal Marshlands Protection Act, the Shore Protection Act, and the Revocable License require full compliance with the protection of endangered and protected species. Outside the jurisdiction of these laws, for those areas that are not public lands of Georgia, protection of endangered species is provided by the federal Endangered Species Act, which has jurisdiction over both private and public lands.

This policy is generally limited to protected species found on public lands of the state, and therefore is not directly applicable to the Proposed Project.

As noted in the policy, the Endangered Species Act provides protection for endangered species in areas outside the jurisdiction of the referenced state laws, including on private lands. The Proposed Project would result in permanent impacts to approximately 62.4 acres of existing terrestrial and wetland habitats. The proposed areas of direct impact have been previously affected by anthropogenic activities at the Airport, including regular mowing of the grassed infield areas and airport operations. The Proposed Project would have minimal impact on natural habitats, wildlife, and listed plant and animal species.

The area's inventory of habitat and vegetative cover types is expected to provide suitable temporary or permanent habitat for common species of displaced wildlife. In order to avoid or minimize potential impacts to listed species that have the potential to occur within the Proposed Project area, measures to be implemented by the Commission in coordination with the USFWS and GADNR as necessary include pre-construction species surveys and compensatory wetland mitigation.

The Proposed Project “may affect but, is not likely to adversely affect” state or Federally listed plant or animal species and, in coordination with the USFWS, appropriate mitigations and conservation measures will be adopted as part of the Proposed Project. The Proposed Project will not impact critical habitat designated by Congress in 50 CFR 424.

1.2.3.9. ENVIRONMENTAL POLICY

O.C.G.A. 12-16-1 General Description

The Georgia Environmental Policy Act (GEPA) requires that all State agencies and activities prepare an Environmental Impact Report as part of the decision-making process. This is required for all activities that may have an impact on the environment. Alternatives to the Proposed Project or activity must be considered as part of the report.

The EA for the Proposed Project includes a detailed analysis of direct, secondary, and cumulative environmental impacts from all proposed activities and their alternatives, including the No-Action Alternative, similar to the requirements placed on State agencies by the GEPA.

1.2.3.10. EROSION AND SEDIMENTATION CONTROL

O.C.G.A. 12-7-1 General Description

The Georgia Erosion and Sedimentation Act requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land-disturbing activities based on the minimum requirements established by the Act. The Erosion and Sedimentation Act is administered by the Environmental Protection Division of the Georgia Department of Natural Resources, and by local governments. Permits are required for specified "land-disturbing activities," including the construction or modification of manufacturing facilities, construction activities, certain activities associated with transportation facilities, activities on marsh hammocks, etc. With certain constraints, permitting authority can be delegated to local governments.

One provision of the Erosion and Sedimentation Act requires that land-disturbing activities shall not be conducted within 25 feet of the banks of any State waters unless a variance is granted (O.C.G.A. 12-7-6-(15)). Construction of single family residences under contract with the owner are exempt from the permit requirement but are still required to meet the standards of the Act (O.C.G.A. 12-7-17-(4)). Large development projects, both residential and commercial, must obtain a permit and meet the requirements of the Act. According to the Georgia Coastal Management Act, any permits or variances issued under the Erosion and Sedimentation Act must be consistent with the Georgia Coastal Management Program. Permits within the jurisdiction of the Coastal Marshlands Protection Act and the Shore Protection Act can include requirements that certain minimum water quality standards be met as a condition of the permit. There are specific exemptions to the requirements of the Erosion and Sedimentation Act (O.C.G.A. 12-7-17 - Exemptions). The exemptions include: surface mining, granite quarrying, minor land-disturbing activities such as home gardening, construction of single-family homes built or contracted by the homeowner for his own occupancy, agricultural practices, forestry land management practices,

dairy operations, livestock and poultry management practices, construction of farm buildings, and any projects carried out under the supervision of the Natural Resource Conservation Service of the U.S. Department of Agriculture. Exemptions from the requirements of the Act also apply to any project involving 1.1 acres or less, provided that the exemption does not apply to any land-disturbing activities within 200 feet of the bank of any State waters. Construction or maintenance projects undertaken or financed by the Georgia Department of Transportation, the Georgia Highway Authority, or the Georgia Tollway Authority, or any road or maintenance project undertaken by any county or municipality, are also exempt from the permit requirements of the Act, provided that such projects conform to the specifications used by the Georgia Department of Transportation for control of soil erosion. Exemptions are also provided to land-disturbing activities by any airport authority, and by any electric membership corporation or municipal electrical system, provided that such activities conform as far as practicable with the minimum standards set forth at Code Section 12-7-6 of the Erosion and Sedimentation Act. The Georgia Department of Transportation has developed a "Standard Specifications -- Construction of Roads and Bridges," which describes contractor requirements, including controls for sedimentation and erosion. The specifications describe the requirements for both temporary control measures for use during the construction phase, and permanent erosion and sedimentation control measures that need to be incorporated into the design of the project. Failure to comply with the provisions of the specification will result in cessation of all construction activities by the contractor, and may result in the withholding of monies due to the contractor according to a schedule of non-performance of erosion control, enforced by the Georgia Department of Transportation. Forestry and agricultural land-disturbing activities are subject to the Best Management Practices of the Georgia Forest Commission and the Georgia Soil and Water Conservation Commission, respectively.

The Proposed Project would cause short-term, minor effects on soils during construction due to soil disturbance, resulting from excavation and filling activities required at the various sites. Implementing sediment and erosion control measures consistent with O.C.G.A. Section 12-7-6 would minimize erosion, soil loss, and ultimately, sedimentation of surface waters, as well as qualify the Proposed Project for the airport exemption from additional Erosion and Sedimentation Act permitting requirements.

The Proposed Project is consistent with this policy.

1.2.3.11. GAME AND FISH CODE

O.C.G.A. 27-1-3 General Description

Officially titled Ownership and custody of wildlife; privilege to hunt, trap, or fish; general offenses, provides the ownership of, jurisdiction over, and control of all wildlife to be vested in the State of Georgia. The section declares that custody of all wildlife in the State is vested with the Georgia Department of Natural Resources for management and regulation. The Wildlife Resources Division is the principal State agency vested with statutory authority for the protection, management and conservation of terrestrial wildlife and fresh water wildlife resources, including

fish, game, nongame, and endangered species. All licensing of recreational and commercial fish and wildlife activities, excluding shellfish, is performed by the Wildlife Resources Division. The Coastal Resources Division issues shellfish permits, regulates marine fisheries activities including the opening and closing of the commercial shrimp harvesting season, areas of shrimp harvest, regulates marine species size and creel limits, and enforces the National Shellfish Sanitation Program. The Commissioner of the Department of Natural Resources has directed that there will be cooperation and coordination between the Divisions of the Department in the administration of their respective responsibilities.

The Proposed Project would not affect hunting, trapping, or fishing activities, nor would it impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.12. GROUNDWATER USE

O.C.G.A. 12-5-90 General Description

The Groundwater Use Act charges the Board of Natural Resources with the responsibility to adopt rules and regulations relating to the conduct, content, and submission of water conservation plans, including water conservation practices, water drilling protocols, and specific rules for withdrawal and utilization of groundwater. The Environmental Protection Division administers these rules and regulations. Groundwater withdrawals of greater than 100,000 gallons per day require a permit from the Environmental Protection Division. Permit applications that request an increase in water usage must also submit a water conservation plan approved by the Director of Environmental Protection Division (O.C.G.A. 12-5-96). The Environmental Protection Division has prepared a comprehensive groundwater management plan for coastal Georgia that addresses water conservation measures, protection from saltwater encroachment, reasonable uses, preservation for future development and economic development issues. The Memorandum of Agreement with the Environmental Protection Division ensures that permits issued under the Groundwater Use Act must be consistent with the Coastal Management Program.

The Proposed Project would not include well drilling or groundwater access and withdrawal, nor would it impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.13. HAZARDOUS WASTE MANAGEMENT

O.C.G.A. 12-8-60 General Description

The Georgia Hazardous Waste Management Act describes a comprehensive, State-wide program to manage hazardous wastes through regulating hazardous waste generation, transportation, storage, treatment, and disposal. Hazardous waste is defined by the Board of Natural Resources, and it includes any waste that the Board concludes is capable of posing a substantial present or future hazard to human health or the environment when improperly treated, transported, stored, disposed, or otherwise managed, based on regulations promulgated by the

U.S. Environmental Protection Agency. The Hazardous Waste Management Act is administered and implemented by the Environmental Protection Division.

All contractors involved with implementing the Proposed Project would be required to comply with State and Federal laws and regulations regarding hazardous waste management and spill prevention. Hazardous wastes generated at facilities developed by the Proposed Project would be managed according to all applicable laws and regulations.

The Proposed Project is consistent with this policy.

1.2.3.14. HERITAGE TRUST

O.C.G.A. 12-3-70 General Description

Georgia's Heritage Trust Act of 1975 seeks to preserve certain real property in Georgia that exhibits unique natural characteristics, special historical significance, or particular recreational value. This Act created the Heritage Trust Commission, composed of 15 members appointed by the Governor who represent a variety of interests and expertise. The Commission served as an advisory body to the Governor and to the Board of the Department of Natural Resources, making recommendations concerning the identification, designation, and acquisition of heritage areas. Although this Act is still in Georgia law, the Commission's term expired and the implementation and administration of many of the goals of the Act has been superseded by the Heritage 2000 Program.

The Proposed Project is located in a developed area with restricted access and would not impact natural, pristine, recreational, or historically significant areas, and therefore would not impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.15. HISTORIC AREAS

O.C.G.A. 12-3-50 General Description

The authority found at O.C.G.A. 12-3-50 provides the Department of Natural Resources with the powers and duties to "promote and increase knowledge and understanding of the history of this State from the earliest times to the present, including the archeological, Indian, Spanish, colonial, and American eras, by adopting and executing general plans, methods, and policies for permanently preserving and marking objects, sites, areas, structures, and ruins of historic or legendary significance, such as trails, post roads, highways, or railroads; inns or taverns; rivers, inlets, millponds, bridges, plantations, harbors, or wharves; mountains, valleys, coves, swamps, forests, or Everglade; churches, missions, campgrounds, and places of worship; schools, colleges, and universities; courthouses and seats of government; places of treaties, councils, assemblies, and conventions; factories, foundries, industries, mills, stores, and banks; cemeteries and burial mounds; and battlefields, fortifications, and arsenals. Such preservation and marking may include the construction of signs, pointers, markers, monuments, temples, and museums,

which structures may be accompanied by tablets, inscriptions, pictures, paintings, sculptures, maps, diagrams, leaflets, and publications explaining the significance of the historic or legendary objects, sites, areas, structures, or ruins." The Department is also required to "promote and assist in the publicizing of the historical resources of the State by preparing and furnishing the necessary historical material to agencies charged with such publicity; to promote and assist in making accessible and attractive to travelers, visitors, and tourists the historical features of the State by advising and cooperating with State, federal, and local agencies charged with the construction of roads, highways, and bridges leading to such historical points." The Historical Preservation Division is charged with carrying out these duties, and coordinates its activities in the coastal area with the Coastal Resources Division.

The Airport's property was surveyed to identify potential for cultural resources within the historic architectural and archaeological resources Area of Potential Effects (APE). An archaeological and historical literature and background information search pertinent to the project APE was performed to determine the types, chronology, and locations of previously recorded cultural resources and studies within or near the Proposed Project area. The search included review of the Georgia Natural Archaeological and Historic Resources Geographic Information system, Historic Surveys and National Register of Historic Places nomination forms. Per Appendix E of this EA, no significant historical or archaeological resource impacts are anticipated from the Proposed Project.

1.2.3.16. NATURAL AREAS

O.C.G.A. 12-3-90 General Description

The Georgia Natural Areas Act authorizes the Department of Natural Resources to identify areas in the State of Georgia which are of unusual ecological significance, and to secure the preservation of such areas in an undisturbed natural state. The purpose for such acquisition is to allow scientific study of the property, to educate, to "serve as examples of nature to the general public," and to "enrich the quality of our environment for present and future generations." Natural areas, as defined by the Act, are tracts of land in their natural state that are to be set aside and permanently protected or managed for the purpose of preserving natural plant or animal communities, rare or valuable members of such communities, or any other natural features of significant scientific, educational, geologic, ecological, or scenic value.

Implementation of the Proposed Project will result in the conversion of approximately 13.2 acres of a forested wetland to a stormwater pond. However, compensatory mitigation will be provided for impacts to wetland habitat. The majority of the Proposed Project is located in an already developed area and will not impact natural animal or plant communities, rare or valuable members of such communities, or any other natural features of significant scientific, educational, geologic, ecological, or scenic value.

This policy is not applicable to the Proposed Project.

1.2.3.17. OIL AND GAS AND DEEP DRILLING*O.C.G.A. 12-4-40 General Description*

Georgia's Oil and Gas and Deep Drilling Act regulates oil and gas drilling activities to provide protection of underground freshwater supplies and certain "environmentally sensitive" areas. The Board of Natural Resources has the authority to implement this Act. The Act establishes requirements for drilling, casing, and plugging of wells for oil, gas, or mineral exploration: (1) to alleviate escape of gas or oil from one stratum to another; (2) to prevent the pollution of freshwater by oil, gas, salt water or other contaminants; (3) to prevent drowning of any stratum that might reduce the total ultimate recovery of gas or oil; and, (4) to prevent fires, waste, and spillage of contaminants such as oil.

The Proposed Project would not include activities associated with oil and gas deep drilling or impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.18. PHOSPHATE MINING*O.C.G.A. 12-4-100 General Description*

Officially titled Licenses to dig, mine, and remove phosphate deposits; restrictions on license holders, this law describes the State's management of phosphate deposits. There is great interest in phosphate mining in Georgia. In fact, the citizens of Georgia developed the Coastal Marshlands Protection Act in an effort to limit potential adverse environmental impacts from a proposed phosphate mining operation. The Secretary of State is charged with the administration of this statute, and is networked with the Georgia Coastal Management Program.

The Proposed Project would not include digging, mining, or removal of phosphate deposits, nor would it impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.19. REVOCABLE LICENSE PROGRAM

O.C.G.A. 50-16-61 General supervision and office assignment. (Under the Administrative Procedures Act, Revocable License Program) The Governor shall have general supervision over all property of the state with power to make all necessary regulations for the protection thereof, when not otherwise provided for.

General Description

O.C.G.A. 50-16-61 describes the general supervision of State properties as the responsibility of the Governor. Under this authority, the Department of Natural Resources, Coastal Resources Division issues Revocable Licenses for recreational docks on State-owned tidal water bottoms. In 1995, the Georgia Supreme Court found that the State owns fee simple title to the foreshore

on navigable tidal waters and, as a result, owns the river's water bottoms up to the high water mark and may regulate the use of these tidelands for the public good. (Dorroh v. McCarthy 265 Ga. 750, 462 S.E. 2d 708 (1995)). The opinion of the State Attorney General states: "In managing tidelands, the Department of Natural Resources acts under the authority of this section and the Department's employment of the extension of property lines method of allocating use of State-owned waterbottoms may be generally acceptable, but rigid adherence to such a policy when it denies deep water access to a riparian or littoral owner, may cause inequitable results (1993 Op. Att'y Gen. No. 93-25.) As described in the State Properties Code (O.C.G.A. 50-16-30, et seq.), the term "Revocable License" means "the granting, subject to certain terms and conditions contained in a written revocable license or agreement, to a named person or persons (licensee), and to that person or persons only, of a revocable privilege to use a certain described parcel or tract of the property to be known as the licensed premises for the named purpose." A Revocable License may be revoked, cancelled, terminated, with or without cause, at any time by the licensor.

The Proposed Project would not include development or construction of recreational docks or impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.20. RIGHT OF PASSAGE

O.C.G.A. 52-1-30 General Description

The Right of Passage Act declares the right of use of all navigable waterways of the state by all citizens of Georgia. The Act establishes the mechanism to remove "structures" that are capable of being used as a place of habitation, are not used as or are not capable of use as a means of transportation, and do not have a permit under the Act. Permits shall not be issued for a term ending after June 30, 1997. The Right of Passage Act is implemented by the Department of Natural Resources Law Enforcement Division. (This is similar to the Protection of Tidewaters Act, except that it is specific to all navigable waters rather than tidewaters Georgia.)

The Proposed Project would not affect navigable waterway use or construct or impact any structures regulated by the Act, nor would it impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.21. RIVER CORRIDOR PROTECTION

O.C.G.A. 12-2-1 General Description

The statute that is informally known as the Mountain and River Corridor Protection Act (O.C.G.A. 12-2-8) authorizes the Department of Natural Resources to develop minimum standards for the protection of river corridors (and mountains, watersheds, and wetlands) that can be adopted by local governments. The Act is administered by the Environmental Protection Division. All rivers in Georgia with an average annual flow of 400 cubic feet per second are covered by the Act, except those within the jurisdiction of the Coastal Marshlands Protection Act. Some of the major provisions of the Act include: requirements for a 100-foot vegetative buffer on both sides of rivers;

consistency with the Georgia Erosion and Sedimentation Act; and local governments must identify river corridors in land-use plans developed under their respective comprehensive planning acts. Regional Development Centers are instrumental in helping local governments enact the provisions of this Act. The Coastal Georgia Regional Development Center prepared a Regional River Corridor Protection Plan for counties within their jurisdiction. The Plan describes the ten local governments and the associated rivers that are affected by the River Corridor Protection Act, and puts forward a regional plan for the protection of river corridors. Regional plans are preferable to having local governments prepare individual plans. The plan provides for construction of road crossings, acceptable uses of river corridors, maintenance of a vegetative buffer along the river for a minimum of 100 feet from the river's edge (residential structures are allowed within the buffer zone), timber production standards, wildlife and fisheries management, recreation, and other uses. The local governments within the Coastal Regional Development Center jurisdiction affected by the River Corridor Protection Act, and their respective rivers are listed below. Eight coastal counties and two coastal cities (Richmond Hill and Woodbine) are affected. Adoption of language addressing the River Corridor Protection Act is required in local comprehensive plans. The following counties and cities have adopted a Regional River Corridor Protection Plan.

Bryan County: Canoochee River, Ogeechee River

City of Richmond Hill: Ogeechee River

Camden County: Satilla River, St. Mary's River

City of Woodbine: Satilla River

Chatham County: Savannah River

Effingham County: Ogeechee River, Savannah River

Glynn County: Altamaha River

Liberty County: Canoochee River

Long County: Altamaha River

McIntosh County: Altamaha River

The following coastal counties have not yet adopted a River Corridor Protection Plan (as of August 1997).

Charlton County: St. Mary's River

Brantley County: Satilla River

Wayne County: Altamaha River

Jurisdiction of the River Corridor Protection Act extends along the above named rivers from the limit of Coastal Marshlands Protection Act jurisdiction upstream through the coastal counties.

The Proposed Project would be implemented well outside the 100-foot vegetated buffer required for the Savannah River in Chatham County. Implementation of erosion and sedimentation prevention measures during construction would be consistent with Mountain and River Corridor Protection Act requirements. No other component of, or activity associated with the Proposed Project would be under the jurisdiction of the Act.

The Proposed Project is consistent with this policy.

1.2.3.22. SCENIC RIVERS

O.C.G.A. 12-5-350 General Description

The Georgia Scenic Rivers Act of 1969 defines "scenic river" to mean certain rivers or section of rivers that have valuable scenic, recreational, or natural characteristics that should be preserved for the benefit and enjoyment of present and future generations. Certain sections of rivers are named in the Act, and the process for designating other sections of Georgia rivers is described. The Georgia Scenic Rivers Act is administered by the Environmental Protection Division.

The Proposed Project would not affect designated scenic rivers or stretches of river eligible for scenic designation. This policy is not applicable to the Proposed Project.

1.2.3.23. SCENIC TRAILS

O.C.G.A. 12-3-110 General Description

The Georgia Scenic Trails Act authorizes the Department of Natural Resources to establish a Scenic Trails System in Georgia. The Department is authorized to construct, maintain, and manage trails on lands acquired through purchase, easement, lease or donation. The purpose is to create a balanced system of trails throughout the State, including urban, bicycle, horse, rural hiking, primitive hiking, historical, bikeways, and combination trails. The Georgia Department of Transportation is authorized to construct the bicycle trails and bikeways after the Department of Natural Resources has determined their routes.

The Proposed Project would occur in a restricted access area that is not eligible for inclusion in the Scenic Trails System and would not impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.24. SEPTIC TANK LAW

O.C.G.A. 31-2-7 and O.C.G.A. 31-3-5.1 General Description

Officially titled Standards for individual sewage management systems, As stated above, the standards and regulations for individual sewage management systems are found at O.C.G.A. 31-

2-7 and 31-3-5.1. The Department of Human Resources and the county boards of health are described and established by Title 31. There are other references for managing septic systems throughout the Code, including references within the River Corridor Protection Act (O.C.G.A. 12-2-8), the Georgia Water Quality Control Act (O.C.G.A. 12-5-20), and others, which make reference to safe siting of septic systems to ensure that leachate from those systems does not infiltrate the waters of the State. The county board(s) of health are provided the authority and the responsibility of ensuring safe installation and maintenance of septic systems.

The Proposed Project would not install, manage, or operate any individual sewage management systems (septic tanks). This policy is not applicable to the Proposed Project.

1.2.3.25. SHELLFISH

O.C.G.A. 27-4-190 General Description

Officially titled Master collecting and picker's permits; hours for taking shellfish; recreational harvesting, the provisions of O.C.G.A. Title 27 (Game and Fish Code), Part 4 describe the regulation of shellfish in Georgia. The provisions describe the requirements for a commercial shellfish harvester to have a license, issued by the Department of Natural Resources pursuant to the requirements of the U.S. Department of Agriculture. The Department also is authorized to approve shellfish growing areas for commercial harvest, and must consider the guidelines established by the National Shellfish Sanitation Program. The Department conducts water sampling in areas that are approved for shellfish in conjunction with the National Shellfish Sanitation Program.

The Proposed Project would not result in or facilitate taking or harvesting of shellfish or impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.26. SHORE PROTECTION

O.C.G.A. 2-5-230 General Description

The Shore Protection Act is the primary legal authority for protection and management of Georgia's shoreline features including sand dunes, beaches, sandbars, and shoals, collectively known as the sand-sharing system. The value of the sand-sharing system is recognized as vitally important in protecting the coastal marshes and uplands from Atlantic storm activity, as well as providing valuable recreational opportunities. The Shore Protection Act limits activities in shore areas and requires a permit for certain activities and structures on the beach. Construction activity in sand dunes is limited to temporary structures such as crosswalks, and then only by permit from the Georgia Coastal Resources Division. Structures such as boat basins, docks, marinas, and boat ramps are not allowed in the dunes. Shore Permits, which are administered by the Coastal Resources Division, are not granted for activities that are inconsistent with the Georgia Coastal Management Program. The Shore Protection Act prohibits operation of any motorized vehicle on or over the dynamic dune fields and beaches, except as authorized for emergency vehicles, and

governmental vehicles for beach maintenance or research. The Shore Protection Act also prohibits storage or parking of sailboats, catamarans, or other marine craft in the dynamic dune field. Direct permitting authority regarding any proposed facilities located within the jurisdictional area the Shore Protection Act lies with the Shore Protection Committee. These permits are administered by the Georgia Coastal Resources Division. This authority is a very important aspect of the Georgia Coastal Management Program, since recreation at the water's edge is a significant demand. Providing public access and recreational opportunities at or near the beach while protecting the sand sharing system is an important component of the Program.

No part of the construction or operation of the Proposed Project would take place within the sand-sharing system, nor would it impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.27. SOLID WASTE MANAGEMENT

O.C.G.A. 12-8-21 General Description

The Georgia Comprehensive Solid Waste Management Act defines the rules regarding solid waste disposal in the State. Solid waste handling facilities must be permitted by the State unless an individual is disposing of waste from his own residence onto land or facilities owned by him and disposal of such waste does not adversely affect human health (O.C.G.A. 12-8-30.10). State law mandates that a county, municipality, or group of counties beginning a process to select a site for municipal waste disposal must first call at least one public meeting. In addition to the above-named jurisdictions, a regional solid waste management authority must hold at least one meeting within the jurisdiction of each participating authority. Meetings held to make siting decisions for any publicly or privately owned municipal solid waste disposal facility must be publicized before the meeting is held (O.C.G.A. 12-8-26). Each city and county is required to develop a comprehensive solid waste management plan that, at a minimum, provides for the assurance of adequate solid waste handling capability and capacity for at least ten years. This plan must identify those sites that are not suitable for solid waste facilities based upon environmental and land use factors (O.C.G.A. 12-8-31.1); these factors may include historic and archeological sites. Solid waste facilities within 5,708 yards of a national historic site are not permitted (O.C.G.A. 12-8-25.1). Solid waste facilities on property owned exclusively by a private solid waste generator are generally exempt from these provisions. Local governments have the authority to zone areas of environmental, historic, or cultural sensitivity and to protect those sites from becoming waste disposal areas regardless of whether they are public or privately owned.

The Proposed Project would not include development or siting of municipal waste disposal sites. This policy is not applicable to the Proposed Project.

1.2.3.28. SURFACE MINING

O.C.G.A. 12-4-70 General Description

Georgia's Surface Mining Act regulates all surface mining in Georgia, including the coastal zone. Dredging or ocean mining of materials are not directly regulated by State authority, except that sand and gravel operations are subject to the Shore Protection Act.

The Proposed Project would not include any mining activities or impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.29. PROTECTION OF TIDEWATERS

O.C.G.A. 52-1-1 General Description

The Protection of Tidewaters Act establishes the State of Georgia as the owner of the beds of all tidewaters within the State, except where title by a private party can be traced to a valid British Crown or State land grant. The Act provides the Department of Natural Resources the authority to remove those "structures" that are capable of habitation, or incapable of or not used for transportation. Permits for such structures may not extend past June 30, 1997. The Act provides procedures for removal, sale, or disposition of such structures. (This is similar to the Right of Passage Act, except that it is specific to tidewaters rather than all waters of Georgia.)

The Proposed Project would not affect areas under the jurisdiction of this statute or impede the ability of the State to implement and enforce the policy. This policy is not applicable to the Proposed Project.

1.2.3.30. UNDERGROUND STORAGE TANK

O.C.G.A. 12-13-1 General Description

The Underground Storage Tank Law provides the authority for the Environmental Protection Division to define the State criteria for operating, detecting releases, corrective actions, and enforcement of the utilization of underground storage tanks (USTs). The rules, found at Chapter 391-3-15 of the Rules and Regulations of the State of Georgia, establish minimum standards and procedures to protect human health and safety and to protect and maintain the quality of groundwater and surface water resources from environmental contamination that could result from any releases of harmful substances stored in such tanks. These requirements reflect the federal law regulating underground storage tanks as well as the applicable State rules. All facilities with underground storage tanks are subject to these requirements. The Memorandum of Agreement between the Coastal Resources Division and the Environmental Protection Division ensures cooperation and coordination in the implementation of UST standards within the coastal area.

The Proposed Project would not install USTs. This policy is not applicable to the Proposed Project.

1.2.3.31. WATER QUALITY CONTROL

O.C.G.A. 12-5-20 General Description

The Georgia Water Quality Control Act grants the Environmental Protection Division authority to ensure that water uses in the State of Georgia are used prudently, are maintained or restored to a reasonable degree of purity, and are maintained in adequate supply. In the administration of this law, the Environmental Protection Division can revise rules and regulations pertaining to water quality and quantity, set permit conditions and effluent limitations, and set permissible limits of surface water usage for both consumptive and non-consumptive uses through the Board of Natural Resources. Through a Memorandum of Agreement between the Environmental Protection Division and the Coastal Resources Division, the rules and permits of the Environmental Protection Division are administered in a manner consistent with the enforceable policies of the Coastal Management Program. The authority to regulate the rivers, streams, lakes, and subsurface waters throughout the State for public and private water supply and agricultural, industrial, and recreational uses is provided to the Environmental Protection Division. The Act makes it unlawful for any person to dispose of sewage, industrial wastes, or other wastes, or to withdraw, divert, or impound any surface waters of the State without a permit. Tourism and recreational entities, manufacturing and transportation facilities, and other activities found in the coastal zone covered under the policies of the Georgia Coastal Management Program are responsible for compliance with the regulations implementing the Georgia Water Quality Control Act.

The Proposed Project would not include any disposal of sewage or waste into, or withdrawal, diversion, or impoundment of the surface waters of the state. Proposed Southeast Quadrant drainage improvements would consist of new facilities to treat and attenuate the stormwater runoff generated from existing impervious surfaces, as well as any new impervious surfaces associated with the Proposed Project, thereby minimizing potential impacts to surface water quality resulting from the Proposed Project.

The Proposed Project is consistent with this policy.

1.2.3.32. WATER WELL STANDARDS

O.C.G.A. 12-5-120 General Description

The Water Wells Standards Act of 1985 provides standards for siting, constructing, operating, maintaining, and abandoning wells and boreholes. The Act requires that individual and non-public wells must be located as far removed from known or potential sources of pollutants as possible. Licensing requirements for drilling contractors are established by the Act, as well as a State Water Well Standards Advisory Council. The Council is authorized to adopt and amend rules and regulations that are reasonable to govern the licensing of well contractors. Compliance with the Water Wells Standards Act is required for all activities that utilize well water. The provisions of the Act are enforceable under Georgia law. The Council may file a petition for an injunction in the appropriate superior court against any person that has violated any provisions of the Act.

The Proposed Project would not include construction, operation, maintenance, or abandonment of wells or boreholes. This policy is not applicable to the Proposed Project.

1.2.3.33. WILDFLOWER PRESERVATION*O.C.G.A. 12-6-170 General Description*

The Wildflower Preservation Act provides for designation of and protection of plant species that are rare, unusual, or in danger of extinction. Additional species may be added by the Board of Natural Resources at any time. The protection offered to these species is limited to those that are found on public lands of the State. It is a misdemeanor to transport, carry, convey, sell, cut, pull up, dig up, or remove protected species listed by this Act.

The Proposed Project would not occur on public lands of the State and would not impede the implementation and enforcement of the Policy. This policy is not applicable to the Proposed Project.

1.3. BIBLIOGRAPHY

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GADNR, 2017a. Enforceable Policies. Updated 17 April 2017.

GADNR, 2017b. Federal Consistency Determination Guidance. Updated 17 April 2017.

APPENDIX E

Cultural Resources Assessment Survey

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Phase I Cultural Resources Assessment Survey for the Short-Term Development Program at the Savannah/Hilton Head International Airport

Chatham County, Georgia

October 24, 2019

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Quality information

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Abstract

This Phase I Cultural Resources Assessment Survey was conducted for the proposed Short-Term Development Program at the Savannah/Hilton Head International Airport (i.e., SAV, or the Airport) in Chatham County, Georgia, hereinafter referred to as the Proposed Project. The area of potential effect (APE) of the Proposed Project for Archaeology consists of three discrete parcels where ground disturbing activities are planned. The Historic Structures APE for the evaluation of historic architectural resources was based upon two components: (1) the areas of direct ground disturbance, inclusive of a 100-foot buffer to account for any indirect ground disturbance activities that may occur during construction, such as materials and equipment staging, and (2) the area that corresponds to that within the predicted composite 65 decibel day-night average sound level (DNL 65 dB) noise contour of the Proposed Project and retained alternatives. The objectives of the study were to identify previously unrecorded cultural resources within the APE and evaluate their potential for listing in the National Register of Historic Places (NRHP).

This study was conducted pursuant to Section 106 of the National Historic Preservation Act (NHPA), in compliance with the regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulation (CFR) 800). All work conforms to professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 CFR 44716, as amended and annotated). All work also conforms to the Georgia Council for Professional Archaeologists *Georgia Standards and Guidelines for Archaeological Survey* (Georgia Council for Professional Archaeologists 2014).

Field work was conducted between October 14 and 16, 2019, and included the excavation of four shovel test pits (STPs). The property conditions on all three parcels with archaeological concerns included wetland conditions and severe ground disturbance. No new archaeological sites were identified. One standing resource was identified within the APE that is 50 years old or older or appears to be of exceptional importance, Building 1220. This hangar was constructed between 1952 and 1956. It is recommended as not eligible for NRHP listing. Based on the results of the current survey, no further archaeological or historical structures work is recommended for the APE. No Historic Properties will be affected by the Proposed Project.

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1. Introduction

AECOM Technical Services, Inc. (AECOM), under contract with the Savannah Airport Commission (Commission), is working to provide cultural resources management services for the proposed variety of airside and landside development projects within its Short-Term Development Program at Savannah/Hilton Head International Airport (i.e., SAV or the Airport), hereinafter referred to as the Proposed Project (Figure 1). In accordance with the National Environmental Policy Act of 1969 (NEPA) and Federal Aviation Administration (FAA) implementing regulations, the Commission is preparing an Environmental Assessment (EA) to consider and document the potential social, economic, and environmental impacts associated with the Proposed Project. Figure 2 shows the extent of the Proposed Project, which is comprised of the following development actions:

- Air Cargo Ramp West Phase I (Project #1);
- Air Cargo Ramp East Phase II (Project #2);
- Taxiway G and Bridge Phase III (Project #3);
- Taxiway G Extension (Project #4);
- Taxiway Connectors and Improvements (Project #5);
- Reconstruct North Apron Phase I (Project #6);
- North Apron Construction Phase II/Vault Relocation (Project #7);
- Southeast (SE) Quadrant Drainage Improvements (Project #8);
- SE Taxiway/GA 5 Partial Reconstruction (Project #9)
- Aviation Related Development Area (Project #10); and
- General Aviation (GA) Redevelopment Area (Project #11).

AECOM conducted a Phase I Cultural Resources Assessment Survey (CRAS) of the area of potential effect (APE) for the Proposed Project. The APE for archaeology included three parcels (Project Area No. 1; Project Area No. 2; Project Area No. 8) where ground disturbance activities were planned, including materials and equipment staging. Project Areas No. 3-5 were not surveyed as they consisted of a canal and ditch system. The three parcels under study total 38 acres (Figure 3). The FAA established an APE for the evaluation of historic architectural resources based upon two components: (1) the areas of direct ground disturbance, inclusive of a 100-foot buffer to account for any indirect ground disturbance activities that may occur during construction, such as materials and equipment staging, and (2) the area that corresponds to that within the predicted composite 65 decibel day-night average sound level (DNL 65 dB) noise contour of the Proposed Project and retained alternatives (Figure 3). This APE was used to identify, disclose, and evaluate potential impacts on eligible historic architectural resources protected by the NHPA (see August 1, 2019 letter contained in the EA from Felicia K. Reeves of FAA to Jennifer Dixon of the Georgia State Historic Preservation Office [GA SHPO]).

This work was conducted pursuant to Section 106 of the National Historic Preservation Act (NHPA 1966, as amended) and conforms to the professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 Code of Federal Regulation (CFR) 44716, as amended and annotated). The work was also conducted pursuant to the following:

- Archaeological and Historic Preservation Act of 1974, as amended
- the Georgia Council for Professional Archaeologists' *Georgia Standards and Guidelines for Archaeological Survey* (GCPA 2014).

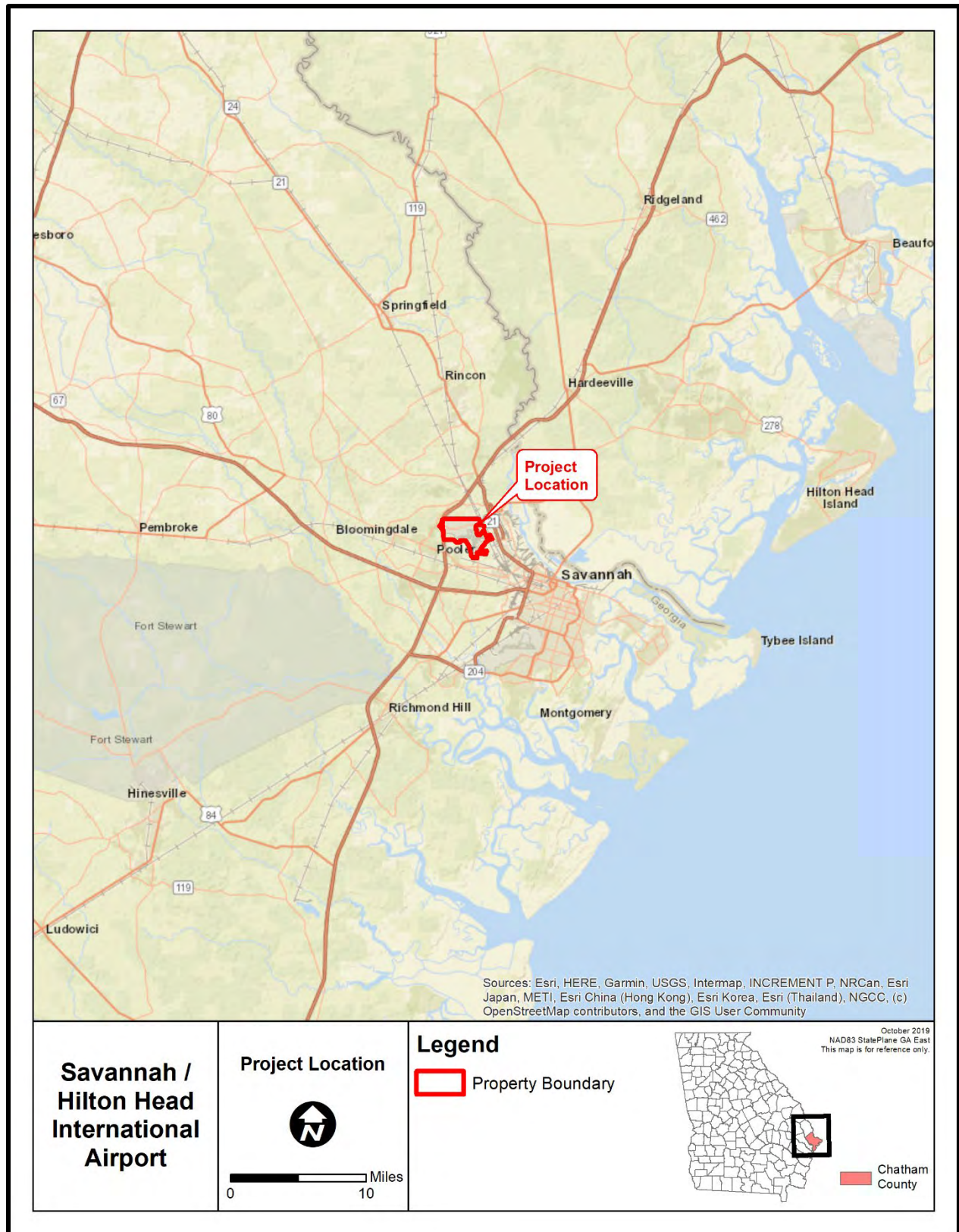


Figure 1. Project location

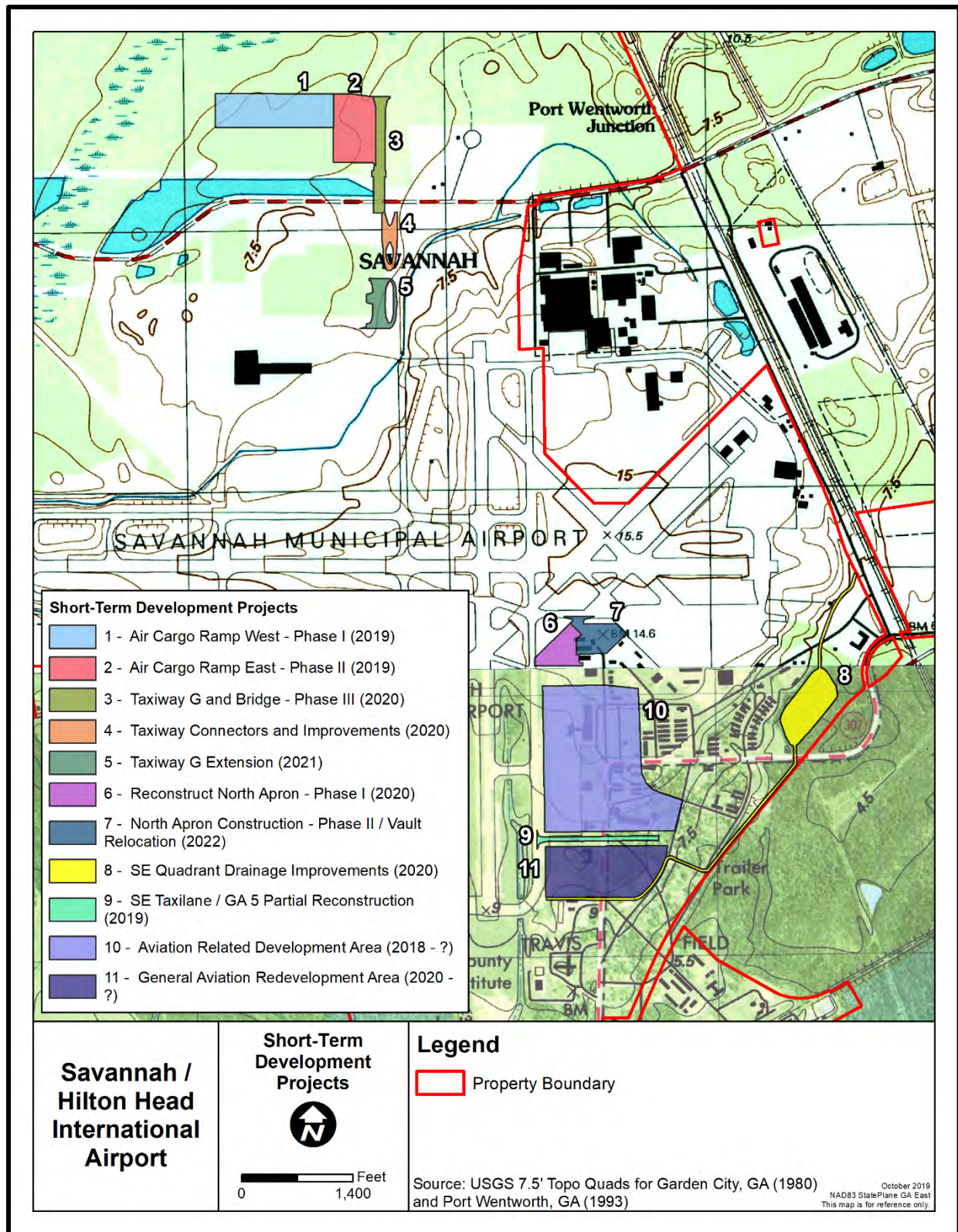


Figure 2. Proposed SAV Short-Term Development Projects

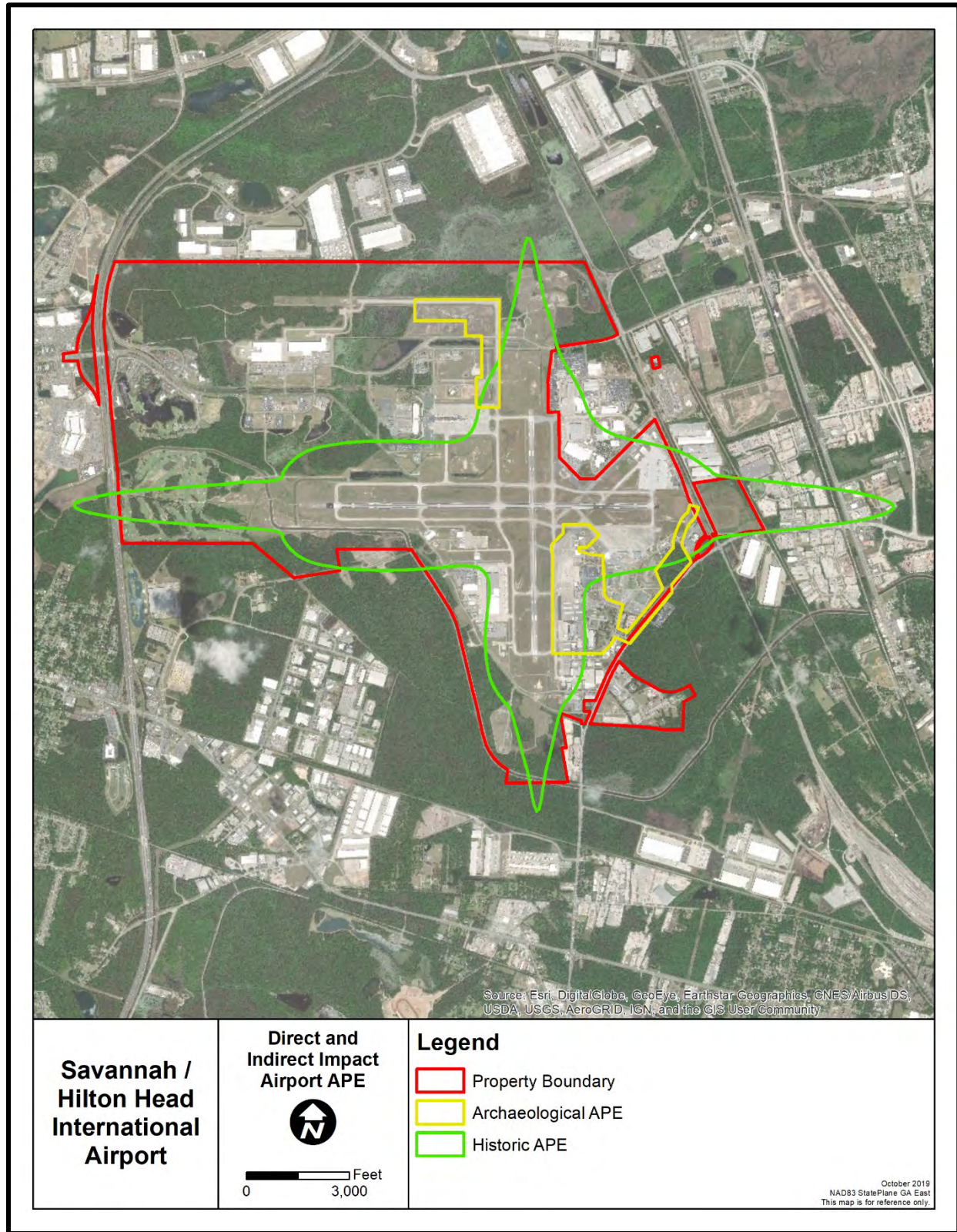


Figure 3. Archaeological and Historic APEs

The background research conducted within one mile of the APE revealed the presence of 18 archaeological sites. In addition to this CRAS, Environmental Services, Inc. (ESI) prepared a CRAS in March 2010 for the North Aviation Development Tract located in the northwest portion of the APE. During the survey, no prehistoric or historic archaeological sites were recorded, and no further archaeological work was recommended for the property. ESI also conducted a search of historic properties in the general area with the nearest historic property located over 0.5 mile from the project area.

Regarding the current study, AECOM's Phase I CRAS included general background research and a review of the Georgia Archaeological Site File (GASF) and Georgia's Natural, Archaeological, and Historical Resources Geographic Information System (GNAHRGIS) online database. David G. Hahs (AECOM Atlanta) assisted greatly with the generation of the Environmental and Cultural context, and Gregory Hicks assisted with the GASF and GNAHRGIS research. Regarding the archaeology portion of the project, a pedestrian and subsurface shovel testing survey was conducted within the APE. Mark Martinkovic served as the Principal Investigator for the archaeological survey on this project and was the primary author of this report, which adheres to the standard Phase I CRAS format. Marvin Brown served as the lead Architectural Historian on this report and authored the Architectural History and History sections. Archaeological fieldwork was conducted by Mark Martinkovic and Gregory Hicks on October 14-16, 2019 and included the excavation of four shovel test pits (STPs), pedestrian survey, and photographic documentation. No archaeological sites were identified within the APE. Architectural historic fieldwork was performed within the project's APE on October 14, 2019 by Marvin Brown of AECOM. Based on the results of current survey, no further archaeological work is recommended for the APE. No Historic Properties will be affected by the Proposed Project.

2. Environmental Overview

Physiography

The project area lies within the Coastal Plain physiographic province of Georgia, and within the Lower Coastal plain physiographic District. More specifically, the project area occupies the Atlantic Coastal Plain (Jackson and Stakes 2004). The Coastal Plain province is the largest physiographic region in Georgia. The Coastal Plain province covers approximately 60 percent of the state's land mass and it was once ocean floor (Jackson and Stakes 2004). The soil deposits left behind by erosion activities from the Piedmont into the Coastal Plain have created the soft and sandy soil that is typically found in South Georgia. This soft sand allowed rivers to widen and the flow to slow, in turn allowing for easy navigation. The Savannah River flows in the northeastern edge of the region. The large floodplains of the region are associated with swamp systems that restore the groundwater, reduce water pollution, and provide wildlife habitat (Smith, et al. 2017). The survey area is typical of this area with the Savannah River running north of the project area. Chatham County is the easternmost county in Georgia and is characterized by nearly level terrain to gently rolling hills. The highest elevation in the county is Cherokee Hill at 53 feet above mean sea level (amsl) (Smith, et. al. 2017). Elevations in the project area range from 10-20 feet amsl.

Hydrology

The Savannah River is a little over one mile east of the project area. The project area is situated between the Savanna River and the Ogeechee river. These rivers are the primary drainage systems in Chatham County. The tidewater country is traversed by a network of tidal streams and salt creeks. Savannah is built on a 40-foot tall hill bordering the Savannah River, approximately 18 miles inland from the Atlantic Ocean (Smith, et. al. 2017).

Paleoenvironment

Paleo-climatological research provides data on the precontact environment of the project region. During the last 10,000 years, a modern, somewhat xeric forest covered much of the southeastern United States (Wharton 1978). As the climate warmed, increased moisture augmented the northward advance of the oak-hickory forest. From 4,000 years before present (BP) to the modern period, the thinning of deciduous forests characterized the upland vegetation of the Southeast. Hickory and gum trees became less numerous, and alder and ragweed proliferated (Delcourt and Delcourt 1991). This forest thinning suggests an increase in human-related activities (e.g., timbering). Similarly, the prominence and overall spread of pine species during this time would have depended on several factors, including fire, land clearing, and soil erosion. As American Indians and Euro-Americans modified their environment, native species spread into new areas, while immigrant species, introduced by migrating populations, spread with the development of agriculture. Floral diversity probably became more widespread and more uniform as people cultivated formerly-native habitats.

Project Area Soils

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey for the SAV were reviewed within the Archaeological APE (Figure 4; Figure 5). The soil types within Project Areas No. 1, 2, and 8 included poorly-drained Wetland soils or heavily altered Urban terrain. A full list of the soil types and their associated drainage characteristics is provided in Appendix D.

Flora and Fauna

The project area was mostly impacted by modern development, however there were several locations bordering the airport property containing wetland vegetation. Wharton (1978) lists seven distinct environments in the Coastal Plain province, delineated by their floral diversity and topography. The project area is within the Atlantic Coastal Plain Section ecoregion. When not subjected to modern development, such forests are made up of an overstory of mixed oak-pine vegetation including loblolly, shortleaf pine, sweetgum, yellow-poplar, red oak, and white oak. Understory species include dogwood, gallberry, sweetleaf, American holly, greenbrier, southern bayberry, little bluestem, Elliott bluestem, threeawn, grassleaf goldaster, native lespedezas, low panicums, and farkleberry. Among the fauna in this Section are white-tailed deer, turkey, rabbit, squirrel, bobwhite quail, and mourning dove. The herpetofauna include the box turtle, common garter snake, and timber rattlesnake.

Current Conditions and Land Use

SAV has been in operation since the 1940s and many ground-disturbing operations have occurred during its time of operation. The current study revealed that areas of disturbed soil, airport dumping, reclaimed land, re-deposited fill, and drainage ditches are present throughout the Airport property, mainly within and adjacent to the runways and hangars. The main Airport property has been cleared of vegetation; however, there are areas containing naturally forested areas, located mainly in the southeastern portion of the Airport property. The built environment mainly includes the runways, hangars, and access roads.

The Airport property is located on the Port Wentworth and Garden City U.S. Geological Survey (USGS) topo maps. SAV is located immediately east of the Interstate 95 corridor. The north side of SAV is bounded by Jimmy DeLoach Parkway. The east side of SAV is bounded by State Road 21. The south side of SAV is bounded by U.S. 80. The current setting of the APE is mostly cleared of vegetation, with either manicured runway borders or wetland.

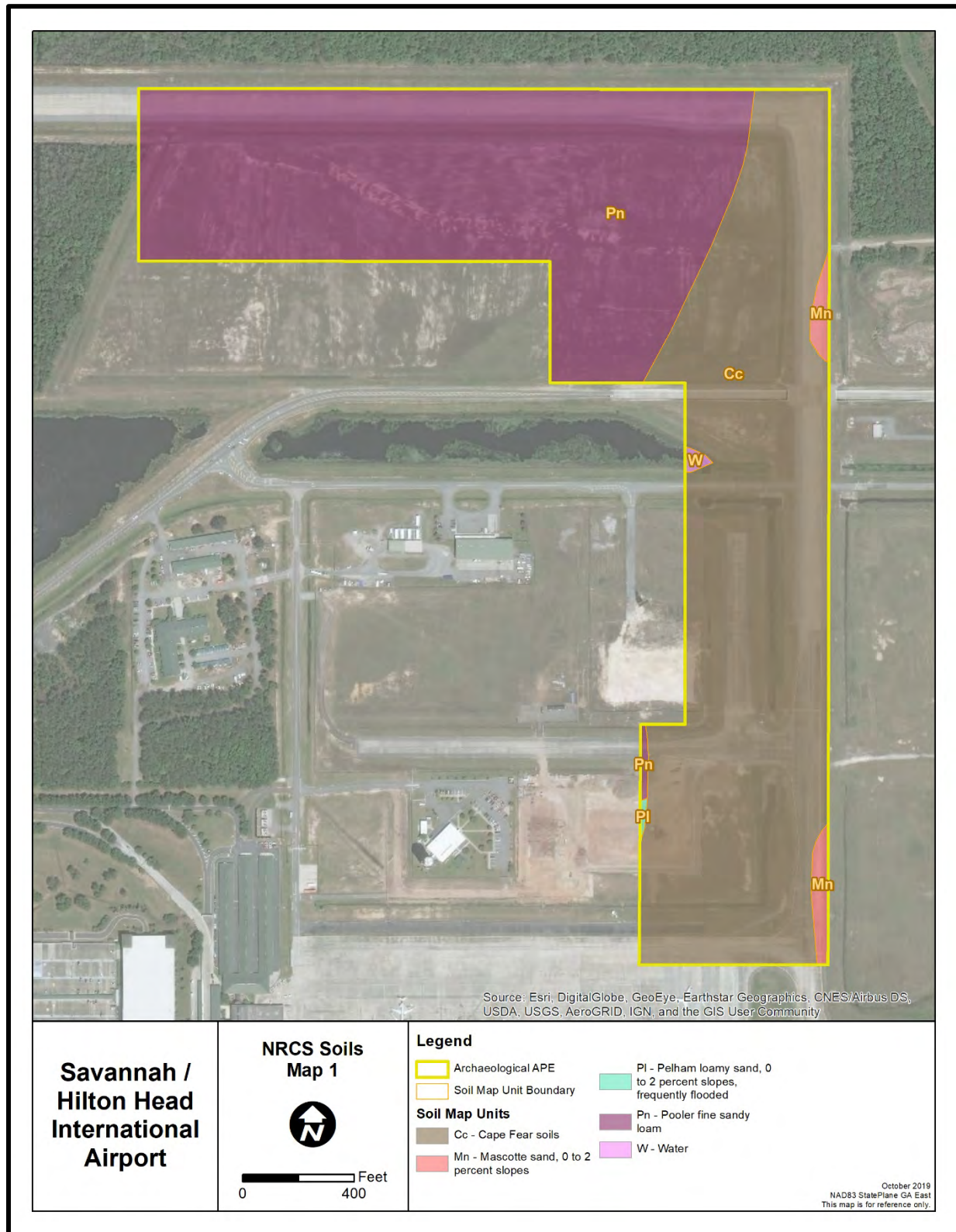


Figure 4. SAV soil map, Project Areas 1 and 2

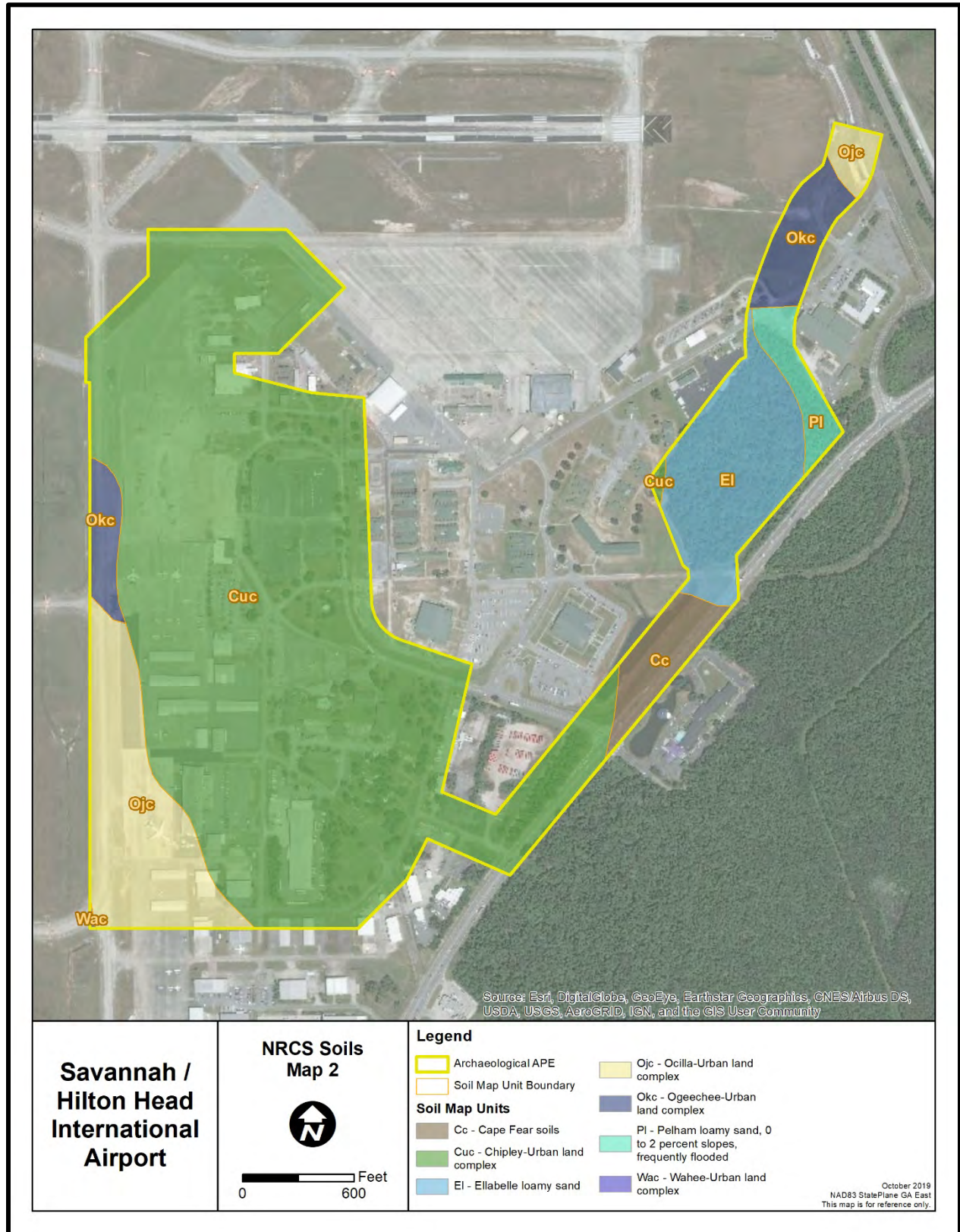


Figure 5. SAV soil map, Area 8

3. Cultural Context

The GA SHPO has developed cultural contexts that provide a necessary framework for the description and analysis of known and anticipated cultural resources. The contexts are organized by geographic region, time/developmental period, and theme, and are the basis for evaluating the significance of resources within the APE. The sections that follow summarize the relevant information for each time period in the region. The GA SHPO divides the prehistory of the State of Georgia into four general periods:

- Paleoindian (12,000-7,900 Before Christ (B.C.)),
- Archaic (7,900-500 B.C.),
- Woodland (500 B.C.-Anno Domini (A.D.) 1500), and
- Mississippian (A.D. 1000-1500).

Paleoindian Period (12,000-7,900 B.C.)

It was during the Paleoindian period that human occupation of the New World began. At present, it is uncertain when the first human populations permanently settled the western hemisphere, although most scholars believe it occurred sometime between 20,000 and 13,000 years ago, during the last stages of the Pleistocene glaciation. The earliest radiocarbon ages date from ~14,500 calendar years ago at the Page-Ladson site in Florida (Halligan et al. 2016). The end of the Paleoindian period coincided with the Pleistocene/Holocene transition and in most areas of the Southeast is given an arbitrary terminal date of 8000 B.C. In the Southeast and Georgia, the Paleoindian period is typically divided into three broad temporal categories, Early, Middle, and Late or Transitional, based, in part, on the occurrence of specific projectile point types. The Early Paleoindian period is typically characterized by relatively large lanceolates, which are similar to the classic Southwestern Clovis forms or variants, while the Middle Paleoindian period is characterized by unfluted lanceolates and Simpson or Suwannee types. The Late Paleoindian period in Georgia is characterized by Dalton and other related points (Anderson et al. 1990).

Traditional characterizations of Paleoindians portrayed them as nomadic hunters of Pleistocene megafauna, such as mammoth, mastodon, and bison. However, those descriptions were based on data from archaeological sites in the western United States. Reevaluations based on data from the Southeast (Clausen et al. 1979; Sassaman et al. 1990) and the Northeast, suggest that these groups relied on a broader diet that included small mammals and plants. These interpretations further suggest that settlement patterns were probably less mobile or nomadic than traditionally thought (Anderson et al. 1990; O'Steen 1996). The end of the Paleoindian period (ca. 8000 B.C.) was associated with the end of the Wisconsin Ice Age and a shift to modern environmental conditions. New settlement and subsistence patterns were established as populations grew and regional technologies changed. These trends are associated with the subsequent Archaic period.

The most extensive evidence for Paleoindian settlement in eastern Georgia is in Colquitt County which is to the southeast of Chatham County. This evidence is minimal though and there are few early and middle Paleoindian period data in the eastern part of Georgia. This low incidence of Paleoindian diagnostic artifacts may reflect an avoidance of the area, based on either the ecology of the area or a low incidence of high-quality lithic material (Anderson et al. 1990).

Archaic Period (8,000-500 B.C.)

The transition from the Paleoindian to the Archaic period was gradual and likely related to the emergence of modern climactic conditions, similar to those the first European explorers and settlers encountered. In Georgia, the transition has been dated to ca. 8000 B.C. Changes in

technology, population demography and diversity in social organization characterize this period. The growth of subregional traditions is marked by the appearance of a range of notched and/or stemmed hafted biface types across the Southeast (Sassaman et al. 1990). The Archaic period is generally divided into Early, Middle, and Late.

During the Early Archaic (ca. 8000 – 6000 B.C.), a dramatic increase in population caused by the warmer climate and relative variety and abundance of food sources, evidenced by the increased number of archaeological sites dating to the period, resulted in decreased group mobility and exploitation of a wider range of food resources. The larger variety of Early Archaic tools suggest more specialized tasks were undertaken as sites were occupied for longer periods. The population was likely organized into small bands of 25 to 50 individuals that coalesced at specific times of the year to more efficiently exploit seasonal resources and take advantage of the benefits provided by a wider social network. Large base camps have been identified primarily in floodplain settings and are characterized by evidence of long-term use.

The beginning of the Middle Archaic (ca. 6000 – 3000 B.C.) in Georgia is correlated with the onset of a period of climatic change known as the Hypsithermal, a period of warmer and drier climatic conditions. During the Middle Archaic, human populations increased in Georgia, sites were still occupied on a temporary basis by mobile bands that were hunting, collecting, and foraging, using an exploitive strategy referred to as “adaptive flexibility” by Blanton and Sassaman (1989). Mobility decreased, and settlement and subsistence strategies became more diversified. Artifacts typical of the Middle Archaic include Stanly, Morrow Mountain, and Brier Creek/Middle Archaic Late Archaic (MALA) projectile point types (Elliott and Sassaman 1995). Middle Archaic projectile points are distinguished from their predecessors by the appearance of stemmed hafted bifaces, which are thought to be an outgrowth of technological traditions of the Carolina Piedmont (Coe 1964; Elliott and Sassaman 1995).

The development of the Late Archaic period (ca. 3000-1000 B.C.) in the Georgia Coastal Plain is marked by a series of technological changes, including the appearance of stemmed, hafted biface forms, increased use of riverine environments, the development of soapstone cooking technology, increased exploitation of shellfish, and the use of more diverse groundstone tools (Elliott and Sassaman 1995:38). These technological developments have been broadly associated with an increase in both population and sedentism. These developments are in turn tied to a general increase in social complexity across the Southeast, as evidenced by the construction of some of the earliest mound sites in North America along the Lower Mississippi River Valley.

Woodland Period (ca. 1000 B.C. – A.D. 1000)

It was the widespread adoption of ceramic technology that marked the beginning of the Woodland period in the region, although the date of demarcation is somewhat arbitrary. Increased social complexity is reflected in widespread Woodland characteristics, such as an increase in long-distance trade, changes in ceramic technology, the development of sedentary village life, and in the cultivation of domestic plants.

Archaeologists divide the Woodland period into Early, Middle, and Late, and archaeological data from sites suggest that the Early Woodland period (ca. 1000-300 B.C.) was a time of increasing sedentism (Ledbetter et al. 1987). Large Early Woodland permanent villages seem to be confined to the floodplains of large rivers. Mast storage pits at Woodland habitation sites indicate that nuts were an important food source (Caldwell 1958). Uplands were used for seasonal foraging and hunting during this period.

In the Coastal Plain, the early Middle Woodland period is marked by the presence of the Deptford ceramic series, which consists of grit-tempered pottery decorated with either check stamping, cord marking, or simple stamping. The Deptford designation was first applied by Caldwell and

Waring (1939), who used the ceramic type series to describe material from the site of the same name situated near Savannah. Deptford culture has traditionally been considered a coastal adaptation, though archaeologists have noted the presence of pottery associated with this culture at sites in the interior Coastal Plain.

Middle to Late Woodland mound sites in Georgia were occupied by people with more complex and less mobile social organizations made possible by improvements in horticulture and ceramic technology. In southwest Georgia, 100 miles from the survey area, the Kolomoki mounds provide a representation of the middle woodland in South Georgia. The mound complex consists of a temple mound surrounded by a large open plaza; houses that may have surrounded the temple are not well preserved in the archaeological record though they are thought to have been arranged in a semi-circle around the plaza (Hudson 1976). Little evidence of agricultural activities is present, though there is ample evidence of hunting activities.

Evidence of Hopewellian ceremonialism and exchange, common in the Midwest, has been identified at only a few sites in Georgia. The most common Middle Woodland (ca. 300 B.C.–A.D. 500) ceramic types include plain, simple stamped, and check stamped ceramics. Swift Creek ceramics, typically a minority ware, are characterized by intricate complicated stamped surface designs. Projectile points occurring in the Middle Woodland period included Yadkin, Bakers Creek, and Copena (Whatley 2002). The Woodstock ceramic tradition is likely a marker of later Late Woodland-Early Mississippian period manifestations (Webb and Quirk 2001). Diagnostic lithics of the Late Woodland period are Hamilton points and small, triangular hafted bifaces. The popularity of smaller triangular points in the Late Woodland period is likely attributable to the introduction of the bow and arrow (Bense 1994).

Mississippian Period (ca. A.D. 1000 – 1540)

Approximately 1,100 years ago, American Indian life in the Southeast changed dramatically with the emergence of a new way of life known as Mississippian culture around A.D. 1000. Mississippian culture is typically recognized in the archaeological record through evidence of intensive maize cultivation, settlement in the floodplains of major rivers, pyramidal earthen mounds, and the long-distance circulation of well-crafted prestige objects. The principal trait that defines Mississippian culture is the emergence of ranked societies that were politically and economically organized into chiefdoms of varying size and complexity. According to Fried (1967), ranked societies are those in which positions of elevated status are limited to such an extent that not everyone has access. In ranked societies, chiefly positions of elevated status are typically inherited within a single group of elites and are recognized archaeologically by the presence of platform mounds, upon which chiefly elites resided, conducted religious rituals, and in some cases were buried.

Mississippian period chiefdoms have traditionally been characterized by the presence of flat-topped mounds, permanent large villages, agriculture, and distinctive ceramic types. Chiefdom-level societies expanded across the southeastern United States during this period. The development of a complicated network of villages and mound centers was an important factor behind the expansion of Mississippian chiefdoms.

The Mississippian period is generally divided into Early, Middle, and Late. In Georgia, the Early Mississippian period is represented by the Etowah culture, which is named for the mound complex located near Cartersville, Georgia. Etowah phase ceramics appear to emerge from the preceding Woodstock phase ceramic tradition. Several phases of Etowah culture have been proposed based on the presence of various ceramic design types (Hally and Rudolph 1995; King 1997). The Etowah phase in the Etowah Valley is typified by Etowah Complicated Stamped and Etowah Plain ceramics, with minor occurrences of check stamped, burnished, and red filmed ceramics (Williams and Shapiro 1990). Platform mounds were constructed at political centers like Etowah

by at least A.D. 1150. At this time, simple chiefdoms were established on nearly every large river in Georgia. People were settled in relatively compact villages and rural farmsteads that were occupied year-round. The subsistence base was centered on maize agriculture and supplemented with hunting, trapping, fishing, and gathering.

In parts of middle Georgia, the Early Mississippian period is represented by the Vining culture. Although the Mississippian groups in Georgia associated with mound building at Etowah and the Macon Plateau typically preferred settlement in broad, fertile floodplains, Vining sites were usually located in the interfluvial uplands (Elliott and Wynn 1991; Pluckhahn 1997; Worth 1996). The majority of identifiable Vining pottery is simple stamped (Pluckhahn 1997). The stamping on Vining vessels was typically finer than that seen on earlier Cartersville simple stamped vessels, and the paste tended to be tempered with grit, which is distinguishable from the fine sand temper of Cartersville vessels. An example of a Vining site near the project area is Raccoon Ridge (9MG271), located in Morgan County. Raccoon Ridge is one of the northernmost, large Vining sites known from the Oconee Valley and is significant because it is near Early and Middle Mississippian period mound centers on the Oconee River, such as Scull Shoals. Artifacts from the site included simple stamped pottery, and stone tools, such as triangular points, produced from Coastal Plain (CP) chert. Nearly all of the tools and lithic debitage recovered from the site appear to have come from a single source, which suggests emphasis on local resources, as opposed to long-distance trade. Vining residential structures consisted of relatively small circular domiciles which were built using single-post construction.

The Mississippian culture centered at the Macon Plateau culture came and went with no detectable influence on the majority of the Coastal Plain. However, the area was not completely devoid of Mississippian occupation. During his survey of the Big Bend region, Snow (1977:66) noted the presence of Etowah Complicated Stamped pottery, which is associated with the major Mississippian mound site of the same name in northwest Georgia, on several sites. In order to properly understand the chronological position of these sites, it is necessary to know that Mississippian occupations in the northwest Georgia are divided into three broad cultural/temporal designations: Etowah, Savannah, and Lamar. Etowah sites, which are divided into Early and Late phases in the Etowah River valley, date between A.D. 1000 and 1200. The subsequent Savannah phase is dated between A.D. 1200 and 1375 in northwest Georgia, while Lamar sites date between A.D. 1375 and 1625 (King 2003:29). Most of the sites where Etowah ceramics were found were only small artifact scatters, though two of the sites recorded during the survey contained more substantial midden deposits rich with Mississippian sherds.

Information from North-Central Florida, south of and downstream from the current survey area, indicates that the Mississippian is represented by the Hickory Pond phase prior to A.D. 1250. Hickory Pond ceramics include cord-wrapped and fabric-wrapped paddle stamping, and some of the pottery is tempered with clay lumps. Following the Hickory Pond phase is the Alachua phase from A.D. 1250-1600. Alachua pottery is typically sand tempered, and cob marking is common. From approximately A.D. 1600-1630 the sequence is represented by the Potano I phase, named for the historic Potano Indians that occupied North-Central Florida, followed by the Potano II phase from A.D. 1630-1710. Ceramics from the Potano I phase are similar to the preceding Alachua phase, and are represented by complicated stamped and plain wares during the Potano II phase (Williams and Shapiro 1990: 75-76).

The designation Lamar is given to sites in the Southern Appalachian that exhibit all the traits of Mississippian culture, with the exception of pottery assemblages that are dominated by shell-tempered wares. Lamar culture is typically recognized on archaeological sites by the presence of complicated stamped, incised, and plain sherds from outflaring jars with thickened rims and carinated bowls (Hally 1994:144). All three of these occur on a ware that is sand/grit-tempered. Sites associated with Lamar culture are located over a broad area, including most of Georgia and neighboring portions of Alabama, Florida, South Carolina, North Carolina, and Tennessee. The

sand-tempered rectilinear complicated ceramics associated with Etowah pottery eventually evolved into those of Savannah culture by around A.D. 1200. Savannah pottery is decorated with curvilinear complicated stamping. The influence of Savannah culture expanded geographically over time to cover most of Georgia and portions of surrounding states, and by A.D. 1350, Savannah culture had fully evolved into Lamar culture.

Lamar culture has been arbitrarily divided into three temporal designations, early Lamar (A.D. 1350-1450), middle Lamar (A.D. 1450-1550), and late Lamar (A.D. 1550-1800), based on changes in the ceramic assemblages associated with these sites over time. Hally (1994:147) has broadly outlined the temporal evolution of Lamar ceramics, noting that in Lamar assemblages the frequency of incised pottery gradually increases through time. As incising increases in popularity, the width of incised lines becomes smaller and the number of lines increases. Also, through time the quality of the execution of complicated stamping declines gradually and is eventually replaced by brushing in the western limits of Lamar culture (Hally 1994:147).

Historic Context

The Airport was built upon land largely owned by planter Richard Dotson (1797-1884) and his wife, Catherine (1797-1877). The *Savannah Morning News* (1884) obituary for Dotson stated:

Richard Dotson, the oldest native resident of Chatham county, died last week within a half mile of the place where he was born, on Cherokee Hill, at the advanced age of 88 years. He was a soldier of the war of 1812 and 1814. Before the late war he was a man of wealth and attained considerable influence in the county. Only one son survives him, but three grandchildren live to recall his memory.

Platen's 1875 map of Chatham County depicts Dotson holdings at Cherokee Hill (Figure 6).



Figure 6. Charles G. Platen's Map of Chatham County, State of Georgia, 1875, with airport vicinity, including Dotson family holdings and Cherokee Hill, circled in red

Savannah's first airfield was built in 1918, in what is now the city's Midtown neighborhood, about nine miles southeast of the current airport. It operated until 1930. The city and Chatham County opened "Hunter Field," a new municipal airport, off of White Bluff Road at the current Hunter Army Airfield, in late 1929. Between 1940 and 1942, a new municipal field was planned and erected at local high-elevation point Cherokee Hill, at the current site of SAV. In 1942, before the field was completed, the US Army Air Corps took it over. Renamed "Chatham Field," the field was used

until the end of World War II as a bomber and crew training base for fighter aircraft and B-24s. In 1948 the Army turned the field over to the Georgia Air National Guard, which renamed it "Travis Field." The City of Savannah received the field from the Guard in 1949, although the Guard has continued to operate there. In 1950 Savannah relocated commercial air operations from the old Hunter Field to the newly named Travis Field, now SAV (Hunter Army Airfield Public Affairs 2010; Spracher 2009:51; Hudson 2016; Savannah Airport Commission 2019).

In 1953 the city completed one its many expansions to the airport, extending one of the runways from 3,600 feet to 8,000 feet. In 1960 the Airport Commission erected a new passenger terminal. The airport was renamed "Savannah International Airport" in 1983. (It received its current name, "Savannah/Hilton Head International Airport," in 2003.) A major construction project, completed in 1984, included a new terminal, taxiway, parking aprons, roads, storm water ponds, landscaping, as well as a new interchange at I-95. Major new construction since 2000 has included terminal and parking expansions and the growth of industrial facilities, most notably those of Gulfstream Aerospace (Hudson 2016; Savannah Airport Commission 2019).

The expansion completed in 1984 briefly returned the Dotson family to the fore. As reported at the atlasobscura.com website:

Like many airports across the country, the Savannah airfield was built on former farmland, taking advantage of all the wide open space for lengthy runways and sprawling terminal hubs. A necessary component of using this type of land has always been dealing with the small family cemetery plots that most of them have. Generally this is not a problem...[but in] the case of the graves in the way of the Runway 10 extension, the family did not consent.

Citing the fact that their ancestors would have wanted to stay on the land they worked so hard to cultivate and purchase, the surviving Dotson relatives refused to allow Richard and Catherine to be moved. Since it is illegal in America to transfer buried remains without the consent of next of kin, the airport did the only thing they could and simply paved over them. However, far from a heartless steamrolling, two headstones were placed over the graves, laid flat with the runway.

According to airport records, more than 100 graves were removed from the Dotson family cemetery, most to Savannah's Bonaventure Cemetery. The only graves left were those of Richard and Catherine Dotson, which were commemorated with new markers, and of John Dotson (1823-1857) and Daniel Hueston (c.1832-1857), located beyond the runway (Figure 7).



Figure 7. Markers of Richard Dotson, left, and Catherine Dotson, right, within Runway 9-27 (source: Savannah Airport Commission)

Literature Search and Georgia Archaeological Site File Review

Prior to the commencement of fieldwork, a search of the GASF and the GNAHRGIS online database was made for previously recorded sites within one mile (0.8 km) of the survey area. Examination of the GASF indicated that no National Register-listed sites are present within the APE or within a one-mile (0.8 kilometers [km]) radius of the APE. The GASF indicated that there are 18 archaeological sites present within one mile (0.8 km), none of these archaeological sites are located on airport property. Two cultural resource assessment surveys were conducted on the Airport property and are discussed in Chapter 3. The archaeological resources are depicted in Figure 7 and in Appendix C.

In 2000, Peer Consultants conducted a survey of the Georgia Air National Guard Based at SAV for the Air National Guard. The survey was conducted on the southeastern quadrant of SAV in the general vicinity of Project Area No. 8 and totaled 232 acres. The survey was conducted in anticipation of future airport expansions. No cultural resources were discovered during the study and the area was deemed to display a low potential for encountering archaeological sites (Peer 2000).

In 2010, ESI performed a survey of the SAV – North Aviation Development Tract on behalf of the Savannah Airport Commission. The area was slated for future airplane taxiway expansion. This survey included the location of Project Area No. 1, Project Area No. 2, and Project Area No. 3 from the current project (Dye et al 2010). There were no cultural resources encountered, and the terrain displayed a low probability for encountering archaeological sites.

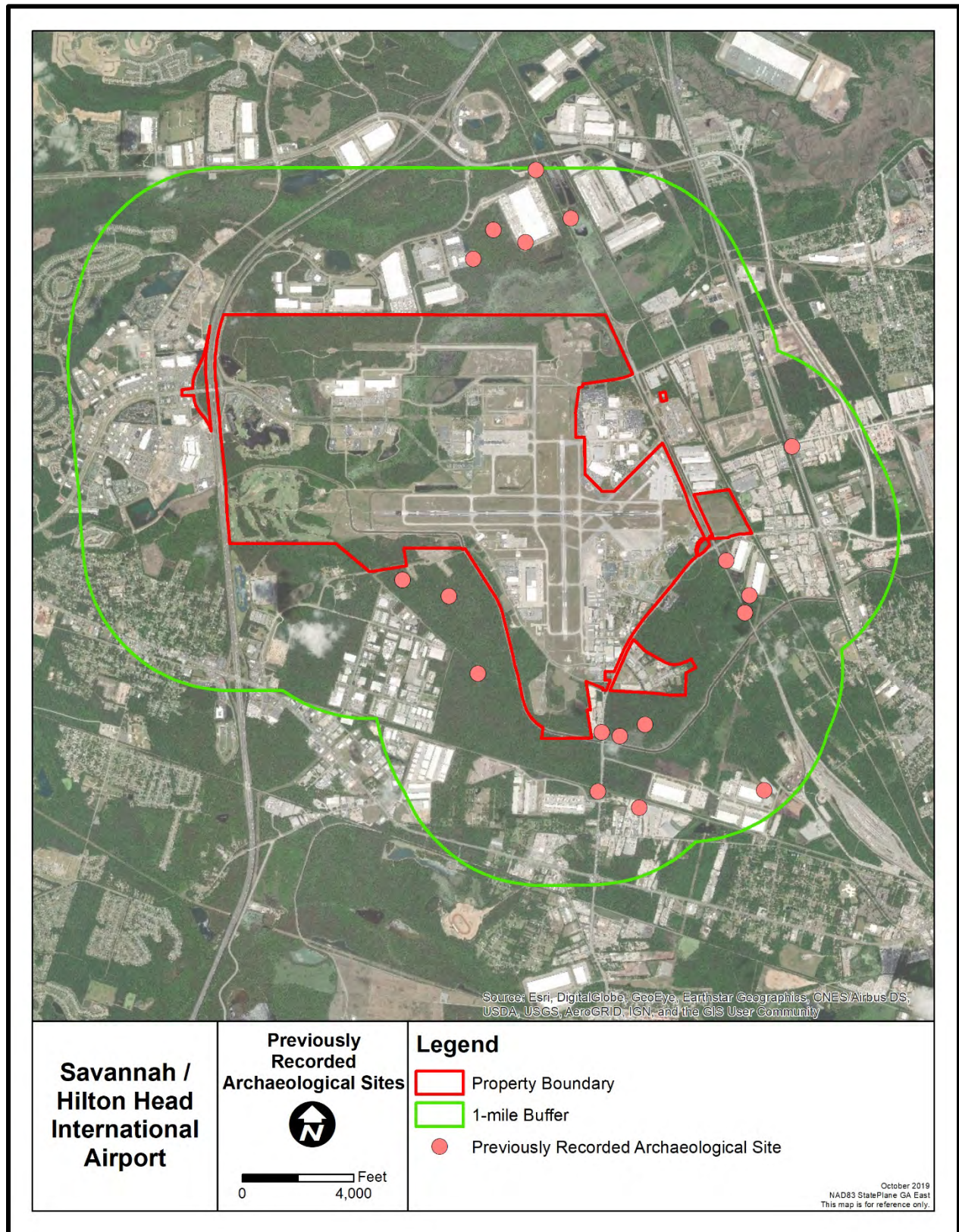


Figure 8. Previously recorded archaeological sites within one-mile (0.8 km) of SAV

4. Research Design and Methods

The objective of the Phase I CRAS of the current APE was to identify cultural resources, if present, and assess them, if possible, for NRHP significance.

Research

Prior to the start of the fieldwork, background research was conducted at a variety of institutions to characterize the general history of occupation and land use of the survey areas to identify previously documented archaeological sites and historic structures, and the potential locations of historic structures and occupations. Resources accessed included:

- GNAHRGIS
- General Land Office Records of the Bureau of Land Management (<http://www.glorerecords.blm.gov/default.aspx>)
- USGS Historical Topographic Map Explorer (<http://historicalmaps.arcgis.com/usgs/>),

Archaeological Field Methods

The property was investigated using a combination of visual surface inspection, photo documentation of existing field conditions, and subsurface shovel testing. The majority of the APE contained large portions of heavily disturbed soils and was subjected to visual surface inspection. Shovel testing was completed in areas where potential for intact deposits existed and followed the proposed archaeological probability model. The archaeological probability model was adjusted based on field conditions.

Archaeological Probability Model

Prior to the field survey, a probability model was developed to aid in determining the shovel testing intensity to be applied within a particular portion of the Airport property. Due to the poorly drained soils, disturbed soils, and lack of major drainageways, all three locations were deemed to be low archaeological probability. The low probability areas were tested at judgmental intervals due to the large areas of standing water, any ground that was not submerged was subjected to shovel testing. The intensity of testing was also adjusted to account for poorly drained areas with standing water and for areas of ground disturbance.

Shovel Testing

STPs measured 30 centimeters (cm) in diameter and excavated to subsoil or 80 cm below ground surface (bgs). All soil excavation was performed with a long-handled round (spade) shovel. STPs were excavated in 10-cm arbitrary levels, and soils were screened through a 0.635-millimeter (1/4-inch) mesh.

STP data were recorded on standardized forms, including information on depth of each individual STP, the number of artifacts, provenience, and soil conditions. Munsell soil charts were used to describe soil color. Standard soils nomenclature was used to describe soil textures. All of the STPs were backfilled.

5. Survey Area Results

The following section presents the results within the three discrete parcels under study for archaeology and the areas under study for architectural history. The first section describes the archaeology results, and the second section describes the historical architecture results.

Archaeological Results

Project Area 1

Project Area 1 is an approximately 22.8-acre (9.2-hectare) parcel consisting of low-lying flat terrain with improved pasture vegetation (Figure 9). Project Area 1 is also designated as Air Cargo Ramp West Phase I. Project Area 1 is bordered by Taxiway H to the north, Project Area 2 to the east, and undeveloped airport property to the south and west. The ground surface in this location was inundated and no testing was possible (Figure 10). Project Area 1 is directly adjacent to Project Area 2 and both have similar terrain, see the discussion of Project Area 2 for further stratigraphic discussions of the area as the team was able to excavate a shovel test in that location. No further archaeological work is recommended for Project Area 1.

Project Area 2

Project Area 2 is a roughly 15.2-acre (6.2-hectare) parcel consisting of previous ground disturbing activities (Figure 9). Project 2 is designated as the Air Cargo Ramp East Phase II. The southern limits of this area are defined by Gulfstream Road and airport property. The eastern limits are set by Project Area 3 and Taxiway A, while the northern limits are demarcated by Taxiway H. The property consists of flat terrain with standing water across much of the location (Figure 11), however there was a dry spot where the crew excavated STP J4. This shovel test encountered disturbed soils. Stratum 1 was recorded from 0-4 cm bgs (centimeters below ground surface). Stratum 1 consisted of brownish yellow (10YR 6/6) coarse sand. Stratum II extended from 4-18 cm bgs and consisted of dark gray loamy sand, the water table was encountered at 10 cm bgs. No further archaeological work is recommended for Project Area 2.

Project Area 8

Project Area 8, which measures 13.2 acres (5.3 hectares), consists of a low-lying wet areas with constantly inundated conditions with heavy vegetation (Figure 12 through Figure 14). This project is also designated the Southeast Quadrant Drainage Improvements. Three STPs were excavated and revealed of multiple fill layers overlying hydric soils. STP J2 was chosen as a representative stratigraphy of Project Area 8. Stratum 1 exhibited dark gray (7.5YR 4/1) loamy sand with gravels encountered in the first 20 cm bgs. Stratum 1 excavation was concluded at 40 cm bgs. The water table was encountered at 30 cm bgs. Based on the results of shovel testing the water table was either on the ground surface or was encountered from 10-30 cm bgs. No further archaeological work is recommended for Project Area 8.

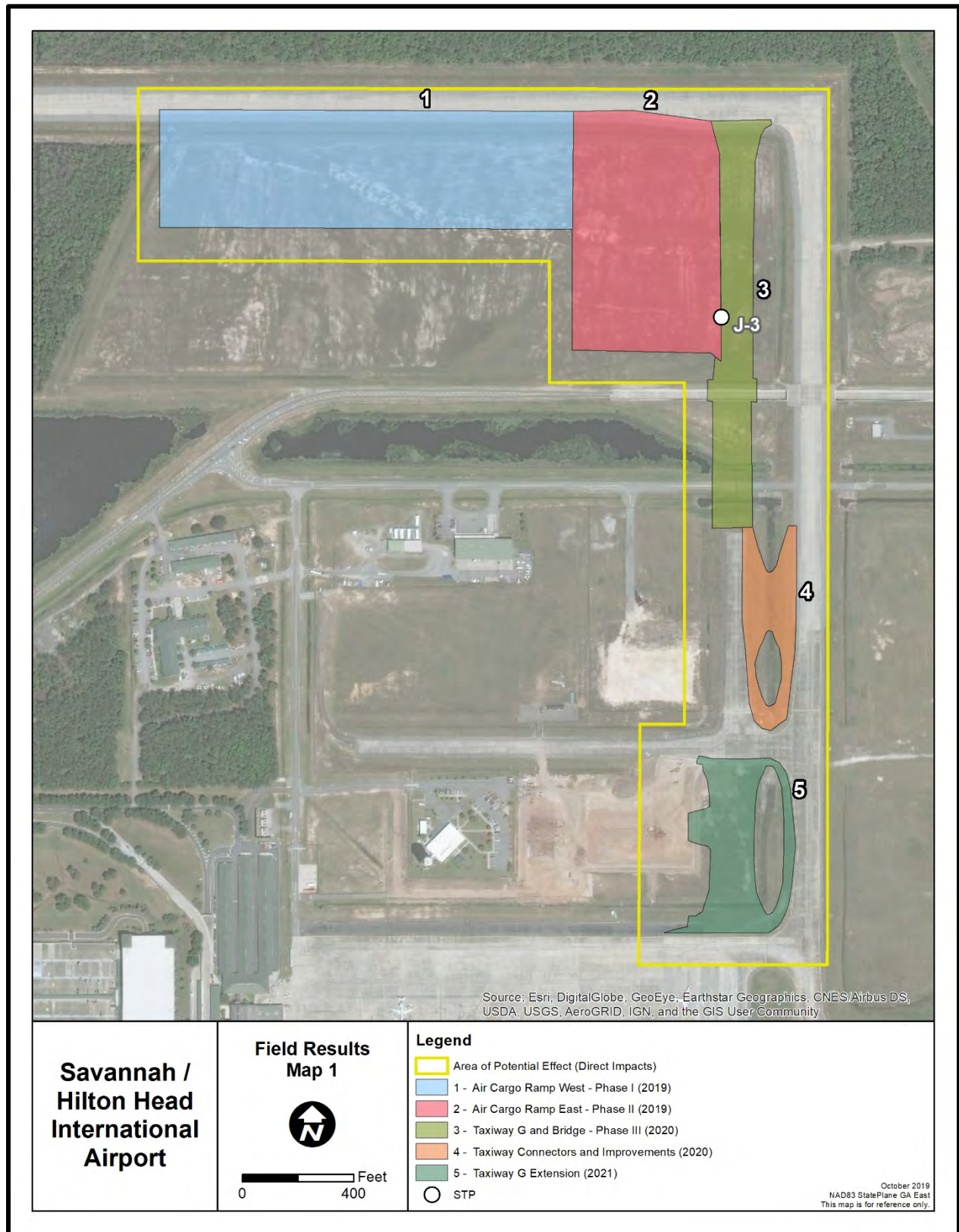


Figure 9. Project Areas No 1 and 2 Field Results map



Figure 10. Project Area No. 1 property conditions, facing west



Figure 11. Project Area No. 2 property conditions, facing east

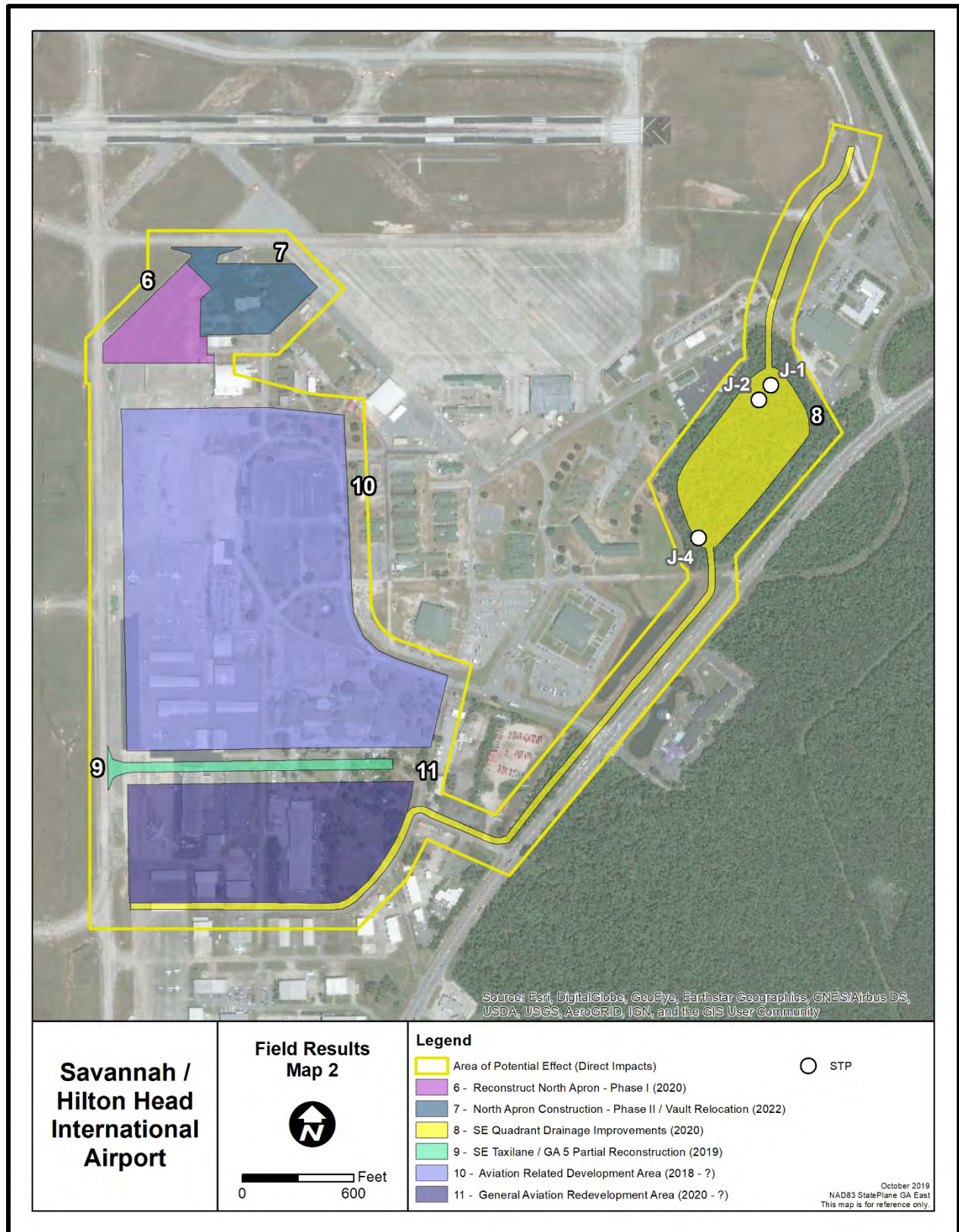


Figure 12. Project Area No. 8 Field Results map



Figure 13. Project Area No. 8 property conditions, facing east



Figure 14. Project Area No. 8 ground conditions, facing south

Architectural History Results

Building 1220

	Name	Building 1220
	Function	Hangar
	Location	N side of LP Owens Road, 200 feet W of junction with Bob Harmon Road, Savannah/ Hilton Head International Airport
	Date of Construction	Between 1952 and 1956
	Recommendation	Not eligible for NRHP listing

History

Building 1220 is the only identified standing resource located within the project's historic architectural APE that is 50 years old or older or appears to be of exceptional importance. It was erected as a hangar between the taking of aerial photographs in January 1952 and November 1956 (Figure 15). Its site was vacant in early 1952, although a perpendicular gabled building to

which it was attached was already extant. It is not known whether it was built by the Georgia Air National Guard or the City of Savannah for its municipal airport.

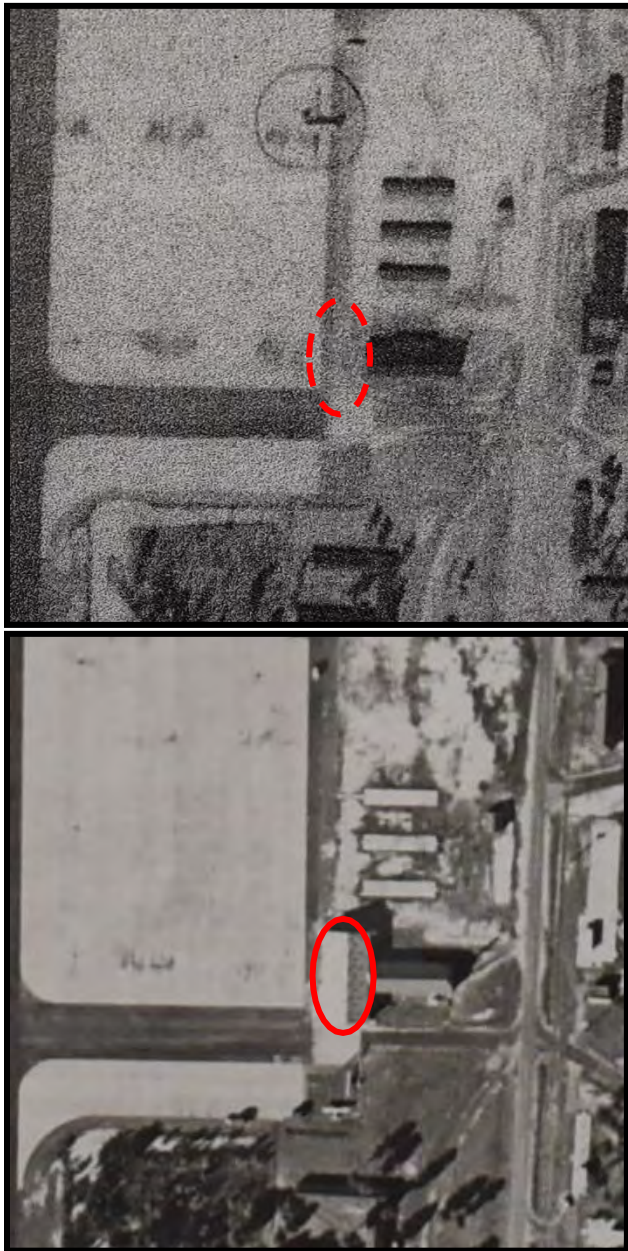


Figure 15. Top, 1952 aerial with future site of Building 1220 circled by broken red line; bottom, Building 1220 in 1956 appended to earlier building at its east elevation (source: Savannah Airport Commission)

Aerial photographs of April 1967 and November 1974 depict the hangar as intact (as best as can be determined from the sky), but with altered surroundings (Figure 16). Numerous buildings near it were removed during this period and some were added, most notably the former Quality Inn, now Quail Run Lodge, across Bob Harmon Road to its east. The Quality Inn was built in 1972, but much of it, including the long central building perpendicular to the hangar, burned in the early 2000s (Lykes 2019).

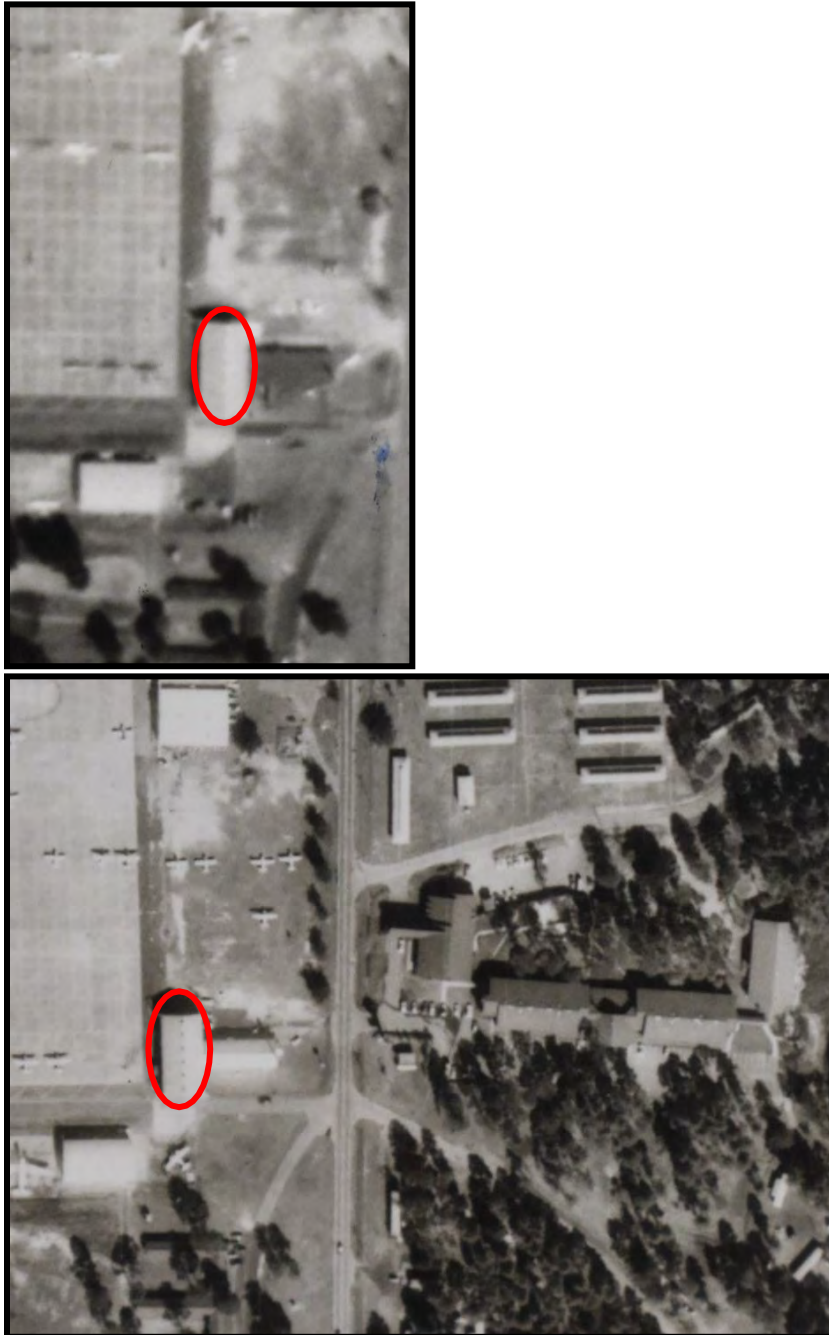


Figure 16. Building 1220 in 1967, at top, and 1974, at bottom, circled in red; opposite the hangar at the far right is the former Quality Inn built in 1972, the long central block of which burned in the early 2000s (source: Savannah Airport Commission)

Between the taking of aerials in April 1981 and October 1987, the building and its setting underwent further changes (Figure 17). Most notably, the perpendicular building to which it was attached was demolished and paved over. Additionally, a hangar was built, or moved to, a site just to the west. The changes to Building 1220 and its surroundings were likely a product of major changes to the Airport completed in 1984.



Figure 17. 1987 aerial showing removal of Building 1220's perpendicular appendage and the addition of a second hangar, Building 1221, to its west (source: Savannah Airport Commission)

Description

Building 1220 is constructed of steel, the most common hangar material (Figure 18 through Figure 22). As is the case with most steel hangars, it uses steel trusses to carry its garage roof and create a completely open interior (Aaron 2011:5-2, 5-4). It is rectangular, about 125 feet long and 60 feet wide.

A horizontal steel girder beneath the south-facing front gable extends beyond the facade, where it terminates at battered steel piers strengthened by webbing. Modern literature refers to these extended supports as “outriggers” (see for example http://www.reidsteel.aero/door_selection/). This girder with outriggers allows the six metal doors to telescope out, three to a side, opening up unobstructed access to the interior. The girder, piers, webbing, and doors appear to be original, as does the metal wall of the west side elevation and that of the front and rear gables. Six round metal ventilators extending up from the ridge line of the gabled roof are likely those that are visible, to greater and lesser extents, in the historic aerials depicting the hangar.

A wide but less-than-full-height door toward the rear of the east side elevation appears to have been replaced or much altered. It is located where a wing originally extended perpendicular to the hangar. This wing, which predated the hangar, was removed by 1987. At that time, the wall would have been altered. Folding fiberglass doors that span the north rear elevation are not original. Similar doors serve the rear elevation of the smaller, arch-roofed hangar immediately to the west (Building 1221), which first appears on the 1987 aerial. (Whether this hangar initially stood elsewhere on the Airport property, and when it was built, could not be determined; it appears to be less than 50 years old.) When the doors are folded to either side, they open up almost but not quite all of the rear elevations of the two buildings. One final door, for personnel, opens toward the rear of Building 1220's west side elevation.



Figure 18. Building 1220 west side and south front elevations



Figure 19. Building 1220 south front and east side elevations



Figure 20. Building 1220 south front and east side elevations



Figure 21. Building 1220 north rear and west side elevations



Figure 22. Building 1220 east side and west rear elevations; rear of Building 1221 at right

The steel roof trusses of the hangar's interior appear to be original. Skylights filled with fiberglass panels punctuate the exposed corrugated-metal roof. The 1956 aerial depicts marks on that roof that may be skylight openings; these are not evident in later aerials, however. Whether the openings are original or not, the panels appear to be replacements. Also visible at the interior are the steel columns that support the trusses and the metal ribs that stiffen the walls (Figure 23 through Figure 25).



Figure 23. Interior of Building 1220 looking southeast toward telescoping front doors



Figure 24. Building 1220 trusses, columns, and walls



Figure 25. Building 1220 walls, columns, and trusses; west personnel door at center

National Register of Historic Places Evaluation

Building 1220 is not recommended as eligible under any of the NRHP's Criteria. It has no known association with events that significantly contributed to our history. It was erected between 1952 and 1956 either by the Georgia Air National Guard or for Savannah's commercial Travis Field. All or almost all of the other buildings erected during this period by those two entities have been removed or supplanted by the modern development of the airport. By itself a common and unremarkable building type, the hangar is not significant under Criterion A for its history. As it has no known association with a significant person, it is further recommended as not NRHP-eligible under Criterion B. The hangar is also not believed to be significant under Criterion C for its architecture. It is a commonplace type and its use of outriggers to facilitate the complete opening of its folding doors is "common to aircraft hangars" (Savage 2009). Additionally, it has been significantly altered through the removal of its original eastern appendage, which required reworking of the eastern elevation, and by the replacement of all its northern elevation. It has neither the significance nor the integrity required for eligibility under Criterion C. Building 1220, as a standing architectural resource, is also not recommended as NRHP-eligible under Criterion D, for it is not likely to yield important information that is not available from other sources.

Building 1220's seven NRHP elements of integrity are summarized in the following table:

BUILDING 1220		
Element of Integrity	Level of Integrity	Assessment
Location	High	This hangar stands on the location where it was built.
Design	Low to Medium	The hangar has lost the eastern section to which it was originally attached. The loss of this section required the rebuilding of a portion of its eastern elevation. Its original northern elevation has been supplanted by folding fiberglass doors. These alterations have largely compromised its design, although it retains its steel frame and walls, outriggers, trusses, and ventilators.
Setting	Low to Medium	The hangar is in its original location at the airport it was built to serve, but all or almost all of the many other buildings that were its contemporaries have been removed and the airport is dominated by modern construction.
Materials	Low to Medium	The hangar has lost the eastern section to which it was originally attached. The loss of this section required the rebuilding of a portion of its eastern elevation. Its original northern elevation has been supplanted by folding fiberglass doors. These alterations have largely compromised its materials, although it retains its steel frame and walls, outriggers, trusses, and ventilators.
Workmanship	Low to Medium	The hangar has lost the eastern section to which it was originally attached. The loss of this section required the rebuilding of a portion of its eastern elevation. Its original northern elevation has been supplanted by folding fiberglass doors. These alterations have largely compromised its workmanship, although it retains its steel frame and walls, outriggers, trusses, and ventilators.
Feeling	Low to Medium	High integrity of location and low to medium integrity of setting, design, materials and workmanship; therefore low to medium integrity of feeling
Association	Low to Medium	High integrity of location and low to medium integrity of setting, design, materials and workmanship; therefore low to medium integrity of association

6. Summary and Recommendations

AECOM conducted a Phase I CRAS of planned improvements at SAV in Chatham County, Georgia. These efforts included background research and field survey. Background research identified no listed cultural resources within the APE.

The archaeological survey was performed from October 14-16, 2019. The archaeological investigations included ground surface reconnaissance and subsurface testing in all areas of proposed ground disturbance and resulted in the excavation of four STPs. During this time, no archaeological resources were encountered. Architectural historic fieldwork was performed within the project's APE on October 14, 2019 by Marvin Brown of AECOM, who meets the Secretary of Interior's standards for architectural historic and historic investigations as required by Section 106. One standing resource was identified within the APE that is 50 years old or older or appears to be of exceptional importance, Building 1220. This hangar was constructed between 1952 and 1956. A common and unremarkable building type that has lost its integrity of design, setting, materials, workmanship, feeling, and association, it is recommended as not eligible for NRHP listing.

Based on the results of current survey, no further archaeological work is recommended for the APE. No Historic Properties will be affected by the Proposed Project.

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Appendix A - Qualifications of Investigators

Daniel Cassedy, PhD, is a Registered Professional Archaeologist who has over 35 years of experience as a supervisory archaeologist specializing in cultural resource management in eastern North America. He provides project management and technical direction on projects conducted in compliance with Section 106 of the National Historic Preservation Act. Dr. Cassedy is a Principal Archaeologist based in the Morrisville, NC office. He has extensive experience in all phases of archaeological surveys and excavations nationwide, and specializes in regulatory agency coordination, public outreach, and cultural resource management studies. He has been employed by AECOM for over 16 years. Notable projects include the Evaluation and Documentation of Navy Atlantic Fleet Photographic Laboratory at NAS Jacksonville; Environmental and Functional Program Reviews at Multiple NASA centers; Archaeological and Historical Services for Robbins Air Force Base, Warner Robbins, Georgia; and Phase II Archaeological Investigations for the U.S. Army Redstone Arsenal, Huntsville, Alabama.

Mark Martinkovic, M.A., is a Registered Professional Archaeologist with over 15 years of experience in the Cultural Resource Management (CRM) industry and exceeds the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61). Mr. Martinkovic is a Senior Archaeologist based in the Tallahassee, FL office. He has experience in the design, management, and technical execution of historic and archaeological investigations throughout the eastern US, primarily on the Gulf Coast. Since June 2006 he has been employed by AECOM and worked on Department of Transportation and private sector energy projects and also as a Historic Preservation Specialist (archaeologist) for FEMA in various roles on the Gulf Coast. Most recently he has successfully completed the Phase I investigation of 30 miles of proposed pipeline in South Carolina according to state and FERC guidelines. Mr. Martinkovic has also participated in surveys and studies of proposed energy corridors in Florida, primarily assessments of transmission line corridors and power station sites. He also has extensive experience in monitoring and overseeing the excavation of large-scale utility projects, including the installation of a sewer system on the Beauvoir Plantation in Biloxi, MS (2010) and the installation of a combined sewer and natural gas system in historic downtown Pensacola (2000).

Marvin Brown, M.A., has over 35 years of experience in historic and architectural studies, environmental compliance procedures, and project management. This experience includes performing historic architectural surveys in support of state and federal projects in compliance with Section 106 and other statutes and regulations; determination of effects and development of mitigation measures, including Memoranda of Agreement, Programmatic Agreements, Historic Preservation Plans, HABS/HAER-level recordation, and Section 4(f) documentation; environmental documentation including Environmental Impact Statements, Environmental Assessments, and Categorical Exclusions for airport, highway, and other projects; recordation of historic bridges; emergency and long-term response for FEMA projects; and drafting Multiple Property Documentation forms and National Register nominations for individual properties and historic districts. He has completed numerous projects in Florida associated with airports and other resources.

Appendix B - Shovel Test Log

STP #	Strat	Depth (cm)	Munsell #	Munsell Color	Texture	Artifacts	Comments
J1	I	0-65	10YR 4/1	Dark Gray	SaLo	none	Area 8
	II	65-80	7.5YR 6/1	Gray	CoSa	none	Water at 70 cmbs
J2	I	0-40	7.5YR 4/1	Dark Gray	SaLo	none	Area 8
							Water at 30 cmbs
J3	I	0-20	7.5 YR 4/1	Dark Gray	SaLo	none	Area 8
							Water at 10 cmbs
J4	I	0-4	10YR6/6	Brownish Yellow	CoSa	none	Area 2
	II	4-18	10YR4/1	Dark Gray	SaCl	none	Water at 10 cmbs

Appendix C - Previously Recorded Archaeological Sites within 1 mile

Site Number	Site Name	Description	Temporal Affiliation	NRHP Status
9CH0010	Dotson	Burial Mound	Late Woodland	Unknown
9CH0808	Griffon	Artifact Scatter	Historic	Unknown
9CH0883	Bourne Ave	Artifact Scatter	Prehistoric	Ineligible
9CH0884	Swamp Fox	Lithic Scatter	Prehistoric	Ineligible
9CH0888	Homestead	Domestic	Historic	Unknown
9CH0890	Firing Range	Military	20th Century	Unknown
9CH1096	Temp Site 1	Artifact Scatter	Woodland	Unknown
9CH1097	None	Lithic Scatter	Prehistoric	Unknown
9CH1098	None	Domestic	19th Century	Unknown
9CH1099	None	Domestic	19th Century	Unknown
9CH1100	None	Domestic	20th Century	Unknown
9CH1156	None	Artifact Scatter	20th Century	Unknown
9CH1157	None	Artifact Scatter	20th Century	Unknown
9CH1163	None	Artifact Scatter	Mississippian	Unknown
9CH1164	Biscuit Hill	Lithic Scatter	Prehistoric	Ineligible
9CH1165	Kahn Still 1	Liquor Still	20th Century	Ineligible
9CH1166	None	Ceramic Scatter	Mississippian	Ineligible
9CH1272	Stokes	Domestic	20th Century	Ineligible

Appendix D – SAV soil types

Map Symbol	Description
W	Water
Cuc	Chibley-Urban land complex
Pn	Pooler fine sandy loam
Wac	Wahee-Urban land complex
Ojc	Ocilla-Urban land complex
Pl	Pelham loamy sand, 0 to 2 percent slopes, frequently flooded
Okc	Ogeechee-Urban land complex
Mn	Mascotte sand, 0 to 2 percent slopes
El	Ellabelle loamy sand
Cc	Cape Fear soils

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APPENDIX F

Hazardous Materials Records Review

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APPENDIX G

Noise Analysis Technical Report

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Savannah/Hilton Head International Airport Short-Term Development Program Environmental Assessment

Noise Technical Report

Prepared for:

**Savannah Airport Commission
and
Federal Aviation Administration**

Prepared by:

AECOM

October 2019

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ACRONYMS AND ABBREVIATIONS

AEDT	Aviation Environmental Design Tool
AEM	Area Equivalent Method
ATCT	Air Traffic Control Tower
CFR	Code of Federal Regulation
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average Sound Level
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
GA	General Aviation
HUD	Department of Housing and Urban Development
Hz	Hertz
L _{eq}	Equivalent Sound Level
L _{max}	Maximum Sound Level
SAV	Savannah/Hilton Head International Airport
SEL	Sound Exposure Level
SPL	Sound Pressure Level

CHAPTER 1 INTRODUCTION

This *Noise Technical Report* details the assessment scope, calculation methodology, input data and other technical information used in the analysis of noise impacts associated with the proposed Short-Term Development Program at the Savannah/Hilton Head International Airport (i.e., SAV, or the Airport), hereinafter referred to as the Proposed Project.

1.1. AIRCRAFT NOISE DESCRIPTORS

A variety of noise metrics are used to assess airport noise impacts in different ways. Noise metrics are used to describe individual noise events (such as a single operation of an aircraft taking off overhead) or groups of events (such as the cumulative effect of numerous aircraft operations, the collection of which creates a general noise environment or overall exposure level). Both types of descriptors are helpful in explaining how people tend to respond to a given noise condition. Descriptions of these metrics are provided below.

Decibel, dB – Sound is a complex physical phenomenon consisting of complex minute vibrations traveling through a medium, such as air. These vibrations are sensed by the human ear as sound pressure. Because of the vast range of sound pressure or intensity detectable by the human ear, sound pressure level (SPL) is represented on a logarithmic scale known as decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet (laboratory-type) listening conditions. A SPL of 120 dB begins to be felt inside the ear as discomfort and pain at approximately 140 dB. Most environmental sounds have SPLs ranging from 30 to 100 dB.

Because dB are logarithmic, they cannot be added or subtracted directly like other (linear) numbers. For example, if two sound sources each produce 100 dB, when they are operated together they will produce 103 dB, not 200 dB. Four 100 dB sources operating together again double the sound energy, resulting in a total SPL of 106 dB, and so on. In addition, if one source is much louder than another, the two sources operating together will produce the same SPL as if the louder source were operating alone. For example, a 100 dB source plus an 80 dB source produce 100 dB when operating together. The louder source masks the quieter one.

Two useful rules to remember when comparing SPLs are: (1) most people perceive a 6 to 10 dB increase in SPL between two noise events to be about a doubling of loudness, and (2) changes in SPL of less than about 3 dB between two events are not easily detected outside of a laboratory.

A-Weighted Decibel, dBA – Frequency, or pitch, is a basic physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 15,000 Hz. Because the human ear is more sensitive to middle and high frequencies (i.e., 1000 to 4000 Hz), a frequency weighting called “A” weighting is applied to the measurement of sound. The internationally standardized “A” filter approximates the sensitivity of the human ear and helps in assessing the perceived loudness of various sounds.

In this document all sound levels are A-weighted sound levels and the adjective "A-weighted" has been omitted.

Figure 1.1-1 charts common indoor and outdoor sound levels. A quiet rural area at nighttime may be 30 A-weighted decibels (dBA) or lower while the operator of a typical gas lawn mower may experience a level of 90 dBA. Similarly, the level in a library may be 30 dBA or lower while the listener at a rock band concert may experience levels near 110 dBA.

Maximum A-Weighted Noise Level, L_{\max} – Sound levels vary with time. For example, the sound increases as an aircraft approaches, then falls and blends into the ambient or background as the aircraft recedes into the distance. Because of this variation, it is often convenient to describe a particular noise "event" by its highest or maximum sound level (L_{\max}). Note L_{\max} describes only one dimension of an event; it provides no information on the cumulative noise exposure generated by a sound source. In fact, two events with identical L_{\max} may produce very different total exposures. One may be of very short duration, while the other may be much longer.

Sound Exposure Level, SEL – The most common measure of noise exposure for a single aircraft flyover is the sound exposure level (SEL). SEL is a summation of the A-weighted sound energy at a particular location over the true duration of a noise event normalized to a fictional duration of one second. The true duration is defined as the amount of time the noise event exceeds background levels. For events lasting more than one second, SEL does not directly represent the sound level heard at any given time, but rather provides a measure of the net impact of the entire acoustic event.

The normalization to the fictional duration of one second enables the comparison of noise events with differing true duration and/or maximum level. Because the SEL is normalized to one second, it will almost always be larger in magnitude than the L_{\max} for the event. In fact, for most aircraft events, the SEL is about 7 to 12 dB higher than the L_{\max} . Additionally, since it is a cumulative measure, a higher SEL can result from either a louder or longer event, or some combination.

As SEL combines an event's overall sound level along with its duration, SEL provides a comprehensive way to describe noise events for use in modeling and comparing noise environments. Computer noise models, such as the one employed for this document, base their computations on these SELs.

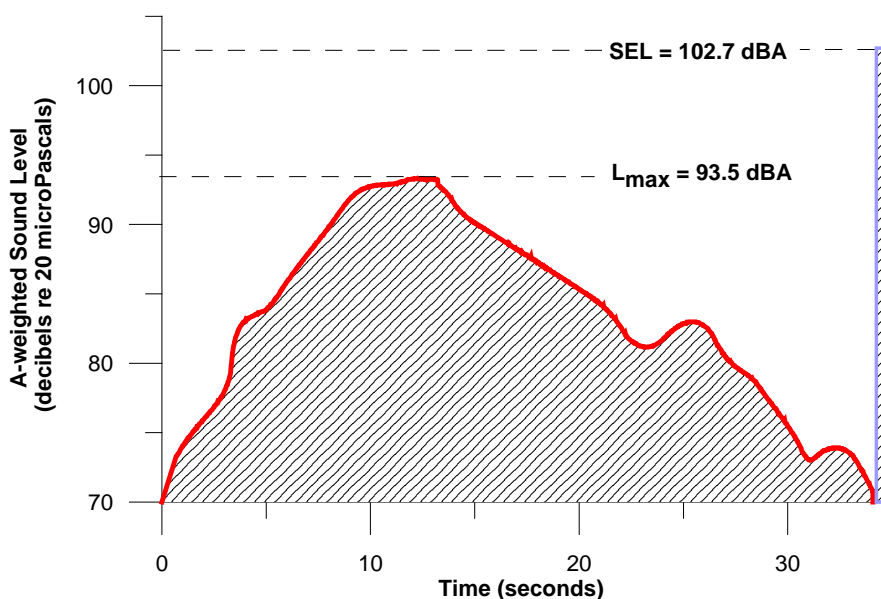
Figure 1.1-2 shows an event's "time history," the variation of sound level with time. For typical sound events experienced by a fixed listener, like a person experiencing an aircraft flying by, the sound level rises as the source (or aircraft) approaches the listener, peaks and then diminishes as the aircraft flies away from the listener. The area under the time history curve represents the overall sound energy of the noise event. The L_{\max} for the event shown in the figure was 93.5 dBA. Compressing the event's total sound energy into one second to compute its SEL yields 102.7 dBA.

Figure 1.1-1 Common Outdoor and Indoor Sound Levels



Source: URS Corporation, 2008

Figure 1.1-2 Comparison of Maximum Sound Level (L_{MAX}) and Sound Exposure Level (SEL)



Source: URS Corporation, 2007.

Equivalent Sound Level, L_{eq} – Equivalent sound level (L_{eq}) is a measure of the exposure resulting from the accumulation of A-weighted sound levels over a particular period of interest (e.g., an hour, an 8-hour school day, nighttime, or a full 24-hour day). However, because the length of the period can be different depending on the time frame of interest, the applicable period should always be identified or clearly understood when discussing the metric. Such durations are often identified through a subscript, for example $L_{eq(8)}$ or $L_{eq(24)}$.

Conceptually, L_{eq} may be thought of as a constant sound level over the period of interest that contains as much sound energy as the actual time-varying sound level with its normal “peaks” and “dips.” In the context of noise from typical aircraft flight events and as noted earlier for SEL, L_{eq} does not represent the sound level heard at any particular time, but rather represents the total sound exposure for the period of interest. Also, it should be noted that the “average” sound level suggested by L_{eq} is not an arithmetic value, but a logarithmic, or “energy-averaged,” sound level. Thus, loud events tend to dominate the noise environment described by the L_{eq} metric.

Day-Night Average Sound Level, DNL - Time-averaged sound levels are measurements of sound levels averaged over a specified length of time. These levels provide a measure of the average sound energy during the measurement period. For the evaluation of community noise effects, and particularly aircraft noise effects, the Day-Night Average Sound Level (DNL). This metrics are similar to the L_{eq} except that it compensates for the widely assumed increase in people’s sensitivity to noise during nighttime hours. Each aircraft operation occurring between 10:00 p.m. and 7:00 a.m. is treated as if it were 10 operations. Logarithmically, this multiplier is the equivalent of adding 10 dB to the noise level of each nighttime operation. These noise level penalties are intended to correspond to the drop in background noise level which studies have

found takes place from daytime to nighttime in a typical community. The nighttime decrease in ambient sound levels—from both outdoor and indoor sources—is commonly considered to be the principal explanation for people's heightened sensitivity to noises during these periods.

DNL is the primary noise descriptor of this study. DNL is a 24-hour time-weighted-average noise metric expressed in dBA which accounts for the noise levels (in terms of SEL) of all individual aircraft events, the number of times those events occur, and the time of day at which they occur. Values of DNL can be measured with standard monitoring equipment or predicted with computer models. This document utilizes estimates of DNL with a Federal Aviation Administration (FAA)-approved computer-based noise model.

Typical DNL values for a variety of noise environments are shown in **Figure 1.1-3**. DNL values can be approximately 85 dBA outdoors under a flight path within a mile of a major airport and 40 dBA or less outdoors in a rural residential area.

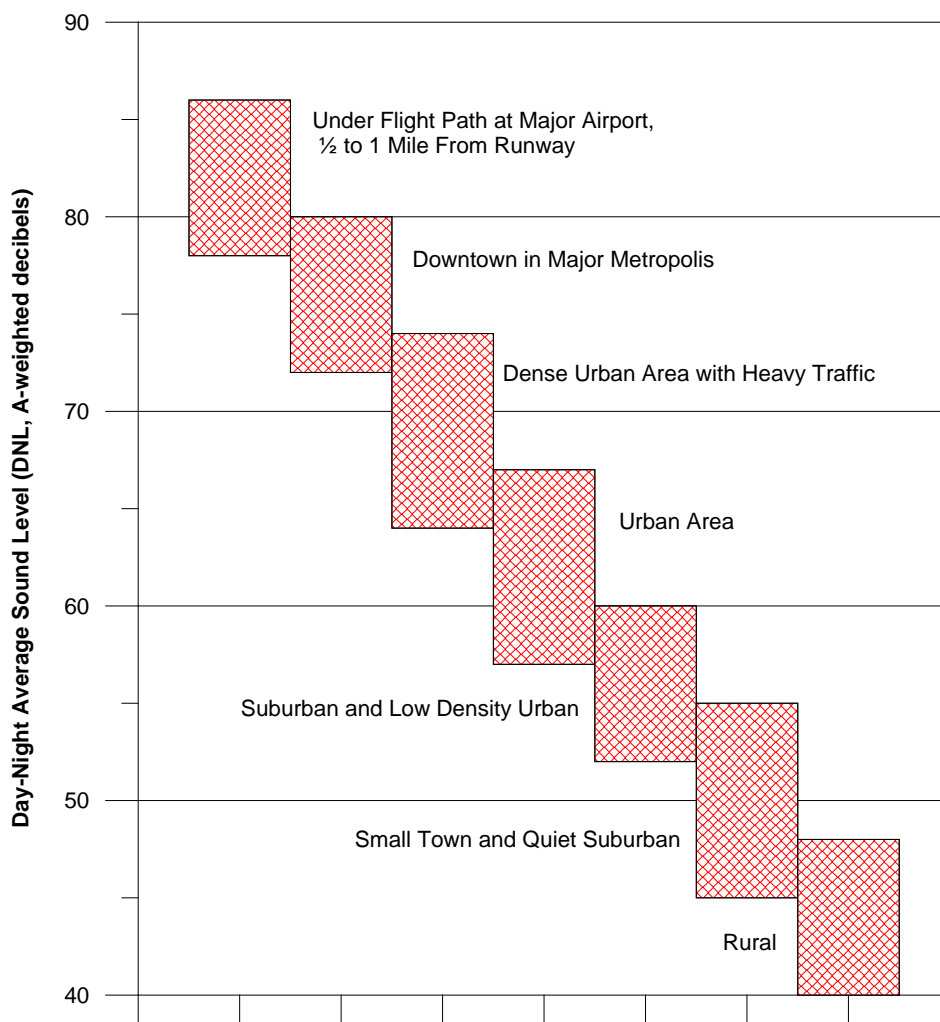
Due to the DNL descriptor's close correlation with the degree of community annoyance from aircraft noise, DNL have been formally adopted by most Federal agencies for measuring and evaluating aircraft noise for land use planning and noise impact assessment. Federal committees such as the Federal Interagency Committee on Urban Noise (FICUN) and the Federal Interagency Committee on Noise (FICON) which include the Environmental Protection Agency (EPA), FAA, Department of Defense, Department of Housing and Urban Development (HUD), and Veterans Administration, found DNL to be the best metric for land use planning. They also found no new cumulative sound descriptors or metrics of sufficient scientific standing to substitute for DNL. Other cumulative metrics could be used only to supplement, not replace DNL. Furthermore, FAA Order 1050.1F for environmental impact studies, requires DNL be used in describing cumulative noise exposure and in identifying aircraft noise/land use compatibility issues (EPA, 1974; FICUN, 1980; FICON, 1992; 14 CFR part 150, 2007; FAA, 2006).

1.2. EFFECTS OF AIRCRAFT NOISE ON PEOPLE

This section addresses three ways humans can be affected by aircraft noise: annoyance, speech interference and sleep disturbance.

Annoyance – The primary potential effect of aircraft noise on exposed communities is one of annoyance. Noise annoyance is defined by the Environmental Protection Agency as any negative subjective reaction on the part of an individual or group (EPA, 1974). Scientific studies and a large number of social/attitudinal surveys have been conducted to appraise people's annoyance to all types of environmental noise, especially aircraft events. These studies and surveys have found the DNL to be the best measure of this annoyance (EPA, 1974; FICUN, 1980; FICON, 1992; ANSI, 2007; ANSI, 2003; Schultz, 1978; Fidell, et. al., 1991).

Figure 1.1-3 Typical Range of Outdoor Community Day-Night Average Sound Levels



Source: FICON, 1992

The relationship between annoyance and DNL determined by the scientific community and endorsed by many Federal agencies, including the FAA, is shown in **Figure 1.2-1**. For a DNL of 65 dBA, approximately 13 percent of the exposed population would be highly-annoyed. The figure also shows at very low values of DNL, such as 45 dB or less, one percent or less of the exposed population would be highly annoyed. At very high values of DNL, such as 90 dBA, more than 80 percent of the exposed population would be highly annoyed.

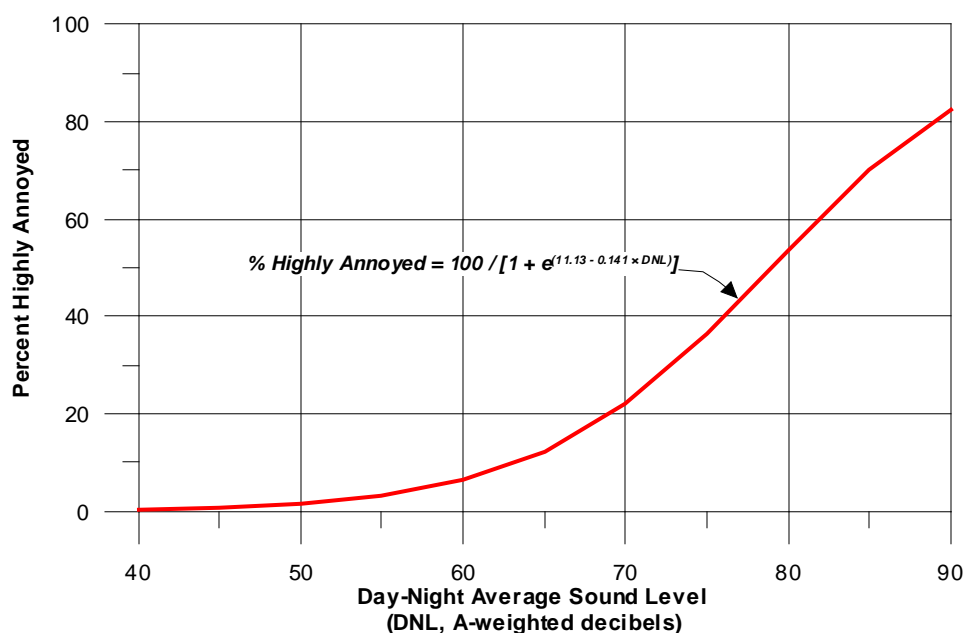
It is often suggested a lower DNL, such as 60 or 55 dB, be adopted as the threshold of community noise annoyance for FAA environmental analysis documents. While there is no technical reason why a lower level cannot be measured or calculated for comparison purposes, a DNL of 65 dB:

- Provides a valid basis for comparing and assessing community noise effects.
- Represents a noise exposure level normally dominated by aircraft noise and not other

community or nearby highway noise sources.

- Reflects the FAA's threshold for grant-in-aid funding of airport noise mitigation projects.
- HUD also established a DNL standard of 65 dBA for eligibility for Federally-guaranteed home loans.

Figure 1.2-1 Relationship between Annoyance and Day-Night Average Sound Level



Source: FICON, 1992

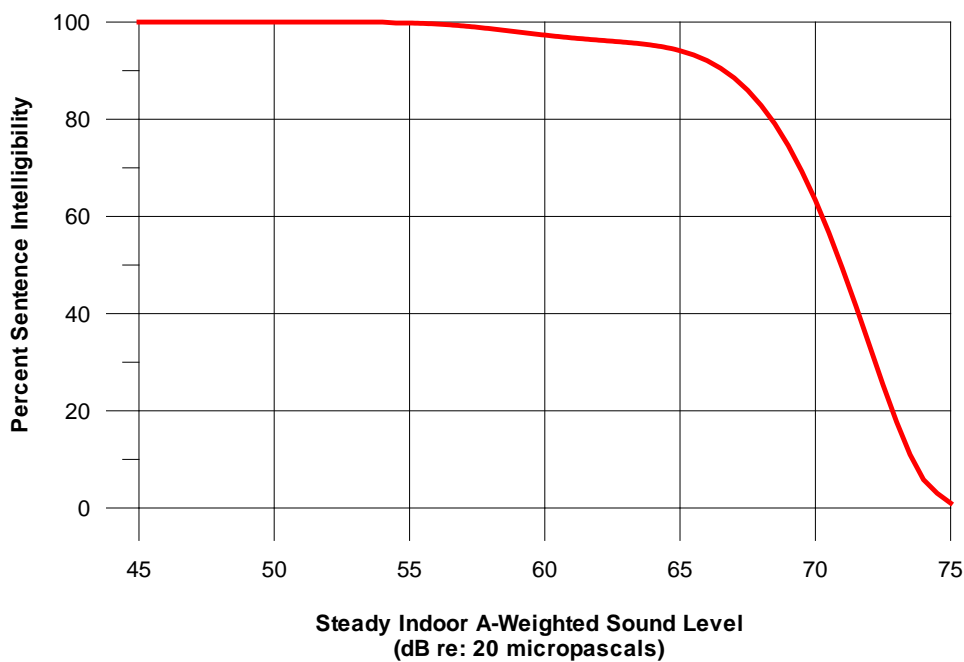
Speech Interference – A primary effect of aircraft noise is its tendency to drown out or "mask" speech, making it difficult to carry on a normal conversation. As an aircraft approaches and its sound level increases, speech becomes harder to hear. As the ambient level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

For typical communication distances of three or four feet (one to 1.5 meters), acceptable outdoor conversations can be carried on in a normal voice as long as the ambient noise outdoors is less than about 65 dBA (FICON, 1992). If the noise exceeds this level, intelligibility would be lost unless vocal effort was increased or communication distance was decreased.

Indoor speech interference can be expressed as a percentage of sentence intelligibility between two average adults with normal hearing speaking fluently in relaxed conversation approximately one meter apart in a typical living room or bedroom (EPA, 1974). As shown in **Figure 1.2-2**, the percentage of sentence intelligibility is a non-linear function of the (steady) indoor ambient or background sound level (24-hour energy-average $L_{eq(24)}$). Steady ambient indoor sound levels of up to 45 dBA $L_{eq(24)}$ are expected to allow 100 percent intelligibility of sentences. The curve shows 99 percent sentence intelligibility for $L_{eq(24)}$ at or below 54 dBA and less than 10 percent

intelligibility for $L_{eq(24)}$ greater than 73 dBA. In the same document from which **Figure 1.2-2** was taken, the EPA established an indoor criterion of 45 dBA DNL as requisite to protect against speech interference indoors (EPA, 1974).

Figure 1.2-2 Percent Sentence Intelligibility for Indoor Speech



Source: EPA, 1974

1.3. NOISE ANALYSIS

1.3.1. EXISTING CONDITION NOISE MODELING ASSUMPTIONS

Airport Environmental Design Tool (AEDT)

The FAA has required the use of the Aviation Environmental Design Tool (AEDT) since May 29, 2015 for determining the predicted noise impact in the vicinity of airports. Statutory requirements for AEDT use are defined in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures; Order 5050.4B, NEPA Implementing Instructions for Airport Actions; and Title 14 Code of Federal Regulations (CFR) part 150, Airport Noise Compatibility Planning. AEDT Version 2D, released September 27, 2017, was the version used for this document (https://aedt.faa.gov/2d_information.aspx).

The AEDT incorporates the number of annual average daily daytime and nighttime flight and run-up operations, flight paths, and flight profiles of the aircraft along with its extensive internal database of aircraft noise and performance information, to calculate the DNL at many points on the ground around an airport. From a grid of points, the AEDT contouring program draws contours of equal DNL to be superimposed onto land use maps. For this document, DNL contours of 65, 70, and 75 dBA were developed. DNL contours are a graphical representation of how the noise

from the airport's average annual daily aircraft operations is distributed over the surrounding area. The AEDT can calculate sound levels at any specified point so that noise exposure at representative locations around an airport can be obtained.

The results of the AEDT analysis provide a relative measure of noise levels around airfield facilities. When the calculations are made in a consistent manner, the AEDT is most accurate for comparing before and after noise effects resulting from forecast changes or alternative noise control actions. It allows noise levels to be predicted for such Proposed Projects without the actual implementation and noise monitoring of those actions.

Title 14 CFR part 150, Appendix A, provides Federal compatible land use guidelines for several land uses as a function of DNL values. Compatible or non-compatible land use is determined by comparing the predicted or measured DNL values at a site to the established thresholds.

Examples of detailed local acoustical variables include:

- Temperature profiles;
- Wind gradients;
- Humidity effects;
- Ground absorption;
- Individual aircraft directivity patterns; and
- Sound diffraction caused by terrain, buildings, barriers, etc.

The results of the AEDT analysis provide a relative measure of noise levels around airfield facilities. When the calculations are made in a consistent manner, the AEDT is most accurate for comparing before and after noise effects resulting from forecast changes or alternative noise control actions. It allows noise levels to be predicted for such proposed projects without the actual implementation and noise monitoring of those actions.

Modeled Aircraft Operations

This section describes in detail the sources and derivation of the AEDT input data for the existing conditions including airport layout, weather, flight operations, runway use, flight tracks, track use, and flight profiles.

Airport Layout

There are two intersecting, asphalt runways at SAV oriented perpendicular to each other. The primary runway, Runway 10-28, is 9,351 feet long by 150 feet wide and oriented in an east/west direction. The secondary runway, Runway 1-19, is 7,002 feet by 150 feet wide and oriented in a north/south direction. Several parallel and connecting taxiways at the Airport provide access from terminals, hangars, and apron areas to all runways. There are also several aprons at SAV that service the passenger terminal building, general aviation, and the Georgia Air National Guard.

Flight Operations

As shown in **Tables 1.3-1 to 1.3-4**, AEDT-modeled annual operations for the Existing Conditions totaled 95,600 operations, an average of approximately 261 daily operations. Jet operations accounted for approximately 74 percent of the total operations. Nighttime operations accounted for approximately 8 percent of the total operations at SAV.

Table 1.3-1 Existing Condition Average Annual Daily Commercial Aircraft Operations

Category	AEDT AIRCRAFT TYPE	Annual	Average Daily
Cargo	737500	11	0.03
	757PW	577	1.58
	CNA208	8	0.02
	EMB120	3	0.01
Air Carrier	717200	151	0.41
	737400	8	0.02
	737700	4043	11.08
	737800	381	1.04
	757300	6	0.02
	767300	6	0.02
	757PW	15	0.04
	767CF6	3	0.01
	A319-131	1,941	5.32
	A320-211	4,035	11.05
	A321-232	46	0.13
	A330-343	3	0.01
	CRJ9-ER	1,945	5.33
	CRJ9-LR	10,260	28.11
	EMB145	2,351	6.44
	EMB14L	973	2.67
	EMB170	90	0.25
	EMB175	1,097	3.00
	EMB190	599	1.64
	MD81	4	0.01
	MD82	150	0.41
	MD83	5,044	13.82
	MD9028	17	0.05

Category	AEDT AIRCRAFT TYPE	Annual	Average Daily
Total		33,766	92.51

Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.

Note: Numbers may not add due to rounding.

Source: AECOM, 2019.

Table 1.3-2 Existing Condition Average Annual Daily Commuter Aircraft Operations

Category	AEDT AIRCRAFT TYPE	Annual	Average Daily
Commuter	1900D	37	0.10
	BEC58P	24	0.06
	CIT3	24	0.06
	CL600	803	2.20
	CL601	3,791	10.39
	CNA208	1,496	4.10
	CNA441	319	0.87
	CNA500	236	0.65
	CNA510	11	0.03
	CNA55B	62	0.17
	CNA560U	180	0.49
	CNA560XL	722	1.98
	CNA680	421	1.15
	CNA750	157	0.43
	DHC6	419	1.15
	DHC8	32	0.09
	DHC830	3	0.01
	DO228	28	0.08
	ECLIPSE500	25	0.07
	F10062	17	0.05
	GII	3	0.01
	GIIB	6	0.02
	GIV	295	0.81
	GV	3,490	9.56
	IA1125	24	0.06
	LEAR35	277	0.76
	MU3001	329	0.90
	SD330	563	1.54
Total		13,791	37.78

Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.

Note: Numbers may not add due to rounding.

Source: AECOM, 2019.

Table 1.3-3 Existing Condition Average Annual Daily Military Aircraft Operations

Category	AEDT AIRCRAFT TYPE	Annual	Average Daily
General Aviation	737700	31	0.084
	737800	100	0.275
	1900D	4	0.012
	727EM1	4	0.012
	A6A	4	0.012
	BEC58P	133	0.365
	C130HP	1,324	3.628
	C17	105	0.287
	C5A	4	0.012
	CL600	22	0.060
	CNA172	244	0.669
	CNA208	345	0.944
	CNA441	526	1.441
	CNA500	20	0.054
	CNA560U	129	0.353
	CVR580	41	0.114
	DHC6	48	0.132
	DO328	140	0.383
	EA6B	2	0.006
	F15A	192	0.526
	F15E20	2	0.006
	F15E29	7	0.018
	F16A	689	1.889
	F16GE	4	0.012
	F16PW0	1,115	3.054
	F18EF	881	2.415
	F-35A	7	0.018
	GASEPF	4	0.012
	GASEPV	20	0.054
	GIIB	4	0.012
	GIV	79	0.215
	GV	358	0.980
	IA1125	26	0.072
	KC135R	102	0.280
	LEAR35	26	0.072
	MU3001	140	0.383
	P3A	4	0.012
	P3C	9	0.024
	PA28	35	0.096
	PA31	9	0.024
	SD330	15	0.042
	SF340	44	0.120
	T-2C	153	0.418
	T34	4	0.012
	T-38A	995	2.726

	T45	11	0.030
Total		8,161	22.36

Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.

Note: Numbers may not add due to rounding.

Source: AECOM, 2019.

Table 1.3-4 Existing Condition Average Annual Daily General Aviation Aircraft Operations

Category	AEDT AIRCRAFT TYPE	Annual	Average Daily
General Aviation	737700	12	0.033
	1900D	5	0.013
	A7D	14	0.040
	BEC58P	2,967	8.130
	CIT3	1,027	2.814
	CL600	2,460	6.739
	CL601	300	0.821
	CNA172	993	2.721
	CNA182	696	1.907
	CNA206	266	0.728
	CNA208	1,324	3.628
	CNA20T	12	0.033
	CNA441	1,948	5.336
	CNA500	1,955	5.356
	CNA510	29	0.079
	CNA55B	246	0.675
	CNA560U	928	2.542
	CNA560XL	841	2.304
	CNA680	592	1.622
	CNA750	263	0.722
	DHC6	471	1.291
	DHC8	5	0.013
	DO228	433	1.185
	ECLIPSE500	1,015	2.780
	F10062	370	1.013
	GASEPF	718	1.966
	GASEPV	5,997	16.431
	GIIB	19	0.053
	GIV	1,228	3.363
	GV	3,526	9.659
	IA1125	3,132	8.580

Category	AEDT AIRCRAFT TYPE	Annual	Average Daily
	LEAR35	2,286	6.263
	MU3001	737	2.019
	PA28	1,278	3.502
	PA30	56	0.152
	PA31	1,699	4.654
	SD330	29	0.079
	T34	5	0.013
Total		39,880	109.26

Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.

GA = General Aviation

Note: Numbers may not add due to rounding.

Source: AECOM, 2019.

Runway Use

A summary of the modeled annual average daily utilization of SAV's runways is presented in **Tables 1.3-5** and **1.3-6** for arrivals and departures respectively. This data was provided by the FAA Air Traffic Control Tower.

Table 1.3-5 Existing Condition Arrival Operations Runway Utilization

Runway	Jet		Turboprop		Single & Multi Engine Piston		Military	
	Day	Night	Day	Night	Day	Night	Day	Night
01	6%	5%	13%	19%	18%	13%	15%	19%
19	8%	7%	17%	18%	19%	23%	9%	16%
10	53%	68%	37%	45%	35%	41%	43%	39%
28	33%	20%	33%	18%	28%	23%	33%	26%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%

Source: FAA ATCT 2018.

Table 1.3-6 Existing Condition Departure Operations Runway Utilization

Runway	Jet		Turboprop		Single & Multi Engine Piston		Military	
	Day	Night	Day	Night	Day	Night	Day	Night
01	2%	9%	26%	38%	39%	34%	18%	16%
19	8%	10%	10%	10%	13%	14%	10%	28%
10	55%	45%	38%	37%	27%	30%	40%	40%
28	35%	36%	26%	15%	21%	22%	32%	16%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%

Source: FAA ATCT 2018.

Flight Tracks

Flight tracks are the aircraft's actual path through the air projected vertically onto the ground. Modeled flight tracks for this report consist of a straight-out departure and straight in arrival for each runway end.

Flight Profiles

Flight profiles model the vertical paths of aircraft during departure and arrival to determine the altitude, speed, and engine thrust or power of an aircraft at any point along a flight track. AEDT uses this information to calculate noise exposure on the ground. Profiles are unique to each aircraft type and vary with temperature, barometric pressure, headwind, and aircraft weight. Standard AEDT default profiles were used for all aircraft operations.

FAA Part 150 Compatible Land Use Criteria

Title 14 CFR part 150, Appendix A, Table 1 (Title 14 CFR part 150, 2007), provides Federal compatible land use guidelines for several land uses as a function of DNL values. Compatible or non-compatible land use is determined by comparing the predicted or measured values at a site to the values listed in Table 1. This table is provided as **Table 1.3-7**.

Table 1.3-7 Land Use Compatibility with Yearly Day-Night Average Sound Levels

		Yearly Day-Night Average Sound Level (DNL)					
	Below 65 Decibels	65-70 Decibels	70-75 Decibels	75-80 Decibels	80-85 Decibels	Over 85 Decibels	
<u>Residential</u>							
Residential (Other than mobile homes & transient lodges)	Y	N ¹	N ¹	N	N	N	
Mobile Home Parks	Y	N	N	N	N	N	
Transient Lodging	Y	N ¹	N ¹	N ¹	N	N	
<u>Public Use</u>							
Schools	Y	N ¹	N ¹	N	N	N	
Hospitals, Nursing Homes	Y	25	30	N	N	N	
Churches, Auditoriums, Concert Halls	Y	25	30	N	N	N	
Governmental Services	Y	Y	25	30	N	N	
Transportation	Y	Y	Y ²	Y ³	Y ⁴	Y ⁴	
Parking	Y	Y	Y ²	Y ³	Y ⁴	N	
<u>Commercial Use</u>							
Offices, Business & Professional	Y	Y	25	30	N	N	
Wholesale & Retail Building							
Materials, Hardware & Farm Equipment	Y	Y	Y ²	Y ³	Y ⁴	N	
Retail Trade - General	Y	Y	25	30	N	N	
Utilities	Y	Y	Y ²	Y ³	Y ⁴	N	
Communications	Y	Y	25	30	N	N	
<u>Manufacturing & Production</u>							
Manufacturing, General	Y	Y	Y ²	Y ³	Y ⁴	N	
Photographic and Optical	Y	Y	25	30	N	N	
Agriculture (Except Livestock) & Forestry	Y	Y ⁶	Y ⁷	Y ⁸	Y ⁸	Y ⁸	
Livestock Farming & Breeding	Y	Y ⁶	Y ⁷	N	N	N	
Mining & Fishing, Resource Production & Extraction	Y	Y	Y	Y	Y	Y	
<u>Recreational</u>							
Outdoor Sports Arenas, Spectator Sports	Y	Y ⁵	Y ⁵	N	N	N	
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N	
Nature Exhibits & Zoos	Y	Y	N	N	N	N	
Amusement, Parks, Resorts, Camps	Y	Y	Y	N	N	N	
Golf Courses, Riding Stables, Water Recreation	Y	Y	25	30	N	N	

NOTE: The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land use for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

Y (Yes) Land Use and related structures are compatible without restrictions.

N (No) Land Use and related structures are not compatible and should be prohibited.

NLR Noise Level Reduction (outdoor to indoor) are to be achieved through incorporation of noise attenuation into the design and construction of structure.

25, 30, or 35 Land use and related structures are generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated in design and construction of structure.

¹ Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements

are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

² Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

³ Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

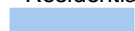
⁴ Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

⁵ Land use compatibility provided special sound reinforcement systems are installed.

⁶ Residential buildings require an NLR of 25 dB.

⁷ Residential buildings require an NLR of 30 dB.

⁸ Residential buildings not permitted.

 Noncompatible land use

Source: Title 14 CFR part 150, 2007.

1.3.2. FUTURE CONDITIONS NOISE MODELING

The only operation change resulting from the Proposed Project is the additional aircraft operations occurring from the increased number of cargo gates. FAA Order 1050.1F Environmental Impacts: Policies and Procedures Desk Reference indicated that the FAA Area Equivalent Method (AEM) noise screening tool is appropriate:

For use in evaluating proposed actions and alternative(s) at an airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles. If the AEM calculations indicate that the action would result in less than a 17 percent (approximately a DNL 1 dB) increase in the DNL 65 dB contour area, there would be no significant impact over noise sensitive areas and no further noise analysis would be required.

The Proposed Action consists of providing three additional air cargo parking positions to the two currently available, resulting in up to nine additional aircraft turnarounds for aircraft up to and including the Boeing 767 in size. The Proposed Alternative includes providing eight additional parking spaces within the same footprint for a total of ten spaces available for aircraft up to and including the Boeing 767. This alternative results in an additional 24 daily aircraft turnarounds.

As shown on **the attachments**, the AEM analysis results in an increase of 6.1 percent in the DNL 65 dB contour area for the three additional gates included in the Proposed Project for both the 2023 and 2028 study years; and 16.1 percent in the DNL 65 dB contour area for the eight additional cargo gates included in the Project Alternative in both the 2023 and 2028 study years.

These percentages indicate that neither the Proposed Project nor the Proposed Alternative results in a significant impact over noise sensitive areas, therefore no additional noise analysis is required.

1.4. REFERENCES

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ATTACHMENTS – AEM SCREENING SPREADSHEETS



Federal Aviation Administration
Office of Environment and Energy

http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	Savannah/Hilton Head International (SAV) 2023 Alt 1b
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DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	2.4	2.8	16.1%

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478				
707120				
707320				
717200	0.204177	0.015368	0.204177	0.015368
727100				
727200				
737300				
737400	0.011239	0.000846	0.011239	0.000846
737500	0.014986	0.001128	0.014986	0.001128
737700	5.513055	0.418362	5.513055	0.418362
737800	0.630231	0.061150	0.630231	0.061150
747100				
747200				
747400				
757300	0.007493	0.000564	0.007493	0.000564
767300	0.007493	0.000564	22.327490	1.680564
767400				
777200				
777300				
1900D	0.061915	0.004935	0.061915	0.004935
707QN				
720B				
727D15				
727D17				
727EM1	0.005021	0.000956	0.005021	0.000956
727EM2				
727Q15				
727Q7				
727Q9				
727QE				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.799851	0.060204	0.799851	0.060204
757RR				
767CF6	0.003746	0.000282	0.003746	0.000282
767JT9				
7773ER				
7878R				
A10A				
A3				
A300-622R				
A300B4-203				

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	2.622463	0.197390	2.622463	0.197390
A320-211	5.450976	0.410289	5.450976	0.410289
A320-232				
A321-232	0.061815	0.004653	0.061815	0.004653
A330-301				
A330-343	0.003746	0.000282	0.003746	0.000282
A340-211				
A340-642				
A37				
A380-841				
A380-861				
A4C				
A6A	0.005021	0.000956	0.005021	0.000956
A7D	0.018887	0.000584	0.018887	0.000584
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P	4.052806	0.148760	4.052806	0.148760
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP	1.523891	0.290265	1.523891	0.290265
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17	0.120505	0.022953	0.120505	0.022953
C18A				
C-20				
C21A				
C22				
C23				
C5A	0.005021	0.000956	0.005021	0.000956
C7A				
C9A				
CIT3	1.369822	0.043597	1.369822	0.043597
CL600	4.319006	0.180628	4.319006	0.180628
CL601	5.513849	0.395315	5.513849	0.395315
CNA172	1.578353	0.090130	1.578353	0.090130
CNA182	0.906558	0.028038	0.906558	0.028038
CNA182FLT				
CNA206	0.346255	0.010709	0.346255	0.010709
CNA208	4.160815	0.275118	4.160815	0.275118
CNA20T	0.015739	0.000487	0.015739	0.000487
CNA441	3.580898	0.218217	3.580898	0.218217
CNA500	2.889469	0.105146	2.889469	0.105146
CNA510	0.052821	0.002234	0.052821	0.002234
CNA525C				
CNA55B	0.405748	0.015892	0.405748	0.015892
CNA560E				
CNA560U	1.603034	0.081272	1.603034	0.081272
CNA560XL	2.074387	0.104304	2.074387	0.104304
CNA680	1.342569	0.064798	1.342569	0.064798
CNA750	0.555540	0.025781	0.555540	0.025781
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	2.620820	0.197813	2.620820	0.197813
CRJ9-LR	13.861590	1.043345	13.861590	1.043345

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CVR580	0.047700	0.009086	0.047700	0.009086
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	1.236727	0.070107	1.236727	0.070107
DHC6QP				
DHC7				
DHC8	0.049412	0.003404	0.049412	0.003404
DHC830	0.003746	0.000282	0.003746	0.000282
DO228	0.601113	0.020048	0.601113	0.020048
DO328	0.160674	0.030605	0.160674	0.030605
E3A				
E4				
EA6B	0.002511	0.000478	0.002511	0.000478
ECLIPSE500	1.355966	0.043241	1.355966	0.043241
EMB120	0.003746	0.000282	0.003746	0.000282
EMB145	3.176926	0.239123	3.176926	0.239123
EMB14L	1.314978	0.098977	1.314978	0.098977
EMB170	0.121757	0.009165	0.121757	0.009165
EMB175	1.481691	0.111525	1.481691	0.111525
EMB190	0.809217	0.060909	0.809217	0.060909
EMB195				
F10062	0.504208	0.016466	0.504208	0.016466
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A	0.228458	0.043516	0.228458	0.043516
F15E20	0.002511	0.000478	0.002511	0.000478
F15E29	0.007532	0.001435	0.007532	0.001435
F16A	0.793327	0.151110	0.793327	0.151110
F16GE	0.005021	0.000956	0.005021	0.000956
F16PW0	1.282881	0.244358	1.282881	0.244358
F-18	1.014254	0.193191	1.014254	0.193191
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF	0.939984	0.029796	0.939984	0.029796
GASEPV	7.835630	0.245667	7.835630	0.245667
GII	0.003746	0.000282	0.003746	0.000282
GIIB	0.037772	0.002224	0.037772	0.002224
GIV	2.091169	0.093969	2.091169	0.093969
GV	9.734487	0.559920	9.734487	0.559920

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
HS748A				
IA1125	4.142102	0.133685	4.142102	0.133685
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R	0.117399	0.022362	0.117399	0.022362
L1011				
L10115				
L188				
LEAR25				
LEAR35	3.384815	0.123773	3.384815	0.123773
MD11GE				
MD11PW				
MD81	0.005620	0.000423	0.005620	0.000423
MD82	0.202304	0.015227	0.202304	0.015227
MD83	6.814657	0.512931	6.814657	0.512931
MD9025				
MD9028	0.022478	0.001692	0.022478	0.001692
MU3001	1.567592	0.090810	1.567592	0.090810
OV10A				
P3A	0.015063	0.002869	0.015063	0.002869
PA28	1.705927	0.058563	1.705927	0.058563
PA30	0.072399	0.002239	0.072399	0.002239
PA31	2.223075	0.070202	2.223075	0.070202
PA42				
S3A&B				
SABR80				
SD330	0.816024	0.061596	0.816024	0.061596
SF340	0.050211	0.009564	0.050211	0.009564
SR71				
T1				
T29				
T-2C	0.175737	0.033474	0.175737	0.033474
T3				
T33A				
T34	0.011358	0.001110	0.011358	0.001110
T37B				
T-38A	1.144801	0.218057	1.144801	0.218057
T39A				
T41				
T42				
T-43A				
T44	0.012553	0.002391	0.012553	0.002391
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	125.6529	8.16584	147.9729	9.84584



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Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	Savannah/Hilton Head International (SAV) 2023-Proposed Project
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DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	2.4	2.5	6.1%

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478				
707120				
707320				
717200	0.204177	0.015368	0.204177	0.015368
727100				
727200				
737300				
737400	0.011239	0.000846	0.011239	0.000846
737500	0.014986	0.001128	0.014986	0.001128
737700	5.513055	0.418362	5.513055	0.418362
737800	0.630231	0.061150	0.630231	0.061150
747100				
747200				
747400				
757300	0.007493	0.000564	0.007493	0.000564
767300	0.007493	0.000564	8.377493	0.630564
767400				
777200				
777300				
1900D	0.061915	0.004935	0.061915	0.004935
707QN				
720B				
727D15				
727D17				
727EM1	0.005021	0.000956	0.005021	0.000956
727EM2				
727Q15				
727Q7				
727Q9				
727QE				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.799851	0.060204	0.799851	0.060204
757RR				
767CF6	0.003746	0.000282	0.003746	0.000282
767JT9				
7773ER				
7878R				
A10A				
A3				
A300-622R				
A300B4-203				

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	2.622463	0.197390	2.622463	0.197390
A320-211	5.450976	0.410289	5.450976	0.410289
A320-232				
A321-232	0.061815	0.004653	0.061815	0.004653
A330-301				
A330-343	0.003746	0.000282	0.003746	0.000282
A340-211				
A340-642				
A37				
A380-841				
A380-861				
A4C				
A6A	0.005021	0.000956	0.005021	0.000956
A7D	0.018887	0.000584	0.018887	0.000584
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P	4.052806	0.148760	4.052806	0.148760
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP	1.523891	0.290265	1.523891	0.290265
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17	0.120505	0.022953	0.120505	0.022953
C18A				
C-20				
C21A				
C22				
C23				
C5A	0.005021	0.000956	0.005021	0.000956
C7A				
C9A				
CIT3	1.369822	0.043597	1.369822	0.043597
CL600	4.319006	0.180628	4.319006	0.180628
CL601	5.513849	0.395315	5.513849	0.395315
CNA172	1.578353	0.090130	1.578353	0.090130
CNA182	0.906558	0.028038	0.906558	0.028038
CNA182FLT				
CNA206	0.346255	0.010709	0.346255	0.010709
CNA208	4.160815	0.275118	4.160815	0.275118
CNA20T	0.015739	0.000487	0.015739	0.000487
CNA441	3.580898	0.218217	3.580898	0.218217
CNA500	2.889469	0.105146	2.889469	0.105146
CNA510	0.052821	0.002234	0.052821	0.002234
CNA525C				
CNA55B	0.405748	0.015892	0.405748	0.015892
CNA560E				
CNA560U	1.603034	0.081272	1.603034	0.081272
CNA560XL	2.074387	0.104304	2.074387	0.104304
CNA680	1.342569	0.064798	1.342569	0.064798
CNA750	0.555540	0.025781	0.555540	0.025781
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	2.620820	0.197813	2.620820	0.197813
CRJ9-LR	13.861590	1.043345	13.861590	1.043345

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CVR580	0.047700	0.009086	0.047700	0.009086
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	1.236727	0.070107	1.236727	0.070107
DHC6QP				
DHC7				
DHC8	0.049412	0.003404	0.049412	0.003404
DHC830	0.003746	0.000282	0.003746	0.000282
DO228	0.601113	0.020048	0.601113	0.020048
DO328	0.160674	0.030605	0.160674	0.030605
E3A				
E4				
EA6B	0.002511	0.000478	0.002511	0.000478
ECLIPSE500	1.355966	0.043241	1.355966	0.043241
EMB120	0.003746	0.000282	0.003746	0.000282
EMB145	3.176926	0.239123	3.176926	0.239123
EMB14L	1.314978	0.098977	1.314978	0.098977
EMB170	0.121757	0.009165	0.121757	0.009165
EMB175	1.481691	0.111525	1.481691	0.111525
EMB190	0.809217	0.060909	0.809217	0.060909
EMB195				
F10062	0.504208	0.016466	0.504208	0.016466
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A	0.228458	0.043516	0.228458	0.043516
F15E20	0.002511	0.000478	0.002511	0.000478
F15E29	0.007532	0.001435	0.007532	0.001435
F16A	0.793327	0.151110	0.793327	0.151110
F16GE	0.005021	0.000956	0.005021	0.000956
F16PW0	1.282881	0.244358	1.282881	0.244358
F-18	1.014254	0.193191	1.014254	0.193191
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF	0.939984	0.029796	0.939984	0.029796
GASEPV	7.835630	0.245667	7.835630	0.245667
GII	0.003746	0.000282	0.003746	0.000282
GIIB	0.037772	0.002224	0.037772	0.002224
GIV	2.091169	0.093969	2.091169	0.093969
GV	9.734487	0.559920	9.734487	0.559920

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
HS748A				
IA1125	4.142102	0.133685	4.142102	0.133685
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R	0.117399	0.022362	0.117399	0.022362
L1011				
L10115				
L188				
LEAR25				
LEAR35	3.384815	0.123773	3.384815	0.123773
MD11GE				
MD11PW				
MD81	0.005620	0.000423	0.005620	0.000423
MD82	0.202304	0.015227	0.202304	0.015227
MD83	6.814657	0.512931	6.814657	0.512931
MD9025				
MD9028	0.022478	0.001692	0.022478	0.001692
MU3001	1.567592	0.090810	1.567592	0.090810
OV10A				
P3A	0.015063	0.002869	0.015063	0.002869
PA28	1.705927	0.058563	1.705927	0.058563
PA30	0.072399	0.002239	0.072399	0.002239
PA31	2.223075	0.070202	2.223075	0.070202
PA42				
S3A&B				
SABR80				
SD330	0.816024	0.061596	0.816024	0.061596
SF340	0.050211	0.009564	0.050211	0.009564
SR71				
T1				
T29				
T-2C	0.175737	0.033474	0.175737	0.033474
T3				
T33A				
T34	0.011358	0.001110	0.011358	0.001110
T37B				
T-38A	1.144801	0.218057	1.144801	0.218057
T39A				
T41				
T42				
T-43A				
T44	0.012553	0.002391	0.012553	0.002391
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	125.6529	8.16584	134.0229	8.79584



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Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	Savannah/Hilton Head International (SAV) 2028-Alt1b
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DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	2.4	2.8	16.0%

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478				
707120				
707320				
717200	0.216245	0.016277	0.216245	0.016277
727100				
727200				
737300				
737400	0.011903	0.000896	0.011903	0.000896
737500	0.015871	0.001195	0.015871	0.001195
737700	5.835749	0.442850	5.835749	0.442850
737800	0.660073	0.064046	0.660073	0.064046
747100				
747200				
747400				
757300	0.007936	0.000597	0.007936	0.000597
767300	0.007936	0.000597	22.327490	1.680564
767400				
777200				
777300				
1900D	0.064907	0.005174	0.064907	0.005174
707QN				
720B				
727D15				
727D17				
727EM1	0.005021	0.000956	0.005021	0.000956
727EM2				
727Q15				
727Q7				
727Q9				
727QE				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.847126	0.063762	0.847126	0.063762
757RR				
767CF6	0.003968	0.000299	0.003968	0.000299
767JT9				
7773ER				
7878R				
A10A				
A3				
A300-622R				
A300B4-203				

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	2.777462	0.209056	2.777462	0.209056
A320-211	5.773154	0.434538	5.773154	0.434538
A320-232				
A321-232	0.065469	0.004928	0.065469	0.004928
A330-301				
A330-343	0.003968	0.000299	0.003968	0.000299
A340-211				
A340-642				
A37				
A380-841				
A380-861				
A4C				
A6A	0.005021	0.000956	0.005021	0.000956
A7D	0.018933	0.000586	0.018933	0.000586
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P	4.064099	0.149174	4.064099	0.149174
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP	1.523891	0.290265	1.523891	0.290265
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17	0.120505	0.022953	0.120505	0.022953
C18A				
C-20				
C21A				
C22				
C23				
C5A	0.005021	0.000956	0.005021	0.000956
C7A				
C9A				
CIT3	1.375031	0.043763	1.375031	0.043763
CL600	4.392873	0.183717	4.392873	0.183717
CL601	5.818463	0.417155	5.818463	0.417155
CNA172	1.581419	0.090305	1.581419	0.090305
CNA182	0.908761	0.028106	0.908761	0.028106
CNA182FLT				
CNA206	0.347096	0.010735	0.347096	0.010735
CNA208	4.286023	0.283396	4.286023	0.283396
CNA20T	0.015777	0.000488	0.015777	0.000488
CNA441	3.612696	0.220155	3.612696	0.220155
CNA500	2.915152	0.106080	2.915152	0.106080
CNA510	0.053825	0.002277	0.053825	0.002277
CNA525C				
CNA55B	0.411678	0.016125	0.411678	0.016125
CNA560E				
CNA560U	1.620645	0.082165	1.620645	0.082165
CNA560XL	2.136054	0.107405	2.136054	0.107405
CNA680	1.378936	0.066553	1.378936	0.066553
CNA750	0.569217	0.026416	0.569217	0.026416
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	2.783414	0.209504	2.783414	0.209504
CRJ9-LR	14.680872	1.105012	14.680872	1.105012

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CVR580	0.047700	0.009086	0.047700	0.009086
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	1.272206	0.072118	1.272206	0.072118
DHC6QP				
DHC7				
DHC8	0.051989	0.003581	0.051989	0.003581
DHC830	0.003968	0.000299	0.003968	0.000299
DO228	0.604783	0.020170	0.604783	0.020170
DO328	0.160674	0.030605	0.160674	0.030605
E3A				
E4				
EA6B	0.002511	0.000478	0.002511	0.000478
ECLIPSE500	1.361252	0.043410	1.361252	0.043410
EMB120	0.003968	0.000299	0.003968	0.000299
EMB145	3.364697	0.253257	3.364697	0.253257
EMB14L	1.392699	0.104827	1.392699	0.104827
EMB170	0.128954	0.009706	0.128954	0.009706
EMB175	1.569266	0.118117	1.569266	0.118117
EMB190	0.857046	0.064509	0.857046	0.064509
EMB195				
F10062	0.506760	0.016549	0.506760	0.016549
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A	0.228458	0.043516	0.228458	0.043516
F15E20	0.002511	0.000478	0.002511	0.000478
F15E29	0.007532	0.001435	0.007532	0.001435
F16A	0.793327	0.151110	0.793327	0.151110
F16GE	0.005021	0.000956	0.005021	0.000956
F16PW0	1.282881	0.244358	1.282881	0.244358
F-18	1.014254	0.193191	1.014254	0.193191
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF	0.942254	0.029867	0.942254	0.029867
GASEPV	7.854607	0.246262	7.854607	0.246262
GII	0.003968	0.000299	0.003968	0.000299
GIIB	0.038281	0.002253	0.038281	0.002253
GIV	2.119269	0.095232	2.119269	0.095232
GV	10.028708	0.576917	10.028708	0.576917

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
HS748A				
IA1125	4.153963	0.134068	4.153963	0.134068
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R	0.117399	0.022362	0.117399	0.022362
L1011				
L10115				
L188				
LEAR25				
LEAR35	3.414981	0.124876	3.414981	0.124876
MD11GE				
MD11PW				
MD81	0.005952	0.000448	0.005952	0.000448
MD82	0.214261	0.016127	0.214261	0.016127
MD83	7.217434	0.543248	7.217434	0.543248
MD9025				
MD9028	0.023807	0.001792	0.023807	0.001792
MU3001	1.596534	0.092487	1.596534	0.092487
OV10A				
P3A	0.015063	0.002869	0.015063	0.002869
PA28	1.709960	0.058702	1.709960	0.058702
PA30	0.072575	0.002245	0.072575	0.002245
PA31	2.228449	0.070372	2.228449	0.070372
PA42				
S3A&B				
SABR80				
SD330	0.861052	0.064995	0.861052	0.064995
SF340	0.050211	0.009564	0.050211	0.009564
SR71				
T1				
T29				
T-2C	0.175737	0.033474	0.175737	0.033474
T3				
T33A				
T34	0.011372	0.001111	0.011372	0.001111
T37B				
T-38A	1.144801	0.218057	1.144801	0.218057
T39A				
T41				
T42				
T-43A				
T44	0.012553	0.002391	0.012553	0.002391
TORNAD				
IR1				
U2				
U21				
U6				
U8F				
Total LTOs	129.5978	8.44179	151.9174	10.12176



Federal Aviation Administration
Office of Environment and Energy

http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	Savannah/Hilton Head International (SAV) 2028-Proposed Project
--------------------	--

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	2.4	2.6	6.1%

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478				
707120				
707320				
717200	0.216245	0.016277	0.216245	0.016277
727100				
727200				
737300				
737400	0.011903	0.000896	0.011903	0.000896
737500	0.015871	0.001195	0.015871	0.001195
737700	5.835749	0.442850	5.835749	0.442850
737800	0.660073	0.064046	0.660073	0.064046
747100				
747200				
747400				
757300	0.007936	0.000597	0.007936	0.000597
767300	0.007936	0.000597	8.377936	0.630597
767400				
777200				
777300				
1900D	0.064907	0.005174	0.064907	0.005174
707QN				
720B				
727D15				
727D17				
727EM1	0.005021	0.000956	0.005021	0.000956
727EM2				
727Q15				
727Q7				
727Q9				
727QE				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.847126	0.063762	0.847126	0.063762
757RR				
767CF6	0.003968	0.000299	0.003968	0.000299
767JT9				
7773ER				
7878R				
A10A				
A3				
A300-622R				
A300B4-203				

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	2.777462	0.209056	2.777462	0.209056
A320-211	5.773154	0.434538	5.773154	0.434538
A320-232				
A321-232	0.065469	0.004928	0.065469	0.004928
A330-301				
A330-343	0.003968	0.000299	0.003968	0.000299
A340-211				
A340-642				
A37				
A380-841				
A380-861				
A4C				
A6A	0.005021	0.000956	0.005021	0.000956
A7D	0.018933	0.000586	0.018933	0.000586
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P	4.064099	0.149174	4.064099	0.149174
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP	1.523891	0.290265	1.523891	0.290265
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17	0.120505	0.022953	0.120505	0.022953
C18A				
C-20				
C21A				
C22				
C23				
C5A	0.005021	0.000956	0.005021	0.000956
C7A				
C9A				
CIT3	1.375031	0.043763	1.375031	0.043763
CL600	4.392873	0.183717	4.392873	0.183717
CL601	5.818463	0.417155	5.818463	0.417155
CNA172	1.581419	0.090305	1.581419	0.090305
CNA182	0.908761	0.028106	0.908761	0.028106
CNA182FLT				
CNA206	0.347096	0.010735	0.347096	0.010735
CNA208	4.286023	0.283396	4.286023	0.283396
CNA20T	0.015777	0.000488	0.015777	0.000488
CNA441	3.612696	0.220155	3.612696	0.220155
CNA500	2.915152	0.106080	2.915152	0.106080
CNA510	0.053825	0.002277	0.053825	0.002277
CNA525C				
CNA55B	0.411678	0.016125	0.411678	0.016125
CNA560E				
CNA560U	1.620645	0.082165	1.620645	0.082165
CNA560XL	2.136054	0.107405	2.136054	0.107405
CNA680	1.378936	0.066553	1.378936	0.066553
CNA750	0.569217	0.026416	0.569217	0.026416
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	2.783414	0.209504	2.783414	0.209504
CRJ9-LR	14.680872	1.105012	14.680872	1.105012

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CVR580	0.047700	0.009086	0.047700	0.009086
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	1.272206	0.072118	1.272206	0.072118
DHC6QP				
DHC7				
DHC8	0.051989	0.003581	0.051989	0.003581
DHC830	0.003968	0.000299	0.003968	0.000299
DO228	0.604783	0.020170	0.604783	0.020170
DO328	0.160674	0.030605	0.160674	0.030605
E3A				
E4				
EA6B	0.002511	0.000478	0.002511	0.000478
ECLIPSE500	1.361252	0.043410	1.361252	0.043410
EMB120	0.003968	0.000299	0.003968	0.000299
EMB145	3.364697	0.253257	3.364697	0.253257
EMB14L	1.392699	0.104827	1.392699	0.104827
EMB170	0.128954	0.009706	0.128954	0.009706
EMB175	1.569266	0.118117	1.569266	0.118117
EMB190	0.857046	0.064509	0.857046	0.064509
EMB195				
F10062	0.506760	0.016549	0.506760	0.016549
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A	0.228458	0.043516	0.228458	0.043516
F15E20	0.002511	0.000478	0.002511	0.000478
F15E29	0.007532	0.001435	0.007532	0.001435
F16A	0.793327	0.151110	0.793327	0.151110
F16GE	0.005021	0.000956	0.005021	0.000956
F16PW0	1.282881	0.244358	1.282881	0.244358
F-18	1.014254	0.193191	1.014254	0.193191
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF	0.942254	0.029867	0.942254	0.029867
GASEPV	7.854607	0.246262	7.854607	0.246262
GII	0.003968	0.000299	0.003968	0.000299
GIIB	0.038281	0.002253	0.038281	0.002253
GIV	2.119269	0.095232	2.119269	0.095232
GV	10.028708	0.576917	10.028708	0.576917

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
HS748A				
IA1125	4.153963	0.134068	4.153963	0.134068
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R	0.117399	0.022362	0.117399	0.022362
L1011				
L10115				
L188				
LEAR25				
LEAR35	3.414981	0.124876	3.414981	0.124876
MD11GE				
MD11PW				
MD81	0.005952	0.000448	0.005952	0.000448
MD82	0.214261	0.016127	0.214261	0.016127
MD83	7.217434	0.543248	7.217434	0.543248
MD9025				
MD9028	0.023807	0.001792	0.023807	0.001792
MU3001	1.596534	0.092487	1.596534	0.092487
OV10A				
P3A	0.015063	0.002869	0.015063	0.002869
PA28	1.709960	0.058702	1.709960	0.058702
PA30	0.072575	0.002245	0.072575	0.002245
PA31	2.228449	0.070372	2.228449	0.070372
PA42				
S3A&B				
SABR80				
SD330	0.861052	0.064995	0.861052	0.064995
SF340	0.050211	0.009564	0.050211	0.009564
SR71				
T1				
T29				
T-2C	0.175737	0.033474	0.175737	0.033474
T3				
T33A				
T34	0.011372	0.001111	0.011372	0.001111
T37B				
T-38A	1.144801	0.218057	1.144801	0.218057
T39A				
T41				
T42				
T-43A				
T44	0.012553	0.002391	0.012553	0.002391
TORNAD				
IR1				
U2				
U21				
U6				
U8F				
Total LTOs	129.5978	8.44179	137.9678	9.07179

APPENDIX H

Draft EA Public Involvement

(to be provided at Preliminary Final EA)

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APPENDIX H.1

Notice of Availability of Draft EA and Notice of Combined Public Hearing/Public Information Workshop

(to be provided at Preliminary Final EA)

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APPENDIX H.2

Draft EA Agency Transmittal Letters and Distribution List

(To be provided at Preliminary Final EA)

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APPENDIX I

Wetland Documentation

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DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVE.
SAVANNAH, GEORGIA 31401-3640

REPLY TO
ATTENTION OF:

July 15, 2016

Regulatory Division
SAS-2015-00634

LTC Francisco Orellana
Army National Guard
165th Airlift Wing
1402 Robert B. Miller Drive
Savannah, Georgia 31408

Dear LTC Orellana:

I refer to a letter received August 31, 2015 and subsequent email dated March 18, 2016, submitted on your behalf by Environmental Services, requesting a Jurisdictional Determination (JD) for your site located at the Army National Guard, 165th Airlift Wing, near 1401 Robert B. Miller Drive, City of Savannah, Chatham County, Georgia (Latitude 32.1174, Longitude -81.1929). This project has been assigned number SAS-2015-00634 and it is important that you refer to this number in all communication concerning this matter.

We have completed a preliminary JD for the site. The wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

The wetlands/other waters on the subject property may be waters of the United States within the jurisdiction of Section 404 of the Clean Water Act (33 United States Code (U.S.C.) § 1344) and/or Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403). The enclosed Global Positioning System (GPS) delineation entitled "GPS Data / Wetland Delineation, Georgia ANG – Wetland Delineation, Chatham County, Georgia" (Figure 7, 7a-d), dated March 18, 2016, is an accurate delineation of all the jurisdictional boundaries on the site. This delineation will remain valid for a period of 5-years unless new information warrants revision prior to that date. The placement of dredged or fill material into any waterways and/or their adjacent wetlands or mechanized land clearing of those wetlands would require prior Department of the Army authorization pursuant to Section 404.

There are two ponds located within the project area that were permitted under National Pollutant Discharge Elimination System (NPDES) general permit GAR100001 and therefore are regulated under Section 402 of the Clean Water Act. However, should this permit expire, the ponds may be within the jurisdiction of Section 404 of the Clean Water Act.

Preliminary JDs are advisory in nature and may not be appealed (see Title 33 Code of Federal Regulations (C.F.R.) § Part 331.2). If you are not in agreement with this preliminary JD, then you may request an approved JD for your project site or review area.

If you intend to sell property that is part of a project that requires Department of the Army Authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report required by Housing and Urban Development Regulation must state whether, or not a permit for the development has been applied for, issued or denied by the U.S. Army Corps of Engineers (Part 320.3(h) of Title 33 of the C.F.R.).

This communication does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state or local laws, or regulations. It does not obviate your requirement to obtain state or local assent required by law for the development of this property. If the information you have submitted, and on which the U.S. Army Corps of Engineers has based its determination is later found to be in error, this decision may be revoked.

A copy of this letter is being provided to the following party: Ms. Kristen Stauff, Environmental Sciences, Inc., 101 B Estus Drive, Savannah, Georgia 31404 and Mr. Greg Kelly, Savannah Airport Commission, 400 Airways Avenue, Savannah, Georgia 31408.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

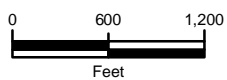
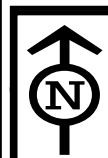
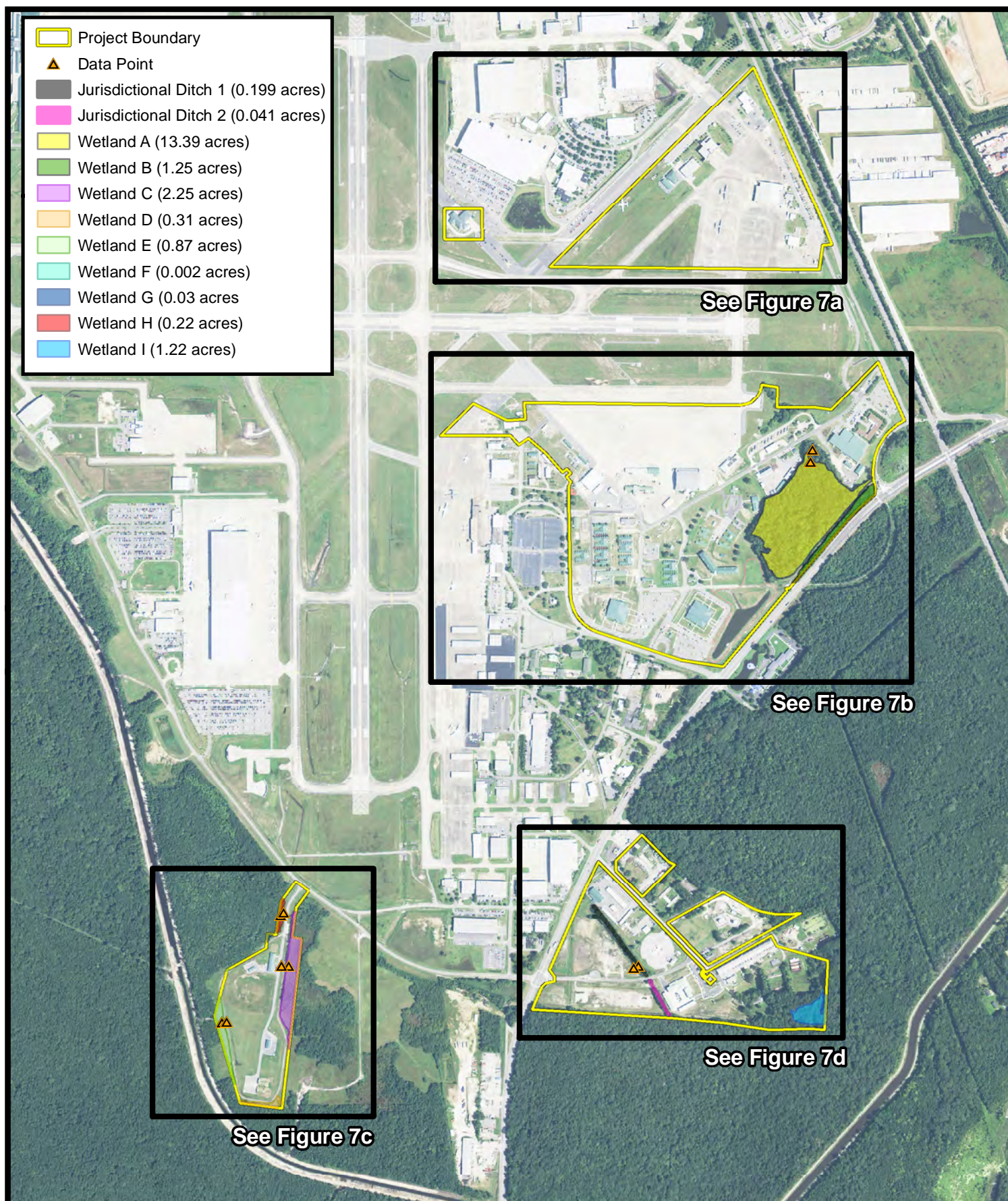
If you have any questions, please contact me at 912-652-5964.

Sincerely,

A handwritten signature in black ink, appearing to be 'SA' with a long horizontal stroke extending to the right.

Sherelle D. Reinhardt
Chief, Permits Section, Coastal Branch

Enclosures

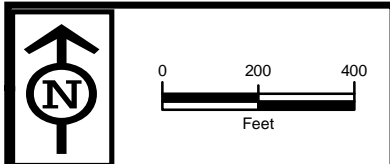


GPS Data / Wetland Delineation
Georgia ANG - Wetland Delineation
 Chatham County, Georgia

Disclaimer: The information depicted on this figure is for conceptual purposes only, serves to aid a licensed engineer or geologist in rendering professional services, and is subject to review and approval by appropriate regulatory agencies.

Source(s): NAIP Aerial Imagery; Chatham County (2013); ESI GPS Data

Figure: 7

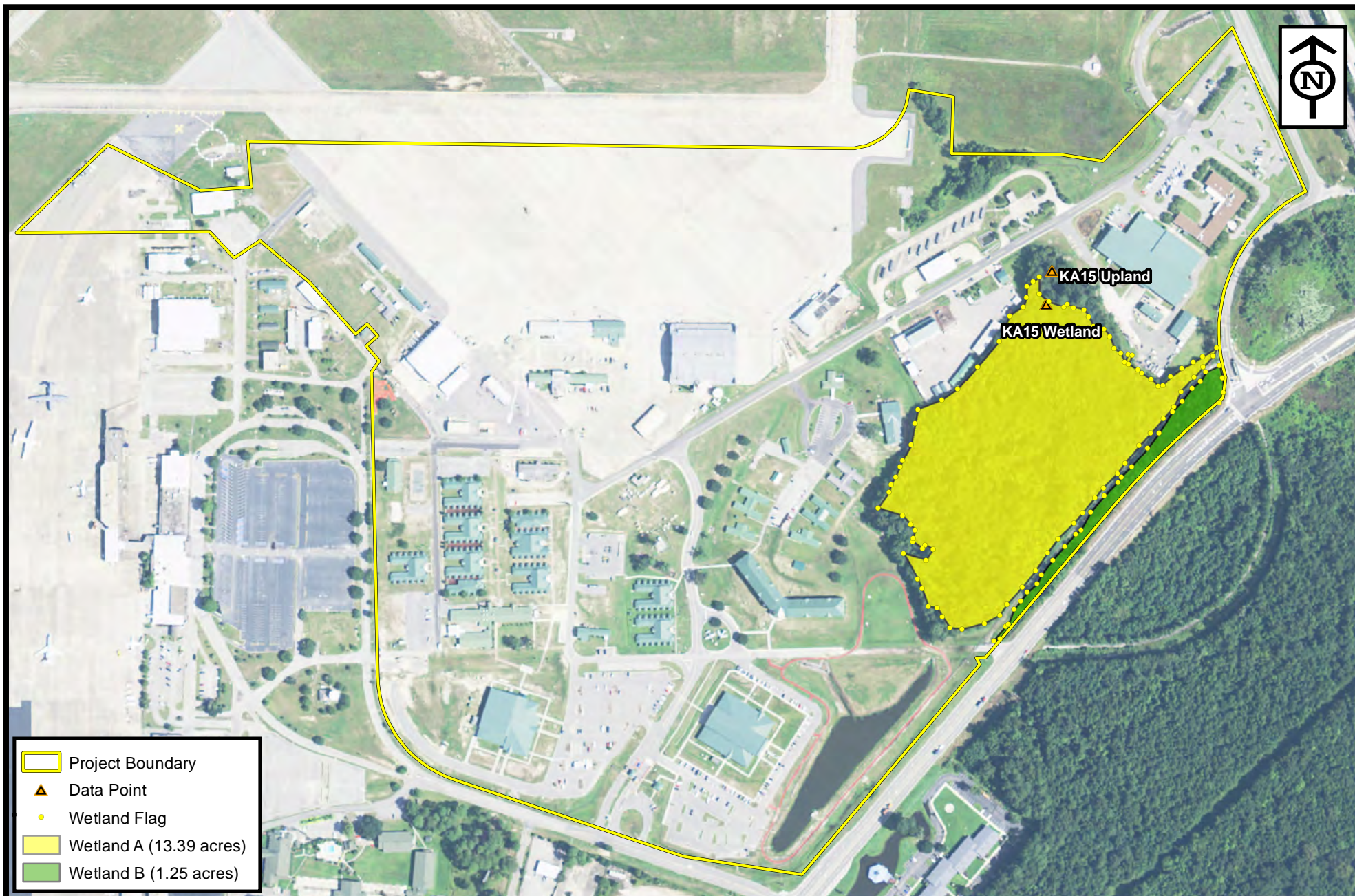


GPS Data / Wetland Delineation
Georgia ANG - Wetland Delineation
 Chatham County, Georgia

Disclaimer: The information depicted on this figure is for conceptual purposes only, serves to aid a licensed engineer or geologist in rendering professional services, and is subject to review and approval by appropriate regulatory agencies.

Source(s): NAIP Aerial Imagery, Chatham County (2013); ESI GPS Data

Figure: 7a

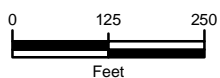
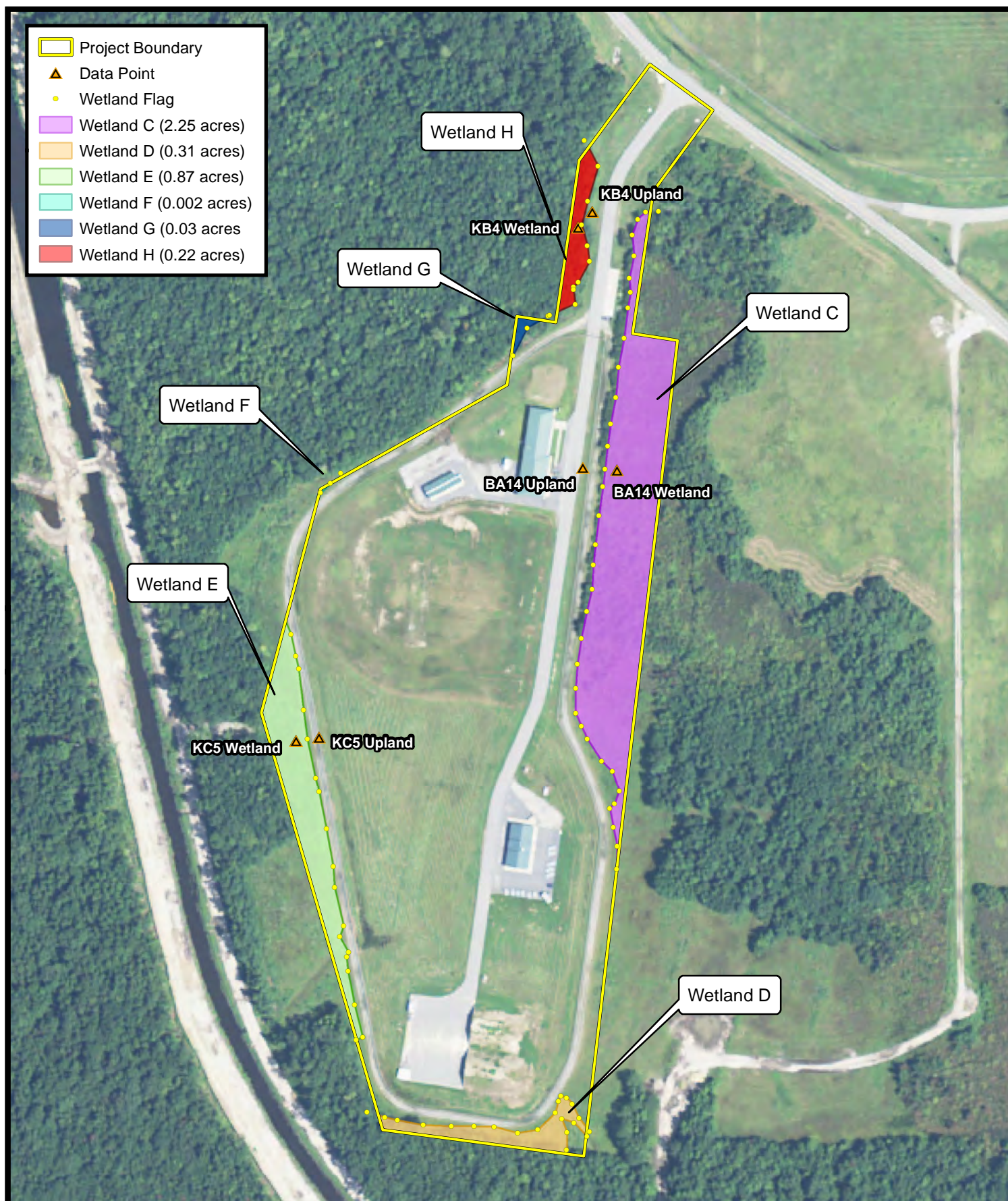


GPS Data / Wetland Delineation
Georgia ANG - Wetland Delineation
 Chatham County, Georgia

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Source(s): NAIP Aerial Imagery, Chatham County (2013); ESI GPS Data

Figure: 7b

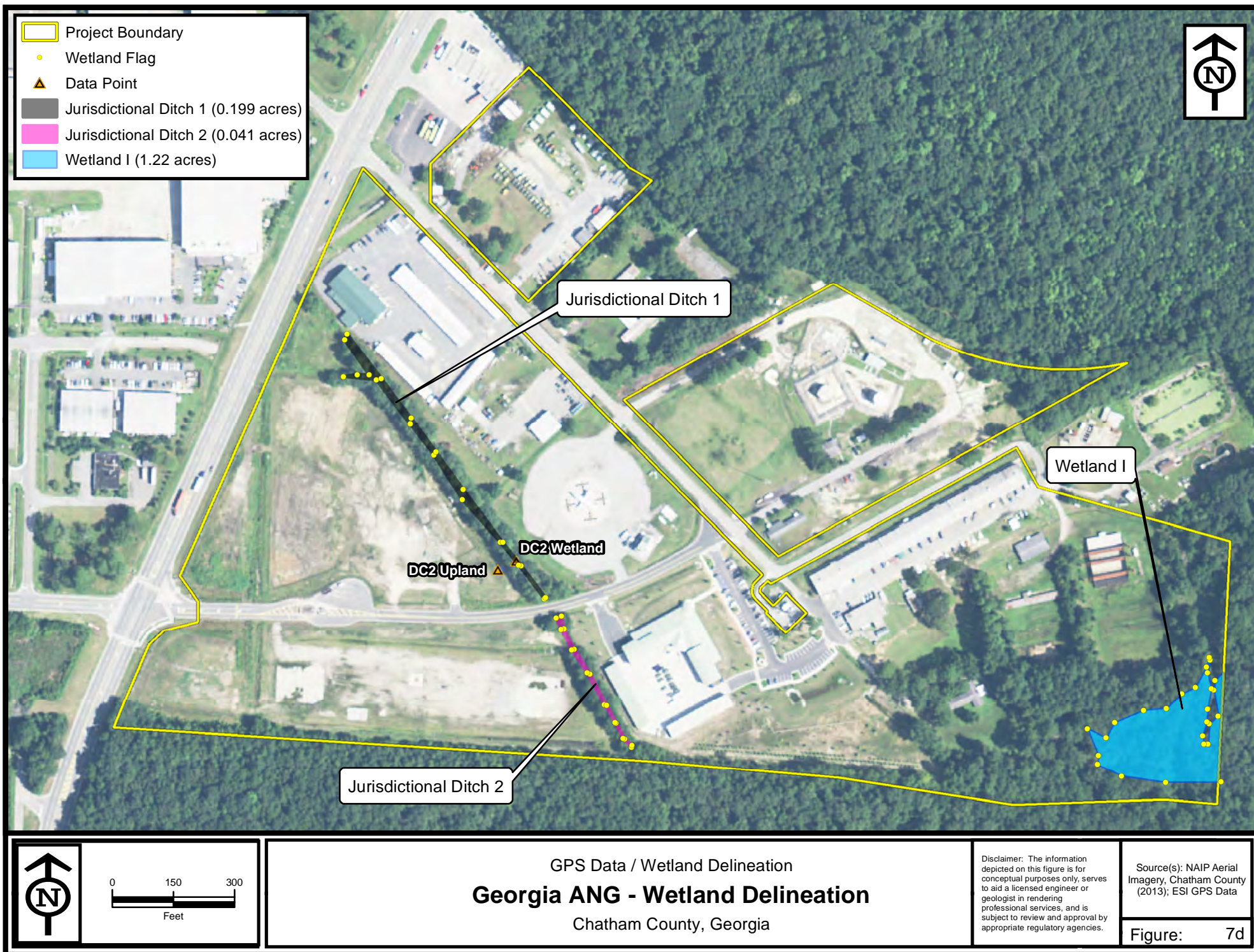


GPS Data / Wetland Delineation
Georgia ANG - Wetland Delineation
 Chatham County, Georgia

Disclaimer: The information depicted on this figure is for conceptual purposes only, serves to aid a licensed engineer or geologist in rendering professional services, and is subject to review and approval by appropriate regulatory agencies.

Source(s): NAIP Aerial Imagery; Chatham County (2013); ESI GPS Data

Figure: 7c



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Appendix D
(Revised January 4, 2013)

EXPANDED PRELIMINARY JURISDICTIONAL DETERMINATION (JD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR EXPANDED PRELIMINARY JD:

July 15, 2016

B. NAME AND ADDRESS OF PERSON REQUESTING EXPANDED PRELIMINARY JD:

LTC Orellana, 165th Georgia ANG, 1401 Robert Miller Drive, Savannah, GA, 31408

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

Savannah District, 165th Airlift Wing, SAS-2015-00634

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: GA County/parish/borough: Chatham City: Savannah
Center coordinates of site (lat/long in degree decimal format): Lat. 32.1241 , Long. -81.1897
Universal Transverse Mercator: NAD83
Name of nearest waterbody: Pipe Maker's Canal

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Cowardin Class:

Stream Flow:

Wetlands: 19.7820 acres. Total

Cowardin Class:

16.11 acres - PFO; 1.112 - PSS
2.56 acres - PEM;

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒

Office (Desk) Determination. Date: July 15, 2016

☐

Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this expanded preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this expanded preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a expanded preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the expanded preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a expanded preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a expanded preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional

issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This expanded preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for expanded preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
 - ☐ Survey Signed by Registered Land Surveyor
 - ☒ GPS Survey with GPS Datasheet
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
- ☒ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: . Corps navigable waters' study:
- ☐ Geological Survey Hydrologic Atlas:
 - ☐ USGS NHD data.
 - ☐ USGS 8 and 12 digit HUC maps.
- ☒ Geological Survey map(s). Cite scale & quad name: Figure 2: Topo Map (1 in = 1,200 ft)
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Figure 3: NRCS Soil Survey Map
- ☒ National wetlands inventory map(s). Cite name: Figure 4: National Wetland Inventory (NWI) Map
- ☐ State/Local wetland inventory map(s):
- ☒ FEMA/FIRM maps: Figure 5: FEMA Flood Zone Map
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date):
☐ Other (Name & Date):
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

 7/15/16

Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting expanded preliminary JD
(REQUIRED, unless obtaining the signature is
impracticable)

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS
AND REQUEST FOR APPEAL**

Applicant: LTC Francisco Orellana		File Number: SAS-2015-00634	Date: July 15, 2016
Attached is:		See Section below	
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
<input type="checkbox"/>	PERMIT DENIAL		C
<input type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION		D
<input checked="" type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 C.F.R. § Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. The division engineer must receive this form within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:
Ms. Sherelle Reinhardt
U.S. Army Corps of Engineers, Savannah District
100 W. Oglethorpe Ave.
Savannah, Georgia 31401-3640
912-652-5690

If you only have questions regarding the appeal process you may also contact:
Administrative Appeal Review Officer
CESAD-PDS-O
US Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

DEPARTMENT OF THE ARMY PERMIT

PERMITTEE: Savannah Airport Commission, Mr. Patrick S. Graham

PERMIT NUMBER: SAS-2010-00289

ISSUING OFFICE: Savannah District
US Army Corps of Engineers
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

NOTE: The term "you" and its derivatives used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate District or Division office of the US Army Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

PROJECT DESCRIPTION: The North Aviation Development project is a multifaceted project consisting of several components. These components include the relocation of Gulfstream Road, extension to Taxiway A and construction of Taxiway H (combined impacts to 14.17 acres of wetland), layout/development of sites suitable for corporate development/hanger sites (6.43 acres of wetland), and the layout/development of a parcel suitable for aviation manufacturing facilities (12.46 acres of wetland). These components will be carried out within the North Aviation Development tract. The remaining components/tasks outlined below will be carried out within Savannah/Hilton Head International Airport (SAV) property and include additional employee/overflow parking area creation (1.52 acres of wetland), construction of a new CEMA complex (3 acres of wetland), removal of obstructions to airfield operations (clearing and grading impacts to 4.2 acres of wetland), and golf course improvements. In accordance with the approved Storm Water Management Plan for the property, the permittee will widen an existing jurisdictional storm water conveyance ditch, install an equalizer pipe between two storm water detention ponds, and create an area of floodplain mitigation adjacent to an existing wetland (combined impacts to 0.95 acres of wetland). Of these tasks, only the expansion of the parking area and the construction of the new CEMA complex will necessitate wetland fill. Impacts associated with the storm water management plan would be self-mitigating, i.e. would create additional waters of the US, and therefore would not require additional mitigation.

PROJECT LOCATION: The project site is located at Latitude 32.1456 and Longitude -81.2095, 1.7-miles east of Interstate-95, and 6-miles northwest of Savannah, in Chatham County, Georgia.

PERMIT CONDITIONS:

General Conditions.

1. The time limit for completing the work authorized by this Individual Permit ends on June 30, 2021. If you find that you need more time to complete the authorized activity, you must submit a request for your permit extension at least one month prior to the above date.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned Water Quality Certification has been issued for your project, you must comply with conditions specified in the certification as Special Conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

7. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States because of any such removal or alteration.

Special Conditions

1. Prior to the commencement of any work in jurisdictional waters of the United States, the permittee will purchase Phase I of the mitigation credits needed, totaling 127-credits (to mitigate for wetland impacts associated with the new taxiways and a portion of the aviation manufacturing facility) from Millhaven, Black Creek, and Wilhelmina Morgan Mitigation Banks. The remaining credits necessary for Phase II, totaling 150-credits (for wetland impacts associated with the corporate development/hanger sites, overflow parking, and the remaining manufacturing improvements) will be provided by a combination of six (6) mitigation banks, to include Millhaven, Black Creek, Wilhelmina, Brushy Creek, Old Thorn Pond, and Margin Bay prior to the start of Phase II construction. Phase II credits will be purchased prior to the commencement of work in jurisdictional waters of the United States located within Phase II areas. The mitigation banks must provide this office with written notification of these purchases before any work may commence. The notices should reference the USACE file number assigned to this project.

2. This permit does not authorize the interference with any existing or proposed Federal Project and the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein, which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

3. A copy of this permit, including the approved drawings and plans, special conditions, and any amendments shall be maintained at the work site whenever work is being performed. The permittee(s) shall assure that all contractors, subcontractors, and other personnel performing the permitted work are fully aware of the permit's terms and conditions.

4. The permittee shall notify the issuing office, in writing (electronic facsimile is acceptable), at least ten days in advance of their intent to commence work in waters of the United States for the permitted activity. The permittee shall also notify this office, in writing, 30 days after this project is completed using the enclosed Certification of Compliance Form.

5. All work will be performed in accordance with the following attached plans and drawings which are incorporated in and made part of the permit:

- a. Project Location Map
- b. Plan View
- c. Storm Water Management Plans (4 pages)

6. All dredged or borrowed material used as fill on this project will be from clean, uncontaminated sources and free from cultural resources.

7. No construction activity or stockpiling will occur in waters of the United States, including wetland areas, outside of the areas authorized for filling under this permit.

8. Prior to the commencement of construction activities for this project, the limits of the proposed fill areas in jurisdictional waters shall be clearly flagged and staked by you and/or your contractors. All construction personnel shall be shown the location(s) of all wetland and/or stream areas outside of the construction area to prevent encroachment from heavy equipment into these areas.

9. Borrow site or sites for stockpiling fill dirt shall be prohibited within 200 feet of streambanks, 50 feet of wetlands and open waters or elsewhere runoff from the site would increase sedimentation in waters of the United States unless specifically authorized by this permit. Normal grading activities such as cutting and filling within 200 feet of streams or 50 feet of wetlands/open waters are authorized.

10. Construction debris, liquid concrete, old riprap, old support materials, or other litter shall not be placed in streams or in areas where migration into streams and/or wetlands could reasonably be expected.

11. Staging areas and equipment maintenance areas will be located at least 200 feet from streambanks to minimize the potential for wash water, petroleum products, or other contaminants from construction equipment entering the streams.

12. The permittee shall ensure that the project's master drainage plan is designed and implemented to avoid inadvertent drainage of wetlands and inadvertent water diversion resulting in a reduction of hydrology in wetlands. The permittee shall also ensure that secondary road ditches and/or small after-project drainage ditches do not inadvertently impact wetlands or waters of the US.

13. The permittee shall minimize bank erosion and sedimentation in construction areas by utilizing Best Management Practices for stream corridors, installing and maintaining significant erosion and sediment control measures, and providing daily reviews of construction and stream protection methods. Check dams and riprap placed in streams and wetlands as erosion control measures are considered a fill and not authorized under this permit unless they were specifically authorized by this permit.

14. All work conducted under this permit shall be located, outlined, designed, constructed and operated in accordance with the minimal requirements as contained in the Georgia Erosion and

Sedimentation Control Act of 1975, as amended. Utilization of plans and specifications as contained in the "Manual for Erosion and Sediment Control, (Latest Edition)," published by the Georgia Soil and Water Conservation Commission or their equivalent, will aid in achieving compliance with the aforementioned minimal requirements.

15. You shall obtain and comply with all appropriate Federal, state, and local authorizations required for this type of activity. A stream buffer variance may be required. Variances are issued by the Director of the Georgia Environmental Protection Division (EPD), as defined in the Georgia Erosion and Sedimentation Control Act of 1975, as amended. It is our understanding that you may obtain information concerning variances at the Georgia EPD's web site at www.gaepd.org or by contacting the Watershed Protection Branch at (404) 675-6240.

16. If you or your contractors discover any federally listed threatened or endangered species and/or their habitat while accomplishing the activities authorized by this permit, you must immediately STOP work in the area and notify the issuing office of what you have found. We will initiate the Federal and state coordination required to determine if the species and/or habitat warrant further consultation with the US Fish and Wildlife Service.

FURTHER INFORMATION:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this Authorization.

a. This permit does not obviate the need to obtain other federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or

unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

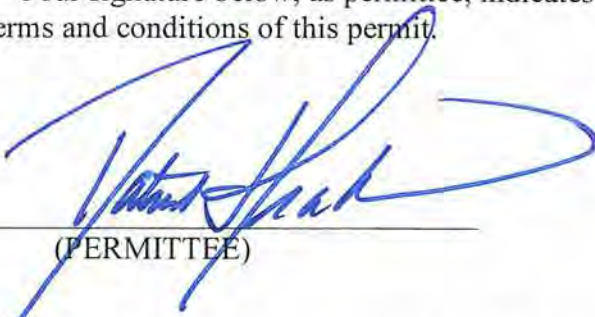
b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision. Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7, or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order, which requires you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate.

d. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the US Army Corps of Engineers will normally consider a request for an extension of time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

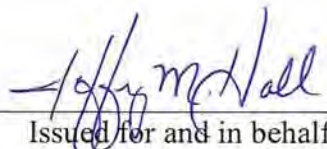


(PERMITTEE)

5/3/11

(DATE)

This permit becomes effective when the federal official, designated to act for the Secretary of the Army, has signed below.



Issued for and in behalf of:
Jeffrey M. Hall
Colonel, US Army
Commanding

3 MAY 2011

(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE)

(DATE)

Regulatory Division

CERTIFICATION OF COMPLIANCE
WITH
DEPARTMENT OF THE ARMY
SAS-2010-00289

PERMIT FILE NUMBER: SAS-2010-00289

PERMITTEE ADDRESS: Savannah Airport Commission, Attention: Mr. Patrick S. Graham,
400 Airways Avenue, Savannah, Georgia 31408

LOCATION OF WORK: The project site is located at Latitude 32.1456 and Longitude -
81.2095, 1.7-miles east of Interstate-95, and 6-miles northwest of Savannah, in Chatham County,
Georgia.

PROJECT DESCRIPTION: Relocation of Gulfstream Road, extension of Taxiway A and
construction of Taxiway H, layout/development of sites suitable for corporate
development/hanger sites, layout/development of a parcel suitable for aviation manufacturing
facilities, construction of additional employee/overflow parking area, construction of a new
CEMA complex, removal of obstructions to airfield operations, golf course improvements,
widen an existing jurisdictional storm water ditch, install an equalizer pipe between two storm
water detention ponds, and create an area of floodplain mitigation adjacent to an existing
wetland.

ACRES AND/OR LINEAR FEET OF WATERS OF THE US IMPACTED: 42 acres

DATE COMPLETED:

COMPENSATORY MITIGATION REQUIRED: 276.88 wetland credits

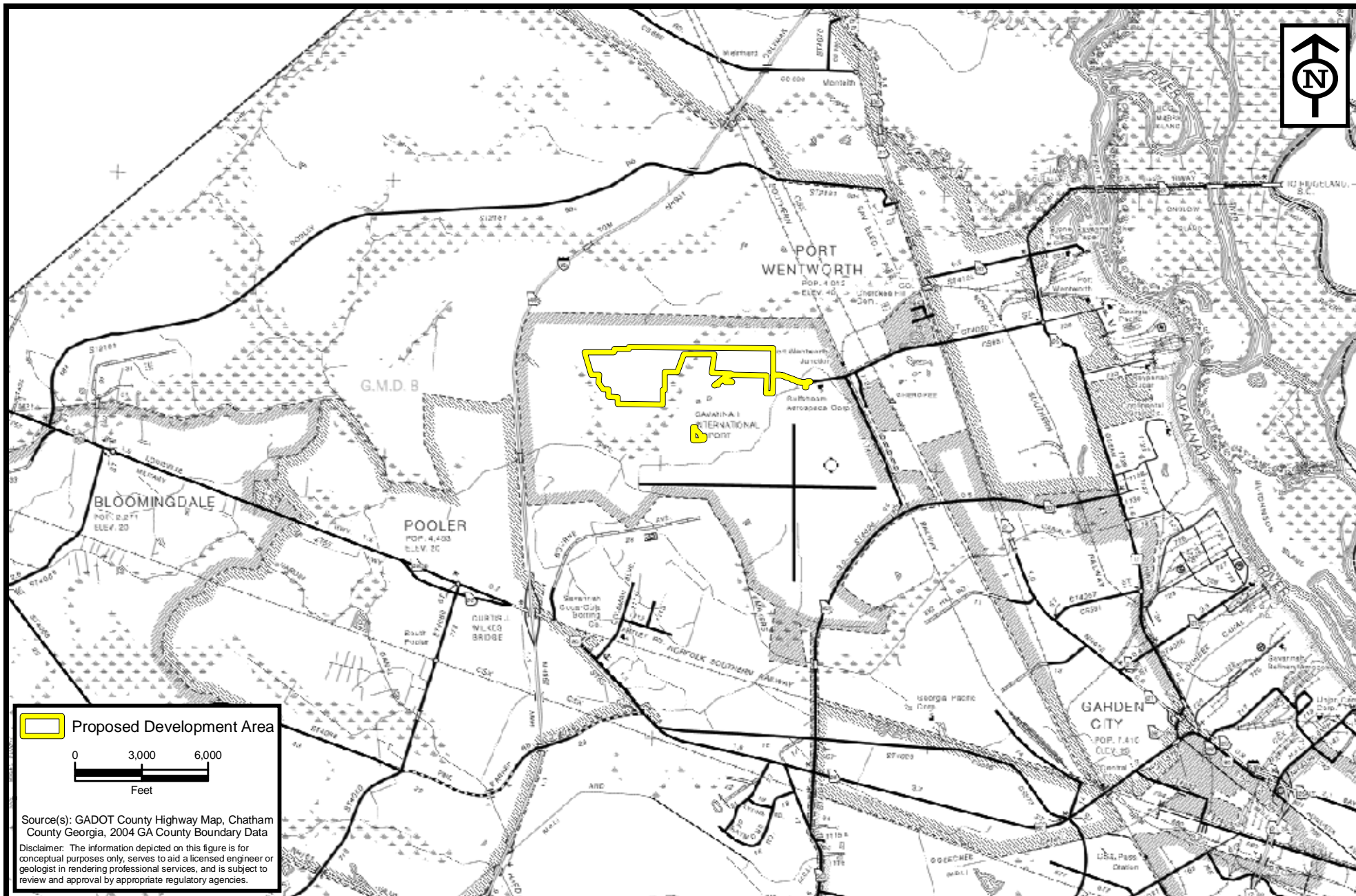
DATE COMPLETED OR PURCHASED:

I understand that the permitted activity is subject to a US Army Corps of Engineers' Compliance
Inspection. If I fail to comply with the permit conditions at Part C of the Nationwide Permit
Program, published in the March 12, 2007, Federal Register, Vol. 72, No. 42, Pages 11092-
11198, it may be subject to suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit as well as any required
mitigation (if applicable) has been completed in accordance with the terms and conditions of the
said permit.

Signature of Permittee

Date



**ENVIRONMENTAL
SERVICES, INC.**

413 East Liberty Street
Savannah, Georgia 31401
(912) 236-4711
(912) 236-3668 Fax

www.environmentalservicesinc.com

Project Location Map

Savannah International Airport – North Aviation Development

Chatham County, Georgia

Project: ES09079.02

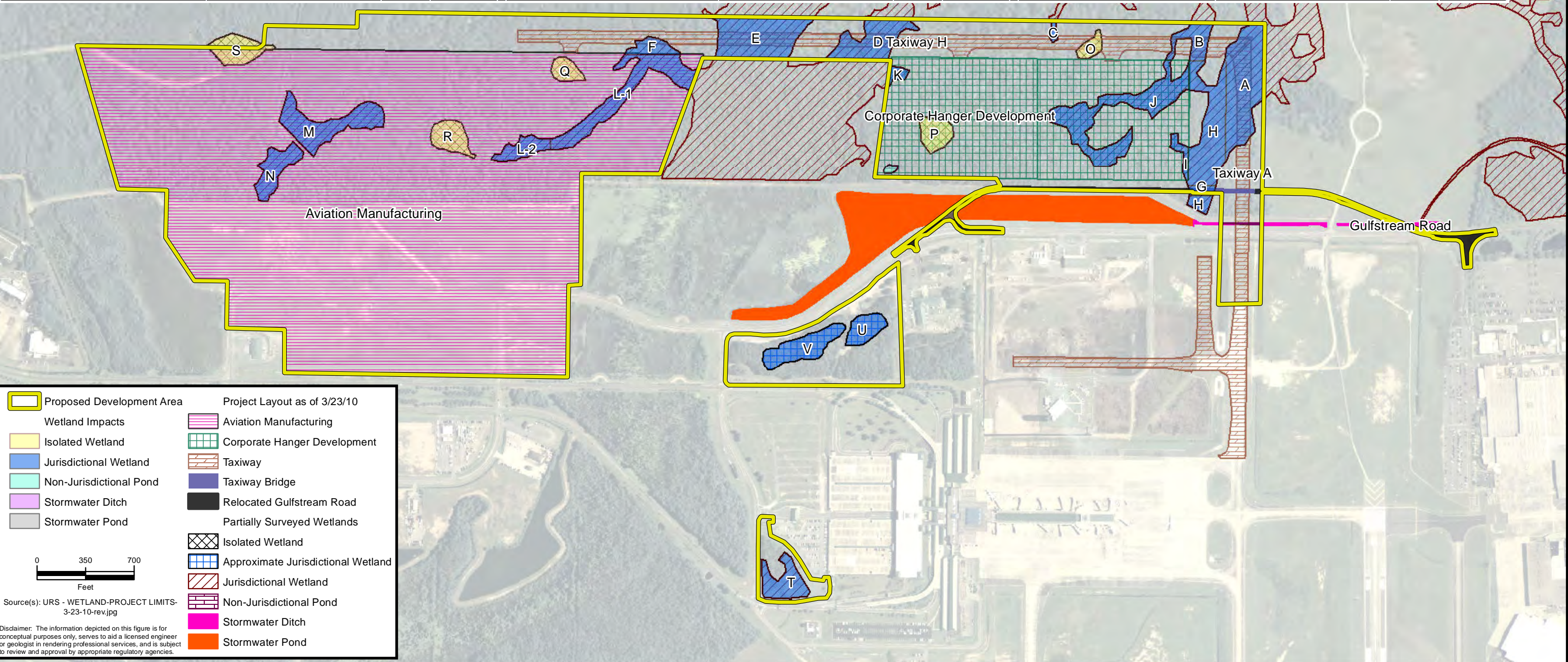
Date: Nov. 2010

Drwn/Chkd: TS/MD

Figure: 1

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Type of Impact	Type of Wetland Impacted	Label	Acreage	Type of Impact	Type of Wetland Impacted	Label	Acreage	Type of Impact	Type of Wetland Impacted	Label	Acreage
Taxiway	Jurisdictional Wetland	A	4.75	Corporate Hanger Development	Jurisdictional Wetland	K	0.30	Sum Taxiway Impacts			13.88
Taxiway	Jurisdictional Wetland	B	1.12	Corporate Hanger Development	Isolated Wetland	P	1.10	Sum Taxiway Bridge Impacts			0.29
Taxiway	Jurisdictional Wetland	C	0.15	Aviation Manufacturing	Jurisdictional Wetland	L	4.48	Sum TOFA Impacts			4.20
Taxiway	Jurisdictional Wetland	D	2.56	Aviation Manufacturing	Jurisdictional Wetland	M	3.02	Sum Corporate Hangar Impacts			6.43
Taxiway	Jurisdictional Wetland	E	4.06	Aviation Manufacturing	Jurisdictional Wetland	N	1.51	Sum Aviation Manufacturing Impacts			12.46
Taxiway	Jurisdictional Wetland	F	0.73	Aviation Manufacturing	Isolated Wetland	Q	0.70	Sum Employee / Overflow Parking			1.52
Taxiway	Isolated Wetland	O	0.50	Aviation Manufacturing	Isolated Wetland	R	1.23	Sum CEMA Impacts			3.01
Taxiway Bridge	Jurisdictional Wetland	G	0.29	Aviation Manufacturing	Isolated Wetland	S	1.53	Total Project Jurisdictional Wetland Impacts			36.74
TOFA	Jurisdictional Wetland	H	4.20	Employee / Overflow Parking	Jurisdictional Wetland	T	1.52	Total Project Isolated Wetland Impacts			5.05
Corporate Hanger Development	Jurisdictional Wetland	I	0.38	CEMA	Jurisdictional Wetland	U	1.05	Total Project Impacts			41.79
Corporate Hanger Development	Jurisdictional Wetland	J	4.65	CEMA	Jurisdictional Wetland	V	1.96				





ENVIRONMENTAL SERVICES, INC.
413 East Liberty Street
Savannah, Georgia 31401
(912) 236-4711
(912) 236-3668 Fax
www.environmentalservicesinc.com

Proposed Site Development and Wetland Impacts

Savannah International Airport – North Aviation Development

Savannah, Chatham County, Georgia

Project:	ES09079.02
Date:	Feb. 2011
Drwn/Chkd:	TS/SB
Figure:	7

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NOTE:
SEE VOLUME 2 FOR NEW
TAXIWAY BRIDGE AND NEW
ELECTRICAL VAULT PLANS

NEW A.G.A. SECURITY
FENCE (TYP.)

NOTES:

1. SEE SHEETS C3.00 AND C3.01 FOR
GRADING AND DRAINAGE KEY PLAN,
LEGEND AND NOTES.
2. SEE SHEET C3.41 FOR DRAINAGE
PIPE AND STRUCTURE SCHEDULE.

CL SWALE TO POND "A"
STA. 75+00
N=780587.80
E=955911.46

PROPOSED DITCH
CENTERLINE
ELEVATION (TYP.)

PROPOSED
GULFSTREAM ROAD
REALIGNMENT
P.T. STA. 658+33.07
N=780386.50
E=955181.41

LIMITS OF SOIL UNDERCUT.
SEE SHEETS D1.20 AND
D1.21 (TYP.)

ADDITIVE ALTERNATE BID NOTE:
THESE PLANS INDICATE
ACCEPTED ADDITIVE ALTERNATE
BIDS. THE PLAN LAYOUTS
WILL BE REVISED IF ADDITIVE
ALTERNATE BIDS ARE NOT
ACCEPTED.

STA. 660+46.81
N=780298.06
E=955375.99

10' SHOULDER
(TYP.)

EXISTING TREE LINE.
SEE SHEETS D1.15 AND
D1.16 FOR LIMITS OF
TREE CLEARING AND
GRUBBING (TYP.)

LIMITS OF EXISTING
PAVEMENT TO BE
MILLED AND OVERLAD
FOR GRADE
ADJUSTMENT AND
TIE-IN TO EXISTING
AND NEW PAVEMENT.
SEE GRADING &
DRAINAGE PLAN SHEET
C3.01, NOTE 10.
(TYP.)

P.T. STA. 667+42.04
N=780154.10
E=955038.96

EXISTING GULFSTREAM ROAD

EXISTING CATV (TYP.)
EXISTING NATURAL GAS
(TYP.)

EXISTING 16" WATER LINE (TYP.)
EXISTING FIBER OPTIC,
TELE/COMM LINE (TYP.)
EXISTING UNDERGROUND
ELECTRIC (TYP.)

EXISTING RUNWAY
PROTECTION ZONE
FOR RUNWAY 19

EXISTING UNPAVED
ROAD (TYP.)

P.C. STA. 662+68.15
N=780198.19
E=955595.71
SWALE TO POND "A"
STA. 20+00
N=780195.31
E=955600.84

EXISTING A.G.A.
SECURITY FENCE
(TYP.)

GRAPHIC SCALE - IN FEET

SCALE 1" = 50'

DATE	DESCRIPTION	BY	AUTH



Savannah/Hilton Head
International Airport
400 Airways Avenue
Savannah, Georgia 31406

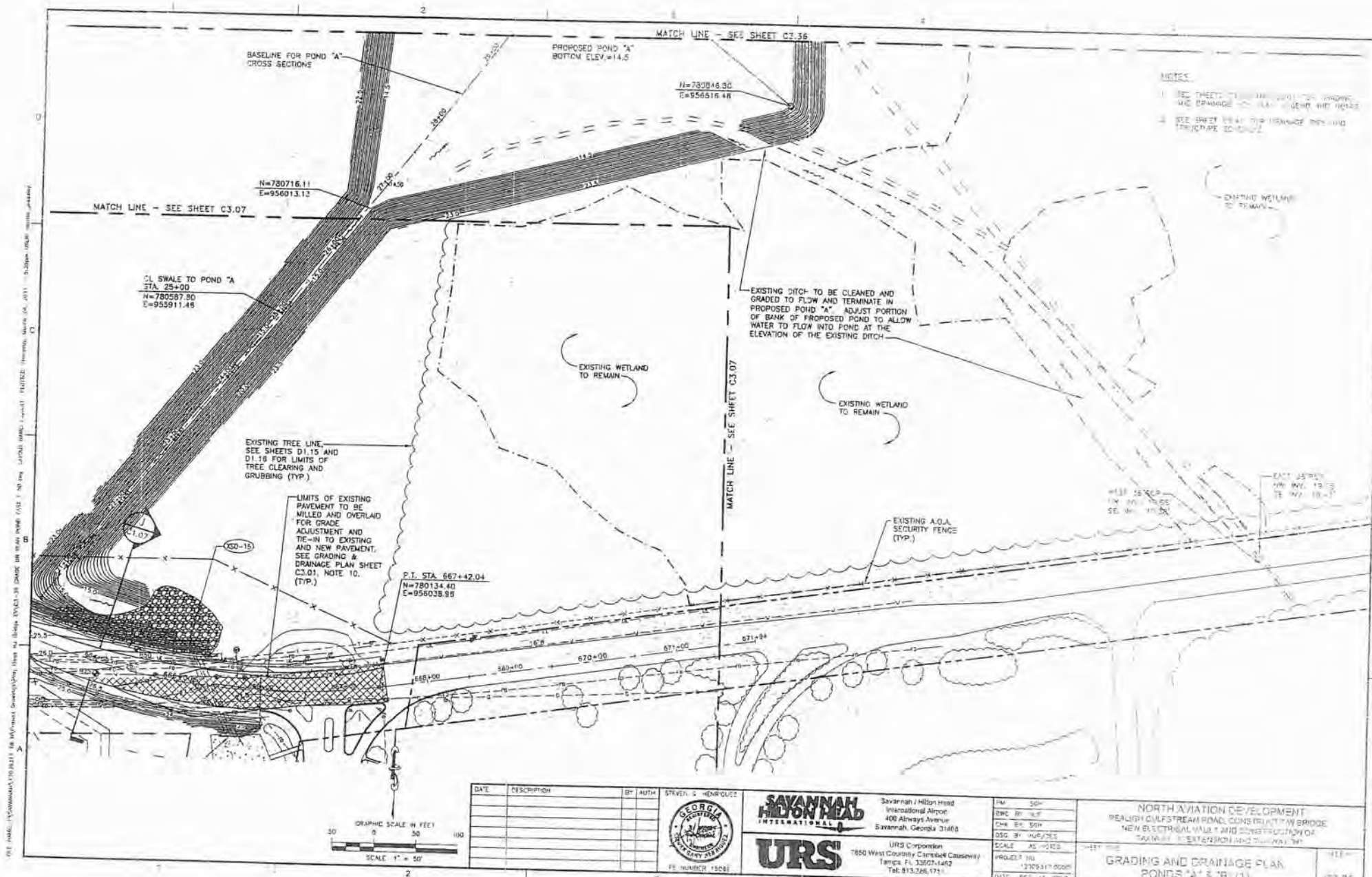
URS Corporation
1850 West Century Boulevard
Atlanta, GA 30346-1400
Tel: 404.266.1711

PROJECT NO.
DATE: DEC. 19, 2010

NORTH AVIATION DEVELOPMENT
REALIGN GULFSTREAM ROAD, CONSTRUCT INTERSECTIONS
NEW ELECTRICAL VAULT AND CONSTRUCTION
TAXIWAY "A" EXTENSION AND TAXIWAY "H"

GRADING AND DRAINAGE PLAN
GULFSTREAM ROAD (3)

42.07

[illegible]

**SAVANNAH
HILTON HEAD
INTERNATIONAL**

URS

Savannah / Hilton Head
International Airport
400 Airways Avenue
Savannah, Georgia 31406

URS Corporation
1 West County Center Causeway
Tampa, FL 33607-1462
Tel: 813.288.1711

PM	50M
RWC	BY 4.5
CNR	BY 50M
DSG	BY 100M/250
SCALE	AS NOTED
PROJECT NO.	170617-0000
DWG NO.	

NORTH AVIATION DEVELOPMENT
REALIGN GULFSTREAM ROAD, CONSTRUCT A W BRIDGE
NEW ELECTRICAL MILE 1 AND RECONSTRUCTION OF
TAXIWAY 1 EXTENSION AND TAXIWAY 1B

GRADING AND DRAINAGE PLAN
BONDS 241 & 28 (1)

411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
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NOTES:

- SEE SHEETS C3.00 AND C3.01 FOR GRADING AND DRAINAGE KEY PLAN, LEGEND AND NOTES.
- SEE SHEET C3.41 FOR DRAINAGE PIPE AND STRUCTURE SCHEDULE.

WATCH LINE - SEE SHEET C3.37

STA. 22+00
N=781795.85
E=956934.22

BASELINE FOR POND "B"
CROSS SECTIONS

N=781439.77
E=956740.40

LENGTH = 303.5'

PROPOSED FLOODPLAIN
MITIGATION POND "B"
BOTTOM ELEV. = 12.3
DHW100 = 14.5

STA. 24+59.56
N=781343.57
E=957025.93

STA. 25+00
N=781313.80
E=957038.72

STA. 27+40.24
N=781289.59
E=957118.12

N=781244.74
E=957253.34

STA. 28+00
N=781321.38
E=957143.62

WATCH LINE - SEE SHEET C3.35

BASELINE FOR POND "A"
CROSS SECTIONS

LENGTH = 312.85'

PROPOSED POND "A"
BOTTOM ELEV. = 14.5
DHW25 = 18.6'
DHW100 = 19.4'

STA. 30+80.05
N=781041.39
E=956270.87

SD-35
SEE DETAIL
SHEET C3.48

N=781316.42
E=956512.18

STA. 31+81.78
N=781121.15
E=956334.07

LIMITS OF NEW TREE LINE, SEE
SHEETS D1.15 AND D1.16 FOR LIMITS
OF TREE CLEARING AND GRUBBING
(TYP.)



DATE	DESCRIPTION	BY	AUTH



Savannah/Hilton Head
International Airport
400 Airways Avenue
Savannah, Georgia 31405

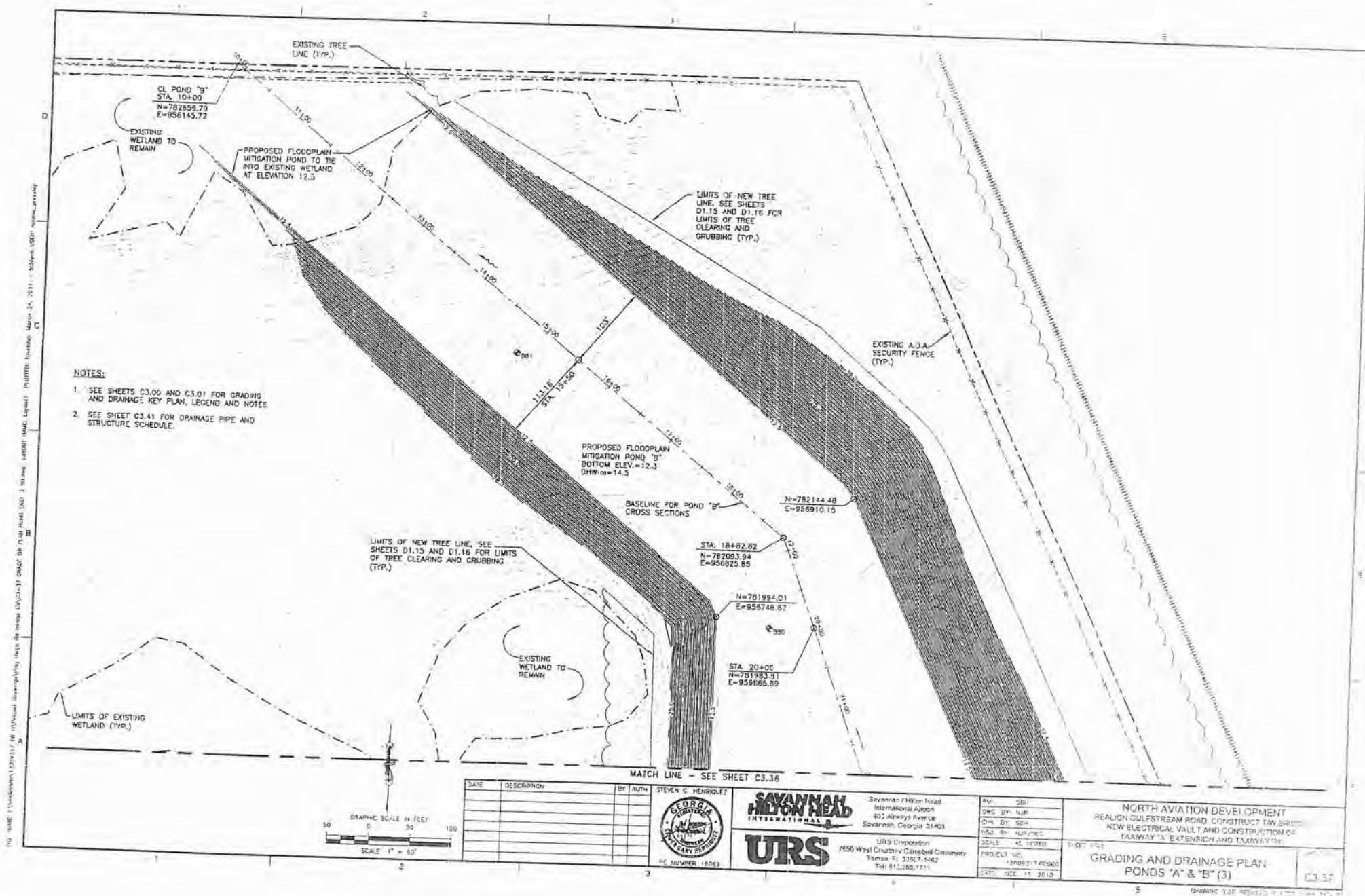
URS Corporation
7550 West Courtney Campbell Causeway
Tampa, FL 33607-1462
Tel. 813.286.1711

DATE: 05/11/2010
DRAWN BY: J. B. BROWN
CHECKED BY: J. B. BROWN
SCALE: AS SHOWN
PROJECT NO.: 0000000000
DATE: 05/11/2010

NORTH AVIATION DEVELOPMENT
RESPECT GULFSTREAM ROAD, CONSTRUCT FIVE BRIDGE
OVER ELECTRICAL VALLEY AND CONSTRUCTION OF
"AVIATION" AVENUE EXTENSION AND TAILWIND

GRADING AND DRAINAGE PLAN
POND "A" & "B" (2)

C3.36



Qualitative Worksheet Summary For Wetland Adverse Impacts						
Worksheet Number	Name of Wetland	Wetland Type	Acres of Impact (ac.)	Impact Duration	2018 Credits	Grandfathered Credits
1	Stormwater Pond	Depressional/Flat Wetlands	13.20	Permanent/Reoccurring	9.90	79.20
2			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
3			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
4			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
5			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
6			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
7			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
8			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
9			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
10			0.00	Choose Duration	Credits Owed	Grandfathered Credits Owed
Summary of Credits Owed						
Wetland Type	Acres of Impact (ac.)	2018 Credits	Grandfathered Credits			
Freshwater Tidal Wetlands	0.00	0.00	0.00			
Saltwater Tidal Wetlands	0.00	0.00	0.00			
Riverine/Lacustrine Fringe Wetlands	0.00	0.00	0.00			
Slope Wetlands	0.00	0.00	0.00			
Depressional/Flat Wetlands	13.20	9.90	79.20			
Open Water/Ditch/Canal	0.00	0.00	0.00			

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