

Dyson, Wendy E

From: Warner, Karen N
Sent: Tuesday, September 10, 2013 12:39 PM
To: Moseley, Michael R; Dyson, Wendy E
Subject: FW: Effect Determination - PI 0010425, SR 316 at CR 3929/Walther Blvd Grade Separation
Attachments: RE PI 0010425, SR 316 at CR 3929Walther blvd grade separation

Mike and Wendy,

We received the no effect concurrence from Kelly Wade following submittal of those replacement pages this morning.

Karen N. Warner, PWS
Senior Scientist

ATKINS

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From: Hedeem, Meghan W. [<mailto:mhedeem@dot.ga.gov>]
Sent: Tuesday, September 10, 2013 11:17 AM
To: Warner, Karen N
Subject: FW: Effect Determination - PI 0010425, SR 316 at CR 3929/Walther Blvd Grade Separation

FYI

From: Kelly.Wade@dot.gov [<mailto:Kelly.Wade@dot.gov>]
Sent: Tuesday, September 10, 2013 11:13 AM
To: Hedeem, Meghan W.; Chamblin, Douglas
Cc: Pete.Pattavina@fws.gov
Subject: Effect Determination - PI 0010425, SR 316 at CR 3929/Walther Blvd Grade Separation

Hello,

The proposed project consists of the grade separation of SR 316 and Walther Blvd in Gwinnett County GA. The proposed project will not impact waters of the US.

Based on the information provided in GDOT's August 22, 2013 submittal of the May 2013 Ecology Resources Survey and AOE and the May 2013 Protected Terrestrial Species Survey Report: Georgia Aster and the revised pages of these documents submitted via email today (attached), FHWA has determined that the proposed project will have no effect on Black Spored quillwort (*Isoetes melanospora*) or Little amphianthus/pool sprite (*Amphianthus pusillus*). In addition we concur that the proposed project will have 'no significant adverse effect' on the Georgia Aster, a federal candidate species.

Thanks,

Kelly Wade
Environmental Specialist
Federal Highway Administration
61 Forsyth Street, SW
Suite 17T100
Atlanta, GA 30303
Kelly.wade@dot.gov

In FY 2012, Georgia DOT, the lead agency for the Georgia Unified Certification Program (GUCP), certified 531 new firms as disadvantaged business enterprises (DBEs). The GUCP certification provides these firms with the chance to secure significant economic development opportunities with GDOT and other state and federal government agencies. Currently, there are 1,718 certified DBE firms appearing in the GUCP directory.

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August 22, 2013

Mr. Rodney N. Barry, P.E.
Division Administrator
Federal Highway Administration
Atlanta Federal Center
61 Forsyth Street, S.W., Suite 17th Floor
Atlanta, Georgia 30303-3104
ATTN: Kelly Wade

Re: Transmittal and Coordination of Ecology Resource Survey and Assessment of Effects Report
GDOT Project PI No. 0010425;
SR 316 at CR 3929/Walther Boulevard Grade Separation; Gwinnett County, Georgia

Dear Mr. Barry:

Please find attached the Ecology Resource Survey/Assessment of Effects Report for the above-referenced project. The purpose of this report is to document proposed project design details, and provide information regarding invasive species, state and/or federally protected species, impacts to waters of the U.S., requirements for compensatory mitigation, State Water buffer impacts, as well as avoidance and minimization measures for environmental resources within the State Route (SR) 316 at County Road (CR) 3929/Walther Boulevard Grade Separation project area. Specifically, Georgia Department of Transportation (GDOT) project PI No. 0010425 in Gwinnett County, Georgia is a proposed grade separation project at the intersection of SR 316 and CR 3929/Walther Boulevard. The concept design for the proposed grade separation project is situated at least partially within the geographic extent of GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 and project MSL00-0004-00(086), PI No. 0004086, together comprising more extensive transportation improvement initiatives along SR 316. Project MSL00-0003-00(168), PI No. 0003168 is a high-occupancy vehicle (HOV) lane construction project along SR 316 that is unfunded and is not included in the current Regional Transportation Plan (Plan 2040 RTP, FY 2012-2040), but is listed in the unfunded aspirational plan vision (2041+). Project MSL00-0004-00(086), PI No. 0004086 is a grade separation project for interchanges along SR 316 at Collins Hill Road and SR 20/Buford Drive, currently under construction. The Walther Boulevard grade separation project is being designed to function in accordance with and so as not to preclude any future proposed or ongoing work associated with these nearby projects.

The CR 3929/Walther Boulevard grade separation project is centrally located within Gwinnett County, Georgia, and partially within the City of Lawrenceville. The project begins along CR 3929/Walther Boulevard approximately 1,000 feet south of SR 316, and extends north to connect with the existing travel lanes of CR 3929/Walther Boulevard north of SR 316 for a total project length of approximately 0.3 mile. The proposed project consists of a new four span bridge measuring 56 feet, 5 inches by 404 feet, and the bridge will include two 14-foot travel lanes separated by a 14-foot flush median, with 6-foot sidewalks on both sides. The bridge span and arrangement do not preclude the addition of a HOV/managed lane access point as well as the subsequent or future required widening of SR 316 associated with GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 or project MSL00-0004-00(086), PI No. 0004086 described above. As a result of the proposed project, CR 3929/Walther Boulevard will continue to consist of two 12-foot travel lanes, and will be modified to also include a 14-foot two-way left turn lane and 16-foot shoulder consisting of a 5-foot wide pedestrian sidewalk. The existing 12-foot flush median will be modified to a 14-foot flush median. The existing and proposed right-of-way widths vary from 80 feet to 147.5 feet. The eight-digit Natural Resource Conservation Service Sub-Watershed Management Hydrologic Unit Code for the project is 03070301, placing the project within the Upper Ocmulgee Watershed. The approximate midpoint of the project in decimal degrees is 33.972228 (N), -84.008288 (W).

The anticipated impacts associated with the proposed CR 3929/Walther Boulevard grade separation project, which are detailed in the attached Ecology Resource Survey/Assessment of Effects Report, are summarized as follows:

- Federally jurisdictional waters within the study area assessed for the project include one ephemeral stream, intermittent stream and wetland. Each of these resources is located outside of proposed work areas and will not be impacted by the project.
- No coordination with the United States Fish and Wildlife Service under the Fish and Wildlife Coordination Act is required.

- One non-buffered and non-jurisdictional State Water occurs within the project study area and is proposed to be impacted.
- The intermittent stream (IS3) occurring within the project study area is a buffered State Water. The buffer of this resource is located outside the proposed work areas and will not be impacted by the project. No stream buffer variance shall be required for the proposed project.
- The project is anticipated to have no effect on the federally protected pool sprite (*Amphianthus pusillus*) and black-spored quillwort (*Isoetes melanospora*), due to lack of suitable habitat to support these species.
- The project is anticipated to have no significant adverse effect on the federal candidate species Georgia aster (*Symphotrichum georgianum*). Habitat for this species exists within the project area, although no individuals or populations of this species have been observed on-site.
- The proposed project will have no effect on designated critical habitat.
- The proposed project will have no effect on essential fish habitat.
- The project is not anticipated to have any effect on migratory bird species, and will have no effect on bats or bat roosting habitat.
- The project will also not result in a take of the bald eagle (*Haliaeetus leucocephalus*) as defined under the Bald and Golden Eagle Protection Act.

The Department respectfully requests Federal Highway Administration concurrence with the listed biological determinations. Thank you in advance for your attention to this matter. If you should have any questions or need additional information, please contact Meghan Hedeem at 404-631-1812, mhedeem@dot.ga.gov or Doug Chamblin at 404-631-1447, dchamblin@dot.ga.gov.

Sincerely,



Glenn Bowman, P.E.
State Environmental Administrator

GB/HDC/knw
Attachment

cc: Andrew Hoenig, GDOT Project Manager
Michael Hester, GDOT NEPA Analyst
Eugene Hopkins, GDOT ECB
Lisa Westberry, GDOT Mitigation
Pete Pattavina, USFWS
Catherine Samay, GA EPD
Danielle Floyd, GA EPD
Matt Elliott, GDNR WRD
Karen Warner, Atkins

Ecology Resource Survey and Assessment of Effects Report
May 2013

Gwinnett County
P.I. No. 0010425

SR 316 at CR 3929/Walther Boulevard - Grade Separation

Prepared by:

ATKINS

1600 RiverEdge Parkway NW, Suite 600
Atlanta, Georgia 30328

Prepared for:

Georgia Department of Transportation
Office of Environmental Services
600 W. Peachtree Street NW
Atlanta, GA 30308

Report Author:



Karen Warner, PWS, Senior Scientist

Consultant Reviewer:



Austin Meadows, Senior Scientist

GDOT Reviewer:

Meghan Hedeon, Ecology Consultant Manager

Ecology Resource Survey and Assessment of Effects Overview
 PI No. 0010425, Gwinnett County

Impacts to Federally Jurisdictional Resources		
Resource Type	Length of Impact (feet)	Area of Impact (acres)
Perennial Stream	NA	NA
Intermittent Stream	NA	NA
Ephemeral Channel	NA	NA
TOTAL	NA	NA
Wetland	NA	NA
Open Water	NA	NA
TOTAL	NA	NA

Present in the Project Area	
Invasive Species	Yes
Bald Eagle Nest, Habitat	No
Critical Habitat	No
Essential Fish Habitat	No
Bat Roosting Habitat	No
Migratory Bird Habitat	No

Agency Coordination	
FWCA	Not Required
Section 7	Not Required
Buffer Variance	Not Required
Buffer Mitigation	Not Required
404 Permit	Not Required
404 Permit Mitigation	Not Required

Federal and State Protected Species							
Species Name	Common Name	Federal Rank	State Rank	Habitat Present	Species Present	Special Provision	Biological Determination
<i>Amphianthus pusillus</i>	pool sprite	T	T	no	no	NA	No effect
<i>Isoetes melanospora</i>	black-spored quillwort	E	E	no	no	NA	No effect
<i>Symphyotrichum georgianum</i>	Georgia aster	C	T	yes	no	NA	No significant adverse effect

Executive Summary

Georgia Department of Transportation (GDOT) project PI No. 0010425 in Gwinnett County, Georgia is a proposed grade separation project at the intersection of State Route (SR) 316 and County Road (CR) 3929/Walther Boulevard. The concept design for the proposed grade separation project is situated at least partially within the geographic extent of GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 and project MSL00-0004-00(086), PI No. 0004086, together comprising more extensive transportation improvement initiatives along SR 316. Project MSL00-0003-00(168), PI No. 0003168 is a high-occupancy vehicle (HOV) lane construction project along SR 316 that is unfunded and is not included in the current Regional Transportation Plan (Plan 2040 RTP, FY 2012-2040), but is listed in the unfunded aspirational plan vision (2041+). Project MSL00-0004-00(086), PI No. 0004086 is a grade separation project for interchanges along SR 316 at Collins Hill Road and SR 20/Buford Drive, currently under construction. The Walther Boulevard grade separation project is being designed to function in accordance with and so as not to preclude any future proposed or ongoing work associated with these nearby projects. The length of the proposed CR 3929/Walther Boulevard grade separation project from south to north is approximately 0.3 mile.

Habitats and land use types within the project study area include developed land uses, upland mixed pine-hardwood forests, and maintained right-of-way (ROW). Invasive species observed within the CR 3929/Walther Boulevard project study area include Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), and mimosa (*Albizia julibrissin*).

Federally protected species listed for Gwinnett County documented by the Georgia Department of Natural Resources (GDNR) and United States Fish and Wildlife Service (USFWS) include pool sprite (*Amphianthus pusillus*) with a federal and state listing status of threatened, and black-spored quillwort (*Isoetes melanospora*) with a federal and state listing status of endangered. The proposed project would have no effect to these species due to lack of habitat and lack of individuals within the project study area. Federal candidate and state threatened Georgia aster (*Symphotrichum georgianum*) is also listed as occurring within Gwinnett County. The maintained ROW habitat throughout the project corridor has the potential to support this species. A species-specific survey for Georgia aster was last conducted during the flowering season within the CR 3929/Walther Boulevard project study area on October 23, 2012. Although no individuals or populations of this species were observed, suitable habitat does occur within areas that would be impacted by the project. As a result, it is anticipated that the project will have no significant adverse effect on Georgia aster. No Section 7 consultation will be required for the proposed project. No state-protected species have been identified by the GDNR as occurring within three miles of the CR 3929/Walther Boulevard project site.

The proposed project would not result in a "take" of the bald eagle (*Haliaeetus leucocephalus*) as defined under the Bald and Golden Eagle Protection Act. Similarly, the proposed project will have no effect on critical habitat or essential fish habitat. The project is also anticipated to have no effect on bats or bat roosting habitat. No migratory bird nesting or high-quality roosting habitat was identified within the CR 3929/Walther Boulevard project study area that would be adversely affected or necessitate implementation of special provisions for construction of the proposed project.

Jurisdictional waters of the US within the project study area include one jurisdictional ephemeral stream, intermittent stream, and wetland. No impacts to waters of the US are proposed as a result of the GDOT

CR 3929/Walther Boulevard grade separation project. Similarly, no Fish and Wildlife Coordination Act coordination or US Army Corps of Engineers permit will be necessary for this project as proposed.

Non-buffered State Waters within the study area include two ephemeral channels (Drainage Feature 1220+76 Rt and Ephemeral Channel 1). Buffered State Waters within the project study area are limited to Intermittent Stream 3, requiring a 25-foot buffer. This stream and its associated buffer are within the project study area but outside of proposed construction limits and thus will not be impacted by the proposed project. No stream buffer variance is anticipated to be necessary for the proposed CR 3929/Walther Boulevard grade separation project.

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I. PROJECT OVERVIEW

This document addresses the findings of an ecological assessment for a proposed Georgia Department of Transportation (GDOT) grade separation project at the intersection of State Route (SR) 316 and County Road (CR) 3929/Walther Boulevard (PI No. 0010425) in Gwinnett County, Georgia (Figure 1). The concept design for the proposed grade separation project is situated at least partially within the geographic extent of GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 and project MSL00-0004-00(086), PI No. 0004086, together comprising more extensive transportation improvement initiatives along SR 316. Project MSL00-0003-00(168), PI No. 0003168 is a high-occupancy vehicle (HOV) lane construction project along SR 316 that is unfunded and is not included in the current Regional Transportation Plan (Plan 2040 RTP, FY 2012-2040), but is listed in the unfunded aspirational plan vision (2041+). Project MSL00-0004-00(086), PI No. 0004086 is a grade separation project for interchanges along SR 316 at Collins Hill Road and SR 20/Buford Drive, currently under construction. The Walther Boulevard grade separation project is being designed to function in accordance with and so as not to preclude any future proposed or ongoing work associated with these nearby projects.

A. Project Background and Location

The proposed grade separation project at SR 316 and CR 3929/Walther Boulevard is centrally located within Gwinnett County, Georgia, and partially within the City of Lawrenceville. The project begins along CR 3929/Walther Boulevard approximately 1,000 feet south of SR 316 and extends north to connect with the existing travel lanes of CR 3929/Walther Boulevard north of SR 316 for a total project length of approximately 0.3 mile (Figure 2). The approximate midpoint of the project in decimal degrees is 33.972228 (N), -84.008288 (W), placing it within the Southern Outer Piedmont Level IV ecoregion as documented in the Ecoregions of Alabama and Georgia (Griffith, et.al, 2001). The eight-digit Natural Resource Conservation Service (NRCS) Sub-Watershed Management Hydrologic Unit Code (HUC) for the project is 03070301, placing the project within the Upper Ocmulgee Watershed. This watershed is not listed by the United States Environmental Protection Agency (USEPA) as a priority watershed (USEPA 2012).

B. Need and Purpose

Within Gwinnett County, SR 316 is a vital east/west freeway. This grade separation project is proposed at CR 3929/Walther Boulevard, a local road that intersects SR 316 from the north and from the south. North of SR 316 there is a balanced mix of residential and commercial properties. South of 316, the CR 3929/Walther Boulevard area is largely commercial and includes Gwinnett Medical Center. Currently, there is not a direct connection allowing for through traffic to stay on CR 3929/Walther Boulevard while crossing SR 316. The goal of this project is to provide an alternative to the congestion along the main arterial SR 120 in the area of SR 316 located south and west of the project corridor. Connecting CR 3929/Walther Boulevard north and south of SR 316 would allow regional traffic traveling from Lawrenceville to Suwannee, local traffic accessing the hospital located south of SR 316, local traffic accessing retail businesses, and residents north of SR 316 to avoid the congestion on SR 120.

C. Project Description

The proposed CR 3929/Walther Boulevard grade separation project is approximately 0.3 mile in length and consists of a four span bridge 404 feet in length. The bridge span and arrangement do not preclude the addition of a HOV/managed lane access point as well as the subsequent or future required widening

A. Project Description

Georgia Department of Transportation (GDOT) project PI No. 0010425 in Gwinnett County, Georgia is a proposed grade separation project at the intersection of State Route (SR) 316 and County Road (CR) 3929/Walther Boulevard. The concept design for the proposed grade separation project is situated at least partially within the geographic extent of GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 and project MSL00-0004-00(086), PI No. 0004086, together comprising more extensive transportation improvement initiatives along SR 316. Project MSL00-0003-00(168), PI No. 0003168 is a high-occupancy vehicle (HOV) lane construction project along SR 316 that is unfunded and is not included in the current Regional Transportation Plan (Plan 2040 RTP, FY 2012-2040), but is listed in the unfunded aspirational plan vision (2041+). Project MSL00-0004-00(086), PI No. 0004086 is a grade separation project for interchanges along SR 316 at Collins Hill Road and SR 20/Buford Drive, currently under construction. The Walther Boulevard grade separation project is being designed to function in accordance with and so as not to preclude any future proposed or ongoing work associated with these nearby projects.

The CR 3929/Walther Boulevard grade separation project over SR 316 is approximately 0.3 miles in length and proposed to consist of a four span bridge 404 feet in length. As a result of the proposed project, CR 3929/Walther Boulevard will continue to consist of two 12-foot travel lanes, and will be modified to also include a 14-foot two-way left turn lane and 16-foot shoulder consisting of a five-foot wide pedestrian sidewalk. The existing 12-foot flush median will be modified to a 14-foot flush median. The existing and proposed right-of-way (ROW) widths vary from 80 feet to 147.5 feet. No existing bridges occur within the project study area for the CR 3929/Walther Boulevard grade separation project. A four span bridge is proposed for the project to connect CR 3929/Walther Boulevard over SR 316 as described above. The proposed bridge dimensions are 56 feet, five inches by 404 feet, and the bridge will include two 14-foot travel lanes separated by a 14-foot flush median, with six-foot sidewalks on both sides.

B. Study Area

The grade separation project at SR 316 and CR 3929/Walther Boulevard is centrally located within Gwinnett County, Georgia, and partially within the City of Lawrenceville. The project study area is situated within the Southern Outer Piedmont Level IV Ecoregion as documented in the Ecoregions of Alabama and Georgia, characterized by deep saprolite and mostly red, clayey subsoils with pine (*Pinus* spp.)-dominated forest types (Griffith, et al. 2001). The project corridor generally consists of existing maintained ROW, newly-proposed ROW limits necessary to accommodate the proposed project, and any proposed easement areas necessary for the project including those for temporary access and drainage easements wherever necessary. The project study area encompasses the full extent of these limits and a minimum additional 100-foot surrounding area that may potentially be affected by the proposed project. Three distinct habitats or land-use communities have been identified and mapped within the project study area: upland mixed pine hardwoods, maintained ROW, and developed areas. Each community is described in further detail in Section H-1: Vegetative/Land-Use Communities. The upland mixed pine hardwoods community makes up approximately 47.9% of the study area; maintained ROW makes up 31.3%; and development makes up the remaining 20.8%.

Potential impacts to existing undeveloped habitats would result from new roadway construction wherever proposed, as well as roadway alterations and demolition where design upgrades are proposed to existing

of SR 316 associated with GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 or project MSL00-0004-00(086), PI No. 0004086 described above. As a result of the proposed project, CR 3929/Walther Boulevard will continue to consist of two 12-foot travel lanes, and will be modified to also include a 14-foot two-way left turn lane and 16-foot shoulder consisting of a five-foot wide pedestrian sidewalk. The existing 12-foot flush median will be modified to a 14-foot flush median. The existing and proposed right-of-way (ROW) widths vary from 80 feet to 147.5 feet. No existing bridges occur within the project study area for the CR 3929/Walther Boulevard grade separation project. A four span bridge is proposed for the project to connect CR 3929/Walther Boulevard over SR 316 as described above. The proposed bridge dimensions are 56 feet, 5 inches by 404 feet, and the bridge will include two 14-foot travel lanes separated by a 14-foot flush median, with 6-foot sidewalks on both sides. The total disturbed project area is approximately 7.96 acres.

D. Survey Methodology

Prior to conducting field surveys, the US Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping, NRCS soil survey mapping, and US Geological Survey (USGS) topographic mapping were reviewed in order to identify areas where state and/or federal waters may be present within the CR 3929/Walther Boulevard study area. Methodology for state and federal waters field determinations was based on guidance from the following resources: 1987 Army Corps of Engineers (USACE) Wetlands Delineation Manual (including updates from 1991, 1992, and 1997), April 2012 Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), North Carolina Division of Water Quality Methodology for Identification of Intermittent and Perennial Streams and Their Origins (Version 4.11), and the Georgia Environmental Protection Division (GA EPD) Field Guide for Determining the Presence of State Waters that Require a Buffer. Methodology for determining the presence of state and/or federally listed species and/or their suitable habitat was based on a review of known county occurrences, early coordination conducted with the Georgia Department of Natural Resources Nongame Conservation Section (GDNR NCS), and available life history data from multiple sources including the rare species profiles available on the GDNR Wildlife Resources Division (WRD) web page. Additional life history information on state and/or federally listed species was obtained from other web-based sources and printed publications.

Background information from the sources described above was compiled and utilized to perform a comprehensive field survey of the project study area. The survey area consisted of the known or anticipated CR 3929/Walther Boulevard Grade Separation project limits plus a minimum additional 100-foot buffer (see Figure 2: Survey Area Map). Suspect areas identified from mapping were evaluated for the presence of state and/or federal waters, and the project area was reviewed for the presence of state and/or federally listed species and/or their suitable habitat. Wherever suitable habitat for state and/or federally listed species was encountered during these initial field surveys, additional species-specific surveys were completed during the appropriate survey seasons.

Maintained ROW habitat with the potential to support Georgia aster (*Symphyotrichum georgianum*) was known to occur within the project study area based on observations from prior field investigations of coincident projects MSL00-0003-00(168) and MSL00-0004-00(086) discussed in earlier portions of this document. Pedestrian surveys were conducted throughout the project study area by Atkins North America, Inc. Senior Scientists/Ecologists Karen Warner and Austin Meadows to identify, describe and map all existing habitat/land use types within the project study area on October 23, 2012, between the

hours of 11:00 a.m. and 5:15 p.m., for a total of 5.5 work hours. A species-specific field survey was conducted for Georgia aster within habitats potentially suitable to support this species during this field visit.

A pedestrian field survey of the project study area was subsequently conducted by Atkins North America, Inc. Senior Scientist/Ecologist Karen Warner, assisted by Ms. Jacqueline Chen on December 13, 2012, between the hours of 9:00 a.m. and 5:00 p.m., and on December 28, 2012, between the hours of 9:00 a.m. and 2:00 p.m. Total time required to complete the field survey on these dates was approximately 11.5 work hours. This survey was conducted to identify and characterize waters of the US along with State Waters and their buffers. The study area was also evaluated for the presence of habitats with the potential to support any additional state and/or federally listed species and for evidence of protected species occupying the area. The most recent precipitation event prior to each of these dates recorded by the nearby Atlanta Dekalb weather station was 0.46 inch of rainfall on December 10, 2012, and 0.05 inch of rainfall on December 26, 2012, respectively. This weather station also recorded a rainfall event on December 12, 2012, although the rainfall amount was below the station's measurement limits. The recorded rainfall event on December 26, 2012, occurred in the early morning, over 48 hours prior to the field assessment. Based on field observations and data recorded by the Atlanta Dekalb weather station, weather conditions during the field survey on December 13, 2012, consisted of clear and sunny skies, east-southeast winds gusting to 20 miles per hour, an average temperature of 45° Fahrenheit, and no precipitation. Weather conditions during the field survey on December 28, 2012, consisted of partly cloudy skies, east-southeast winds averaging six miles per hour, an average temperature of 37° Fahrenheit, and no precipitation.

The Atlanta Dekalb weather station recorded 28.98 inches of precipitation (rain) for the one year period preceding the last field survey (on December 28, 2012). Comparatively, the 30 year average annual precipitation for the Atlanta region as reported by NRCS is 50.2 inches, confirming the prolonged drought conditions in this region. Qualifications statements for Ms. Warner, Mr. Meadows, and Ms. Chen, along with supporting weather data documentation can be found in Appendix C.

E. Habitats and Land Use Areas

Habitats and land use types within the project study area were identified, mapped, and described during the October 2012 field evaluation and confirmed during the subsequent field evaluations conducted in December 2012. Three habitats or land use types were identified/confirmed within the project study area, and are shown on Figure 3. The ecology study area consists of all anticipated project work areas plus a minimum additional 100 foot zone as described above, totaling approximately 34.2 acres. All habitats and land use types observed within the study area are described below.

Mixed Pine Hardwoods (±16.4 acres, 47.9%)

The mixed pine hardwoods habitat makes up the largest proportion of the study area, comprising approximately 47.9%. This community was mostly observed occurring as bands of fragmented forest remaining as buffer strips between multi-family residential developments and roadway corridors (Photograph 1). This mature mixed pine hardwood community was heavily dominated by loblolly pine (*Pinus taeda*), with scattered occurrence of hardwood species in the subcanopy and understory strata. These hardwood species and shrubs observed in the understory include white oak (*Quercus alba*), American beech (*Fagus grandifolia*), sweetgum (*Liquidambar styraciflua*), sparkleberry (*Vaccinium*

arboreum), northern red oak (*Q. rubra*), scarlet oak (*Q. coccinea*), mockernut hickory (*Carya tomentosa*), eastern hophornbeam (*Ostrya virginiana*), tulip poplar (*Liriodendron tulipifera*), rusty blackhaw (*Viburnum rufidulum*), and black cherry (*Prunus serotina*), with occasional silver maple (*Acer saccharinum*). A few individuals of Virginia pine (*Pinus virginiana*) were also observed in the narrow band of forest along the eastern edge of Walther Boulevard, north of SR 316. This mature forest community contained little groundcover, with herbaceous species mostly occurring near the forest edge. Herbaceous species observed consisted of small white aster (*Aster vimineus*), goldenrod (*Solidago* spp.), Japanese honeysuckle (*Lonicera japonica*), St. Johns wort (*Hypericum* sp.), wild ginger (*Asarum canadense*), and occasional winged sumac (*Rhus copallina*) seedlings. This habitat is not suitable to support protected species documented to occur in Gwinnett County.

Maintained Right-of-Way (±10.7 acres, 31.3%)

The maintained ROW land use type within the study area consists of existing roadways including SR 316 and CR 3929/Walther Boulevard, along with the maintained roadside areas comprised of sidewalks, landscaped or grassed areas, and right-of-way areas dominated by forbs and herbs regularly mowed as part of roadway maintenance activities (Photograph 2). The vegetated portions of this habitat have the potential to support Georgia aster, although no individuals or populations of this species have been observed within the project study area. Portions of the vegetated ROW north of SR 316 and east of CR 3929/Walther Boulevard appeared to have the greatest potential to support Georgia aster. These areas were on alternating cut slopes and fill slopes associated with past roadway construction, and some areas were bordered by a mixed pine hardwood forest community. Most portions of the maintained ROW throughout the study area were dominated by a dense monoculture of planted roadside grasses that appeared to be frequently maintained, and occupied by little to no forbs other than the planted grasses. A small portion of the ROW east of CR 3929/Walther at the northern limit of the study area contained a mix of roadside grasses and forbs in patches, with other observed species including weeping lovegrass (*Eragrostis curvula*), horseweed (*Conyza canadensis*), cat greenbrier (*Smilax glauca*), and scattered partridge pea (*Cassia fasciculata*).

Developed (±7.1 acres, 20.8%)

Developed uses within the project study area consist of multi-family (apartment) communities along most of the study area borders (Photograph 3). A business and medical park also occurs in the southwest portion of the project study area. These areas consist largely of constructed parking lots and buildings. Vegetated areas are limited to frequently maintained grass sod and landscaped planting beds. This habitat is not suitable to support protected species documented to occur in Gwinnett County.

II. FEDERALLY PROTECTED RESOURCES

A. Protected Species and Habitats

Prior to conducting the field investigation for the CR 3929/Walther Boulevard project study area, a list of federally protected species was obtained from the USFWS Information, Planning and Conservation System (IPaC) webpage for Gwinnett County, and the GDNR WRD list of protected species documented for Gwinnett County (Appendix B). An early coordination letter was also submitted to the GDNR prior to the field visit to request a list of protected species documented as occurring within three miles of the CR 3929/Walther Boulevard project area on November 12, 2012. A response letter was received on

December 11, 2012, indicating no federally-listed species have been documented within three miles of the proposed project (Appendix B).

i. Federally Threatened and Endangered

In compliance with Section 7 of the Endangered Species Act (ESA), GDOT must identify the presence of threatened and endangered species, and their designated critical habitat as well as evaluating project impacts. Federally protected species listed for Gwinnett County include pool sprite (*Amphianthus pusillus*) with a federal and state listing status of threatened, and black-spored quillwort (*Isoetes melanospora*) with a federal and state listing status of endangered. These species are described in greater detail below and summarized in Table 1. Descriptions of protected species habitat requirements in this section are based in large part on the Rare Species Profiles available through the GDNR WRD website.

Pool sprite (*Amphianthus pusillus*)

This species is a federally and state threatened aquatic, annual herb with floating and submerged leaves. Preferred habitat for the species consists of shallow, flat-bottomed depressions on granite outcrops with thin, gravelly soils and winter to spring inundations. Pools must be of sufficient depth to hold water for several weeks and receive full sunlight. The range for little amphianthus consists of the Piedmont of Georgia, South Carolina, and Alabama. The survey area does not contain any granite outcrops that provide suitable habitat for little amphianthus and the proposed project would have no effect on this species.

Black spored quillwort (*Isoetes melanospora*)

This species is state and federally listed as endangered and is documented to occupy shallow, temporarily flooded, flat-bottomed pools formed by natural erosion on granite outcrops. Quillworts are seedless, non-flowering plants that reproduce by spores. The black spored quillwort is endemic to the piedmont region of Georgia and South Carolina. No flat-bottomed shallow pools or granite outcrop areas have been observed within the project corridor, and no evidence of this species has been observed on site. Due to lack of habitat and individuals on or near the project corridor, the project is anticipated to have no effect on this species.

ii. Federal Candidate Species

One federal candidate species, Georgia aster was identified on the GDNR WRD list of known rare and protected species occurrences for Gwinnett County, Georgia (Appendix B). In addition to the federal candidate listing, Georgia aster is state listed as threatened. This species and the potential for it to be affected by the proposed project are discussed in greater detail below.

Georgia aster (*Symphotrichum georgianum*)

Georgia aster is a perennial herb state listed as threatened in Georgia, and a federal candidate species. This species is found on the edges and openings of dry, rocky, oak-hickory-pine forests, sometimes with smooth purple coneflower (*Echinacea laevigata*), and can often be found on disturbed sites and within right-of-ways (GDNR 2009). Most known populations currently inhabit disturbed areas such as utility and roadway ROWs and other open areas where human disturbance mimics natural regimes such as fire or heavy grazing by large herbivores. Georgia aster primarily reproduces non-sexually by means of rhizomes (Chafin 2007). This species is known to exist in four states: North Carolina, South Carolina,

Georgia, and Alabama and was once known to exist in Florida. The GDNR NCS documents occurrence of this species in 24 counties within Georgia, primarily confined to the Piedmont ecoregion, including Gwinnett County. The maintained ROW habitat throughout the project corridor has the potential to support this species. A species-specific survey for Georgia aster was conducted during the flowering season within the CR 3929/Walther Boulevard project study area on October 23, 2012, and no individuals or populations of this species were found. Habitat suitable to support Georgia aster will be impacted as a result of the project, although no individuals or populations have been observed that would be impacted. As a result of these findings, it is anticipated that the proposed project will have no significant adverse effect on Georgia aster. A Protected Species Survey Report documenting the findings of this survey is included in Appendix D.

iii. Critical Habitat

No critical habitat is designated within Gwinnett County for any species. There is also no critical habitat designated for the federally protected species documented to occur within Gwinnett County (confirmed via USFWS 2013). As a result, the proposed project will have no effect on critical habitat.

iv. Bald and Golden Eagles

The Bald and Golden Eagle Protection Act of 1940 provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. No bald eagle nests occur within one mile of the project corridor and no suitable foraging habitat occurs within the project corridor. As a result, the project would not result in a "take" of the bald eagle as defined under the Bald and Golden Eagle Protection Act.

v. Migratory Birds

The Migratory Bird Treaty Act (MBTA) and the Executive Order on the Responsibility of Federal Agencies to Protect Migratory Birds (EO 13186), requires the protection of migratory birds and their habitats. No bridges, concrete box culverts, or other large culverts that may provide suitable nesting habitat for migratory birds such as the barn swallow (*Hirundo rustica*), cliff swallow (*Hirundo pyrrhonota*), or Eastern phoebe (*Sayornis phoebe*) occur within the project study area. Construction activities necessary for the proposed grade separation project would include partial clearing and permanent loss of some existing mixed pine hardwoods habitat. Given the fragmented nature of the existing forested habitat within the project study area, this habitat is not considered exemplary and no restrictive Special Provisions are currently proposed. The project would not significantly or adversely alter the existing available migratory bird habitat in the regional vicinity of the project.

vi. Essential Fish Habitat

In compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), GDOT must identify unavoidable adverse impacts to Essential Fish Habitat (EFH). No EFH is designated for Gwinnett County; and thus the proposed project will have no effect on EFH.

B. Invasive Species

In compliance with Executive Order 13112, a survey was conducted for invasive species that could spread during construction. Category 1 Invasive species observed within the CR 3929/Walther Boulevard project study area include Chinese privet (*Ligustrum sinense*), Japanese honeysuckle, and mimosa (*Albizia*

julibrissin). The locations of these species within the CR 3929/Walther Boulevard study area have been recorded in the Early Detection & Distribution Mapping System (EDDMapS) database (Appendix A).

C. Waters of the U.S.

Jurisdictional waters of the US are defined by 33 CFR Part 328.3(b) and are protected by Section 404 of the Clean Water Act (33 USC 1344). Field assessments to identify jurisdictional resources within the CR 3929/Walther Boulevard project area were conducted on December 13, 2012, and December 28, 2012. The most recent precipitation event prior to each of these dates recorded by the nearby Atlanta Dekalb weather station was 0.46 inch of rainfall on December 10, 2012, and 0.05 inch of rainfall on December 26, 2012, respectively. This weather station recorded a rainfall event on December 12, 2012, as well; although the rainfall amount was below the station's measurement limits. Also, 0.14 inch of rainfall was recorded by this station on December 28, 2012; although this was an evening rainfall event that occurred following completion of the field assessment conducted on that date. Jurisdictional resources within the CR 3929/Walther Boulevard study area include a jurisdictional ephemeral stream, intermittent stream, and wetland. Each of these resources is described in greater detail below and depicted on Figures 3 and 4. North Carolina Division of Water Quality – Stream Identification Forms and Wetland Determination Data Forms for these resources are included in Appendix A.

The jurisdictional resources described below for the CR 3929/Walther Boulevard project area occur as a cluster of streams and a wetland located together within a natural topographic valley. This cluster of resources has been further topographically confined through past fill placement associated with construction of CR 3929/Walther Boulevard. Together, the cluster of resources collects stormwater runoff from the adjacent developed areas and eventually discharges water through an outfall structure from a detention area that has naturalized to form a jurisdictional wetland (Wetland 2). This drainage structure conveys water to an off-site jurisdictional intermittent stream. Both streams and the wetland making up this cluster have been altered through past construction activities, including large-scale lining with rock. The landscape position of these resources within a natural topographic valley indicates historic connection to downstream waters of the US, currently maintained through the existing stormwater management infrastructure (pipe). Given these conditions combined with the chemical and physical influence of these resources on downstream waters of the US through direct collection, conveyance, and water quality treatment of stormwater, each of the resources in the cluster is considered jurisdictional. These resources are not known to provide habitat that would support any listed species.

The proposed project is not located within a stream reach that is listed as impaired on the GA EPD 2010 305(b)/303(d) list as not supporting its designated use; and none of the resources described below for the CR 3929/Walther Boulevard grade separation project are one linear mile upstream of and within the same watershed as a stream listed by GA EPD as a non-supporting biota impaired stream. Each of these resources is situated within the watershed of, or is a tributary to the Yellow River. Yellow River is listed as impaired on the GA EPD 2010 305(b)/303(d) list as not supporting its designated use of fishing. The nearest impaired reach (Harris Lake to Pew Creek) is located approximately 0.9 mile downstream (northwest) of the project limits, and is listed as impaired for fecal contamination due to urban runoff.

Ephemeral Channel 1 (EC1)

This jurisdictional ephemeral channel is located west of CR 3929/Walther Boulevard, north of SR 316, and east of an adjacent multi-family residential (apartment) community (Photograph 4). The channel begins

immediately down-gradient of a 24-inch round, corrugated metal pipe (CMP) conveying parking area stormwater runoff from the adjacent apartment community, and occurs within the upper portion of a natural topographic valley. The channel ends at a rock-lined embankment, draining into a rock-lined detention pond that has naturalized to form a jurisdictional wetland (Wetland 2). Areas of channel bed and banks were probed during the field investigation to examine soil profiles, revealing that the full length of the channel bed and banks are approximately 60-70% lined with at least partially buried rock. Exposed soil profile areas examined at the base of the channel banks were consistent with the soil profile of the surrounding upland community and did not exhibit hydric soil indicators. The average width of this entrenched channel is approximately 18 inches, and the average depth is nine inches. No flow was observed in the channel at the time of the field investigation, and turbid pooled water was limited to one location at a depth of approximately two inches. The vegetated riparian zone on the left side of the channel (facing downstream) is approximately 100 feet in width, consisting of planted loblolly pine estimated at 20-30 years old, with a shrub layer consisting of Chinese privet and Carolina cherry laurel (*Prunus caroliniana*). The riparian zone on the right side of the channel was approximately 30 feet wide with an approximately eight-foot wide zone dominated in the canopy by mimosa, and a subcanopy and shrub layer consisting of Chinese privet, blackberry (*Rubus* sp.), leatherleaf mahonia (*Mahonia bealei*), and Carolina cherry laurel. The remainder of this riparian zone is landscaped with planted laurel oaks (*Quercus hemisphaerica*), American holly (*Ilex opaca*), and maintained sod.

Utilizing the USACE wetland mitigation factors applied for evaluation of ephemeral channels, EC1 was determined to be of fair quality (Class 4) due to direct alterations to the channel and riparian community, as well as the direct contribution of untreated stormwater. The proposed project would not impact EC1. This ephemeral channel does not require a state mandated 25-foot buffer, thus no stream buffer variance would be necessary for work proposed in the vicinity of this resource.

Wetland 2

Wetland 2 is a small, palustrine, forested wetland naturalized within a constructed detention area, located west of CR 3929/Walther Boulevard and north of SR 316. This wetland is situated within a natural topographic depression, and is positioned to receive flow from EC1 to the south and Intermittent Stream 3 (IS3) to the north. Wetland 2 is approximately 0.13 acre in size, and is located outside the proposed project area but within the study area assessed during the December 2012 field evaluations. This constructed detention basin is lined with rock, although a soil layer ranging from approximately four to eight inches in depth was observed above the rock lining and was evaluated for the presence of hydric soil indicators. Wetland 2 was determined to be of fair quality (Class 4) due to the large-scale construction alterations including installation of the rock lining, proximity to development, and effects from untreated stormwater inputs (Photograph 5). This wetland appears to be only seasonally saturated to near the surface; and no evidence of regular, sustained inundation such as water marks were observed. Signs of hydrology within the wetland included drift deposits and drainage patterns. The canopy stratum within the wetland consists of scattered black willow (*Salix nigra*) and occasional sweetgum, with an individual mature occurrence of Chinese privet. The sapling and shrub stratum were sparse at the time of the field visit, consisting of occasional Chinese privet and sweetgum. There was no herbaceous layer observed at the time of the field investigation, and vines were limited to a population of Japanese honeysuckle near the southern end. The soil profile above the rock lining of this detention pond was uniform and dominated by moderately high (7.5) yellow-red hue, with a matrix value of 3 and chroma of 2. The depth of this uniform, low chroma, sandy loam soil profile confirmed the hydric soil

indicator of depleted matrix within the wetland. A concrete outfall structure exists at the northern end of this wetland and conveys overflow from the detention pond into a subsurface 42-inch CMP that conveys water beneath CR 3929/Walther Boulevard to the northeast, ultimately discharging to a tributary to the Yellow River outside the project study area. The proposed project would impact Wetland 2.

Intermittent Stream 3 (IS3)

This resource is an intermittent, rock-lined stream located north of SR 316 and west of CR 3929/Walther Boulevard. The stream originates on a hillslope between CR 3929/Walther Boulevard and the adjacent apartment community to the west, and drains west and south to ultimately discharge into the naturalized detention pond described above as Wetland 2. The substrate of the channel is a sandy clay loam, with occasional small gravel, although the channel is 50-60 percent lined with rock along its full length. The entrenched stream has an average channel width and bankfull width of approximately 2.5 feet, and bankfull channel depth ranging from six inches to two feet (Photograph 6). This stream was classified as fully impaired during the field evaluation due to entrenchment, low sinuosity, and past construction alterations including the placement of rock lining. No flow or pooled water was observed at the time of the field visit, although significant rafted debris largely comprised of recently fallen leaves along the stream channel indicated flows from recent rainfall events. Redox concentrations along pore linings within the soil profile along the stream banks indicate groundwater influence along the channel, and this stream would require a state-mandated 25 foot buffer. This stream and its associated buffer are located outside the project area, and would not be impacted as a result of the proposed project. No FWCA coordination or stream buffer variance would be required for this resource.

D. Avoidance and Minimization of Federal Resource Impacts

No impacts to waters of the US are proposed to occur as a result of the CR 3929/Walther Boulevard grade separation project. The overall project limits have been reduced during the concept design stage to avoid potential impacts to waters of the US including an intermittent stream located to the north and outside of the currently proposed project limits.

E. Permit and Mitigation

No impacts to waters of the US are proposed as a result of the GDOT CR 3929/Walther Boulevard grade separation project. As a result, no USACE permit will be necessary for this project as proposed.

III. STATE PROTECTED RESOURCES

A. State Threatened, Endangered, Rare and Unusual Species

The Georgia Endangered Wildlife Act prohibits the capture, killing, or selling of protected species and protects the habitat of these species on public lands. Georgia's Wildflower Preservation Act of 1973 provides for designation of and protection of plant species that are rare, unusual, or in danger of extinction. Prior to scheduling the field assessment for this project, a request was made to the GDNR for updated information regarding known protected species occurrences within three miles of the CR 3929/Walther Boulevard project area. The response from GDNR indicated no known protected species occurrences within three miles of the proposed CR 3929/Walther Boulevard project. The proposed project is anticipated to have no effect on state listed species, except as described above for species that are also federally protected.

B. Bats

Bats have been identified as using roadway structures such as culverts and bridges for roosting throughout much of the US, particularly in the southern states. No bridges or concrete box culverts suitable for bat roosting occur within the CR 3929/Walther Boulevard project study area. Signs of bat roosts include visible, audible and olfactory identification, presence of guano, or staining from guano or body oils. No bats or evidence of roosting was observed during the ecological field survey for the CR 3929/Walther Boulevard study area. As a result, the proposed project is anticipated to have no effect on bat colonies.

C. State Waters

State Waters are defined by the Official Code of Georgia 12-7-1 and protected by the Georgia Erosion and Sedimentation Control Act of 1975. In compliance with the National Pollutants Discharge Elimination System (NPDES) permit under Section 402 of the Clean Water Act, any encroachment within the designated 25-foot or 50-foot buffer of a State Water must be described, and the need for a variance indicated. State Waters within the CR 3929/Walther Boulevard study area not otherwise addressed above include one non-jurisdictional ephemeral channel (Drainage Feature 1220+76 Rt). This resource is described in greater detail below and depicted on Figures 3 and 4. A North Carolina Division of Water Quality – Stream Identification Form prepared in evaluation of this resource is included in Appendix A.

Drainage Feature 1220+76 Rt

This resource is an ephemeral drainage feature that originates south of SR 316 in the western portion of the project study area (Photograph 7). The channel drains west and into a 42-inch reinforced concrete pipe (RCP) beneath SR 316, discharging on the north side of this roadway into a concrete flume outside of the project study area. This feature can be characterized as a roadside channel that has formed as a result of roadway drainage and would not be considered federally jurisdictional. Based upon guidance from GA EPD for determining buffer requirements, this feature would not require a state-mandated 25-foot buffer. Specifically, this is an ephemeral feature that appears to flow only in direct and immediate response to rainfall events. The channel is discontinuous within the project study area, and the soil profile is consistent with the surrounding forested upland community, exhibiting no hydric soil indicators.

Drainage Feature 1220+76 Rt is located within the ROW limits of the proposed project. The CR 3929/Walther Boulevard grade separation design addressed in this document is currently at the concept design stage. As a result, impacts are assumed within all areas of project limits occurring within the existing and proposed ROW. The entire length of Drainage Feature 1220+76 Rt within the CR 3929/Walther Boulevard study area is located within the existing ROW of SR 316 and is assumed to be impacted as a result of the project.

D. State Mandated Buffers

In compliance with the NPDES permit under Section 402 of the Clean Water Act, any encroachment within the designated 25-foot or 50-foot buffer of a state water has been evaluated, along with any need for a variance to address impacts to buffers within the CR 3929/Walther Boulevard project study area. One buffered state water (IS3) has been identified within the CR 3929/Walther Boulevard project study area; and the associated buffer is described below.

IS3 Buffer

Intermittent Stream 3 and its associated buffer are located west of CR 3929/Walther Boulevard and north of SR 316. This stream and the associated 25-foot buffer of this designated warm-water occur outside the proposed project limits addressed in this document, but within the study area evaluated during the field assessment. The left (looking downstream or toward the south) portion of this stream buffer is vegetated for a width of approximately 15 feet, and the remaining 10 feet of the buffer are within the existing CR 3929/Walther Boulevard ROW consisting of sidewalk and roadway shoulder. The right portion of the buffer is within a forested hillslope greater than 50 feet in width. The canopy stratum of this forested community is dominated by American beech, tulip poplar, white oak, sweetgum, and loblolly pine, along with individual occurrences of river birch (*Betula nigra*) along the edge of the stream. The canopy species in this stratum range from approximately 20 to 50 years of age. Understory species observed within this area at the time of the field visit were limited to American beech saplings. The entire stream buffer occurs outside the proposed project area and is not anticipated to be impacted as a result of the project. No stream buffer variance will be required for this resource.

E. Avoidance and Minimization of State Resource Impacts

Drainage Feature 1220+76 Rt

This resource is located within the ROW limits of the proposed project. The CR 3929/Walther Boulevard grade separation addressed in this document is currently at the concept design stage, and impacts are assumed within all areas of project limits occurring within the existing and proposed ROW. The entire length of Drainage Feature 1220+76 Rt is located within the existing ROW of SR 316 and is assumed to be impacted as a result of the proposed project in concept. Once design for this project is further refined, avoidance and minimization measures to reduce impacts to this resource will be addressed in greater detail.

IV. References

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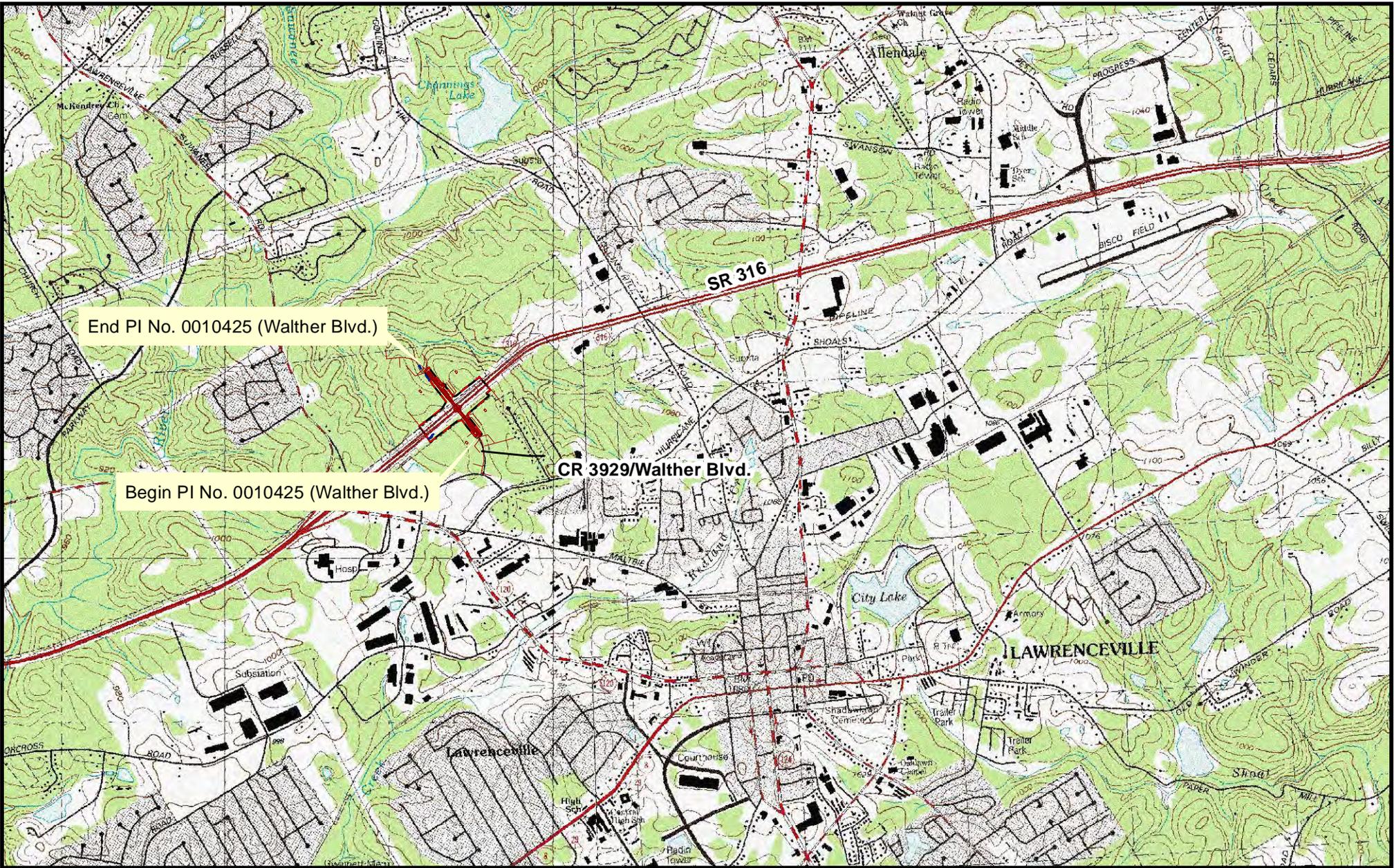
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US Fish and Wildlife Service. 2013. Critical Habitat Portal. Available online at <http://criticalhabitat.fws.gov/crithab/> . Accessed 28 January 2013.

FIGURES



 Walther Project Area

Source: USGS 7.5' Topographic Quadrangles:
Luxumni and Lawrenceville



SR 316 at CR 3929/Walther Blvd - Grade Separation, Gwinnett County

GDOT Project PI No. 0010425

Figure 1:
Project
Vicinity Map

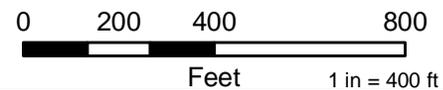


Legend

-  Study Area (Walther Blvd. PI No. 0010425)
-  Walther Blvd Project Area



Aerial Photography Source: Bing Maps, flown 2010



**SR 316 at CR 3929/Walther Blvd -
Grade Separation, Gwinnett County**

GDOT Project PI No. 0010425

**Figure 2:
Survey
Area Map**



Legend

 Study Area

 Walther Blvd Project Area

Habitats/Land Use Types

 Developed

 Maintained Right-of-Way

 Mixed Pine-Hardwood Forests (upland)

Jurisdictional Waters

 Streams

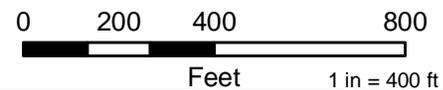
 Wetlands

Non-Jurisdictional State Waters

 Linear State Waters



Aerial Photography Source: Bing Maps, flown 2010

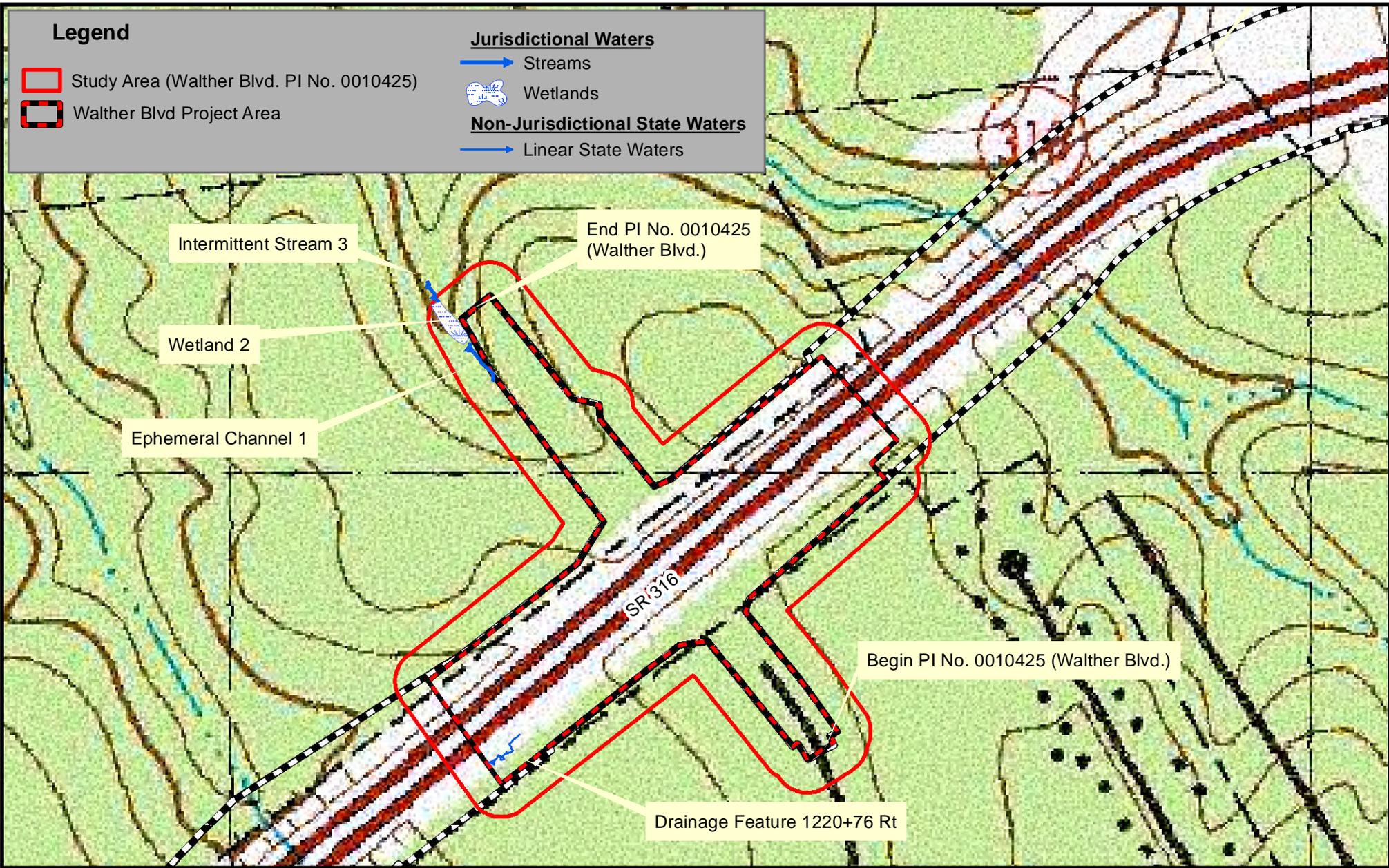


SR 316 at CR 3929/Walther Blvd - Grade Separation, Gwinnett County

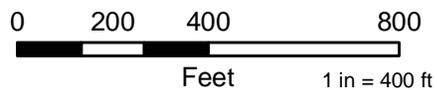
GDOT Project PI No. 0010425

**Figure 3:
Habitats
Map**





Imagery Source: USGS Topographic
Quadrangle - Luxomni, Ga



SR 316 at CR 3929/Walther Blvd - Grade Separation, Gwinnett County

GDOT Project PI No. 0010425

**Figure 4:
Waters
Topographic
Map**



Legend

-  Study Area (Walther Blvd. PI No. 0010425)
-  Walther Blvd Project Area

Jurisdictional Waters

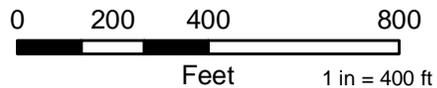
-  Streams
-  Wetlands

Non-Jurisdictional State Waters

-  Linear State Waters



Aerial Photography Source: Bing Maps, flown 2010

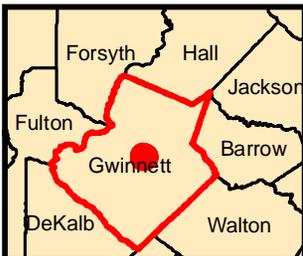
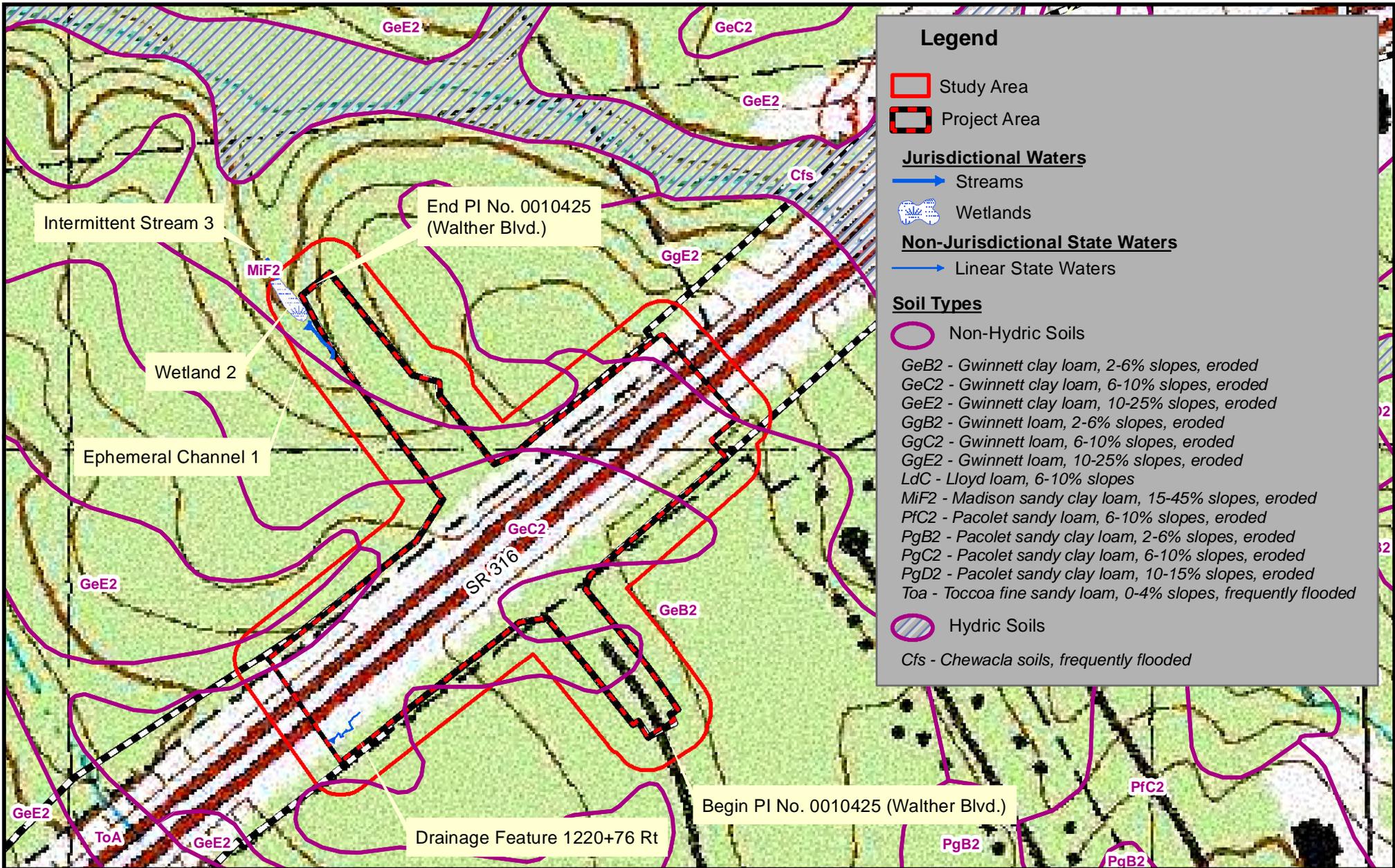


**SR 316 at CR 3929/Walther Blvd -
Grade Separation, Gwinnett County**

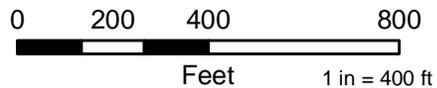
GDOT Project PI No. 0010425

**Figure 5:
Waters
Aerial
Map**





Sources: USGS Luxomni, Ga. Quadrangle, USDA NRCS Soil Survey Geographic Database (SSURGO) for Gwinnett County, Ga. and USDA NRCS National List of Hydric Soils



SR 316 at CR 3929/Walther Blvd - Grade Separation, Gwinnett County

GDOT Project PI No. 0010425

**Figure 6:
Soils Map**



TABLES

Table 1 - Protected Species Summary
 GDOT PI No. 0010425, Gwinnett County

Species	Common Name	Federal Status * ¹	State Status * ¹	Habitat Present	Habitat Impacted	Survey Season * ²	Survey Date	Individuals Found	Biological Determination	Special Provisions 107.23G
<i>Amphianthus pusillus</i>	pool sprite	T	T	No	No	March-May	NA	No	No effect	NA
<i>Isoetes melanospora</i>	black-spored quillwort	E	E	No	No	early May-June	NA	No	No effect	NA
<i>Symphotrichum georgianum</i>	Georgia aster	C	T	Yes	No	late September to mid-November	October 23, 2012	No	No significant adverse effect	NA

*¹-Federal protection status is as follows: E-Endangered, T-Threatened, C-Candidate, TSA-Threatened due to similarity of appearance; NA - Not federally listed; State protection status is as follows: E-Endangered, T-Threatened, R-Rare.

*²-Data Sources: GDOT Environmental Procedures Manual, Environmental Studies, last updated 2010; GDNR WRD Rare Species Profiles.

Table 2 - Federal Stream, Wetland and Open Water Summary
 PI No. 0009862, Calhoun County

Resource Label	Cowardin class	Existing Condition	Location - Station		Coordinates		Total WL/OW Area (ac)	Existing Structure		Proposed Impact			FWCA
			Begin	End	Lat (°N)	Long (°W)		Type	Length (lf)	Type	Length (lf)	Area (ac)	
EC1	-	Class 4	62+15 Rt	60+65 Rt	33.97374	-84.01008	NA	24" CMP	unknown	NA	-	-	No
WL2	PFO1	Class 4	59+30 Rt	60+65 Rt	33.97431	-84.01052	0.13	42" CMP	358	NA	-	-	No
IS3	R4SB	Fully Impaired	58+00 Rt	59+30 Rt	33.97466	-84.0107	NA	-	-	NA	-	-	No

Table 3 - State Water and Buffer Impact Summary
 PI No. 0010425, Gwinnett County

Resource	Begins at Station #	Ends at Station #	BV	Application Criterion	Special Provision 700	Special Provision 702
Drainage Feature 1220+76 Rt (non-buffered ephemeral)	1220+76 Rt	1222+10 Rt	NA	NA	NA	NA
IS3 Buffer	57+35 Rt	59+30 Rt	No	NA	NA	NA

Table 4 - ECOLOGY COMMITMENTS

PI#(s): 0010425 | County: Gwinnett | Date Updated: 05/21/13 | Stage: Concept | Date on Plans Reviewed by OES:

Review	<input type="checkbox"/> These commitments are feasible. <i>(must be checked at all stages)</i>	<input type="checkbox"/> Plans incorporate the commitments. <i>(must be checked to certify for letting)</i>	<i>Air/Noise</i> _____	<i>Arch</i> _____
	<i>Project Manager (PM)</i> _____	<i>Engineer of Record (EOR)</i> _____	<i>Eco</i> _____	<i>Hist</i> _____
	<i>PM Signature/Date</i> _____	<i>EOR Signature/Date</i> _____	<i>NEPA</i> _____	

A. Resources to be Delineated on the Plans and/or Listed in the Environmental Resource Impact Table (ERIT)

Resource Name	PI#(s)	Additional Information (refer to the SP, plan note, design feature, permit, variance, commitment, etc...)	Name and Date of Report or Transmittal	Correctly Shown?	
				Plan Sheet	ERIT
A-1 Drainage Feature 1220+76 Rt (non-buffered, non-jurisdictional ephemeral)	0010425	State water impacted along entire length, no permit or variance required.	ERSR/AOE, this document	Yes	
A-2 Ephemeral Channel 1 (jurisdictional ephemeral, non-buffered)	0010425	No impacts permitted.	ERSR/AOE, this document	Yes	
A-3 Wetland 2	0010425	No impacts permitted.	ERSR/AOE, this document	Yes	
A-4 Intermittent Stream 3 (IS3)	0010425	No impacts permitted.	ERSR/AOE, this document	Yes	
A-5 IS3 Buffer	0010425	No impacts permitted.	ERSR/AOE, this document	Yes	

B. Special Provisions (Attach all special provisions to the commitments table, if available)

Special Provision	PI#(s)	Purpose	Est. Cost	SP's Latest Date

C. Plan Notes and Design Features (Description: For plan notes, provide exact wording in "quotes" and approximate location)

Purpose	PI#(s)	Description	Est. Cost	Correctly Shown?

D. Permits, Buffer Variances and Mitigation Credits

Permit, Variance, etc	PI#(s)	Additional Information (permit details, number of credits needed, etc...)	Est. Cost	Acquired?

Table 4 - ECOLOGY COMMITMENTS

PI#(s): 0010425 | County: Gwinnett | Date Updated: 05/21/13 | Stage: Concept | Date on Plans Reviewed by OES:

E. Other Commitments or Requirements (Status: Pre- and Post – Complete or Incomplete; During – Signature Req'd)

<i>Pre-, During, or Post</i>		<i>PI#(s)</i>	<i>Commitment</i>	<i>Responsible party</i>	<i>Est. Cost</i>	<i>Status</i>
E-1	During Construction	0010425	Orange Barrier Fencing will be placed to protect Ephemeral Channel 1.	GDOT District 1 Office		Pending Construction
E-2	During Construction	0010425	Orange Barrier Fencing will be placed to protect Wetland 2.	GDOT District 1 Office		Pending Construction
E-3	During Construction	0010425	Orange Barrier Fencing will be placed to protect Intermittent Stream 3 and associated buffer.	GDOT District 1 Office		Pending Construction

<i>Total Estimated Cost</i>	\$
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If Project is Complete or Under Construction, Area or Construction Engineer affirms that all Special Provisions, Plan Notes and During Construction Commitments were or are being adhered to during the project's construction. PI#(s): _____.

Please Print Name and Title: _____ Signature: _____ Date: _____ Please provide an explanation if unable to sign.

PHOTOGRAPHS

Walther Boulevard Grade Separation
PI No. 0010425, Gwinnett County
Photographs

Habitats/Land Use Types



Photograph 1:
Mixed pine hardwood habitat
12/13/2012



Photograph 2:
Maintained right-of-way land use
12/13/2012



Photograph 3:
Developed land use
12/13/2012

Walther Boulevard Grade Separation
PI No. 0010425, Gwinnett County
Photographs

Federal and State Waters



Photograph 4:
Ephemeral Channel 1 (jurisdictional
ephemeral) Captured facing north/
downstream, west of Walther Blvd.
12/13/2012



Photograph 5:
Wetland 2 (jurisdictional wetland)
Captured facing south, west of Walther
Blvd.
12/28/2012



Photograph 6:
Intermittent Stream 3 (jurisdictional)
Captured facing north/upstream, west of
Walther Blvd.
12/13/2012



Photograph 7:
Drainage Feature 1220+76 Rt
Non-buffered state water (ephemeral)
Captured facing north/upstream, south of
SR 316. 12/13/2012

APPENDIX A. FIELD DATA

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Waltham Blvd @ SR 316 City/County: Gwinnett Sampling Date: 12/28/12
 Applicant/Owner: GDOT State: GA Sampling Point: WLZ
 Investigator(s): KNW Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression det pond Local relief (concave, convex, none): CONCAVE Slope (%): 15-45
 Subregion (LRR or MLRA): MLRA 136 LRP Lat: 33.97431 Long: -84.01052 Datum: NAD 83
 Soil Map Unit Name: Madison Sandy clay loam NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No (If no, explain in Remarks.)
 Are Vegetation _____, Soil , or Hydrology _____ significantly disturbed? yes Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Drought conditions (prolonged)</u> This area is a topographic depression that has been altered through surrounding development to function as a detention pond. The pond is lined with rock & substrate has recolonized atop the rock to thickness ranging from 4-8 inches.	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WLZ

Tree Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>60</u>	<u>-yes</u>	<u>-OBL</u>
2. <u>Ligustrum sinense</u>	<u>10</u>	<u>-no</u>	<u>-FACU</u>
3. <u>Liquidambar styraciflua</u>	<u>20</u>	<u>-yes</u>	<u>-FAC</u>
4.			
5.			
6.			
7.			
8.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Sapling/Shrub Stratum (Plot size: 30ft radius) 890 = Total Cover

Sapling/Shrub Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ligustrum sinense</u>	<u>15</u>	<u>-yes</u>	<u>-FACU</u>
2. <u>Liquidambar styraciflua</u>	<u>5</u>	<u>-yes</u>	<u>-FAC</u>
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = 0

Herb Stratum (Plot size: 30 ft radius) 0 = Total Cover

Herb Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: 30ft radius) 0 = Total Cover

Woody Vine Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lonicera japonica</u>	<u>2</u>	<u>-yes</u>	<u>-FAC</u>
2.			
3.			
4.			
5.			
6.			

2 = Total Cover

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: W. 4th St. Blvd @ 316 City/County: Winnetta Sampling Date: 12/28/12
 Applicant/Owner: GOVT State: GA Sampling Point: W/LZ-Upland
 Investigator(s): KNW Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 2-6
 Subregion (LRR or MLRA): MLRA 136-LRRP Lat: 33.97969 Long: -84.01056 Datum: NAD83
 Soil Map Unit Name: Winnetta Clay loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? no Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>prolonged drought conditions</u>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W/L 2 = upland

Tree Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra (black willow)</u>	<u>40</u>	<u>- y/n</u>	<u>- OBL</u>
2. <u>Liriodendron tulipifera</u>	<u>15</u>	<u>- no</u>	<u>- FACU</u>
3. <u>Betula nigra</u>	<u>20</u>	<u>- no</u>	<u>- FACU</u>
4. <u>Quercus alba</u>	<u>60</u>	<u>- y/n</u>	<u>- FACU</u>
5. _____	-	-	-
6. _____	-	-	-
7. _____	-	-	-
8. _____	-	-	-

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Sapling/Shrub Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fagus grandifolia</u>	<u>5</u>	<u>- y/n</u>	<u>- FACU</u>
2. _____	-	-	-
3. _____	-	-	-
4. _____	-	-	-
5. _____	-	-	-
6. _____	-	-	-
7. _____	-	-	-
8. _____	-	-	-
9. _____	-	-	-
10. _____	-	-	-

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>40</u>	x 1 = <u>40</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>80</u>	x 3 = <u>240</u>
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>140</u> (A)	<u>320</u> (B)

Prevalence Index = B/A = 2.3

Herb Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	-	-	-
2. _____	-	-	-
3. _____	-	-	-
4. _____	-	-	-
5. _____	-	-	-
6. _____	-	-	-
7. _____	-	-	-
8. _____	-	-	-
9. _____	-	-	-
10. _____	-	-	-
11. _____	-	-	-
12. _____	-	-	-

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: <u>30ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	-	-	-
2. _____	-	-	-
3. _____	-	-	-
4. _____	-	-	-
5. _____	-	-	-
6. _____	-	-	-

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WLZ-upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	4/4 Syr	100					Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	
<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

NC DWQ Stream Identification Form Version 4.11

183

Date: 12/13/12	Project/Site: Walther/SE316	Latitude: 33.97464
Evaluator: KLUW/JCH	County: Gwinnett	Longitude: -84.01070
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 22.5	Stream Determination (circle one) Ephemeral <input type="radio"/> Intermittent <input checked="" type="radio"/> Perennial <input type="radio"/>	Other Luxomni e.g. Quad Name:

A. Geomorphology (Subtotal = 13.5)

	Absent	Weak	Moderate	Strong
1 ^a . Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5)

12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

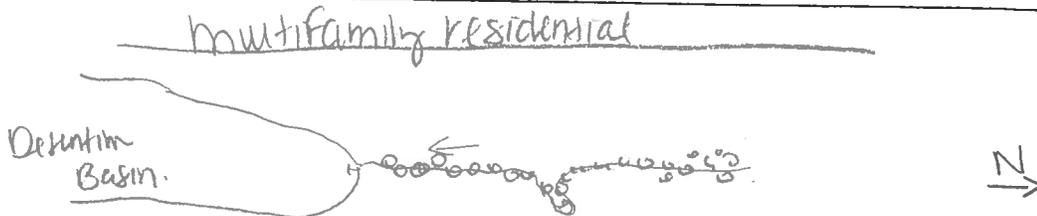
C. Biology (Subtotal = 4)

18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macroinvertebrates (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Part of site seems at least partially artificial from work in progress.

Sketch:



Walker Blvd.

NC DWQ Stream Identification Form Version 4.11

EC1

Date: 12/13/12	Project/Site: Walther/SR316	Latitude: 33.97374
Evaluator: KNW/JCH	County: Emmett	Longitude: -84.01008
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 15	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Luxonni e.g. Quad Name:

A. Geomorphology (Subtotal = 9.5)

	Absent	Weak	Moderate	Strong
1 ^a . Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	(0)	1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	0	(1)	2	3
9. Grade control	0	0.5	1	(1.5)
10. Natural valley	(0)	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 1.5)

12. Presence of Baseflow	(0)	1	2	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	1	(0.5)	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

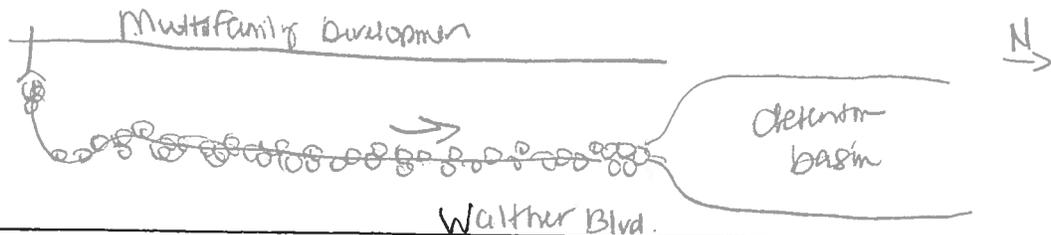
C. Biology (Subtotal = 4)

18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	3	(2)	1	0
20. Macroinvertebrates (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Some channel point rocks in streambed.

Sketch:



NC DWQ Stream Identification Form Version 4.11

Drainage Feature 1220176RT

Date: 12/13/12	Project/Site: Walter/316	Latitude: 33.97069
Evaluator: KW, ACH	County: Erwinnett	Longitude: -84.00996
Total Points: 9 Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Luxomni e.g. Quad Name:

A. Geomorphology (Subtotal = 5)

	Absent	Weak	Moderate	Strong
1 ^a . Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 1)

12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 3)

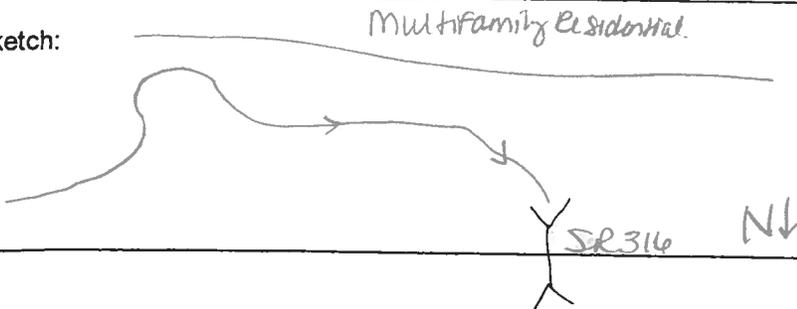
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macroinvertebrates (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Single channel point in streambed

Notes:

Sketch:



mimosa

Albizia julibrissin Durazz.

USDA PLANTS Symbol: ALJU
Invasive Plant Atlas

Distribution Maps: [State](#) / [County](#) / [Southeast](#) / [Points on Google Maps](#)

[Download Record \(pdf\)](#)

Record ID:	2641778
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Edge: Roadside
Abundance:	Scattered Plants
Locality:	West of Walther Rd and North of SR 316
Area Infested:	15 sq feet
Gross Area:	1 acres
Coordinates:	33.97374, -84.01008
NADatum:	WGS84
Ownership:	Other/Unknown
phenology:	Mature
Canopy Cover:	Moderate
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012

Reviewer Comments:



Photo Caption: Close up of the Mimosa



Photo Caption: Habitat where Mimosa was located

mimosa

Albizia julibrissin Durazz.

USDA PLANTS Symbol: ALJU
Invasive Plant Atlas

Distribution Maps: [State](#) / [County](#) / [Southeast](#) / [Points on Google Maps](#)

[Download Record \(pdf\)](#)

Record ID:	2641776
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Forests: Mixed
Abundance:	Scattered Dense Patches
Locality:	South of 316 and West of Walther Rd.
Area Infested:	200 sq feet
Gross Area:	400 sq feet
Coordinates:	33.97135, -84.00875
NADatum:	WGS84
Ownership:	Other/Unknown
phenology:	Mature
Canopy Cover:	High
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012

Reviewer Comments:



Photo Caption: Close up of the Mimosa

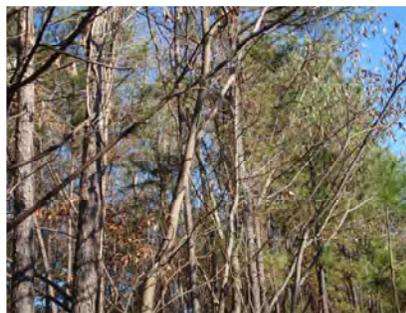


Photo Caption: Habitat where Mimosa was located

Chinese privet

Ligustrum sinense Lour.

USDA PLANTS Symbol: [LISI](#)
[Invasive Plant Atlas](#)

Distribution Maps: [State](#) / [County](#) / [Southeast](#) / [Points on Google Maps](#)

[Download Record \(pdf\)](#)

Record ID:	2641777
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Edge: Roadside
Abundance:	Scattered Dense Patches
Locality:	West of Walther Rd and North of SR 316
Area Infested:	200 sq feet
Gross Area:	1 acres
Coordinates:	33.97374, -84.01008
NADatum:	WGS84
Ownership:	Other/Unknown
phenology:	Mature
Canopy Cover:	High
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012

Reviewer Comments:



Photo Caption: Close up of the Chinese Privet



Photo Caption: Habitat where Chinese Privet was located

Chinese privet

Ligustrum sinense Lour.

USDA PLANTS Symbol: [LISI](#)
[Invasive Plant Atlas](#)

Distribution Maps: [State](#) / [County](#) / [Southeast](#) / [Points on Google Maps](#)

[Download Record \(pdf\)](#)

Record ID:	2641774
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Forests: Mixed
Abundance:	Scattered Plants
Locality:	Foreseted Habiata South of 316
Area Infested:	30 sq feet
Gross Area:	10 acres
Coordinates:	33.97292, -84.00614
NADatum:	WGS84
Ownership:	Other/Unknown
phenology:	Seedling/Rosette
Canopy Cover:	Trace
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012

Reviewer Comments:



Photo Caption: Close up of the Chinese Privet



Photo Caption: Habitat where Chinese Privet was located

Japanese honeysuckle

Lonicera japonica Thunb.

Record ID:	2641779
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Edge: Roadside
Abundance:	Scattered Dense Patches
Locality:	West of Walther Rd. and North of SR 316
Area Infested:	200 sq feet
Gross Area:	1 acres
Coordinates:	33.97374, -84.01008
NADatum:	WGS84
Ownership:	Other/Unknown
phenology:	Mature
Canopy Cover:	High
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012



Photo Caption: Habitat where Japanese Honeysuckle was located

Please cite as:

EDDMapS. 2012. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health. Available online at <http://www.eddmaps.org/distribution/point.cfm?id=2641779>; last accessed December 27, 2012.

Japanese honeysuckle

Lonicera japonica Thunb.

Record ID:	2641775
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Forests: Mixed
Locality:	Intersection corner: West of Walther Rd. and South of 316
Area Infested:	10 sq feet
Gross Area:	1 acres
Coordinates:	33.97172, -84.00798
NADatum:	WGS84
Ownership:	Other/Unknown
phenology:	Mature
Canopy Cover:	Low
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012



Photo Caption: Close up of the Japanese Honeysuckle



Photo Caption: Habitat where Japanese Honeysuckle was located

Please cite as:

EDDMapS. 2012. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health. Available online at <http://www.eddmaps.org/distribution/point.cfm?id=2641775>; last accessed December 27, 2012.

Japanese honeysuckle

Lonicera japonica Thunb.

USDA PLANTS Symbol: LOJA
Invasive Plant Atlas

Distribution Maps: [State](#) / [County](#) / [Southeast](#) / [Points on Google Maps](#)

[Download Record \(pdf\)](#)

Record ID:	2641773
Location:	Gwinnett County, Georgia
Source:	Karen Warner, Atkins
Project:	EDDMapS Home
Habitat:	Edge: Roadside
Abundance:	Scattered Plants
Locality:	Southwest End of the Detention Pond at Walther Professional Center at 766 Walther Rd.
Area Infested:	30 sq feet
Gross Area:	200 sq feet
Coordinates:	33.96985, -84.00621
NADatum:	WGS84
Ownership:	Other/Unknown
Canopy Cover:	Low
Identification Credibility:	Verified
Observation Date	December 13, 2012
Date Entered	December 17, 2012
Validator:	Karan A. Rawlins
Validation Date::	December 17, 2012
Verification Method:	Photographs
Date Updated:	December 17, 2012

Reviewer Comments:



Photo Caption: Close up of the Japanese Honeysuckle



Photo Caption: Habitat where Japanese Honeysuckle was located

APPENDIX B. AGENCY COORDINATION



Atkins North America, Inc.
1600 RiverEdge Parkway, NW, Suite 600
Atlanta, Georgia 30328

Telephone: +1.770.933.0280

www.atkinsglobal.com/northamerica

November 12, 2012

Ms. Katrina Morris
Georgia Department of Natural Resources (GDNR)
Nongame Conservation Section
2065 U.S. Hwy 278, SE
Social Circle, Georgia 30025-4743

RE: Species Element Occurrences Request for
SR 316 at CR 3929/Walther Boulevard Grade Separation;
GDOT Project PI # 0010425;
Gwinnett County, GA

Dear Ms. Morris:

Atkins is in the process of examining developmental and environmental constraints and conducting associated analyses and documentation for the above-referenced roadway grade separation project. The proposed project would replace the existing at-grade interchange with a grade-separated overpass, and will include the construction of sidewalks at the intersection of State Route 316 and County Road 3929/Walther Boulevard within Gwinnett County, Georgia.

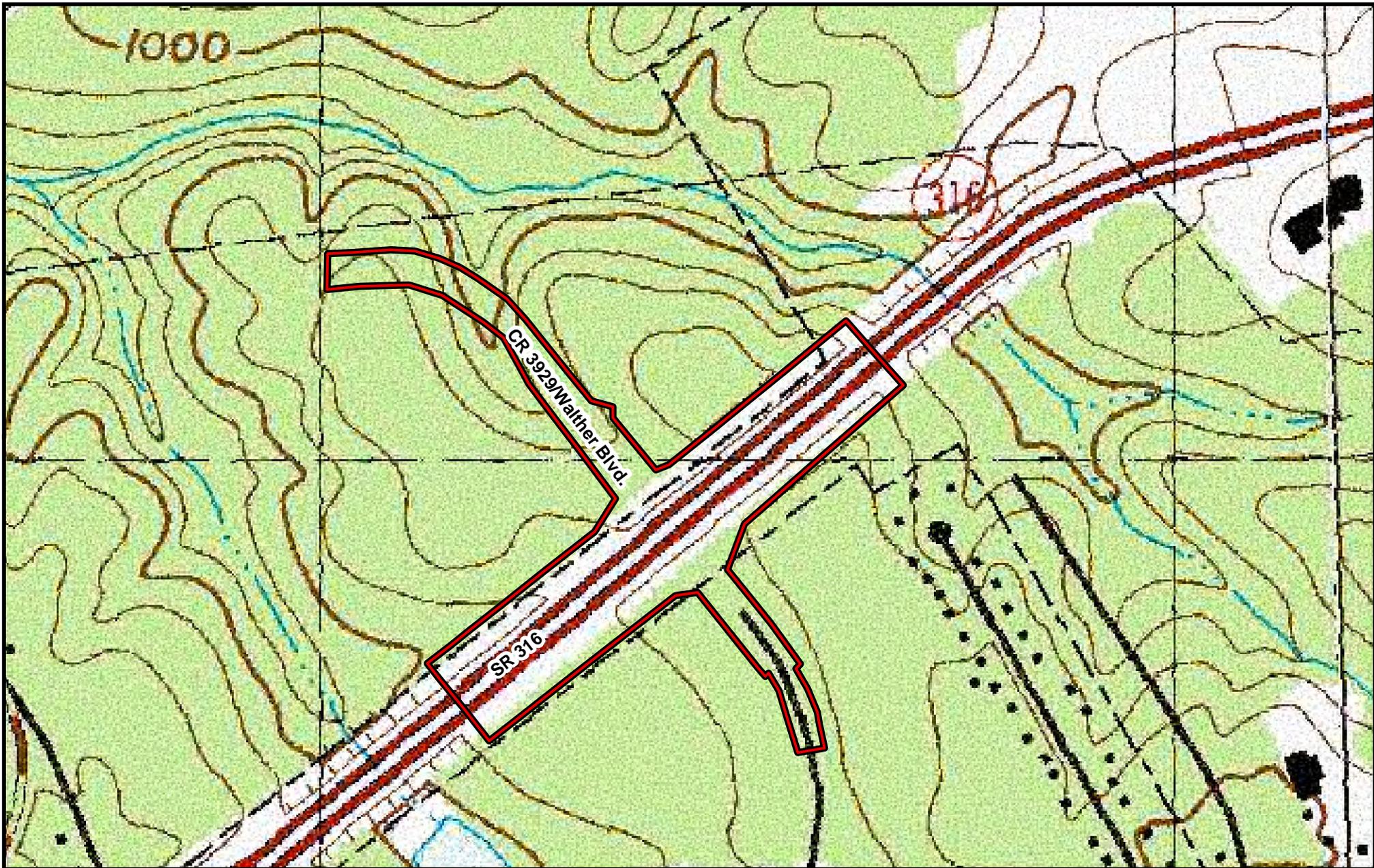
Please refer to the enclosed project location map for the full extent of the project corridor. The approximate latitude/longitude in decimal degrees at the center of the project corridor is: 33.972237, -84.008299.

The design alternatives for the project are being developed concurrently with environmental documentation and in compliance with applicable environmental laws and regulations. This process makes the project responsive to social, economic, and environmental concerns and offers you the opportunity to identify site-specific conditions to be addressed in the environmental assessment. We respectfully request assistance from the GDNR, in checking your Natural Heritage Database for species occurrences within or near the project corridor (within 3 miles) and providing our office with the location of any known species in the area.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 678.247.2469 or karen.warner@atkinsglobal.com.

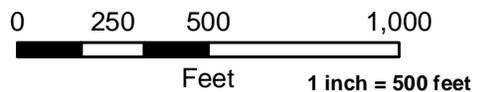
Sincerely,

Karen N. Warner, PWS
Senior Ecologist (**Enclosure**)



 Project Area

Source: USGS 7.5' Topographic
Quadrangle: Luxumni



**SR 316 at CR 3929/Walther Blvd -
Grade Separation; GDOT P.I. #
0010425; Gwinnett County, GA**

**Figure 1:
Project
Vicinity Map**





MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

December 11, 2012

Karen Warner
Senior Scientist
ATKINS
1600 RiverEdge Pkwy, NW
Suite 600
Atlanta, GA 30328

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near SR 316 at CR 3929 / Walther Boulevard Grade Separation, Gwinnett County, Georgia

Dear Ms. Warner:

This is in response to your request of November 12, 2012. There are no Natural Heritage Database records in our database within a three-mile radius of the project site.

Recommendations:

We have no records of high priority species or habitats within the project area. We are concerned about streams and other habitats that could be impacted by the proposed road improvement project. We recommend that stringent erosion control practices be used during construction activities and that vegetation is re-established on disturbed areas as quickly as possible. Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. Please use natural vegetation and grading techniques (e.g. vegetated swales, turn-offs, vegetated buffer strips) that will ensure that the road or ROW does not serve as a conduit for storm water or pollutants into the water during or after construction. These measures will help protect water quality in the vicinity of the project as well as in downstream areas.

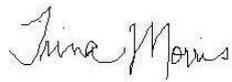
Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is

received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (<http://www.georgiawildlife.com/node/1376>) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,



Katrina Morris
Environmental Review Coordinator

Data Available on the Nongame Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit <http://www.georgiawildlife.com/node/2721>.
- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: <http://www.georgiawildlife.com/conservation/species-of-concern?cat=conservation>.
- Downloadable files of rare species and natural community data by quarter quad and county are also available. They can be downloaded from: <http://www.georgiawildlife.com/node/1370>.



U.S. Fish and Wildlife Service

Natural Resources of Concern

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

GEORGIA ECOLOGICAL SERVICES FIELD OFFICE
105 WESTPARK DRIVE
WESTPARK CENTER SUITE D
ATHENS, GA 30606
(706) 613-9493

Project Name:

SR 316/Walther

Project Counties:

Gwinnett, GA

Project Type:

Transportation

Endangered Species Act Species List ([USFWS Endangered Species Program](#)).

There are a total of 2 threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

Species that may be affected by your project:

Ferns and Allies	Status	Species Profile	Contact
------------------	--------	-----------------	---------



U.S. Fish and Wildlife Service

Natural Resources of Concern

Black Spored quillwort (<i>Isoetes melanospora</i>)	Endangered	species info	Georgia Ecological Services Field Office
Flowering Plants			
Little amphianthus (<i>Amphianthus pusillus</i>)	Threatened	species info	Georgia Ecological Services Field Office

FWS National Wildlife Refuges ([USFWS National Wildlife Refuges Program](#)).

There are no refuges found within the vicinity of your project.

FWS Migratory Birds ([USFWS Migratory Bird Program](#)).

Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. 703). Bald eagles and golden eagles receive additional protection under the [Bald and Golden Eagle Protection Act](#) (16 U.S.C. 668). The Service's [Birds of Conservation Concern \(2008\)](#) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

NWI Wetlands ([USFWS National Wetlands Inventory](#)).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate [U.S. Army Corps of Engineers District](#).



WILDLIFE RESOURCES DIVISION

Known occurrences of special concern plants, animals and natural communities Gwinnett County — Fips Code: 13135

Find details for these species at [Georgia Rare Species and Natural Community Data](#) and [NatureServe Explorer](#).

[US] indicates species with federal status (Protected or Candidate).
Species that are federally protected in Georgia are also state protected.
[GA] indicates Georgia protected species.
 link to species profile on our site (not available for all species).
 link to report for element on NatureServe Explorer (only available for animals and plants).

Plant Occurrences

- *Aesculus glabra* (Ohio Buckeye) 
- *Amphianthus pusillus* (Pool Sprite) **[US]**  
- *Amsonia ludoviciana* (Louisiana Blue Star) 
- *Cypripedium acaule* (Pink Ladyslipper) **[GA]**  
- *Cypripedium parviflorum* (Yellow Ladyslipper) **[GA]**  
- *Eriocaulon koernickianum* (Dwarf Hatpins) **[GA]**  
- *Eurybia avita* (Alexander Rock Aster) 
- *Fimbristylis brevivaginata* (Flatrock Fimbry)  
- *Hydrastis canadensis* (Goldenseal) **[GA]**  
- *Isoetes melanospora* (Black-spored Quillwort) **[US]**  
- *Panax quinquefolius* (American Ginseng) 
- *Schisandra glabra* (Bay Star-vine) **[GA]**  
- *Sedum pusillum* (Granite Stonecrop) **[GA]**  
- *Symphotrichum georgianum* (Georgia Aster) **[US]**  
- *Veratrum woodii* (Ozark Bunchflower) **[GA]**  
- *Waldsteinia lobata* (Barren Strawberry) **[GA]**  

Generated from Georgia DNR's NatureServe Biotics conservation database on October 12, 2011

APPENDIX C. BACKGROUND INFORMATION

History for Atlanta Dekalb, GA

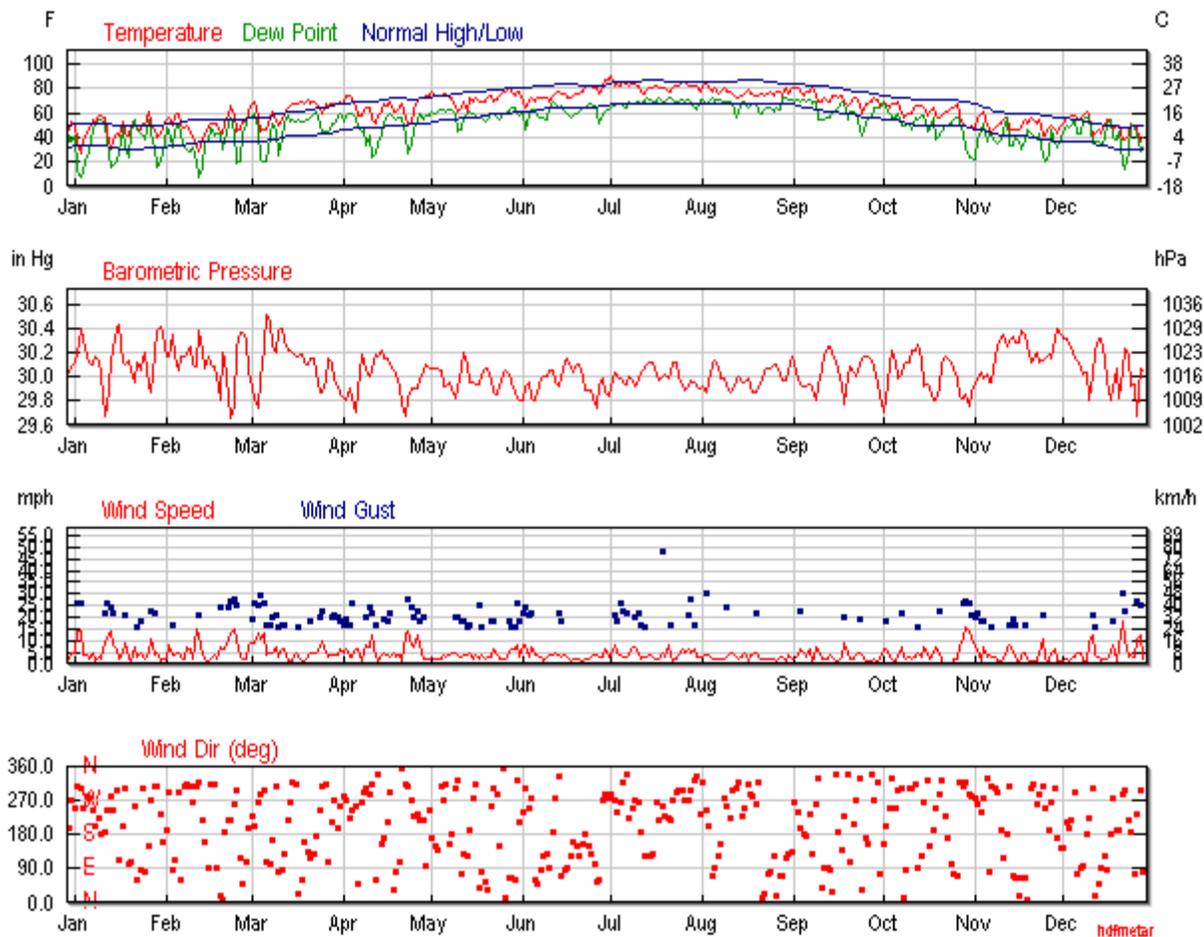
December 29, 2011 through December 28, 2012

December 29, 2011 through December 28, 2012

December 29 2011 - TO - December 28 2012

- Daily
- Weekly
- Monthly
- Custom**

	Max	Avg	Min	Sum
Temperature				
Max Temperature	105 °F	74 °F	33 °F	
Mean Temperature	91 °F	64 °F	27 °F	
Min Temperature	78 °F	54 °F	19 °F	
Degree Days				
Heating Degree Days (base 65)	38	6	0	2326
Cooling Degree Days (base 65)	26	5	0	1838
Growing Degree Days (base 50)	41	15	0	5428
Dew Point				
Dew Point	77 °F	51 °F	2 °F	
Precipitation				
Precipitation	2.53 in	0.08 in	0.00 in	28.98 in
Snowdepth	-	-	-	-
Wind				
Wind	30 mph	4 mph	0 mph	
Gust Wind	58 mph	21 mph	15 mph	
Sea Level Pressure				
Sea Level Pressure	30.61 in	30.05 in	29.49 in	



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Observations

2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Dec	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
29	55	41	27	34	29	24	89	69	38	30.15	30.09	30.01	10	10	8	9	2	-	0.00	
30	62	48	34	49	41	31	93	82	58	30.12	30.04	29.94	10	8	2	14	2	18	0.00	Rain
31	63	53	39	47	37	31	83	62	31	30.17	30.09	29.97	10	10	8	8	5	-	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Jan	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	64	50	37	55	42	29	89	73	40	30.19	30.13	30.03	10	7	2	17	5	24	0.00	Rain
2	44	37	28	29	13	6	55	37	23	30.29	30.19	30.11	10	10	10	22	14	36	0.00	
3	33	27	21	10	7	2	55	43	34	30.50	30.41	30.30	10	10	10	22	14	36	0.00	
4	51	36	21	18	12	5	66	42	19	30.45	30.33	30.20	10	10	10	14	4	-	0.00	
5	57	44	30	32	25	18	79	50	25	30.24	30.18	30.15	10	10	9	12	4	20	0.00	
6	64	46	28	32	27	21	85	54	20	30.20	30.12	30.07	10	10	9	9	2	-	0.00	
7	64	54	44	54	48	32	97	80	60	30.14	30.10	30.04	10	8	0	14	5	20	0.27	Fog , Rain , Thunderstorm
8	59	52	44	56	50	44	100	94	83	30.23	30.17	30.13	7	2	0	7	1	-	0.10	Fog , Rain
9	66	58	51	57	54	48	100	88	68	30.20	30.14	30.06	10	6	0	13	3	-	0.07	Fog , Rain
10	62	58	53	56	54	50	100	90	69	30.10	30.02	29.86	10	5	0	12	2	18	0.10	Fog , Rain
11	63	56	48	56	49	41	94	81	64	29.83	29.67	29.55	10	8	2	20	10	32	0.24	Rain , Thunderstorm
12	57	44	28	46	38	17	87	70	54	29.96	29.74	29.61	10	10	6	28	11	39	0.01	Rain
13	36	30	25	18	15	13	60	55	46	30.25	30.12	29.98	10	10	10	22	14	31	0.00	

Comma Delimited File

2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
14	50	38	25	20	17	13	69	45	26	30.34	30.24	30.16	10	10	10	15	8	23	0.00	
15	52	43	34	25	21	13	64	46	22	30.49	30.41	30.22	10	10	10	9	6	-	0.00	
16	55	42	30	30	27	22	76	51	37	30.54	30.44	30.34	10	10	10	9	2	-	0.00	
17	62	53	44	56	48	31	90	80	52	30.32	30.12	29.97	10	8	4	16	5	23	0.18	Rain
18	53	43	32	50	30	22	89	67	42	30.16	30.10	29.99	10	9	6	15	9	23	0.14	Rain
19	54	41	28	30	24	22	81	54	29	30.22	30.14	30.06	10	10	9	9	2	-	0.00	
20	55	48	42	54	45	30	100	86	50	30.12	30.05	29.99	10	5	0	6	1	-	0.15	Fog , Rain
21	62	55	48	58	54	46	94	88	77	30.06	29.95	29.89	10	7	0	24	7	38	1.14	Fog , Rain , Thunderstorm
22	52	47	42	51	46	39	97	93	87	30.20	30.12	30.05	6	2	0	10	3	16	0.01	Fog , Rain
23	50	46	42	48	44	39	96	92	87	30.13	30.05	30.00	10	2	0	10	5	21	0.08	Fog , Rain
24	61	52	42	48	41	30	100	76	31	30.25	30.16	30.07	10	6	0	9	3	-	0.00	Fog
25	64	50	35	45	39	32	89	64	41	30.29	30.20	30.13	10	10	10	7	2	-	0.00	
26	69	61	53	59	55	45	100	86	61	30.12	29.93	29.71	10	6	0	16	5	25	0.00	Fog , Rain
27	61	52	37	55	44	33	89	75	49	30.08	29.87	29.69	10	10	5	21	11	29	0.00	Rain
28	60	46	33	38	32	17	92	63	37	30.31	30.19	30.07	10	9	4	16	4	24	0.00	
29	53	40	28	21	15	5	72	40	16	30.45	30.39	30.32	10	10	10	12	5	-	0.00	
30	60	44	28	26	21	13	81	47	16	30.48	30.42	30.38	10	10	10	10	1	-	0.00	
31	64	48	33	36	27	16	78	49	16	30.43	30.35	30.29	10	10	7	9	2	-	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Feb	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	64	55	46	54	48	37	100	81	47	30.29	30.17	30.11	10	6	1	9	2	-	0.15	Rain

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
2	66	57	45	54	47	34	94	71	37	30.29	30.18	30.09	10	9	5	14	8	20	0.00	
3	60	50	41	36	32	27	82	47	31	30.41	30.35	30.29	10	10	10	9	4	18	0.00	
4	68	58	48	55	46	35	93	67	53	30.28	30.18	30.02	10	9	4	9	4	-	0.10	Rain
5	66	60	51	56	52	44	94	81	49	30.12	30.06	30.00	10	9	2	13	5	-	0.00	
6	55	50	42	45	41	37	89	72	57	30.23	30.17	30.12	10	10	7	9	3	-	0.00	
7	60	48	37	39	32	21	89	59	23	30.22	30.17	30.13	10	9	6	8	2	-	0.00	
8	57	49	39	32	30	28	65	51	36	30.26	30.19	30.14	10	10	10	18	7	26	0.00	
9	52	44	35	31	28	25	79	58	38	30.32	30.25	30.21	10	10	8	10	6	-	0.00	
10	50	42	35	34	32	30	87	66	46	30.20	30.10	29.99	10	8	6	9	2	-	0.00	
11	45	34	23	34	20	5	70	54	38	30.38	30.09	29.90	10	10	10	28	15	38	0.00	
12	39	29	19	12	7	5	57	42	27	30.47	30.39	30.30	10	10	10	16	12	25	0.00	
13	53	38	23	28	14	10	69	40	18	30.34	30.23	30.13	10	10	8	8	4	-	0.01	Rain
14	46	42	37	40	37	33	93	84	76	30.16	30.08	30.02	9	6	4	8	2	-	0.18	Rain
15	64	48	33	41	36	30	100	76	37	30.24	30.17	30.12	10	5	0	7	1	-	0.00	Fog
16	59	52	46	54	48	41	94	87	64	30.17	30.11	30.06	10	5	0	12	2	-	0.23	Fog , Rain
17	64	52	41	46	41	36	93	69	36	30.16	30.09	30.05	10	9	7	8	4	-	0.00	
18	60	52	44	49	44	40	92	77	57	30.09	30.01	29.87	10	9	4	10	2	20	0.40	Rain
19	52	44	37	49	43	32	94	88	76	30.03	29.80	29.68	10	6	2	17	7	29	0.12	Rain
20	55	44	33	33	31	28	89	64	38	30.26	30.20	30.06	10	9	5	12	6	-	0.00	
21	62	52	41	47	38	31	80	64	51	30.27	30.16	30.05	10	10	10	14	6	21	0.01	Rain
22	64	58	51	55	50	47	89	75	54	30.04	29.84	29.65	10	9	4	20	10	29	0.00	
23	75	66	57	58	56	51	93	72	43	29.73	29.66	29.58	10	9	5	24	13	33	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
24	70	58	43	62	45	10	83	57	17	30.11	29.76	29.62	10	9	6	25	15	38	0.02	
25	53	45	37	23	19	15	54	38	23	30.34	30.25	30.14	10	10	10	21	10	29	0.00	
26	59	47	35	26	21	17	64	37	22	30.45	30.38	30.33	10	10	9	10	3	-	0.00	
27	64	54	44	47	43	28	93	75	40	30.43	30.38	30.31	10	7	2	6	2	-	0.00	
28	60	52	44	55	51	42	94	85	69	30.38	30.31	30.24	10	7	2	8	2	-	0.22	Rain
29	68	62	57	63	58	55	94	84	70	30.23	30.06	29.91	10	8	2	20	8	28	0.28	Rain , Thunderstorm
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Mar	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	75	67	59	61	57	47	94	79	36	29.97	29.91	29.83	10	9	5	15	9	21	0.01	Rain , Thunderstorm
2	75	69	63	61	60	56	90	76	50	29.90	29.80	29.66	10	9	7	22	9	37	0.03	Rain , Thunderstorm
3	66	56	46	63	47	23	94	74	32	29.86	29.74	29.64	10	6	1	23	13	34	2.53	Rain , Thunderstorm
4	51	45	39	25	22	18	57	41	28	30.10	29.98	29.82	10	10	10	26	11	38	0.00	
5	55	47	36	28	21	16	57	36	22	30.50	30.26	30.01	10	10	10	24	13	33	0.00	
6	60	46	33	25	20	17	70	36	21	30.61	30.53	30.46	10	10	10	12	4	18	0.00	
7	64	56	48	48	42	28	77	61	44	30.55	30.47	30.37	10	10	8	12	5	17	0.00	
8	73	62	51	55	51	48	94	68	44	30.36	30.25	30.08	10	9	7	13	5	22	0.00	Rain
9	60	53	46	57	47	27	94	77	35	30.33	30.21	30.15	10	8	2	17	7	24	0.56	Rain
10	64	50	35	31	26	22	85	43	19	30.45	30.39	30.33	10	10	10	10	3	16	0.00	
11	66	54	42	50	39	26	67	54	41	30.50	30.41	30.34	10	10	9	9	6	17	0.00	
12	64	60	57	57	53	50	93	78	67	30.36	30.30	30.24	10	9	6	10	6	17	0.02	Rain

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
13	75	65	57	63	58	55	96	87	57	30.27	30.23	30.16	10	7	2	6	1	-	0.03	Rain , Thunderstorm
14	81	66	53	62	53	49	100	80	35	30.29	30.22	30.15	10	4	0	5	1	17	0.00	Fog , Thunderstorm
15	82	68	53	62	54	50	90	67	33	30.28	30.21	30.15	10	10	7	7	1	-	0.03	Thunderstorm
16	82	68	55	55	53	50	84	59	36	30.26	30.18	30.09	10	10	10	14	5	22	0.00	Thunderstorm
17	82	68	57	56	54	50	87	65	37	30.26	30.18	30.12	10	10	9	10	3	16	0.00	
18	82	70	59	57	53	48	87	57	30	30.29	30.19	30.12	10	9	6	6	1	-	0.00	
19	82	68	55	57	53	50	90	58	34	30.20	30.13	30.07	10	9	6	6	1	-	0.00	
20	82	71	60	57	54	51	83	57	35	30.16	30.10	30.06	10	9	6	12	3	21	0.00	
21	77	68	60	59	56	54	90	69	50	30.23	30.16	30.11	10	9	7	13	5	18	0.00	
22	77	70	64	61	60	57	88	74	53	30.21	30.16	30.08	10	9	4	9	5	-	0.00	Rain , Thunderstorm
23	73	68	64	63	61	57	90	78	63	30.12	30.04	29.93	10	9	6	20	5	25	0.01	
24	73	63	53	61	52	39	90	66	33	29.95	29.88	29.78	10	10	6	15	7	24	0.02	Rain
25	73	60	48	48	44	42	86	60	34	29.93	29.88	29.83	10	10	10	17	10	30	0.00	
26	82	67	53	50	45	35	80	49	19	30.05	29.98	29.91	10	10	10	9	5	-	0.00	
27	77	66	54	47	43	37	77	47	30	30.26	30.15	30.03	10	10	10	9	3	16	0.00	
28	81	68	55	56	51	44	94	65	31	30.21	30.13	30.01	10	8	4	16	4	21	0.00	
29	80	67	55	55	52	49	78	57	37	30.03	29.98	29.90	10	10	7	13	4	21	0.00	
30	81	68	54	61	56	47	94	74	36	29.99	29.92	29.86	10	9	3	14	4	23	0.00	Rain , Thunderstorm
31	78	70	62	61	59	55	94	80	47	29.92	29.86	29.78	10	8	2	10	6	18	0.00	Rain
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	Apr	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum
1	82	68	54	58	53	47	90	58	33	29.92	29.83	29.78	10	10	9	14	5	17	0.00	
2	86	74	62	61	58	54	84	60	35	29.89	29.81	29.76	10	10	8	14	6	23	0.00	
3	86	74	63	63	59	49	90	68	29	29.95	29.90	29.81	10	8	2	12	3	17	0.37	Rain
4	82	71	60	62	59	53	100	78	37	29.92	29.82	29.69	10	6	2	20	3	34	0.61	Rain , Thunderstorm
5	73	66	61	61	57	51	90	73	49	29.75	29.70	29.64	10	10	8	12	6	-	0.01	
6	66	58	52	54	48	41	81	69	43	30.10	29.89	29.70	10	10	10	10	6	16	0.00	
7	72	58	45	49	45	42	93	65	36	30.27	30.19	30.12	10	10	7	8	1	-	0.00	
8	77	62	50	49	46	42	89	57	32	30.21	30.14	30.06	10	10	9	15	5	21	0.00	
9	78	65	52	44	34	21	66	36	12	30.13	30.06	29.99	10	10	10	13	8	21	0.00	
10	78	64	50	49	41	37	68	47	26	30.08	30.01	29.96	10	10	10	20	7	29	0.00	
11	64	55	46	36	23	16	44	30	17	30.13	30.06	29.98	10	10	10	20	12	28	0.00	
12	64	52	41	36	27	22	66	41	23	30.26	30.19	30.13	10	10	7	8	3	17	0.00	
13	73	58	42	40	35	29	85	48	20	30.22	30.18	30.15	10	10	7	6	1	-	0.00	
14	75	62	48	44	41	38	77	46	27	30.30	30.22	30.16	10	10	10	14	4	18	0.00	
15	81	68	55	61	53	39	83	61	43	30.23	30.16	30.11	10	10	9	15	5	22	0.00	
16	75	66	59	62	58	55	87	74	59	30.23	30.16	30.09	10	10	8	15	4	18	0.02	Rain
17	81	70	59	63	60	57	94	79	45	30.21	30.11	30.04	10	7	0	13	3	30	0.56	Fog , Rain , Thunderstorm
18	66	62	57	59	57	54	94	88	77	30.08	30.05	30.01	10	7	2	9	5	-	0.99	Rain , Thunderstorm
19	69	62	55	57	54	51	90	77	63	30.07	30.02	29.96	10	9	4	6	3	-	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
20	69	64	59	58	56	55	90	81	68	30.00	29.93	29.83	10	8	3	7	4	-	0.00	
21	75	68	60	59	57	54	94	75	50	29.87	29.77	29.68	10	7	2	10	1	-	0.00	Rain
22	64	57	50	54	42	32	83	59	35	29.77	29.68	29.64	10	10	10	24	12	36	0.03	
23	59	50	43	33	27	21	61	42	27	29.91	29.82	29.75	10	10	10	24	14	33	0.00	
24	66	52	39	41	33	25	68	47	30	29.94	29.91	29.87	10	10	10	20	8	29	0.00	
25	81	63	46	56	48	41	80	56	43	29.95	29.90	29.85	10	10	10	17	7	22	0.00	
26	82	71	60	56	53	51	82	54	35	29.96	29.91	29.84	10	10	10	20	12	30	0.00	
27	82	73	64	64	60	55	81	65	51	30.06	29.99	29.92	10	9	7	15	8	20	0.00	
28	84	72	60	62	55	46	94	59	26	30.09	30.04	30.00	10	8	3	12	2	23	0.00	
29	88	74	61	61	58	51	90	67	29	30.18	30.11	30.04	10	8	2	7	2	-	0.00	
30	89	74	61	62	58	56	90	58	35	30.15	30.08	30.04	10	10	7	8	2	16	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
May	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	88	78	69	63	61	59	76	59	39	30.17	30.07	30.00	10	10	9	8	3	-	0.00	
2	88	75	63	63	59	56	87	58	35	30.13	30.07	30.02	10	10	9	7	2	-	0.00	
3	84	75	66	64	61	57	81	65	44	30.12	30.08	30.04	10	10	9	15	2	21	0.00	
4	84	75	66	65	63	60	90	74	46	30.16	30.06	29.97	10	9	2	7	2	-	0.30	Rain
5	88	76	64	66	63	60	90	66	41	30.00	29.93	29.86	10	9	5	12	4	20	0.00	
6	89	76	66	64	61	57	87	64	37	30.01	29.93	29.86	10	9	2	10	3	-	0.15	Rain , Thunderstorm
7	79	72	66	66	63	61	88	75	56	30.02	29.95	29.88	10	9	6	9	4	-	0.03	Rain , Thunderstorm

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
8	81	73	66	67	63	61	94	78	52	29.97	29.90	29.81	10	9	2	15	5	18	0.13	Rain , Thunderstorm
9	69	64	55	64	59	49	90	80	54	29.87	29.83	29.78	10	8	5	15	5	23	0.11	Rain
10	73	62	50	51	45	40	92	58	30	29.96	29.91	29.86	10	10	7	14	4	28	0.00	
11	77	64	50	48	46	42	86	52	32	30.14	30.08	29.98	10	10	10	10	3	18	0.00	
12	77	69	63	62	57	47	88	68	48	30.31	30.21	30.14	10	9	6	14	4	18	0.02	Rain
13	66	62	57	63	59	55	94	89	75	30.20	30.11	29.99	10	5	2	12	4	17	1.01	Rain
14	80	72	64	63	62	60	94	80	52	30.00	29.96	29.88	10	9	2	10	5	17	0.02	Rain
15	79	70	60	64	60	57	100	77	50	30.02	29.96	29.91	10	8	0	10	2	-	0.00	Fog
16	82	72	61	61	57	52	93	63	38	29.98	29.94	29.89	10	10	8	14	4	21	0.00	
17	84	70	59	62	56	52	87	64	34	30.00	29.94	29.89	10	9	7	15	2	25	0.01	Rain , Thunderstorm
18	80	70	62	59	57	54	86	63	42	30.09	30.02	29.98	10	10	9	10	4	16	0.00	
19	82	70	59	56	53	48	90	57	31	30.14	30.07	30.02	10	9	7	13	2	-	0.00	
20	84	72	61	64	54	46	87	56	36	30.15	30.07	30.00	10	10	5	12	3	20	0.04	Rain , Thunderstorm
21	84	74	63	64	60	54	90	68	38	30.06	29.98	29.91	10	9	6	15	3	18	0.14	Rain , Thunderstorm
22	79	70	62	63	59	54	94	70	51	29.96	29.87	29.82	10	9	6	16	6	20	0.01	Rain , Thunderstorm
23	82	71	60	60	57	53	90	62	37	29.89	29.86	29.82	10	10	6	10	4	-	0.00	
24	88	74	61	62	55	49	86	56	27	29.97	29.92	29.87	10	9	7	7	2	-	0.00	
25	91	78	66	63	60	55	84	54	30	30.08	30.03	29.95	10	10	9	7	2	-	0.00	
26	91	78	66	66	60	52	90	53	29	30.12	30.06	30.00	10	9	6	10	2	16	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
27	89	80	72	63	61	59	73	53	37	30.09	30.02	29.97	10	10	9	13	5	20	0.00	
28	87	78	71	70	64	62	78	67	44	30.05	29.96	29.88	10	10	10	9	6	17	0.04	
29	82	74	69	68	65	63	88	73	56	29.97	29.88	29.79	10	9	4	10	6	16	0.16	Rain
30	91	78	66	65	60	50	90	66	25	29.89	29.82	29.76	10	10	7	21	8	26	0.04	Rain
31	91	77	63	62	58	48	87	56	24	29.86	29.81	29.74	10	10	9	14	3	21	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Jun	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	78	70	63	66	61	49	94	74	45	29.87	29.81	29.75	10	8	0	18	8	26	0.48	Fog , Rain
2	77	65	55	52	46	41	77	52	29	29.96	29.92	29.87	10	10	10	17	8	26	0.00	
3	84	70	57	66	58	52	87	63	45	30.04	29.95	29.86	10	10	10	13	3	24	0.00	
4	80	72	66	66	63	61	88	73	56	29.92	29.83	29.76	10	10	5	14	7	28	0.14	Rain , Thunderstorm
5	73	70	66	66	63	60	94	82	64	29.85	29.80	29.70	10	9	2	8	4	-	0.14	Rain , Thunderstorm
6	82	72	62	61	58	52	88	69	37	29.95	29.87	29.81	10	10	8	9	4	-	0.00	
7	84	72	63	61	56	50	87	61	35	30.06	29.99	29.94	10	10	10	9	3	-	0.00	
8	84	73	62	61	57	54	84	59	36	30.09	30.01	29.95	10	10	9	7	1	-	0.00	
9	84	73	62	59	54	48	84	53	29	30.06	30.01	29.96	10	10	9	12	3	21	0.00	
10	73	70	66	67	64	57	94	89	59	30.10	30.05	29.99	10	6	2	7	4	-	1.02	Rain
11	80	74	68	72	69	64	94	89	71	30.10	30.05	29.98	10	7	1	10	4	-	0.69	Rain , Thunderstorm
12	84	76	69	70	67	63	94	77	52	30.02	29.95	29.88	10	9	5	13	5	23	0.00	
13	90	78	66	70	65	62	94	67	39	29.98	29.92	29.86	10	9	2	14	4	22	0.25	Rain , Thunderstorm

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
14	84	76	70	69	66	61	93	73	54	30.09	30.01	29.93	10	9	6	10	3	20	0.00	
15	82	76	69	64	62	60	76	64	48	30.19	30.12	30.04	10	10	10	8	4	-	0.00	
16	82	72	63	61	59	57	90	65	47	30.23	30.16	30.09	10	10	10	9	3	-	0.00	
17	84	72	59	61	56	49	96	59	31	30.15	30.08	29.98	10	10	7	6	1	-	0.00	
18	87	75	63	60	58	56	84	58	35	30.11	30.04	29.99	10	9	7	7	2	-	0.00	
19	88	76	64	62	59	55	84	57	35	30.16	30.11	30.07	10	9	7	7	2	-	0.00	
20	88	76	64	64	62	59	90	60	41	30.18	30.11	30.05	10	10	8	9	2	-	0.00	
21	91	78	66	66	64	62	90	62	40	30.10	30.01	29.90	10	9	7	6	1	-	0.00	
22	93	80	68	70	65	61	90	65	35	29.95	29.89	29.81	10	8	2	14	2	18	0.09	Rain
23	93	82	72	70	67	63	93	64	37	29.96	29.89	29.85	10	9	7	9	2	-	0.01	
24	93	82	73	70	68	65	87	64	42	29.95	29.89	29.83	10	9	7	8	3	-	0.00	Rain
25	93	81	71	69	66	60	90	62	35	29.85	29.77	29.66	10	10	10	9	4	-	0.00	
26	89	81	73	68	59	49	84	51	25	29.83	29.74	29.68	10	10	7	12	4	23	0.00	
27	89	76	64	59	52	50	64	44	27	30.00	29.94	29.83	10	10	10	9	3	-	0.00	
28	99	81	64	64	60	57	84	51	26	30.08	29.99	29.94	10	10	9	9	3	16	0.00	
29	102	88	75	66	61	54	71	43	20	29.93	29.88	29.80	10	10	8	10	6	-	0.00	
30	105	88	73	67	63	56	73	44	20	29.89	29.84	29.80	10	8	7	9	3	-	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Jul	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	105	91	78	68	65	60	71	46	24	30.03	29.92	29.85	8	7	6	12	4	25	0.00	
2	91	82	73	68	66	63	73	58	45	30.10	30.04	29.96	10	9	7	16	8	24	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
3	98	84	71	72	67	60	94	71	30	30.07	30.00	29.89	10	7	1	18	5	18	0.05	Rain , Thunderstorm
4	96	82	70	70	67	63	97	68	34	30.06	29.99	29.94	10	8	4	16	4	29	0.13	Thunderstorm
5	98	85	72	70	66	62	91	57	30	30.04	29.95	29.86	10	9	5	13	3	23	0.01	Thunderstorm
6	97	84	73	68	65	61	79	59	32	29.97	29.94	29.88	10	10	10	9	3	22	0.01	
7	93	83	73	74	70	67	94	71	44	30.06	30.00	29.94	10	9	7	13	4	-	0.00	Thunderstorm
8	96	84	73	77	68	63	85	59	41	30.05	29.98	29.89	10	10	8	13	7	20	0.00	
9	95	84	72	71	68	65	93	62	38	30.02	29.93	29.84	10	9	2	17	7	26	0.00	Rain , Thunderstorm
10	93	82	71	72	69	65	96	77	41	30.07	29.97	29.87	10	10	6	10	5	22	0.02	Rain , Thunderstorm
11	90	78	69	72	68	61	100	79	40	30.11	30.04	29.96	10	8	0	12	2	17	1.21	Fog , Rain , Thunderstorm
12	84	76	69	72	70	67	100	89	56	30.14	30.08	30.00	10	8	2	9	3	16	0.59	Rain , Thunderstorm
13	88	79	71	74	72	69	97	87	55	30.16	30.10	30.04	10	8	2	8	3	-	0.11	Rain , Thunderstorm
14	88	80	73	73	71	67	100	81	53	30.21	30.12	30.05	10	9	4	8	4	16	0.02	Rain
15	89	80	73	72	70	65	93	71	48	30.23	30.12	30.05	10	10	10	8	3	-	0.00	Thunderstorm
16	93	82	72	72	70	67	97	73	45	30.13	30.03	29.96	10	10	8	10	2	-	0.00	
17	90	80	73	74	72	68	97	84	60	30.01	29.97	29.94	10	9	6	9	2	22	0.00	Rain
18	91	80	71	73	70	66	100	83	55	30.08	30.00	29.94	10	9	2	30	5	48	0.69	Rain , Thunderstorm
19	90	80	71	73	70	68	100	76	50	30.10	30.02	29.95	10	9	4	9	3	-	0.00	
20	82	78	73	74	72	71	94	82	69	30.07	29.99	29.94	10	8	2	22	8	39	0.06	Rain , Thunderstorm

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
21	86	78	73	77	73	70	97	87	65	30.10	30.03	29.96	10	6	1	12	4	17	0.34	Rain , Thunderstorm
22	91	80	71	74	71	66	100	82	48	30.23	30.13	30.08	10	7	2	7	1	-	0.00	
23	93	82	72	72	70	68	97	69	44	30.18	30.12	30.05	10	10	8	9	2	-	0.00	
24	91	82	73	72	70	68	93	65	45	30.07	30.01	29.93	10	10	7	14	4	20	0.00	
25	95	85	77	73	71	67	82	63	42	29.99	29.93	29.88	10	10	9	10	6	-	0.00	
26	95	85	75	72	70	68	85	61	41	29.95	29.89	29.84	10	10	9	12	5	37	0.00	
27	93	83	75	73	71	69	85	68	48	30.02	29.93	29.88	10	10	8	13	6	21	0.00	Rain
28	95	83	73	71	68	63	85	63	36	30.02	29.97	29.92	10	10	10	10	5	28	0.00	
29	91	82	73	69	64	58	87	57	34	30.00	29.96	29.92	10	10	10	12	6	17	0.00	
30	93	82	70	68	63	56	81	54	30	29.96	29.92	29.88	10	10	10	10	3	-	0.00	
31	86	78	73	74	71	66	96	79	57	29.98	29.91	29.85	10	8	0	8	3	-	0.17	Rain
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Aug	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	93	83	73	73	71	65	96	78	38	29.99	29.92	29.85	10	8	3	13	3	21	0.00	Thunderstorm
2	96	84	72	70	67	63	87	63	36	29.97	29.88	29.81	10	9	2	18	4	32	0.00	Rain , Thunderstorm
3	90	80	70	71	69	66	93	75	48	30.03	29.96	29.88	10	9	6	10	4	-	0.00	Rain , Thunderstorm
4	82	78	73	74	72	69	94	87	76	30.17	30.10	29.99	10	8	5	5	2	-	0.00	Rain
5	90	80	71	72	70	66	100	78	48	30.23	30.14	30.06	10	10	7	8	2	21	0.00	
6	84	76	71	72	71	70	100	86	67	30.16	30.09	29.98	10	9	2	10	2	-	0.00	Rain
7	84	78	73	72	71	70	94	79	65	30.06	29.99	29.93	10	10	8	8	2	-	0.00	Thunderstorm

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
8	93	80	70	72	69	63	100	73	42	30.06	29.99	29.91	10	9	6	10	2	17	0.00	Thunderstorm
9	87	78	69	75	69	64	100	83	59	30.03	29.93	29.85	10	8	0	22	3	26	1.32	Fog , Rain , Thunderstorm
10	86	78	71	71	69	66	96	85	63	29.93	29.87	29.79	10	8	6	9	5	-	0.00	
11	84	76	69	72	67	57	100	79	49	29.95	29.89	29.83	10	9	5	13	5	20	0.04	Rain , Thunderstorm
12	86	72	60	60	57	51	93	62	34	30.02	29.98	29.95	10	10	10	10	3	-	0.00	
13	87	72	59	72	62	56	100	77	36	30.06	30.01	29.97	10	8	2	14	2	-	0.17	Rain
14	86	75	66	73	69	65	100	85	63	30.02	29.95	29.87	10	8	1	10	3	21	0.46	Rain , Thunderstorm
15	82	76	71	72	69	65	100	82	58	30.03	29.96	29.90	10	8	4	10	5	-	0.01	
16	89	79	69	69	64	58	93	65	38	30.03	29.99	29.91	10	9	5	8	1	-	0.00	
17	84	76	70	69	66	61	91	72	50	29.98	29.92	29.87	10	10	6	10	4	-	0.00	
18	84	76	69	68	67	65	93	75	53	29.95	29.88	29.83	10	10	8	10	4	16	0.01	
19	81	74	69	70	68	65	100	85	62	29.93	29.87	29.83	10	9	2	15	5	22	0.12	Rain
20	84	74	66	69	62	54	97	71	38	29.95	29.90	29.86	10	8	5	7	3	-	0.00	
21	88	76	63	66	60	53	94	65	32	30.02	29.98	29.94	10	10	9	12	2	-	0.00	
22	86	74	66	65	63	58	90	70	46	30.09	30.05	30.01	10	10	8	10	2	-	0.00	
23	88	76	66	68	64	57	96	76	37	30.13	30.08	30.03	10	8	2	9	2	26	0.10	Rain , Thunderstorm
24	87	78	68	68	64	60	96	70	43	30.13	30.08	30.01	10	10	8	7	2	-	0.00	
25	88	75	64	65	62	59	90	64	40	30.17	30.10	30.05	10	10	7	6	2	-	0.00	
26	91	78	66	67	64	59	94	64	34	30.17	30.10	30.02	10	9	6	8	1	-	0.00	
27	90	78	66	72	63	60	94	61	38	30.11	30.03	29.94	10	10	7	12	3	21	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
28	77	74	73	74	72	70	100	95	87	30.03	29.98	29.93	10	7	2	7	3	-	0.53	Rain
29	87	80	73	74	72	69	100	83	59	30.04	29.97	29.90	10	9	6	5	1	-	0.00	
30	81	76	71	73	71	70	94	85	71	30.15	30.06	29.95	10	10	8	12	4	-	0.00	
31	88	80	73	72	71	68	96	81	53	30.27	30.18	30.11	10	10	8	6	2	-	0.01	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Sep	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	91	81	72	72	70	68	97	74	50	30.20	30.11	30.03	10	9	6	8	2	-	0.00	
2	91	80	71	75	71	69	96	74	50	30.09	29.99	29.91	10	10	2	13	4	20	0.09	Rain , Thunderstorm
3	86	78	73	72	70	67	93	79	59	29.99	29.94	29.89	10	10	8	14	6	26	0.00	
4	78	74	71	73	71	70	94	90	78	29.97	29.92	29.88	10	9	2	9	5	-	0.08	Rain
5	84	78	71	72	70	69	94	84	61	30.00	29.93	29.86	10	10	10	8	3	-	0.00	
6	84	78	73	73	71	71	94	83	65	30.03	29.94	29.87	10	10	7	10	6	25	0.00	
7	93	80	68	71	68	61	100	74	37	29.97	29.90	29.81	10	7	0	5	0	-	0.00	Fog
8	84	74	66	73	69	59	91	81	69	29.86	29.81	29.75	10	10	6	14	7	18	0.25	Rain
9	82	70	57	58	54	48	94	62	32	30.01	29.92	29.85	10	10	10	14	6	-	0.00	
10	84	70	57	58	54	51	87	59	34	30.12	30.07	30.01	10	10	10	7	2	-	0.00	
11	82	72	63	58	55	52	81	60	39	30.25	30.18	30.11	10	10	10	7	2	-	0.00	
12	81	70	61	59	57	52	90	66	39	30.32	30.26	30.21	10	10	9	12	2	17	0.00	
13	80	70	61	60	56	53	83	62	42	30.31	30.25	30.19	10	10	10	7	4	-	0.00	
14	82	74	66	64	60	56	90	64	43	30.26	30.19	30.14	10	10	10	8	3	-	0.00	
15	84	74	64	63	61	57	90	65	40	30.18	30.12	30.07	10	10	10	5	1	-	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
16	86	73	64	69	64	60	97	74	46	30.12	30.06	30.00	10	9	2	9	1	-	0.13	Rain
17	81	74	68	72	69	66	100	90	69	30.06	29.94	29.80	10	7	2	9	3	17	0.41	Rain
18	78	70	63	70	67	56	100	89	62	29.93	29.77	29.70	10	8	0	16	9	23	0.85	Rain , Thunderstorm
19	81	66	53	60	54	50	90	68	35	30.07	30.01	29.93	10	10	9	9	5	-	0.00	
20	77	68	62	63	61	60	96	83	58	30.15	30.09	30.02	10	9	7	7	2	-	0.00	
21	82	72	62	66	62	57	97	76	42	30.11	30.04	29.96	10	8	3	9	2	-	0.00	
22	84	73	62	63	60	52	97	68	43	30.05	30.00	29.95	10	9	6	15	4	18	0.00	
23	79	66	52	52	46	38	93	52	25	30.14	30.11	30.05	10	10	10	14	5	21	0.00	
24	77	60	45	47	42	38	86	52	29	30.21	30.16	30.13	10	10	10	9	4	-	0.00	
25	81	67	54	59	52	46	80	62	38	30.22	30.17	30.14	10	10	10	8	1	-	0.00	
26	84	68	55	58	56	54	97	67	37	30.24	30.17	30.12	10	10	7	6	1	-	0.00	
27	87	70	55	61	57	55	97	67	35	30.21	30.14	30.08	10	10	6	7	1	-	0.00	
28	84	72	61	68	64	59	97	80	51	30.15	30.07	29.99	10	9	1	24	2	31	0.20	Rain , Thunderstorm
29	79	71	64	67	65	64	97	85	61	30.01	29.95	29.87	10	9	6	7	1	-	0.00	
30	71	66	62	66	64	61	100	95	78	29.90	29.84	29.78	8	5	1	6	2	-	0.91	Rain
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Oct	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	73	68	64	72	69	64	100	96	93	29.77	29.70	29.64	10	4	0	20	6	29	1.78	Fog , Rain , Thunderstorm
2	71	68	62	70	64	59	100	86	68	29.99	29.80	29.65	10	9	2	13	6	18	0.05	Rain
3	73	65	57	61	59	54	100	84	51	30.20	30.10	30.00	10	9	5	7	3	-	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
4	81	68	55	60	56	52	100	77	38	30.28	30.23	30.18	10	8	2	9	2	-	0.00	
5	82	68	54	59	56	53	97	72	39	30.20	30.12	30.02	10	8	4	8	1	-	0.00	
6	82	69	57	62	59	55	97	78	50	30.04	29.99	29.91	10	8	3	13	3	17	0.01	
7	66	60	52	54	49	43	90	76	57	30.09	30.03	29.97	10	10	10	15	7	24	0.00	
8	62	56	51	52	49	44	88	78	64	30.15	30.11	30.06	10	10	10	8	3	-	0.00	
9	68	58	51	52	49	48	93	79	52	30.17	30.12	30.05	10	9	7	8	2	-	0.00	
10	73	60	48	54	51	46	100	80	53	30.17	30.13	30.09	10	9	1	13	3	22	0.00	
11	73	60	46	51	47	39	97	68	31	30.29	30.23	30.17	10	9	4	7	2	-	0.00	
12	75	66	57	60	57	52	87	72	55	30.29	30.23	30.19	10	10	10	12	3	20	0.00	
13	72	66	59	59	54	51	96	70	48	30.35	30.28	30.24	10	10	10	10	5	16	0.00	
14	75	66	57	64	58	51	90	79	64	30.27	30.16	30.01	10	10	9	7	3	-	0.00	
15	75	64	55	64	58	42	100	77	35	29.97	29.93	29.86	10	8	3	16	7	28	0.11	Rain
16	73	58	44	50	45	37	93	66	29	30.00	29.94	29.88	10	10	10	10	4	-	0.00	
17	73	62	50	51	47	42	96	64	34	29.97	29.90	29.83	10	10	8	10	2	18	0.00	
18	73	64	55	62	57	47	100	81	62	29.88	29.81	29.77	10	9	4	9	5	-	0.08	Rain
19	72	58	44	49	38	30	93	50	22	29.84	29.81	29.75	10	10	10	18	7	29	0.00	
20	69	57	46	46	42	39	80	60	40	29.99	29.91	29.83	10	10	10	16	5	24	0.00	
21	75	58	44	50	45	42	93	69	32	30.17	30.11	30.00	10	10	10	6	1	-	0.00	
22	78	62	46	54	49	45	97	71	34	30.24	30.17	30.12	10	10	8	4	0	-	0.00	
23	78	62	48	54	50	47	97	73	37	30.22	30.15	30.10	10	9	5	5	0	-	0.00	
24	79	64	48	58	52	47	96	74	40	30.21	30.13	30.07	10	9	6	4	0	-	0.01	
25	80	65	52	58	55	51	97	71	45	30.13	30.07	30.02	10	10	8	7	2	-	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
26	80	68	57	61	57	54	97	74	42	30.06	29.99	29.91	10	10	7	8	2	-	0.00	
27	66	58	51	57	53	46	90	77	63	29.90	29.84	29.78	10	10	7	14	7	20	0.00	
28	53	49	46	47	43	37	90	79	71	29.89	29.83	29.78	10	10	9	22	11	32	0.00	
29	55	49	44	37	31	21	74	54	37	29.90	29.86	29.78	10	10	10	25	16	39	0.00	
30	55	48	41	28	23	17	58	40	24	29.84	29.75	29.71	10	10	10	22	14	32	0.00	
31	62	50	39	28	24	16	63	39	18	29.91	29.87	29.83	10	10	10	18	11	25	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Nov	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	62	48	35	26	22	15	65	37	18	30.01	29.96	29.90	10	10	10	16	7	22	0.00	
2	73	57	41	44	38	26	73	50	33	30.02	29.98	29.91	10	10	10	17	6	24	0.00	
3	78	60	41	54	46	39	93	66	36	30.12	30.04	29.99	10	10	8	15	1	18	0.00	
4	72	61	50	57	51	40	93	72	57	30.02	29.99	29.96	10	10	7	14	7	22	0.00	Rain
5	62	50	39	47	37	31	87	62	31	30.10	30.03	29.96	10	10	6	8	3	-	0.03	Rain
6	50	47	44	48	44	38	100	88	66	30.01	29.96	29.92	10	6	2	12	4	58	1.09	Rain , Thunderstorm
7	48	45	41	45	42	39	100	90	79	30.06	29.95	29.89	10	8	2	12	3	16	0.08	Rain
8	60	48	37	42	37	33	100	75	36	30.21	30.15	30.07	10	8	2	9	3	-	0.00	
9	66	49	32	40	35	28	100	68	23	30.31	30.25	30.20	10	8	4	9	1	-	0.00	
10	69	52	35	45	38	33	100	67	26	30.38	30.32	30.27	10	9	4	7	1	-	0.00	
11	66	54	41	52	46	37	89	73	59	30.44	30.36	30.31	10	10	7	9	2	-	0.00	
12	66	57	46	63	56	45	100	90	73	30.31	30.25	30.17	10	8	2	17	6	29	0.00	Rain
13	57	46	35	45	33	31	93	66	36	30.34	30.30	30.26	10	10	10	13	8	17	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
14	50	46	41	40	33	29	89	62	50	30.43	30.34	30.30	10	10	6	12	5	22	0.01	Rain
15	52	46	39	44	40	37	97	85	68	30.35	30.29	30.23	10	7	3	9	4	17	0.00	
16	61	47	33	41	37	34	100	84	42	30.35	30.29	30.25	10	5	1	5	0	-	0.00	
17	59	48	37	36	31	25	93	54	35	30.45	30.39	30.35	10	10	7	13	4	24	0.00	
18	63	54	44	47	37	25	77	56	42	30.42	30.36	30.30	10	10	10	10	5	17	0.00	
19	60	51	42	52	46	38	88	75	63	30.33	30.26	30.19	10	10	8	9	2	-	0.00	
20	66	57	46	51	44	39	97	71	37	30.19	30.13	30.06	10	10	6	8	1	16	0.00	
21	69	55	41	45	42	40	96	68	38	30.18	30.14	30.09	10	10	6	7	1	-	0.00	
22	66	52	39	42	38	31	96	66	29	30.28	30.21	30.17	10	9	6	5	1	-	0.00	
23	71	55	39	50	43	37	97	70	36	30.21	30.12	30.04	10	9	6	20	5	28	0.00	
24	48	42	33	37	23	16	70	50	28	30.19	30.14	30.08	10	10	10	16	11	23	0.00	
25	57	42	28	25	20	11	78	49	16	30.23	30.16	30.10	10	10	8	6	2	-	0.00	
26	66	48	30	35	26	19	85	49	17	30.25	30.19	30.15	10	10	9	8	1	-	0.00	
27	55	50	45	54	47	37	94	82	54	30.24	30.15	30.11	10	8	4	14	5	-	0.00	Rain
28	57	47	36	41	35	28	93	70	41	30.40	30.33	30.24	10	9	6	10	6	-	0.00	
29	60	44	28	39	32	28	96	68	33	30.45	30.40	30.35	10	9	5	7	1	-	0.00	
30	62	50	37	46	40	32	93	71	52	30.41	30.35	30.29	10	10	8	6	1	-	0.00	
2012	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Dec	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	66	52	39	50	45	39	100	73	44	30.38	30.33	30.30	10	8	4	6	1	-	0.00	
2	69	56	44	54	49	45	100	81	49	30.38	30.32	30.25	10	8	1	13	2	-	0.00	
3	71	56	42	53	48	42	100	79	51	30.33	30.28	30.23	10	8	2	9	1	-	0.00	

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2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
4	71	58	46	53	50	45	100	77	45	30.32	30.26	30.21	10	9	2	9	2	-	0.00	
5	66	58	51	57	54	50	96	83	65	30.22	30.16	30.12	10	10	10	10	3	-	0.00	
6	60	55	50	54	44	37	88	66	46	30.19	30.14	30.11	10	10	10	12	5	16	0.00	
7	62	54	46	49	44	39	86	74	58	30.14	30.07	29.99	10	10	7	10	5	-	0.00	
8	66	58	51	61	54	48	100	86	68	30.06	30.03	29.99	10	7	2	6	1	-	0.01	Rain
9	69	62	55	61	56	53	100	91	63	30.10	30.04	29.96	10	5	0	9	1	-	0.00	Fog
10	66	58	50	59	57	48	100	91	73	29.94	29.81	29.73	10	8	0	24	9	32	0.46	Rain , Thunderstorm
11	48	42	35	45	35	31	89	80	67	30.17	30.01	29.86	10	9	7	17	12	23	0.00	
12	51	44	37	39	36	30	89	73	61	30.27	30.22	30.13	10	10	8	9	4	16	0.00	Rain
13	57	47	37	37	36	34	93	68	47	30.37	30.32	30.26	10	10	8	8	3	-	0.00	
14	59	44	30	37	33	29	100	72	39	30.42	30.32	30.22	10	9	5	6	1	-	0.00	
15	59	50	41	41	39	35	82	64	51	30.25	30.16	30.09	10	10	9	10	2	-	0.00	
16	55	54	52	55	52	41	100	93	66	30.06	29.97	29.92	10	5	0	13	2	-	0.18	Fog , Rain
17	57	54	51	56	54	52	100	96	88	29.94	29.81	29.71	10	9	2	12	5	17	0.00	Rain
18	57	47	36	54	40	28	100	73	33	30.04	29.91	29.75	10	10	8	13	8	18	0.00	
19	64	49	34	46	39	32	96	73	45	30.14	30.08	30.03	10	10	8	5	1	-	0.00	
20	59	50	42	58	45	27	100	82	52	30.05	29.83	29.67	10	6	2	20	7	34	0.30	Rain
21	44	38	32	26	19	14	59	47	32	30.18	30.05	29.90	10	10	10	24	18	38	0.00	
22	48	39	28	19	14	12	67	40	23	30.30	30.24	30.18	10	10	10	16	11	30	0.00	
23	55	42	28	33	27	19	78	56	36	30.25	30.17	30.07	10	10	10	12	3	-	0.00	
24	57	52	46	55	49	30	100	93	50	30.04	29.92	29.86	10	6	0	10	4	-	0.30	Fog , Rain

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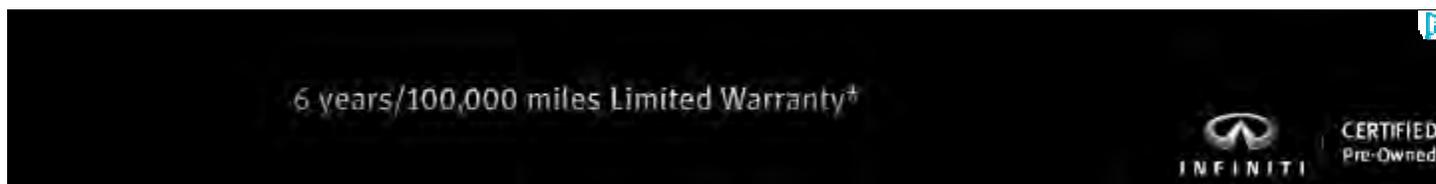
2011	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
25	51	50	48	52	50	48	100	99	94	30.01	29.94	29.75	10	2	0	10	3	24	0.12	Fog , Rain , Thunderstorm
26	57	46	34	56	42	29	100	85	68	30.00	29.67	29.49	10	9	2	24	11	36	0.05	Rain
27	42	37	30	29	28	27	85	74	60	30.12	30.08	30.00	10	10	9	18	12	30	0.00	
28	50	40	30	40	32	27	100	76	48	30.16	30.05	29.91	10	8	2	7	2	-	0.14	Rain

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Climatography of the United States No. 20

Station: ATLANTA HARTSFIELD AP, GA

1971-2000

COOP ID: 090451

Climate Division: GA 2

NWS Call Sign: ATL

Elevation: 1,010 Feet

Lat: 33° 38'N

Lon: 84° 26'W

Temperature (° F)																					
Mean (1)				Extremes								Degree Days (1)		Mean Number of Days (3)							
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Base Temp 65		Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
														Heating	Cooling						
Jan	51.9	33.5	42.7	79	1949	11	53.2	1974	-8	1985	21	29.3	1977	692	0	.0	.0	18.6	1.2	14.3	.2
Feb	56.8	36.5	46.7	80+	1996	26	54.4	1990	5	1958	17	39.3	1978	523	1	.0	.0	20.3	.5	10.4	.0
Mar	65.0	43.6	54.3	89	1995	23	60.6	1997	10	1960	5	47.5	1971	346	11	.0	.0	28.7	.1	4.0	.0
Apr	72.9	50.4	61.6	93	1986	27	67.7	1981	26	1973	11	56.4	1983	150	52	.0	.1	29.9	.0	.5	.0
May	80.0	59.5	69.8	97	1941	29	74.9	1996	37	1971	4	64.8	1997	26	170	.0	1.3	31.0	.0	.0	.0
Jun	86.5	67.1	76.8	102	1936	17	81.3	1981	46	1956	3	71.5	1997	1	354	.0	9.5	30.0	.0	.0	.0
Jul	89.4	70.6	80.0	105+	1980	17	85.4	1993	53	1967	15	76.3	1971	0	463	.6	15.5	31.0	.0	.0	.0
Aug	87.9	69.9	78.9	102+	1995	15	83.8	1980	55+	1992	29	76.0	1976	0	430	.3	11.3	31.0	.0	.0	.0
Sep	82.3	64.3	73.3	99	1941	8	78.9	1980	36	1967	30	69.8	1976	11	262	.0	3.7	30.0	.0	.0	.0
Oct	72.9	52.8	62.8	95+	1954	6	69.8	1984	28	1976	29	56.2	1976	126	58	.0	.0	30.9	.0	@	.0
Nov	63.3	43.5	53.4	84	1961	2	62.0	1985	3	1950	25	44.2	1976	352	8	.0	.0	27.6	.0	4.1	.0
Dec	54.6	36.2	45.4	79	1991	1	53.7	1984	0	1983	25	37.2	2000	600	1	.0	.0	21.3	.5	11.3	@
Ann	72.0	52.3	62.1	105+	Jul 1980	17	85.4	Jul 1993	-8	Jan 1985	21	29.3	Jan 1977	2827	1810	.9	41.4	330.3	2.3	44.6	.2

+ Also occurred on an earlier date(s)

(1) From the 1971-2000 Monthly Normals

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from station's available digital record: 1930-2001

Complete documentation available from: www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

(3) Derived from 1971-2000 serially complete daily data

Climatology of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: ATLANTA HARTSFIELD AP, GA

COOP ID: 090451

Climate Division: GA 2 NWS Call Sign: ATL

Elevation: 1,010 Feet Lat: 33° 38'N Lon: 84° 26'W

		Precipitation (inches)										Precipitation Probabilities (1)												
		Mean Number of Days (3)										Probability that the monthly/annual precipitation will be equal to or less than the indicated amount												
		Extremes										Monthly/Annual Precipitation vs Probability Levels												
		Daily Precipitation										These values were determined from the incomplete gamma distribution												
Month	Means/ Medians(t)	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(t)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	
Jan	5.03	4.96	3.48	1973	7	9.26	1972	.84	1981	12.1	7.9	3.5	1.4	1.81	2.28	2.96	3.54	4.08	4.64	5.25	5.96	6.87	8.26	9.54
Feb	4.68	4.37	3.73	1961	24	9.75	1990	.77	1978	9.8	6.9	3.1	1.5	1.39	1.84	2.50	3.08	3.64	4.22	4.86	5.62	6.60	8.12	9.54
Mar	5.38	4.97	4.64	1970	19	11.66	1980	1.86	1985	10.9	7.4	3.5	1.7	1.85	2.36	3.10	3.73	4.33	4.94	5.61	6.40	7.40	8.96	10.39
Apr	3.62	3.25	4.44	1979	13	11.86	1979	.49	1986	8.4	5.7	2.5	1.0	.85	1.19	1.72	2.19	2.67	3.17	3.72	4.39	5.27	6.65	7.96
May	3.95	3.60	4.40	1948	29	8.37	1980	1.23	1998	9.6	6.3	2.9	1.0	1.16	1.54	2.10	2.59	3.06	3.56	4.10	4.75	5.58	6.88	8.09
Jun	3.63	3.27	3.78	1991	18	9.99	1991	.16	1988	9.8	6.3	2.3	1.0	.65	.97	1.50	2.00	2.50	3.05	3.67	4.42	5.43	7.04	8.58
Jul	5.12	4.04	5.35	1948	10	17.71	1994	.57	1995	11.5	8.4	3.4	1.6	.96	1.41	2.16	2.86	3.57	4.33	5.20	6.24	7.63	9.87	12.00
Aug	3.67	4.10	4.94	1940	12	7.28	1979	.50	1976	9.5	6.5	2.6	1.0	.89	1.23	1.77	2.24	2.72	3.22	3.78	4.45	5.32	6.71	8.01
Sep	4.09	4.04	5.30	1956	25	11.64	1989	.04	1984	8.3	5.6	2.6	1.3	.61	.95	1.54	2.11	2.70	3.34	4.08	4.99	6.21	8.19	10.10
Oct	3.11	2.63	6.68	1995	4	11.04	1995	.26	1998	6.4	4.0	1.8	1.0	.32	.55	.98	1.42	1.88	2.41	3.03	3.80	4.85	6.59	8.29
Nov	4.10	3.93	3.98	1935	12	10.04	1992	1.27	1990	9.4	6.2	2.9	1.4	1.53	1.91	2.46	2.92	3.36	3.81	4.29	4.85	5.57	6.68	7.69
Dec	3.82	3.47	3.10	1983	3	9.27	1983	.69	1979	10.4	6.3	2.8	1.0	1.07	1.44	1.99	2.46	2.93	3.42	3.96	4.60	5.42	6.72	7.93
Ann	50.20	49.49	6.68	Oct 1995	4	17.71	Jul 1994	.04	Sep 1984	116.1	77.5	33.9	14.9	38.47	40.81	43.77	45.99	47.94	49.82	51.75	53.86	56.41	60.07	63.21

+ Also occurred on an earlier date(s)

Denotes amounts of a trace

@ Denotes mean number of days greater than 0 but less than .05

** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1930-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

Climatography of the United States No. 20 1971-2000

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: ATLANTA HARTSFIELD AP, GA

COOP ID: 090451

Climate Division: GA 2 **NWS Call Sign: ATL**

Elevation: 1,010 Feet **Lat: 33° 38'N**

Lon: 84° 26'W

Snow (inches)																								
Snow Totals																								
Means/Medians (1)				Extremes (2)							Mean Number of Days (1)													
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Day	Year	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Day	Year	Highest Monthly Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10	
Jan	1.0	.0	#	0	5.0	18	1992	7.0	1982	5	19	1992	5	1996	.6	.4	.2	@	.0	.4	@	@	@	.0
Feb	.5	.0	#	0	4.0	18	1979	4.4	1979	4	19	1979	4	1985	.7	.2	@	.0	.0	.2	@	@	@	.0
Mar	.6	.0	#	0	7.9	24	1983	7.9	1983	4	14	1993	4	1993	.2	.1	.1	@	.0	.2	.1	.1	.1	.0
Apr	#	.0	0	0	#	3	1987	#+	1987	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	2000	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	#	.0	0	0	#	31	1993	#	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	#	0	.6	23	1975	.6	1975	1	23	1975	#	1975	.0	.0	.0	.0	.0	.0	@	.0	.0	.0
Dec	.3	.0	#	0	2.5	19	2000	3.0	2000	2	19	2000	#	2000	.3	.2	.0	.0	.0	.0	.3	.0	.0	.0
Ann	2.4	.0	N/A	N/A	7.9	24	Mar 1983	7.9	Mar 1983	5	19	Jan 1992	#+	Dec 2000	1.8	.9	.3	@	.0	1.1	.1	.0	.0	.0

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Complete documentation available from:

Annual statistics for Mean/Median snow depths are not appropriate

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

Climatology of the United States No. 20 1971-2000

Station: ATLANTA HARTSFIELD AP, GA

COOP ID: 090451

Climate Division: GA 2 **NWS Call Sign:** ATL

Elevation: 1,010 Feet **Lat:** 33° 38N

Lon: 84° 26W

Freeze Data										
Spring Freeze Dates (Month/Day)										
Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)									
	.10	.20	.30	.40	.50	.60	.70	.80	.90	
36	4/18	4/13	4/10	4/07	4/04	4/01	3/29	3/25	3/20	
32	4/14	4/07	4/01	3/28	3/24	3/20	3/15	3/10	3/03	
28	3/26	3/19	3/13	3/08	3/04	2/28	2/23	2/17	2/10	
24	3/11	3/03	2/25	2/20	2/16	2/11	2/06	1/31	1/23	
20	3/08	2/27	2/21	2/15	2/10	2/05	1/30	1/23	1/12	
16	2/21	2/12	2/06	1/31	1/24	1/16	1/02	0/00	0/00	
Fall Freeze Dates (Month/Day)										
Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)									
	.10	.20	.30	.40	.50	.60	.70	.80	.90	
36	10/19	10/24	10/28	10/31	11/03	11/06	11/09	11/13	11/18	
32	10/31	11/05	11/09	11/13	11/16	11/19	11/22	11/26	12/01	
28	11/06	11/16	11/23	11/29	12/05	12/10	12/16	12/24	1/02	
24	11/24	12/03	12/09	12/14	12/19	12/24	12/30	1/05	1/14	
20	12/02	12/12	12/20	12/26	1/01	1/07	1/13	1/21	2/02	
16	12/11	12/22	12/30	1/06	1/14	1/24	2/10	0/00	0/00	
Freeze Free Period										
Temp (F)	Probability of longer than indicated freeze free period (Days)									
	.10	.20	.30	.40	.50	.60	.70	.80	.90	
36	236	228	222	217	212	208	203	197	189	
32	264	254	247	241	236	231	225	218	208	
28	306	295	288	281	275	269	262	255	244	
24	337	325	317	310	304	298	292	284	274	
20	>365	358	339	329	321	313	305	296	284	
16	>365	>365	>365	>365	>365	354	335	323	310	

* Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.
 Derived from 1971-2000 serially complete daily data

Notes

- a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.
- b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.
- c. Only observed validated values were used to select the extreme daily values.
- d. Extreme monthly temperature/precipitation means were selected from the monthly normals data. Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.
- e. Degree Days were derived using the same techniques as the 1971-2000 normals.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/_normals/usnormals.html
- f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set .
Documentation of the serially complete data set is available from the link below:
- g. Snowfall and snow depth statistics were derived from the Snow Climatology.
Documentation for the Snow Climatology project is available from the link under references.

Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were are for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

- a. Temperature/ Precipitation Tables
 1. 1971-2000 Monthly Normals
 2. Cooperative Summary of the Day
 3. National Weather Service station records
 4. 1971-2000 serially complete daily data
- b. Degree Day Table
 1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
 2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data
- c. Snow Tables
 1. Snow Climatology
 2. Cooperative Summary of the Day
- d. Freeze Data Table
1971-2000 serially complete daily data

References

- U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/_normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/_normals/usnormalsprods.html
Snow Climatology Project Description, www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. *J. Appl. Meteorol.*, 39, 1580-1591,
www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf

Qualifications Statements

The ecological field survey for this project was conducted on October 23, and December 13 and 28, 2012, by Atkins North America, Inc. Senior Scientists/Ecologists Karen Warner and Austin Meadows, assisted by intern Jacqueline Chen. This field team has over 23 years combined experience in applied ecological sciences in the southeast U.S.

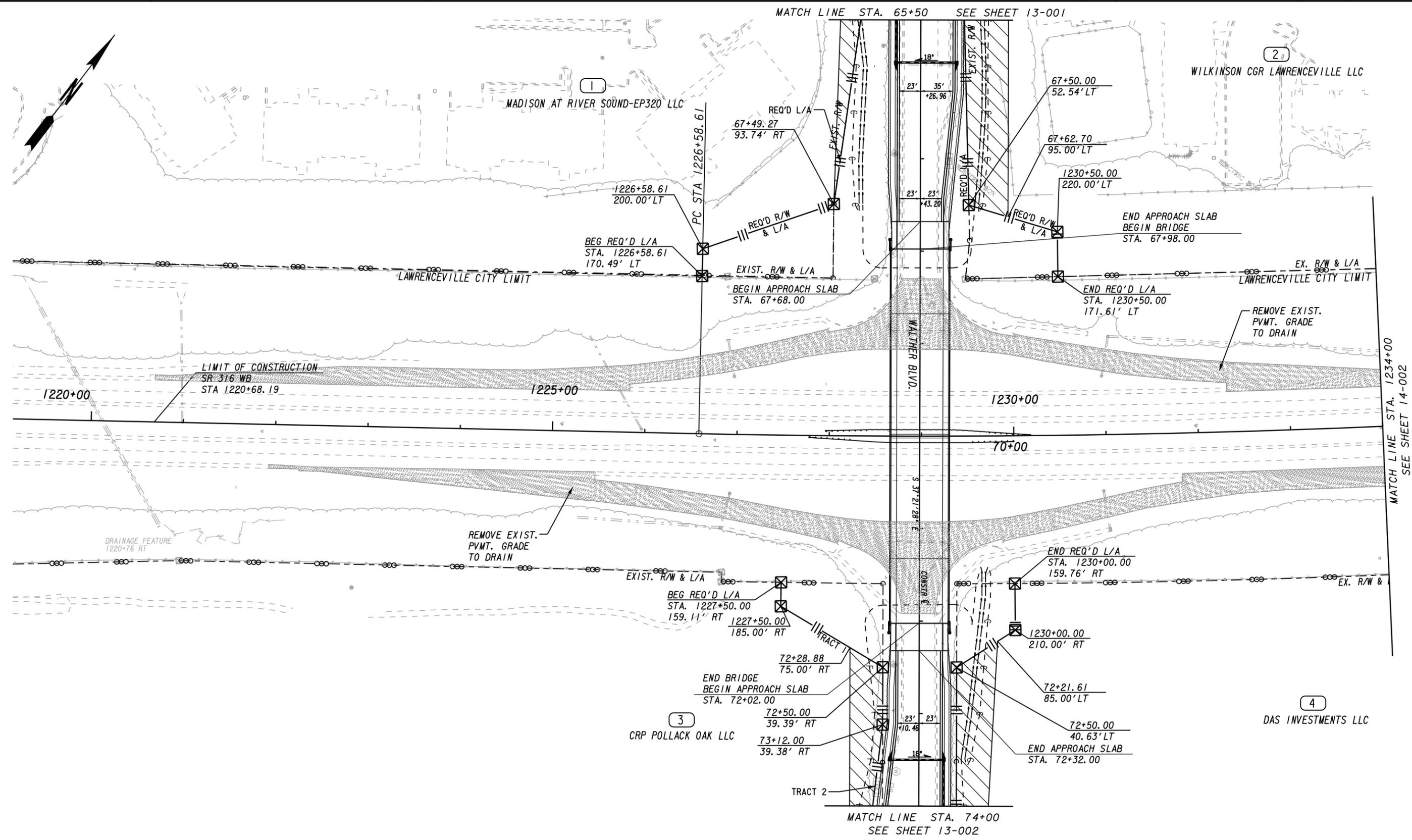
Karen N. Warner, PWS – Ms. Warner has over 14 years of experience working in the environmental/ecological field of sciences in the southeastern U.S., particularly within the regulatory consultation field of wetlands and streams, as well as protected wildlife and plant species and associated habitat management planning, implementation, and monitoring. Ms. Warner is a Professional Wetland Scientist (PWS) certified through the Society of Wetland Scientists based on education and professional experience in the application of current technical knowledge in wetland science. Ms Warner is also experienced in assessing the geomorphology and aquatic functions of streams in the southeastern U.S., and holds Florida Department of Environmental Protection certifications for in-stream habitat assessments and conducting Stream Condition Index evaluations including macroinvertebrate collections. Ms. Warner's experience also includes assessments of streams pursuant to the *North Carolina Methodology for Identification of Intermittent and Perennial Streams and Their Origins* as well as assessment of State Waters and their associated Buffers within the State of Georgia pursuant to Georgia Erosion and Sedimentation Control Rules.

Ms. Warner has performed evaluations for presence/absence of protected flora and fauna on many projects within the southeast, and is experienced in the preparation of habitat management plans to assist land-owners in habitat enhancement, restoration, and long-term management to support protected or otherwise desirable plant and wildlife species. This experience includes assessment and identification of invasive species populations and management planning for control of these communities.

Austin Meadows – Mr. Meadows has over 9 years of experience working in the environmental/ecological field of sciences in the southeastern U.S., particularly within the regulatory consultation field. Mr. Meadows has conducted wetland and stream delineations, habitat assessments of both terrestrial and aquatic environments, protected flora and fauna surveys, and aquatic surveys for numerous projects. In addition, Mr. Meadows has prepared technical reports, implemented avoidance and minimization measures, and obtained both state and federal permits for these projects.

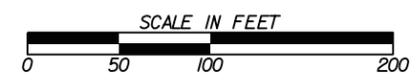
Mr. Meadows' experience also includes assessments of streams pursuant to the *North Carolina Methodology for Identification of Intermittent and Perennial Streams and Their Origins* as well as assessments of State Waters and their associated Buffers within the State of Georgia pursuant to Georgia Erosion and Sedimentation Control Rules.

Jacqueline Chen - Ms. Chen received a Bachelor of Science in Civil Engineering from the Georgia Institute of Technology in December 2011. She joined Atkins in July 2012 and has been participating in Atkins' Transportation Graduate Training Program.



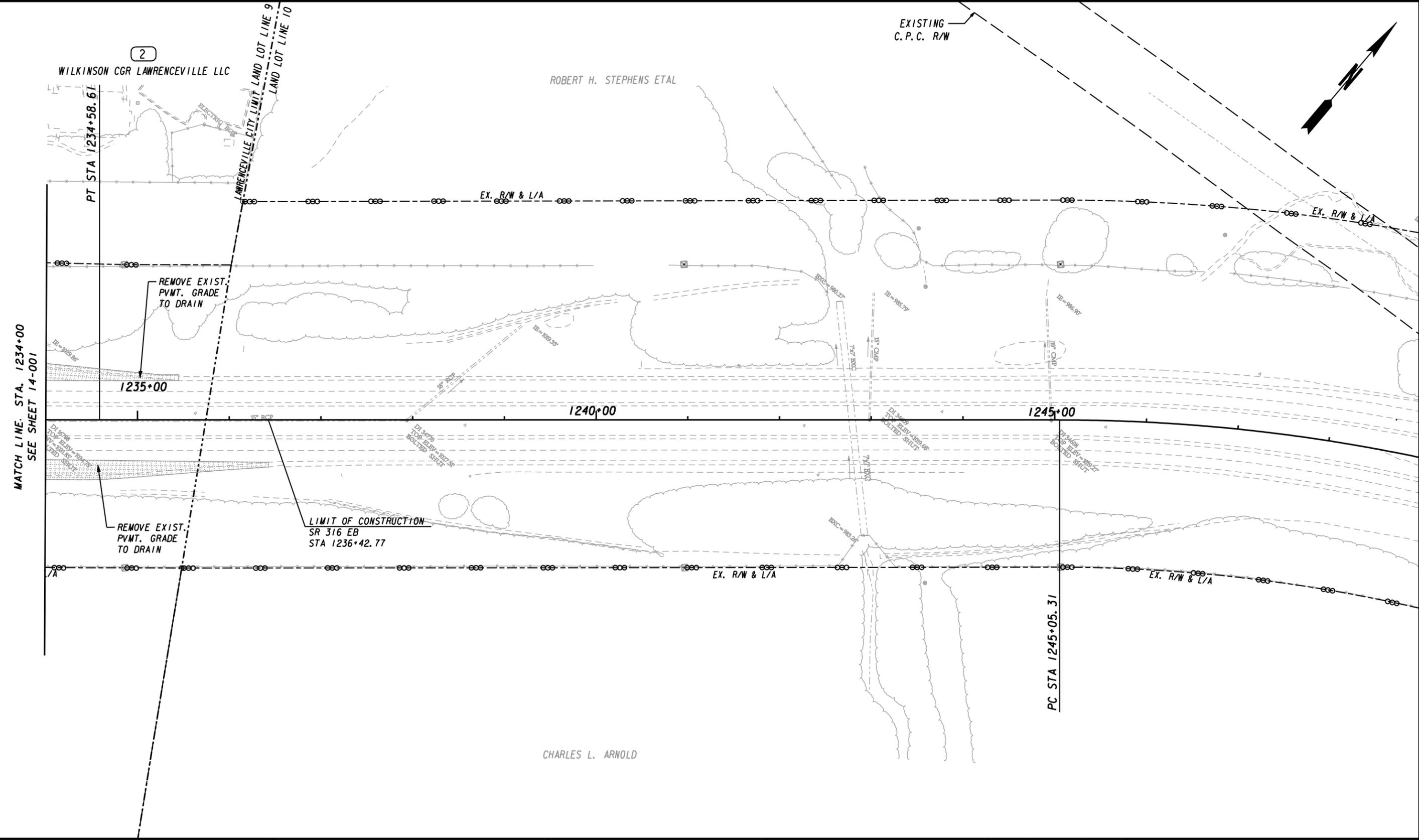
PROPERTY AND EXISTING R/W LINE --- e ---
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 EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES [diagonal hatching]
 EASEMENT FOR CONSTR OF SLOPES [cross-hatching]
 EASEMENT FOR CONSTR OF DRIVES [diagonal cross-hatching]

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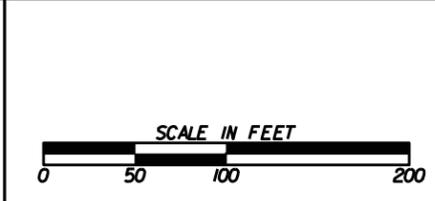
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
CROSSROAD PLAN
 WALTHER BLVD
 DRAWING No. 14-001



PROPERTY AND EXISTING R/W LINE	---
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REQ'D R/W & LIMIT OF ACCESS	---



REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
CROSSROAD PLAN
 WALTHER BLVD
 DRAWING No. 14-002

APPENDIX D. PROTECTED SPECIES SURVEY REPORT

**PROTECTED TERRESTRIAL SPECIES
SURVEY REPORT**

Georgia aster (*Symphyotrichum georgianum*)

SR 316 AT CR 3929/WALTHER BOULEVARD – GRADE SEPARATION

PI NO. 0010425

WINNETT COUNTY, GEORGIA

Prepared for:

Georgia Department of Transportation
Office of Environmental Services
One Georgia Center
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Prepared by:

ATKINS

1600 RiverEdge Parkway NW, Suite 600
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May 2013

Report Author: _____


Karen N. Warner, PWS, Senior Scientist

Consultant Reviewer: _____


Austin Meadows, Senior Scientist

GDOT Reviewer: _____

Meghan Hedeem, Ecology Consultant Manager

Executive Summary

Georgia Department of Transportation (GDOT) project PI No. 0010425 in Gwinnett County, Georgia is a proposed grade separation project at the intersection of State Route (SR) 316 and County Road (CR) 3929/Walther Boulevard. The concept design for the proposed grade separation project is situated at least partially within the geographic extent of GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 and project MSL00-0004-00(086), PI No. 0004086, together comprising more extensive transportation improvement initiatives along SR 316. Project MSL00-0003-00(168), PI No. 0003168 is a high-occupancy vehicle (HOV) lane construction project along SR 316 that is unfunded and is not included in the current Regional Transportation Plan (Plan 2040 RTP, FY 2012-2040), but is listed in the unfunded aspirational plan vision (2041+). Project MSL00-0004-00(086), PI No. 0004086 is a grade separation project for interchanges along SR 316 at Collins Hill Road and SR 20/Buford Drive, currently under construction. The Walther Boulevard grade separation project is being designed to function in accordance with and so as not to preclude any future proposed or ongoing work associated with these nearby projects.

The grade separation project at SR 316 and CR 3929/Walther Boulevard is centrally located within Gwinnett County, Georgia, and partially within the City of Lawrenceville. The project begins along CR 3929/Walther Boulevard approximately 1,000 feet south of SR 316, and extends north to connect with the existing travel lanes of CR 3929/Walther Boulevard north of SR 316 for a total project length of approximately 0.3 mile. The proposed project consists of a four span bridge 404 feet in length crossing SR 316. In addition, CR 3929/Walther Boulevard will continue to consist of two 12-foot travel lanes, and will be modified to also include a 14-foot two-way left turn lane and 16-foot shoulder consisting of a five-foot wide pedestrian sidewalk. The project is mapped within the Luxomni United States Geologic Survey (USGS) 7.5-minute topographic quadrangle, with an approximate project midpoint in decimal degrees of 33.972228 (N), -84.008288 (W).

The project study area is known to consist of maintained right-of-way (ROW) habitat potentially suitable to support the federal candidate and state threatened Georgia aster (*Symphotrichum georgianum*). Habitats or vegetative/land use communities within the project study area include upland mixed pine-hardwoods (47.9%), maintained ROW (31.3%), and developed (20.8%). A species-specific survey was conducted during the flowering season of Georgia aster on October 23, 2012, within areas potentially suitable to support this species. Georgia aster was not observed to occur within the project study area. Georgia aster is documented as known to occur within Gwinnett County; although this species has not been reported by the Georgia Department of Natural Resources as occurring within three miles of the project. Given the existence of habitat with the potential to support this species within the study area although no individuals were observed on-site, it is anticipated that the project will have no significant adverse effect on Georgia aster.

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- APPENDIX 1 – Species Survey Data Sheets
- APPENDIX 2 – Agency Coordination

A. Project Description

Georgia Department of Transportation (GDOT) project PI No. 0010425 in Gwinnett County, Georgia is a proposed grade separation project at the intersection of State Route (SR) 316 and County Road (CR) 3929/Walther Boulevard. The concept design for the proposed grade separation project is situated at least partially within the geographic extent of GDOT roadway improvement project MSL00-0003-00(168), PI No. 0003168 and project MSL00-0004-00(086), PI No. 0004086, together comprising more extensive transportation improvement initiatives along SR 316. Project MSL00-0003-00(168), PI No. 0003168 is a high-occupancy vehicle (HOV) lane construction project along SR 316 that is unfunded and is not included in the current Regional Transportation Plan (Plan 2040 RTP, FY 2012-2040), but is listed in the unfunded aspirational plan vision (2041+). Project MSL00-0004-00(086), PI No. 0004086 is a grade separation project for interchanges along SR 316 at Collins Hill Road and SR 20/Buford Drive, currently under construction. The Walther Boulevard grade separation project is being designed to function in accordance with and so as not to preclude any future proposed or ongoing work associated with these nearby projects.

The CR 3929/Walther Boulevard grade separation project over SR 316 is approximately 0.3 miles in length and proposed to consist of a four span bridge 404 feet in length. As a result of the proposed project, CR 3929/Walther Boulevard will continue to consist of two 12-foot travel lanes, and will be modified to also include a 14-foot two-way left turn lane and 16-foot shoulder consisting of a five-foot wide pedestrian sidewalk. The existing 12-foot flush median will be modified to a 14-foot flush median. The existing and proposed right-of-way (ROW) widths vary from 80 feet to 147.5 feet. No existing bridges occur within the project study area for the CR 3929/Walther Boulevard grade separation project. A four span bridge is proposed for the project to connect CR 3929/Walther Boulevard over SR 316 as described above. The proposed bridge dimensions are 56 feet, five inches by 404 feet, and the bridge will include two 14-foot travel lanes separated by a 14-foot flush median, with six-foot sidewalks on both sides.

B. Study Area

The grade separation project at SR 316 and CR 3929/Walther Boulevard is centrally located within Gwinnett County, Georgia, and partially within the City of Lawrenceville. The project study area is situated within the Southern Outer Piedmont Level IV Ecoregion as documented in the Ecoregions of Alabama and Georgia, characterized by deep saprolite and mostly red, clayey subsoils with pine (*Pinus* spp.)-dominated forest types (Griffith, et al. 2001). The project corridor generally consists of existing maintained ROW, newly-proposed ROW limits necessary to accommodate the proposed project, and any proposed easement areas necessary for the project including those for temporary access and drainage easements wherever necessary. The project study area encompasses the full extent of these limits and a minimum additional 100-foot surrounding area that may potentially be affected by the proposed project. Three distinct habitats or land-use communities have been identified and mapped within the project study area: upland mixed pine hardwoods, maintained ROW, and developed areas. Each community is described in further detail in Section H-1: Vegetative/Land-Use Communities. The upland mixed pine hardwoods community makes up approximately 47.9% of the study area; maintained ROW makes up 31.3%; and development makes up the remaining 20.8%.

Potential impacts to existing undeveloped habitats would result from new roadway construction wherever proposed, as well as roadway alterations and demolition where design upgrades are proposed to existing

roads. Impacts would include clearing of vegetated areas, cut and fill, grading, compaction, paving, and future use of herbicides and mowing measures to maintain the post-construction vegetated ROW and easements. Such impacts would be expected in all portions of the existing and proposed ROW extents.

C. Species Description

Protected species addressed in this document are limited to Georgia aster (*Symphotrichum georgianum*). This species has been documented to occur within Gwinnett County, and vegetated portions of the maintained ROW habitat within the project corridor have the potential to support this species (Figure 3).

Georgia aster (*Symphotrichum georgianum*)

This species is a perennial herb state listed as threatened in Georgia and a federal candidate species. It can reach up to 39 inches in stem height with alternate leaves that can reach up to three inches in length. The clasping leaves are elliptic in shape, scabrous, and have an entire margin. The flower heads are large (up to two inches wide) with dark violet ray flowers that can reach 0.8 inches in length, and reddish disk flowers with violet tips producing whitish pollen (Photographs 1 and 2).

Photograph 1: Georgia aster



Photograph 2: Georgia aster



Photograph 3: Late purple aster

Source: Asheville Natural Wildflower guide
www.ashevillennatural.com accessed October 2011



Georgia aster is documented to bloom beginning in late September until mid-November (Chafin 2007). Georgia aster can generally be distinguished by its characteristic large and bright purple flower heads, reddish disk flowers, purple-tipped stamens producing white pollen, clasping leaf bases, and bracts covered with hairs and tiny glands. Species documented to be similar in appearance include late purple aster (*Aster patens*) and piedmont bigleaf aster (*Eurybia jonesiae*). The former of these exhibits much smaller flower heads and pale blue-purple ray flowers (Photograph 3) as compared to the bright purple, large-flowering Georgia aster; and the glands on bracts are also characteristically absent in this species. The piedmont bigleaf aster is also a rare species exhibiting yellow disk flowers whereas reddish disk flowers are characteristic of the Georgia aster.

Georgia aster is found on the edges and openings of dry, rocky, oak-hickory-pine forests, sometimes with smooth purple coneflower (*Echinacea laevigata*), and can often be found on disturbed sites and within ROWs [United States Fish and Wildlife Service (USFWS) 2011]. Most populations currently inhabit disturbed areas such as utility and roadway ROWs and other open areas where human disturbance mimics natural regimes such as fire or heavy grazing by large herbivores. Georgia aster primarily reproduces non-sexually by means of rhizomes (Chafin 2007).

This species is known to exist in four states: North Carolina, South Carolina, Georgia, and Alabama and was once known to exist in Florida. The Georgia Department of Natural Resources (GDNR) Nongame Conservation Section (NCS) has documented occurrence of this species in 24 counties within Georgia, primarily confined to the piedmont ecoregion (Figure 4).

D. Survey Methodology

Maintained ROW habitat with the potential to support Georgia aster was known to occur within the project study area as observed during prior field investigations of coincident projects MSL00-0003-00(168) and MSL00-0004-00(086) discussed in earlier portions of this document. Habitats potentially suitable to support Georgia aster within the project study area are limited to vegetated portions of the maintained ROWs. Pedestrian surveys were conducted throughout suitable habitat areas during the documented flowering season for recognition of the species using survey methods previously approved by the GDOT Office of Environmental Services. The flowering season for Georgia aster in Georgia is documented to occur from late September to mid-November (Chafin 2007). Additional guidance was provided by GDOT and the GDNR State Botanist Tom Patrick in October 2012 to shift Georgia aster surveys to occur between mid-October and the end of November due to unseasonably warm climatic conditions that were observed during the early fall of 2012, and the potential for those conditions to delay flowering response by Georgia aster.

The field survey for Georgia aster was conducted on October 23, 2012, by Atkins Senior Scientists Karen Warner and Austin Meadows. Survey methodology consisted of thorough, systematic, visual examination of all potentially suitable habitats along pedestrian transects no greater than 15 feet in width to accomplish 100% coverage of these roadside habitats. Using this methodology, the potentially suitable habitat was searched for the presence of the target species throughout the project study area. The documented survey recommendations for this species includes systematic surveys conducted during flowering or fruiting periods consistent with the methods described above. The Species Survey Data Sheet for this field evaluation is included in Appendix 1.

E. Preparatory Data

Prior to conducting the ecological field survey for this project, the USFWS Information, Planning and Conservation System (IPaC) listing of protected species in Gwinnett County, Georgia, and the GDNR Listing of Locations of Special Concern Animals, Plants and Natural Communities were reviewed to determine the potential impact by the proposed project to protected species in Gwinnett County. Additionally, early coordination was initiated with the GDNR NCS to identify federally and/or state threatened and endangered species, as well as Georgia conservation areas and "species of concern" known to be located within a three mile radius of the proposed project corridor (Appendix 2). According to the GDNR NCS, no protected species have been documented to occur within three miles of the project. Additional background information and resources utilized in preparation for field investigations and for preparation of this report include the following publications:

Chafin, Linda G. 2007. Field Guide to the Rare Plants of Georgia. The State Botanical Garden of Georgia, Athens, Georgia.

GDNR. 2008. Rare Species Profiles. Available online at www.georgiawildlife.com/node/. Accessed October 2012.

Georgia Exotic Pest Plant Council (GAEPPC). 2006. List of Non-Native Invasive Plants in Georgia. Available online at <http://www.gaeppc.org/list.cfm> Accessed January 2013.

Griffith, G.E., Omernik, J.M., Comstock, J.A., Lawrence, S., Martin, G., Goddard, A., Hulcher, V.J., and Foster, T., 2001, Ecoregions of Alabama and Georgia, (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,700,000).

NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: September 2012).

Nelson, Gil. 1996. The Shrubs and Woody Vines of Florida: A Reference and Field Guide. Pineapple Press, Inc., Sarasota, Florida.

U.S. Department of Agriculture (USDA). 2012. USDA Natural Resources Conservation Service Plants Database. Available online at <http://plants.usda.gov/java/> . Accessed February 2012.

F. Qualifying Statement

The ecological evaluations and floristic survey for the target plant species addressed in this report were conducted by Atkins Senior Scientists Austin Meadows and Karen Warner. Mr. Meadows has over eight years of experience working in the environmental/ecological field of sciences in the southeastern U.S., particularly within the regulatory consultation field. Mr. Meadows has conducted wetland and stream delineations, habitat assessments of both terrestrial and aquatic environments, protected flora and fauna surveys, and aquatic surveys for numerous projects. In addition, Mr. Meadows has prepared technical reports, evaluated/recommended avoidance and minimization measures, and obtained both state and federal permits for environmental impacts on these projects. Mr. Meadows has prior experience

conducting surveys for the identification of the target species and has observed/identified Georgia aster occurring within its natural habitat on multiple occasions.

Ms. Warner has over 14 years of experience in applied ecological sciences within the southeastern U.S. Ms. Warner has performed evaluations for presence/absence of protected flora and fauna on many projects within the southeast, and is experienced in the preparation of habitat management plans to assist land-owners in habitat enhancement, restoration, and long-term management to support protected or otherwise desirable plant and wildlife species. Ms. Warner has prior experience conducting surveys for the identification of Georgia aster and has observed/identified this species occurring within its natural habitat on multiple occasions.

G. Field Survey Description

Surveys for Georgia aster within its suitable habitat were performed by Ms. Warner and Mr. Meadows on October 23, 2012, between the hours of 11:00 a.m. and 5:15 p.m. Based on field observations and data recorded by the nearby Atlanta Dekalb weather station, weather conditions on this date consisted of mostly sunny skies, south-southwest winds occasionally gusting to nine miles per hour, and temperatures ranging from 70-78o Fahrenheit, with no precipitation.

The October 2012 field survey was conducted to ascertain presence/absence of Georgia aster throughout suitable habitats in the study area. These habitats include vegetated portions of maintained ROW. An additional area of periodically maintained utility easement was also evaluated due to its proximity to the study area, but was later confirmed to be outside the project study area. During the field survey, these habitats with the potential to support Georgia aster were evaluated using the pedestrian transect methodology discussed in the Survey Methodology section of this document. No populations or individuals of Georgia aster were observed within or near the project study area during this evaluation.

H. Habitat Quality

Habitats and land use types within the project study area were previously identified, mapped, and described in environmental documentation prepared for projects MSL00-0003-00(168) and MSL00-0004-00(086). The CR 3929/Walther Boulevard project study area extends to the north and south of the areas previously evaluated and documented. Thus, habitats/land-use communities were further evaluated and confirmed where previously mapped. An updated map of habitats/land-use communities within the project study area is included as Figure 3. During the October 2012 field survey, three habitats or land use types were identified/confirmed within the project study area. The ecology study area consists of all anticipated project work areas plus a minimum additional 100 foot zone as described above, totaling approximately 34.2 acres. Habitats and land use types observed in the study area are described below.

H.1. Vegetative/Land-Use Communities

Upland Mixed Pine Hardwoods (\pm 16.4 acres, 47.9%)

The mixed pine hardwoods habitat makes up the largest proportion of the study area, comprising 47.9%. This community was mostly observed occurring as bands of fragmented forest remaining as buffer strips between multi-family residential developments and roadway corridors. This mature mixed pine hardwood community was heavily dominated by loblolly pine (*Pinus taeda*), with scattered occurrence of hardwood species in the subcanopy and understory strata. These hardwood species and shrubs observed in the understory include white oak (*Quercus alba*), American beech (*Fagus grandifolia*), sweetgum (*Liquidambar styraciflua*), sparkleberry (*Vaccinium arboreum*), northern red oak (*Q. rubra*), scarlet oak

(*Q. coccinea*), mockernut hickory (*Carya tomentosa*), eastern hophornbeam (*Ostrya virginiana*), tulip poplar (*Liriodendron tulipifera*), rusty blackhaw (*Viburnum rufidulum*), and black cherry (*Prunus serotina*), with occasional silver maple (*Acer saccharinum*). A few individuals of Virginia pine (*P. virginiana*) were also observed in the narrow band of forest along the eastern edge of Walther Boulevard, north of SR 316. This mature forest community contained little groundcover, with herbaceous species mostly occurring near the forest edge. Herbaceous species observed consisted of small white aster (*Aster vimineus*), goldenrod (*Solidago* spp.), Japanese honeysuckle (*Lonicera japonica*), St. Johns wort (*Hypericum* sp.), wild ginger (*Asarum canadense*), and winged sumac (*Rhus copallina*) seedlings.

Maintained Right-of-Way (± 10.7 acres, 31.3%)

The maintained ROW land use type within the study area consists of existing roadways including SR 316 and CR 3929/Walther Boulevard, along with the maintained roadside areas comprised of sidewalks, landscaped or grassed areas, and right-of-way areas dominated by forbs and herbs that are regularly mowed. The vegetated portions of this habitat have the potential to support Georgia aster, although no individuals or populations of this species have been observed within the project study area. Portions of the vegetated ROW north of SR 316 and east of CR 3929/Walther Boulevard appeared to have the greatest potential to support Georgia aster. These areas were on alternating cut slopes and fill slopes associated with past roadway construction, and some areas were bordered by a mixed pine hardwood forest community. Most portions of the maintained ROW throughout the study area were dominated by a dense monoculture of planted roadside grasses that appeared to be frequently maintained, and occupied by little to no forbs other than the planted grasses. A small portion of the ROW east of CR 3929/Walther at the northern limit of the study area contained a mix of roadside grasses and forbs in patches, with other observed species including weeping lovegrass (*Eragrostis curvula*), horseweed (*Conyza canadensis*), cat greenbrier (*Smilax glauca*), and scattered partridge pea (*Cassia fasciculata*).

Developed (± 7.1 acres, 20.8%)

Developed uses within the project study area consist of multi-family (apartment) communities along most of the study area borders. A business and medical park also occurs in the southwest portion of the project study area. These areas consist largely of constructed parking lots and buildings. Vegetated areas are limited to frequently maintained grass sod and landscaped planting beds.

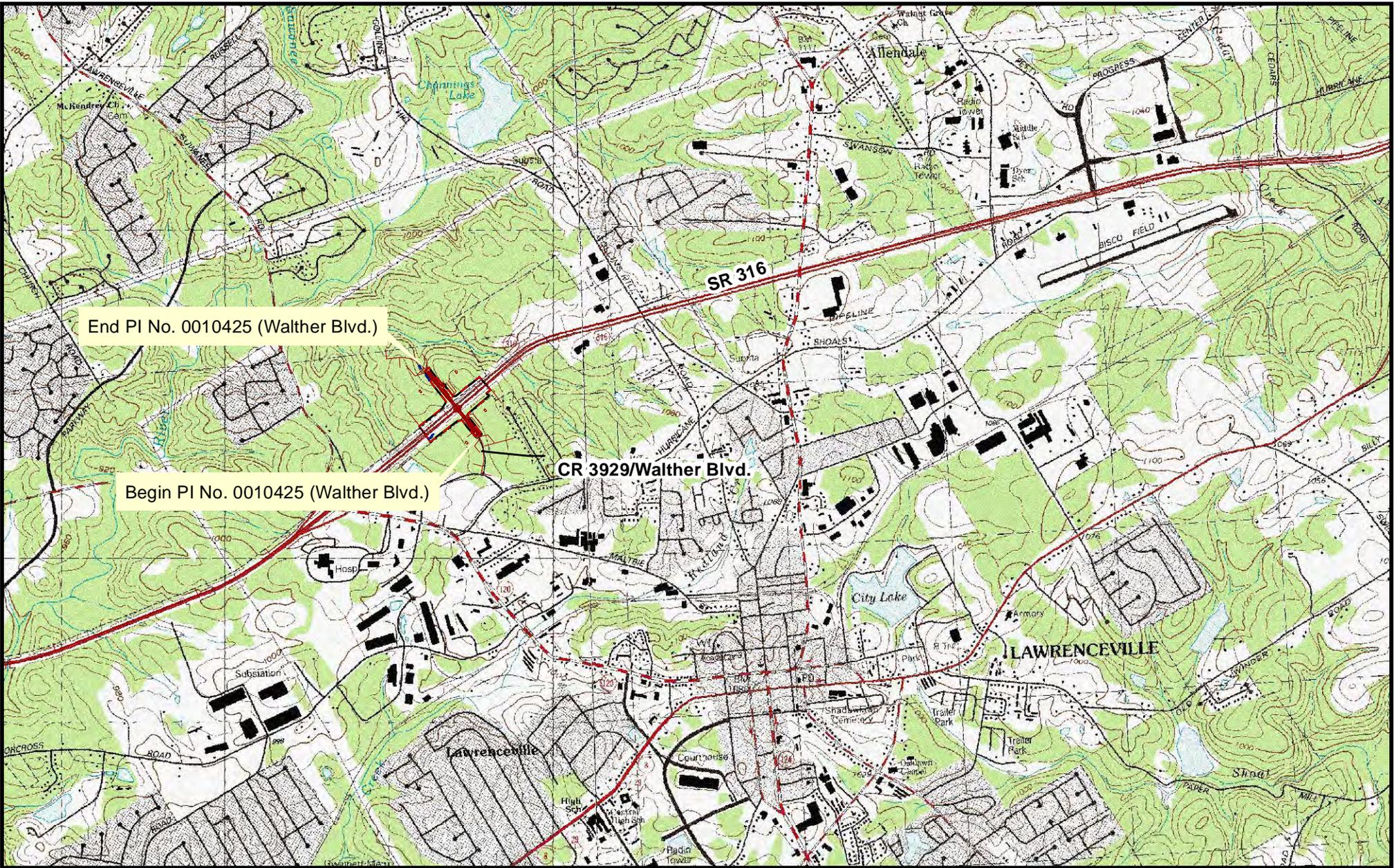
H.2. Invasive Species

In compliance with Executive Order 13112, a survey was conducted for invasive species that could spread during construction. Invasive species listed as Category 1 by the Georgia Exotic Pest Plant Council observed within the project study area include Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), and mimosa (*Albizia julibrissin*). These species were primarily observed within and along the edges of forested communities. Japanese honeysuckle is documented to occur through nearly all parts of the U.S. except the northwestern states, and Chinese privet is mapped as occurring in the southeastern states and along the eastern U.S. coast (USDA 2012). Mimosa is mapped by the USDA Plant Database as occurring throughout the southern portion of the U.S. (USDA 2012). Category 1 invasive species populations observed at the time of the field survey were recorded and later entered in to the Early Detection & Distribution Mapping System (EDDMapS) database.

I. Species Impact

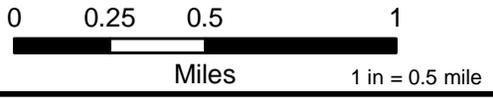
No individuals of Georgia aster were observed within suitable habitat to support this species. Given these findings, the proposed project will have no significant adverse effect on the Georgia aster.

FIGURES



 Walther Project Area

Source: USGS 7.5' Topographic Quadrangles:
Luxumni and Lawrenceville



SR 316 at CR 3929/Walther Blvd - Grade Separation, Gwinnett County

GDOT Project PI No. 0010425

Figure 1:
Project
Vicinity Map

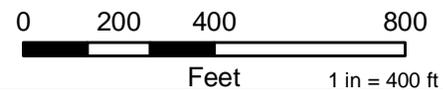


Legend

-  Study Area (Walther Blvd. PI No. 0010425)
-  Walther Blvd Project Area



Aerial Photography Source: Bing Maps, flown 2010



**SR 316 at CR 3929/Walther Blvd -
Grade Separation, Gwinnett County**

GDOT Project PI No. 0010425

**Figure 2:
Survey
Area Map**



Legend

 Study Area

 Walther Blvd Project Area

Habitats/Land Use Types

 Developed

 Maintained Right-of-Way

 Mixed Pine-Hardwood Forests (upland)

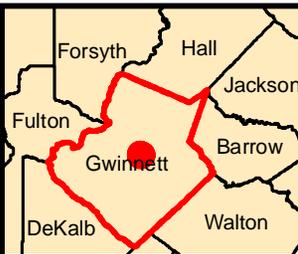
Jurisdictional Waters

 Streams

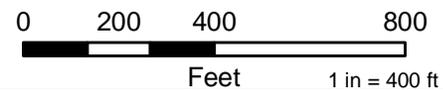
 Wetlands

Non-Jurisdictional State Waters

 Linear State Waters



Aerial Photography Source: Bing Maps, flown 2010

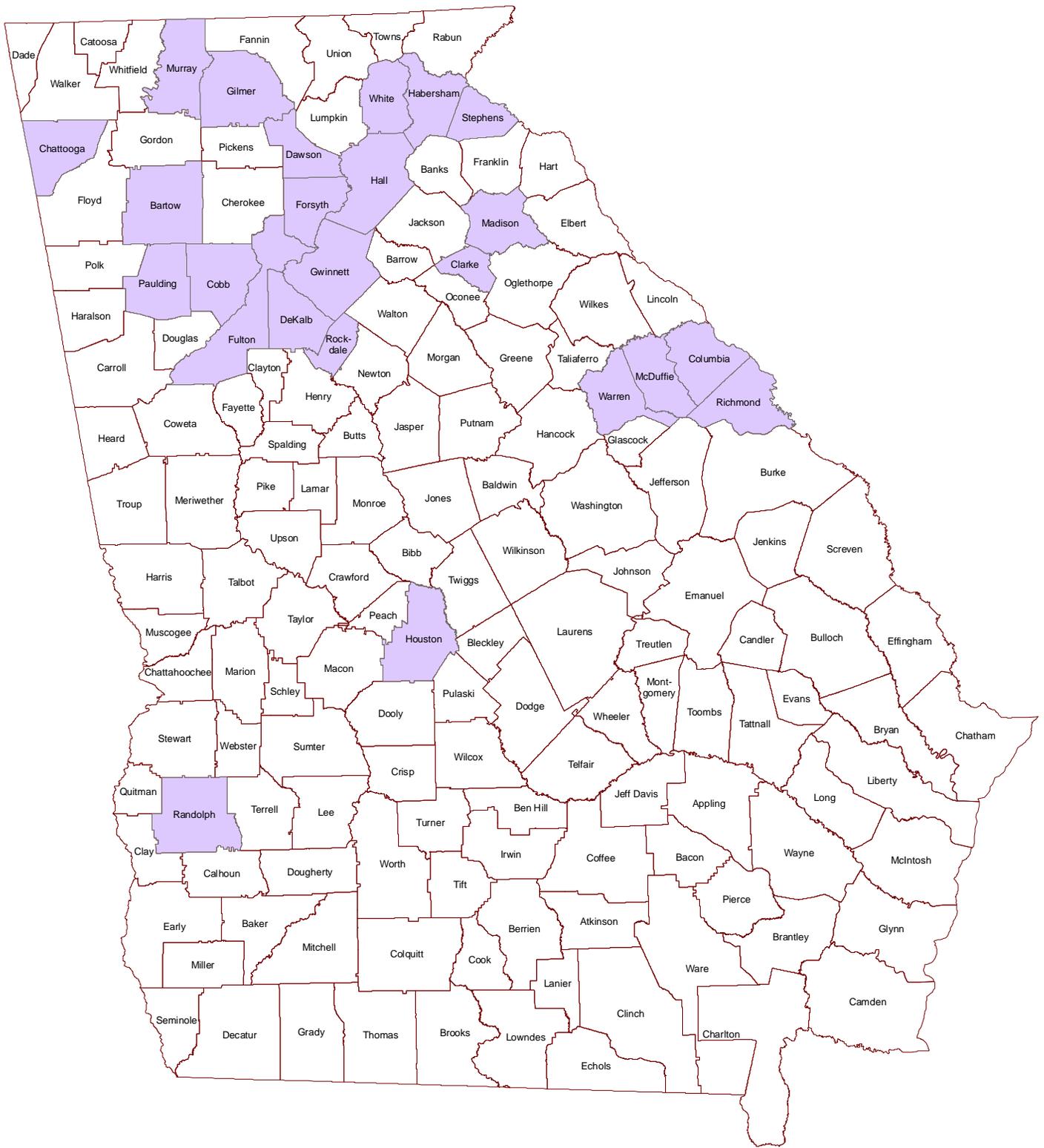


**SR 316 at CR 3929/Walther Blvd -
Grade Separation, Gwinnett County**

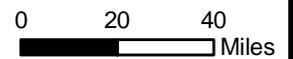
GDOT Project PI No. 0010425

**Figure 3:
Habitats
Map**





Source: GDN Rare Species Accounts Occurrence Database, updated June 2012



Target Species Range

- Georgia Aster
- Georgia Counties

**SR 316 at CR 3929/Walther Boulevard
Grade Separation, Gwinnett County, GA**

GDOT Project PI No. 0010425

**Figure 4:
Species Range
Map**



PHOTOGRAPHS

Walther Boulevard Grade Separation
PI No. 0010425, Gwinnett County
Photographs



Photograph 1:
Mixed pine hardwood habitat
12/13/2012



Photograph 2:
Maintained right-of-way land use
12/13/2012



Photograph 3:
Developed land use
12/13/2012

APPENDIX 1. SPECIES SURVEY DATA SHEET

Protected Species Survey Data Form – Georgia aster (*Symphyotrichum georgianum*)

Date: 23 October 2012

Project No.:

Surveyors: A. Meadows, K. Warner

County: Gwinnett

Temperature: 71-83°F

P.I. No.: 0010425

Start/End Time: 11:00am – 5:15pm

Transect Widths: ≤ 15 feet, varying with width of potentially suitable habitat along roadsides.

Trees Observed: Negligible canopy within suitable habitat areas. Some overhang canopy of planted roadside white oak (*Quercus alba*) and laurel oak (*Q. hemisphaerica*) north of SR 316 and west of Walther Boulevard.

Shrubs Observed: NA

Forbs Observed: Very dense planted roadside grass coverage along SR 316 and Walther Boulevard south of SR 316, with little to no other forbs observed. In other areas, forbs in addition to the roadside grasses included weeping lovegrass (*Eragrostis curvula*), horseweed (*Conyza canadensis*), cat greenbrier (*Smilax glauca*), and scattered partridge pea (*Cassia fasciculata*).

Soils: Grady clay loam

Terrain: Moderate to steep topography and rolling hills with deep valleys. Alternating cut and fill slopes were observed along roadway corridors. The majority of SR 316 was bordered by steep-sided cut slopes.

Presence of Target Species: No

Estimated No. of Individuals/Population Size: NA

GPS Points of Target Species/Habitat: NA

Photos of Habitat/Species: NA – Refer to photos section for habitat photos.

APPENDIX 2. AGENCY COORDINATION



MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

December 11, 2012

Karen Warner
Senior Scientist
ATKINS
1600 RiverEdge Pkwy, NW
Suite 600
Atlanta, GA 30328

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near SR 316 at CR 3929 / Walther Boulevard Grade Separation, Gwinnett County, Georgia

Dear Ms. Warner:

This is in response to your request of November 12, 2012. There are no Natural Heritage Database records in our database within a three-mile radius of the project site.

Recommendations:

We have no records of high priority species or habitats within the project area. We are concerned about streams and other habitats that could be impacted by the proposed road improvement project. We recommend that stringent erosion control practices be used during construction activities and that vegetation is re-established on disturbed areas as quickly as possible. Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. Please use natural vegetation and grading techniques (e.g. vegetated swales, turn-offs, vegetated buffer strips) that will ensure that the road or ROW does not serve as a conduit for storm water or pollutants into the water during or after construction. These measures will help protect water quality in the vicinity of the project as well as in downstream areas.

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is

received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (<http://www.georgiawildlife.com/node/1376>) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,



Katrina Morris
Environmental Review Coordinator

Data Available on the Nongame Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit <http://www.georgiawildlife.com/node/2721>.
- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: <http://www.georgiawildlife.com/conservation/species-of-concern?cat=conservation>.
- Downloadable files of rare species and natural community data by quarter quad and county are also available. They can be downloaded from: <http://www.georgiawildlife.com/node/1370>.



Atkins North America, Inc.
1600 RiverEdge Parkway, NW, Suite 600
Atlanta, Georgia 30328

Telephone: +1.770.933.0280

www.atkinsglobal.com/northamerica

November 12, 2012

Ms. Katrina Morris
Georgia Department of Natural Resources (GDNR)
Nongame Conservation Section
2065 U.S. Hwy 278, SE
Social Circle, Georgia 30025-4743

RE: Species Element Occurrences Request for
SR 316 at CR 3929/Walther Boulevard Grade Separation;
GDOT Project PI # 0010425;
Gwinnett County, GA

Dear Ms. Morris:

Atkins is in the process of examining developmental and environmental constraints and conducting associated analyses and documentation for the above-referenced roadway grade separation project. The proposed project would replace the existing at-grade interchange with a grade-separated overpass, and will include the construction of sidewalks at the intersection of State Route 316 and County Road 3929/Walther Boulevard within Gwinnett County, Georgia.

Please refer to the enclosed project location map for the full extent of the project corridor. The approximate latitude/longitude in decimal degrees at the center of the project corridor is: 33.972237, -84.008299.

The design alternatives for the project are being developed concurrently with environmental documentation and in compliance with applicable environmental laws and regulations. This process makes the project responsive to social, economic, and environmental concerns and offers you the opportunity to identify site-specific conditions to be addressed in the environmental assessment. We respectfully request assistance from the GDNR, in checking your Natural Heritage Database for species occurrences within or near the project corridor (within 3 miles) and providing our office with the location of any known species in the area.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 678.247.2469 or karen.warner@atkinsglobal.com.

Sincerely,

Karen N. Warner, PWS
Senior Ecologist (**Enclosure**)

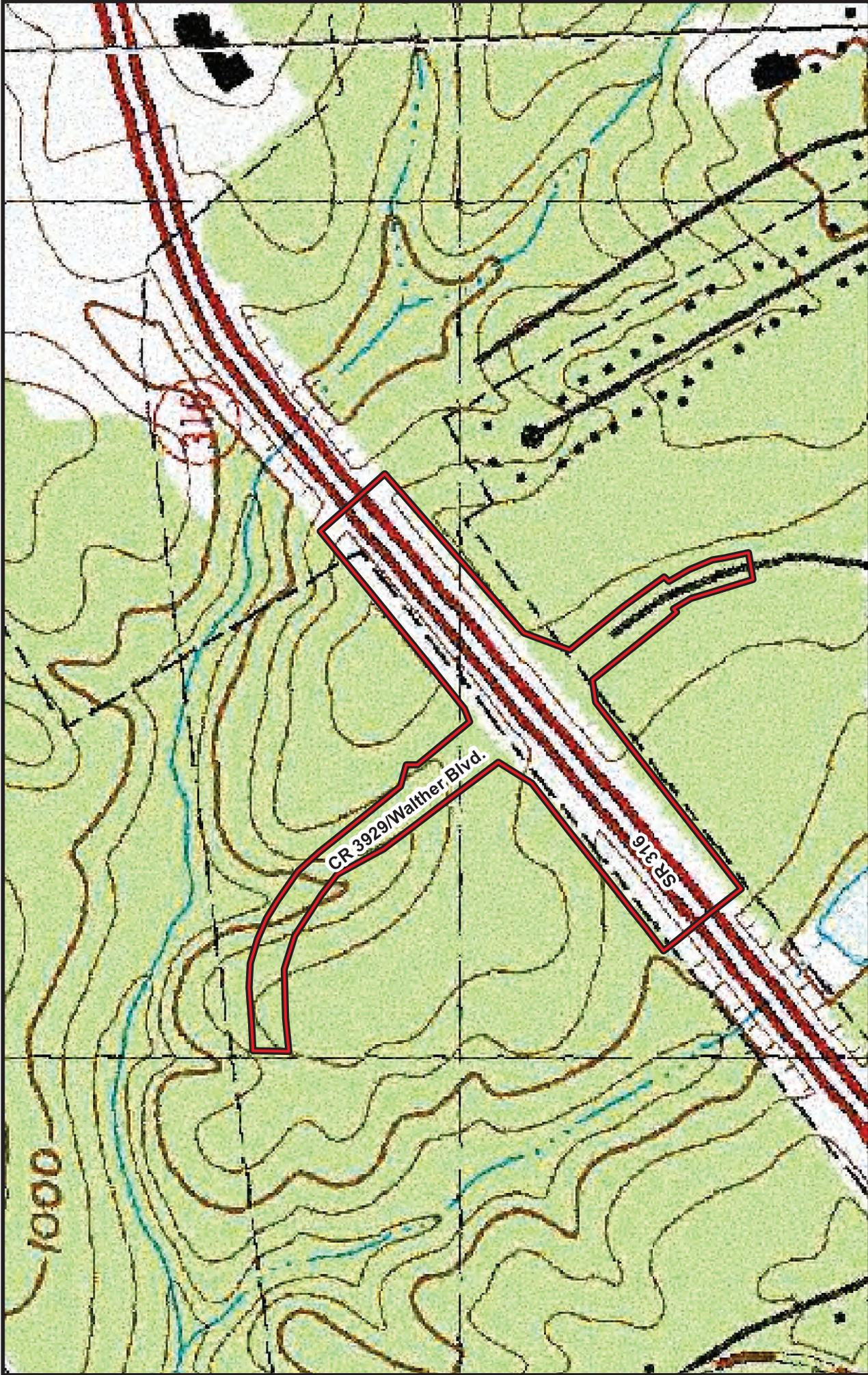
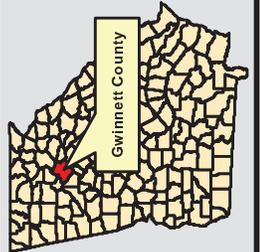


Figure 1:
Project
Vicinity Map

**SR 316 at CR 3929/Walther Blvd -
 Grade Separation; GDOT P.I. #
 0010425; Gwinnett County, GA**

 Project Area

Source: USGS 7.5' Topographic
 Quadrangle: Luxummi





WILDLIFE RESOURCES DIVISION

Known occurrences of special concern plants, animals and natural communities Gwinnett County — Fips Code: 13135

Find details for these species at [Georgia Rare Species and Natural Community Data](#) and [NatureServe Explorer](#).

[US] indicates species with federal status (Protected or Candidate).
Species that are federally protected in Georgia are also state protected.
[GA] indicates Georgia protected species.
 link to species profile on our site (not available for all species).
 link to report for element on NatureServe Explorer (only available for animals and plants).

Plant Occurrences

- *Aesculus glabra* (Ohio Buckeye) 
- *Amphianthus pusillus* (Pool Sprite) **[US]**  
- *Amsonia ludoviciana* (Louisiana Blue Star) 
- *Cypripedium acaule* (Pink Ladyslipper) **[GA]**  
- *Cypripedium parviflorum* (Yellow Ladyslipper) **[GA]**  
- *Eriocaulon koernickianum* (Dwarf Hatpins) **[GA]**  
- *Eurybia avita* (Alexander Rock Aster) 
- *Fimbristylis brevivaginata* (Flatrock Fimbry)  
- *Hydrastis canadensis* (Goldenseal) **[GA]**  
- *Isoetes melanospora* (Black-spored Quillwort) **[US]**  
- *Panax quinquefolius* (American Ginseng) 
- *Schisandra glabra* (Bay Star-vine) **[GA]**  
- *Sedum pusillum* (Granite Stonecrop) **[GA]**  
- *Symphotrichum georgianum* (Georgia Aster) **[US]**  
- *Veratrum woodii* (Ozark Bunchflower) **[GA]**  
- *Waldsteinia lobata* (Barren Strawberry) **[GA]**  

Generated from Georgia DNR's NatureServe Biotics conservation database on October 12, 2011



U.S. Fish and Wildlife Service

Natural Resources of Concern

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

GEORGIA ECOLOGICAL SERVICES FIELD OFFICE
105 WESTPARK DRIVE
WESTPARK CENTER SUITE D
ATHENS, GA 30606
(706) 613-9493

Project Name:

SR 316/Walther

Project Counties:

Gwinnett, GA

Project Type:

Transportation

Endangered Species Act Species List ([USFWS Endangered Species Program](#)).

There are a total of 2 threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

Species that may be affected by your project:

Ferns and Allies	Status	Species Profile	Contact
------------------	--------	-----------------	---------



Natural Resources of Concern

Black Spored quillwort (<i>Isoetes melanospora</i>)	Endangered	species info	Georgia Ecological Services Field Office
Flowering Plants			
Little amphianthus (<i>Amphianthus pusillus</i>)	Threatened	species info	Georgia Ecological Services Field Office

FWS National Wildlife Refuges ([USFWS National Wildlife Refuges Program](#))

There are no refuges found within the vicinity of your project.

FWS Migratory Birds ([USFWS Migratory Bird Program](#))

Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. 703). Bald eagles and golden eagles receive additional protection under the [Bald and Golden Eagle Protection Act](#) (16 U.S.C. 668). The Service's [Birds of Conservation Concern \(2008\)](#) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

NWI Wetlands ([USFWS National Wetlands Inventory](#))

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate [U.S. Army Corps of Engineers District](#).